UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

SUBJECT: Net Emission Increase under PSD

FROM: Sheldon Meyers, Director
Office of Air Quality Planning and Standards

TO: David PI Howekamp, Director
Air Management Division - Region IX

This is in response to your memo dated May 3, 1983 to Kathleen M. Bennett concerning net emission increases under PSD. I have looked into the question of inconsistency in interpretation of the de minimus provisions of the PSD relations as raised in your memorandum, and have concluded that the interpretation made by the Stationary Source Compliance Division is the most practical.

The issue, as I understand it, is whether sources and control agencies need to aggregate small changes (i.e., those below de minimus levels) which occur over time so that once the cumulative effect of the changes exceeds de minimus levels, PSD is triggered. The preamble to the PSD regulations implied that this aggregation would be required. However, the Agency has maintained since 1981 that no such aggregation is required. This interpretation was first articulated in a memo from SSCD (then DSSE) to Region VII dated January 22, 1981, and has been reiterated in memoranda to Region IX and X since then. The SSCD interpretation was concurred in by the Office of General Counsel (Peter Wyckoff) as legally supportable since the regulations themselves are not clear. The policy considerations leading to this interpretation were:

(a) aggregation could impose a significant resource burden on sources which might never become subject to PSD.

(b) aggregation would only require installation of BACT level controls on the last piece of equipment which triggered the review, with a minimum air quality benefit, and

(c) air quality would be protected since these changes would consume increment in any event.

In conclusion, I feel that the interpretation made by SSCD to be the most reasonable. However, I recognize that a clarifying amendment to the PSD regulation is advisable and will include it as part of the next set of proposed changes to the PSD regulations. If you would like to discuss this further, please contact me.

cc: Darryl Tyler
Ed. Reich
Peter Wyckoff

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1. *United States v. Midwest Generation, LLC, 781 F. Supp. 2d 677*
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United States v. Midwest Generation, LLC

United States District Court for the Northern District of Illinois, Eastern Division

March 16, 2011, Decided; March 16, 2011, Filed

Case No. 09-cv-5277

Reporter
781 F. Supp. 2d 677 *; 2011 U.S. Dist. LEXIS 27371 **; 41 ELR 20123; 73 ERC (BNA) 1556

UNITED STATES OF AMERICA and the STATE OF ILLINOIS, Plaintiffs, and CITIZENS AGAINST RUINING THE ENVIRONMENT; THE ENVIRONMENTAL LAW AND POLICY CENTER; NATURAL RESOURCES DEFENSE COUNCIL, INC.; RESPIRATORY HEALTH ASSOCIATION OF METROPOLITAN CHICAGO; and SIERRA CLUB, Intervenor-Plaintiffs, v. MIDWEST GENERATION, LLC; EDISON MISSION ENERGY, INC.; and COMMONWEALTH EDISON CO., Defendants.

Prior History: *United States v. Midwest Generation, LLC, 694 F. Supp. 2d 999, 2010 U.S. Dist. LEXIS 22729 (N.D. Ill., 2010)*

Core Terms

Generation, Plaintiffs', injunction, motion to dismiss, civil penalty, Environmental, violations, statute of limitations, compliance, provisions, modify, modifications, injunctive relief, limitations, Counts, plants, original complaint, preconstruction, accrued, successor liability, Clean, equitable tolling, discovery rule, allegations, constructed, install, Air, five year, non-compliance, obligations

Case Summary

Overview

In action by governmental entities and citizen groups against coal power plant companies under Clean Air Act (CAA), *42 U.S.C.S. § 7401 et seq.*, case was dismissed with regard to some companies because it was not sufficient for plaintiffs to simply allege that the companies violated CAA. They needed to allege a right to some form of relief as well.

Outcome
Motion to dismiss was granted in favor of some coal power plants but denied as to others.

LexisNexis® Headnotes

Civil Procedure > ... > Defenses, Demurrers & Objections > Motions to Dismiss > Failure to State Claim

HN1[] **Motions to Dismiss, Failure to State Claim**

A motion under *Fed. R. Civ. P. 12(b)(6)* challenges the sufficiency of the complaint. In ruling on a motion to dismiss, the court must accept as true all well-pleaded factual allegations and draw reasonable inferences in favor of the plaintiff. The allegations in the complaint must plausibly suggest that the plaintiff has a right to relief, raising that possibility above a speculative level; if they do not, the plaintiff pleads itself out of court. A district court need not accept as true legal conclusions or threadbare recitals of the elements of a cause of action, supported by mere conclusory statements. Although affirmative defenses are not usually resolved on a motion to dismiss, dismissal under *Rule 12(b)(6)* is proper if the plaintiff's complaint, on its face, demonstrates that a claim is barred by a statute of limitations.

Environmental Law > Air Quality > General Overview

Environmental Law > Air Quality > Preconstruction Permits

HN2[] **Environmental Law, Air Quality**

See *415 Ill. Comp. Stat. § 5/9.1(d)*.

Civil Procedure > Remedies > Writs > All Writs Act

HN3[] **Writs, All Writs Act**

The All Writs Act confers on federal courts the authority to issue all writs necessary or appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law. *28 U.S.C.S. § 1651(a)*. It is not intended as a means for courts to issue ad hoc writs whenever compliance with statutory procedures appears inconvenient or less appropriate.

Civil Procedure > Remedies > Injunctions > Mandatory Injunctions

HN4[] **Injunctions, Mandatory Injunctions**

Because a mandatory injunction requires the court to command the defendant to take a particular action, they are sparingly issued. Mandatory injunctions are rarely issued.

Civil Procedure > ... > Pleadings > Complaints > Requirements for Complaint

HN5[] **Complaints, Requirements for Complaint**

Fed. R. Civ. P. 8(a) requires a short and plain statement of the claim showing that the pleader is entitled to relief. *Fed. R. Civ. P. 8(a)(2)*.

Civil Procedure > Judgments > Preclusion of Judgments > Law of the Case

HN6[] **Preclusion of Judgments, Law of the Case**

The law-of-the-case doctrine provides that a court's decision should continue to govern the same issues in subsequent stages in the same case. The rule is based on sound policy that when an issue is once litigated and decided, that should be the end of the matter.

Environmental Law > Air Quality > Enforcement > Civil Actions

HN7[] **Enforcement, Civil Actions**

See the Clean Air Act, *42 U.S.C.S. § 7413(b)*.

Mergers & Acquisitions Law > Liabilities & Rights of Successors > Successor Liability Doctrine

Real Property Law > Environmental Regulations > Liabilities & Risks > Successor Corporations

HN8[] **Liabilities & Rights of Successors, Successor Liability Doctrine**

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) should be interpreted in a manner that permits the flow of liabilities through principles of successor liability. CERCLA permits successor liability, though it does not require it unless justified by the facts of each case.

Mergers & Acquisitions Law > Liabilities & Rights of Successors > General Overview

Mergers & Acquisitions Law > Liabilities & Rights of Successors > Successor Liability Doctrine

HN9[] **Mergers & Acquisitions Law, Liabilities & Rights of Successors**

A corporation that purchases the assets of another corporation is not liable for the debts or liabilities of the transferor corporation. There are four exceptions to that general rule. Federal common law is in accord. The theory of successor liability is an equitable doctrine that courts have applied to a variety of state and federal claims.

Contracts Law > Contract Interpretation > General Overview

HN10[] **Contracts Law, Contract Interpretation**

Rules of contract interpretation are determined under state law. Under Illinois law, an agreement, when reduced to writing, must be presumed to speak the intention of the parties who signed it. It speaks for itself,

and the intention with which it was executed must be determined by the language used. Contract terms are interpreted according to their plain meaning unless otherwise defined. The Court must give effect to the parties' intent at the time the agreement was made.

Environmental Law > Air Quality > General Overview

Environmental Law > Air Quality > Operating Permits

HN11[] **Environmental Law, Air Quality**

Title V does not impose additional requirements on sources but rather consolidates all applicable requirements in a single document to facilitate compliance.

Environmental Law > Air Quality > Enforcement > Civil Actions

HN12[] **Enforcement, Civil Actions**

The Clean Air Act, *42 U.S.C.S. § 7401 et seq.*, does not provide its own statute of limitations. Therefore, the general, five-year, federal statute of limitations applies. *28 U.S.C.S. § 2462*.

Environmental Law > Air Quality > Enforcement > Civil Actions

HN13[] **Enforcement, Civil Actions**

See *28 U.S.C.S. § 2462*.

Civil Procedure > ... > Affirmative Defenses > Statute of Limitations > General Overview

HN14[] **Affirmative Defenses, Statute of Limitations**

Where Congress has decided to graft a discovery rule into a statute of limitations it does so expressly.

Civil Procedure > ... > Statute of Limitations > Tolling of Statute of Limitations > General Overview

HN15[] **Statute of Limitations, Tolling of Statute of Limitations**

Equitable tolling is a doctrine used sparingly, reserved for those situations in which extraordinary circumstances prevent a party from filing on time. The doctrine applies only when circumstances prevent a litigant from filing despite the exercise of due diligence. It permits a plaintiff to avoid the bar of the statute of limitations if despite all due diligence he is unable to obtain vital information bearing on the existence of his claim.

Civil Procedure > ... > Defenses, Demurrers & Objections > Motions to Dismiss > Failure to State Claim

Civil Procedure > ... > Affirmative Defenses > Statute of Limitations > General Overview

HN16[] **Motions to Dismiss, Failure to State Claim**

A statute of limitations is an affirmative defense, however, which need not be anticipated by a complaint. A plaintiff may oppose a motion to dismiss with additional facts asserted by affidavit or brief if those facts are consistent with the allegations in the complaint. Dismissal under *Fed. R. Civ. P. 12(b)(6)* is premature if it is possible for a plaintiff to prove a set of facts that would show reason to apply the doctrine of equitable tolling.

Counsel: **[**1]** For United States of America, Plaintiff: Jennifer Lukas-Jackson, LEAD ATTORNEY, U.S. Department of Justice, Washington, DC; Charles V. Mikalian, United States Department of Justice, Chicago, IL; Jonathan C. Haile, United States Attorney's Office (NDIL), Chicago, IL; Justin Aaron Savage, PRO HAC VICE, U.S. Dept.of Justice, Environment & Natural Resources Div., Washington, DC; Kristin M Furrie, PRO HAC VICE, U.S. Department of Justice, Environmental and Natural Resources Division, Washington, DC; Susan M. Tennenbaum, United States Environmental Protection Agency, Chicago, IL.

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Rose-Marie E. Cazeau, Illinois Attorney General's Office, Chicago, IL; Stephen J. Sylvester, Illinois Attorney General's Office (69 W), Chicago, IL.

For Midwest Generation, LLC, Defendant: Daniel E. Reidy, LEAD ATTORNEY, Brian Joseph Murray, Jones Day, Chicago, IL; James Michael Jones, LEAD ATTORNEY, PRO HAC VICE, Jones Day, Pittsburgh, PA; Kevin P Holewinski, PRO HAC VICE, Jones Day, Washington, DC.

For Edison Mission Energy, Defendant: Brian Joseph Murray, Daniel E. Reidy, Jones Day, Chicago, IL; James **[**2]** Michael Jones, Jones Day, Pittsburgh, PA; Kevin P Holewinski, Jones Day, Washington, DC.

For Commonwealth Edison Company, Defendant: Adrienne Banks Pitts, LEAD ATTORNEY, Byron F. Taylor, Kathleen Lynn Roach, Margaret R. Sobota, Sidley Austin LLP, Chicago, IL.

For Citizens Against Ruining The Environment, Intervenor Plaintiff: Keith Ian Harley, LEAD ATTORNEY, Chicago Legal Clinic, Inc., Chicago, IL.

For Environmental Law and Policy Center, Intervenor Plaintiff: Faith E. Bugel, LEAD ATTORNEY, Environmental Law and Policy Center, Chicago, IL.

For Natural Resources Defense Council, Intervenor Plaintiff: Shannon Wanzer Fisk, LEAD ATTORNEY, Natural Resources Defense Council, Chicago, IL.

For Respiratory Health Association of Metropolitan Chicago, Intervenor Plaintiff: Michael Christopher Soules, LEAD ATTORNEY, PRO HAC VICE, Environmental Law & Policy Center, Minneapolis, MN.

Judges: JOHN W. DARRAH, United States District Court Judge.

Opinion by: JOHN W. DARRAH

Opinion

[*679] MEMORANDUM OPINION AND ORDER

This action arising under the federal Clean Air Act ("CAA"), *codified at* 42 U.S.C. § 7401 et seq., was originally brought by the United States of America and the State of Illinois (collectively, "Plaintiffs") against Midwest Generation, **[**3]** LLC ("Midwest Generation"), the owner and operator of several coal-fired power plants in this district. Several "Citizen Groups" were later granted leave to intervene. [1] Plaintiffs' original Complaint, filed on October 27, 2009, asserted three types of CAA violations: (1) claims that Midwest Generation violated the CAA's provisions for the Prevention of Significant Deterioration of air quality ("PSD"); (2) claims for violations of opacity and particulate-matter limitations under Illinois law; and (3) claims under the CAA's Title V operating-permit provisions. Among other things, Plaintiffs alleged that Midwest Generation's continued operation of units unlawfully modified by a former owner constitutes continuing violations of the CAA's PSD provisions. Midwest Generation moved to dismiss Plaintiffs' PSD counts.

The motion was granted on March 9, 2010. *See* United States v. Midwest Generation, LLC, 694 F. Supp. 2d 999, 1008 (N.D. Ill. 2010) (the "March 9 Opinion"). **[**4]** With one exception, all PSD counts were dismissed in their entirety. [2] The Court **[*680]** held that "because a violation of 42 U.S.C. § 7475 [regarding preconstruction permits] occurs at the time of construction and no later, Midwest Generation cannot be liable for any construction that occurred prior to Midwest Generation's ownership of the relevant sources." *See* Midwest Generation, 694 F. Supp. 2d at 1008. Section 7475 prohibits the *construction* of a "major emitting facility" unless certain statutory requirements are met; it does not prohibit the subsequent *operation* of such a facility without a permit. *Id.* at 1003-04. Similarly, "nothing in the EPA's PSD regulations prohibits the subsequent operation of a source when no construction permit had been obtained." *Id.* at 1004. [3] Additionally, because *all* modifications —

[1] The Citizen Groups are: Citizens Against Ruining the Environment, the Environmental Law and Policy Center; the Natural Resources Defense Council, Inc.; the Respiratory Health Association of Metropolitan Chicago; and the Sierra Club.

[2] Plaintiffs alleged that Midwest Generation was operating a number of unlawfully modified coal-fired generating units at six plants, most of which had been modified by a former owner. **[**5]** The Complaint pled that only one had been modified by Midwest Generation. Midwest Generation did not move to dismiss the PSD count pertaining to the unit that was allegedly modified by Midwest Generation.

[3] The Eighth Circuit recently reached the same conclusion. *See* Sierra Club v. Otter Tail Power Co., 615 F.3d 1008, 1018 (8th Cir. 2010) ("[T]he plain language of the [PSD] statute and the regulations applicable to Otter Tail prohibited only modification of the Big Stone plant without a PSD permit or

including those commenced by Midwest Generation — were commenced well over five years before the initiation of this action, all claims for civil penalties were dismissed as time barred. *Id. at 1009*.

With leave of the Court, Plaintiffs then filed an Amended Complaint, alleging new theories of PSD violations and also adding Commonwealth Edison Company ("ComEd"), the former owner, and Edison Mission Energy, Inc. ("EME"), Midwest Generation's parent company. The Amended Complaint seeks both civil penalties and injunctive relief. The Citizen Groups also filed an Amended Complaint with leave of the Court.

Midwest Generation and EME jointly move to dismiss multiple counts in Plaintiffs' Amended Complaint, and ComEd separately moves to dismiss all claims against it. Midwest Generation also moves to dismiss the only two counts in **[**6]** the Citizen Groups' Amended Complaint that allege violations of the CAA's PSD provisions. A consolidated briefing scheduling order was entered, and the matter is now fully briefed and before the Court for ruling.

BACKGROUND

The following facts are taken from Plaintiffs' Amended Complaint and the Citizen Groups' Amended Complaint. Additional background information and a brief discussion of the CAA's PSD provisions can be found in the March 9 Opinion. *See Midwest Generation, 694 F. Supp. 2d at 1001-02*.

In 1999, ComEd sold six power plants, containing a total of fourteen coal-fired generating units, to EME. Am. Compl. ¶¶ 2, 69, 74. [4] EME then transferred control of those plants to Midwest Generation, who operates them currently. Am. Compl. ¶¶ 2, 87. Prior to selling the plants to EME, ComEd modified nine of the fourteen generating units without first obtaining a preconstruction permit as required by the CAA. Am. Compl. ¶ 2. A tenth unit was modified by Midwest Generation — also without a preconstruction permit — after it was acquired from ComEd. [5] *Id.* Had such permits been issued, they would have required ComEd to operate its plants in a manner that employed the "Best **[**7]** Available Control Technology" ("BACT") to prevent significant deterioration in air quality. *Id.*

The transfer of the plants from ComEd to EME was accomplished by way of an **[*681]** asset sale agreement ("Agreement") dated March 22, 1999. Am. Compl. ¶ 74. The Agreement, as more fully set out below, provided that EME would assume certain responsibilities for ComEd's environmental liabilities. *See* Am. Compl. ¶ 75. The Agreement's definition of "Environmental Laws" includes requirements relating to "air emissions" and the "impact upon human health or the environment" of "matters governed by . . . the Clean Air Act (*42 U.S.C. § 7401 et seq.*) . . . and all state counterpart statutes." Am. Compl. ¶ 76.

The Agreement also provides that Environmental Liabilities may exist, that EME had received ComEd's environmental reports and had the opportunity to perform due diligence, and that those potential liabilities were reflected in the purchase price of the assets. Am. **[**8]** Compl. ¶ 78. The Agreement further provides that EME could assign its equity interests under the Agreement to another corporation, in which case the assignee would be required to "assume in writing all of [EME]'s obligations [t]hereunder . . . with respect to the rights so assigned." Am. Compl. ¶ 79.

On December 31, 2009, Midwest Generation filed a Form 10-K Report with the Securities and Exchange Commission ("SEC"), stating: "In connection with the acquisition of the Midwest Generation Plants, Midwest Generation agreed to indemnify Commonwealth Edison with respect to specified environmental liabilities before and after December 15, 1999, the date of sale." [6] Am. Compl. ¶ 85. Based upon the representations to the SEC, Plaintiffs infer that EME has assigned to Midwest Generation some or all of its rights and/or obligations under, and in accordance with, the Agreement. Am. Compl. ¶ 87.

After assuming control of the power plants at issue, Midwest Generation has operated them in a manner

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BACT [Best Available Control Technology], not its operation.").

[4] Plaintiffs' Amended Complaint is cited as "Am. Compl. ¶ __." The Citizen Groups' Amended Complaint is cited as "Citizen Am. Compl. ¶ __."

[5] Plaintiffs plead, in the alternative, that ComEd modified the tenth unit as well. *See* Am. Compl. ¶ 468.

[6] EME similarly acknowledged an obligation to indemnify ComEd for environmental liabilities in its own Form 10-K Report: "In connection with the acquisition of the Midwest Generation Plants, EME agreed to indemnify Commonwealth Edison with respect to specified environmental liabilities before and after December **[**9]** 15, 1999, the date of sale." Am. Compl. ¶ 82.

that results in the release of significant amounts of pollutants into the atmosphere. Am. Compl. ¶ 3.

In their Amended Complaint, Plaintiffs now attempt to revive their previously dismissed PSD claims by presenting three new theories of recovery. First, they quote additional language from 415 ILCS 5/9.1(d), see Am. Compl. ¶ 65, and allege that the newly quoted language provides independent grounds under state law for prohibiting Midwest Generation from *operating* sources that were *constructed* without a preconstruction permit, *see, e.g.*, Am. Compl. ¶ 93. Second, they have joined ComEd as a Defendant and claim that ComEd can be held liable for PSD violations committed during the time ComEd owned and operated the plants at issue. *See* Am. Compl. Counts 3, 8, 13, 18, 23, 30, 35, 40, 45. Third, they claim that EME's and Midwest Generation's assumption of ComEd's environmental liabilities under the Agreement subjects those Defendants to enforcement under the CAA through principles of successor liability.

The Citizen Groups' Amended Complaint named Midwest **[**10]** Generation as the only Defendant and asserts only one PSD count. *See* Citizen Am. Compl. Count 27. The Citizen Groups make no claim as to ComEd's unlawful modifications. They only claim that Midwest Generation is subject to civil enforcement for its own unlawful modifications.

[*682] LEGAL STANDARD

HN1[] "A motion under Rule 12(b)(6) challenges the sufficiency of the complaint." *Christensen v. County of Boone, Ill.*, 483 F.3d 454, 458 (7th Cir. 2007). In ruling on a motion to dismiss, the court must accept as true all well-pleaded factual allegations and draw reasonable inferences in favor of the plaintiff. *Sprint Spectrum L.P. v. City of Carmel, Ind.*, 361 F.3d 998, 1001 (7th Cir. 2004). The allegations in the complaint "must plausibly suggest that the plaintiff has a right to relief, raising that possibility above a 'speculative level'; if they do not, the plaintiff pleads itself out of court." *E.E.O.C. v. Concentra Health Servs., Inc.*, 496 F.3d 773, 776 (7th Cir. 2007) (citing *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555, 127 S. Ct. 1955, 167 L. Ed. 2d 929 (2007)).

The district court need not accept as true "legal conclusions" or "threadbare recitals of the elements of a cause of action, supported by mere conclusory statements." *Brooks v. Ross*, 578 F.3d 574, 581 (7th Cir. 2009) **[**11]** (quoting *Ashcroft v. Iqbal*, 129 S. Ct. 1937, 1949-50, 173 L. Ed. 2d 868 (2009)). Although affirmative defenses are not usually resolved on a motion to dismiss, dismissal under Rule 12(b)(6) is proper if the plaintiff's complaint, on its face, demonstrates that a claim is barred by a statute of limitations. *See Whirlpool Fin. Corp. v. GN Holdings, Inc.*, 67 F.3d 605, 608 (7th Cir. 1995).

ANALYSIS

Plaintiffs' Theory of Direct Liability Under 415 ILCS 5/9.1(d)

As explained above, Plaintiffs introduce several new theories of recovery in their Amended Complaint. The first theory is that Illinois law goes above and beyond the CAA to prohibit the *operation* of any source constructed without a preconstruction permit. Plaintiffs' argument is based on their interpretation of 415 ILCS 5/9.1(d). Although they cited this statute in their original Complaint, they now purportedly assert a new "independent and direct claim against Midwest Gen[eration] pursuant to CAA § 113(b)(1) for illegally operating its plants in violation of § 9.1(d)(2)." *See* Pl. Opp'n Br. 19. Midwest Generation argues that Plaintiffs' failure to present this theory in response to the motion to dismiss the original Complaint constitutes a waiver of any **[**12]** right to do so now.

In their original Complaint, Plaintiffs claimed that, by failing to obtain a PSD permit prior to their operation of the sources at issue and failing to apply BACT, "[Midwest Generation] has violated, and continues to violate, Section 165(a) of the Act, 42 U.S.C. § 7475(a), and the PSD regulations set forth in 40 C.F.R. § 52.21, incorporated into the Illinois SIP, **and Section 9.1(d) of the Illinois Act, 415 ILCS 5/9.1(d)**" and that they were therefore subject to injunctive relief and civil penalties "[a]s provided in Section 113(b) of the Act." *See, e.g.*, Compl. ¶¶ 67-69 (emphasis added). The allegations in this regard in their Amended Complaint add nothing new. Plaintiffs allege that ComEd unlawfully modified and operated the sources at issue without obtaining a PSD permit and that "Midwest Gen is directly liable for this alleged PSD claim pursuant to the federally enforceable provisions of the Illinois Act, 415 ILCS 5/9.1(d), which U.S. EPA has approved as part of the Illinois SIP." *See* Am. Compl. ¶¶ 92-93. In both the original and the amended version of their Complaint, Plaintiffs allege a direct violation of 415 ILCS 5/9.1(d) for, among other things, failing to **[**13]** apply BACT in

the operation of the sources at issue.

Although a direct violation of section 9.1(d) was alleged in their original Complaint, Plaintiffs did not assert a claimed violation of section 9.1(d) as grounds to **[*683]** deny Midwest Generation's motion to dismiss Plaintiffs' PSD claims. As discussed above, those claims were dismissed in their entirety. By specifically quoting a portion of section 9.1(d) in their Amended Complaint, Plaintiffs do not present any cause of action that was not presented in their original Complaint; nor do they allege any new facts to support a violation of Illinois law. Instead, Plaintiffs simply raise a new question of statutory interpretation. The opportunity for such arguments has passed.

At any rate, Plaintiffs' argument that Illinois law provides an operational restriction not present under the CAA is unpersuasive. Section 9.1(d) provides, in relevant part:

> HN2[] No person shall:
> (1) violate any provisions of Sections 111, 112, 165 [i.e., the preconstruction-permit provision] or 173 of the Clean Air Act, as now or hereafter amended, or federal regulations adopted pursuant thereto; or
>
> (2) construct, install, modify or operate any equipment, building, facility, source **[**14]** or installation which is subject to regulation under Sections 111, 112, 165 or 173 of the Clean Air Act, as now or hereafter amended, except in compliance with the requirements of such Sections and federal regulations adopted pursuant thereto, and no such action shall be undertaken without a permit granted by the Agency or in violation of any conditions imposed by such permit.

415 ILCS 5/9.1(d).

According to Plaintiffs, section 9.1(d)(1) merely incorporates the CAA and federal regulations into Illinois law while section 9.1(d)(2) broadens the scope of Illinois law beyond that of the CAA by prohibiting a person from operating any source that does not comply with the preconstruction-permit requirements or by operating a source without first obtaining a permit or in violation of any conditions imposed by a permit.

Section 9.1(d)(2) prohibits the operation of any source subject to PSD requirements "except in compliance with the requirements of [the CAA] and federal regulations." As explained in the March 9 Opinion, "compliance with the requirements of [the CAA] and federal regulations" does not include any operational requirements in situations where a preconstruction permit was not obtained. **[**15]** Midwest Generation, 694 F. Supp. 2d at 1003-04. Plaintiffs' new interpretation of the application of section 9.1(d) is inconsistent with, and contrary to, this Court's prior ruling that Midwest Generation does not commit a PSD violation by operating a source that was previously constructed without a preconstruction permit.

The remainder of section 9.1(d)(2) simply provides that no person shall "construct, install, modify or operate" any source without a permit or in violation of an issued permit. With respect to the sources at issue, Plaintiffs do not allege that Midwest Generation constructed, installed, or modified anything. Nor do they allege that Midwest Generation failed to obtain an operating permit or that they violated any conditions in an operating permit that had been issued. Instead, they ask this Court to read section 9.1(d)(2) as prohibiting the *operation* of a source without a *construction* permit. Plaintiffs' argument for this interpretation is unsupported. The plain meaning of the statute is obvious: a person may not construct a source except in compliance with provisions regarding construction and may not operate a source except in compliance with provisions regarding **[**16]** operation.

Thus, even if their argument had not been waived, Plaintiffs have failed to state a claim for any direct violation of section 9.1(d) that is sufficient to survive Midwest **[*684]** Generation and EME's motion to dismiss under this theory.

Plaintiffs' Direct Claims Against ComEd

Plaintiffs' second new theory of recovery is to hold ComEd directly liable for the unlawful acts it committed prior to selling the power plants to EME. Although ComEd was allegedly responsible for unlawful modifications to the sources at issue in this litigation, it no longer owns them. Plaintiffs do not expressly seek civil penalties from ComEd; they seek injunctive relief only. Specifically, they ask the Court to order all Defendants "to remedy their past violations by, among other things, requiring Defendants to install and/or operate the best available control technology or lowest achievable emission rate, as appropriate, at the units subject to this action" or to "take other appropriate actions to remedy, mitigate, and offset the harm to public health and the environment." Am. Compl. p. 123.

ComEd argues that it cannot be the subject of a

complaint for injunctive relief that would require ComEd to modify sources **[**17]** it no longer owns and that such an order would be unprecedented. Plaintiffs have not identified any case in which a court has ordered a former property owner to remedy PSD violations on property it no longer owns. [7] ComEd, on the other hand, has identified such a case: *New Jersey v. Reliant Energy Mid-Atl. Power Holdings, LLC, No. 07-CV-5928, 2009 U.S. Dist. LEXIS 91617, 2009 WL 3234438 (E.D. Pa. Sept. 30, 2009)* (*Reliant*). In *Reliant*, the district court dismissed the plaintiffs' PSD claims to the extent they sought injunctive relief against a former property owner who allegedly modified sources without complying with the CAA's preconstruction-permit provisions. *See 2009 U.S. Dist. LEXIS 91617, [WL] at *17*. The court specifically rejected the plaintiffs' argument that an injunction could issue against the former owners of the sources, forcing them to pay for the installation of BACT. *Id.* The court reasoned that, despite their attempts to characterize their requested relief as an injunction, the plaintiffs were essentially seeking a legal remedy. *Id.*

Notably, Plaintiffs cited *Reliant* **[**18]** in support of their opposition to Midwest Generation's first motion to dismiss. In doing so, Plaintiffs asserted that Midwest Generation is the *only* party capable of performing the modifications necessary to bring the sources into compliance:

> As the current owner/operator, Midwest Gen is the only entity that can implement the appropriate relief: reducing emissions from the violating units by installing BACT-level pollution controls or shutting the units down. Indeed, the *Reliant* court dismissed claims against the prior owner in that action, finding that the prior owner could not implement pollution controls at the plant.

Pl. Opp'n to Midwest Generation's Mot. to Dismiss 17.

Having since added ComEd as a Defendant, Plaintiffs now contend that *Reliant* should *not* be followed and that this Court can simply enter an injunction that would force ComEd to pay for Plaintiffs' requested modification to Midwest Generation's plants. More specifically, Plaintiffs assert that *Reliant* is at odds with the Seventh Circuit's decision in *United States v. Apex Oil Co., Inc., 579 F.3d 734 (7th Cir. 2009)* (*Apex*). In addressing an appeal from an injunction entered pursuant to the Resource Conservation and Recovery **[**19]** Act ("RCRA"), the *Apex* court stated: "That equitable remedies are always orders to act or not to act, rather than to pay, is a myth; equity often orders payment." *Id. at 736*. The injunction entered by the district court in that case required the **[*685]** defendant to clean up a site that was contaminated by an oil refinery owned by the defendant's predecessor. *Id. at 735*. The specific issue on appeal was whether the government's claim to an injunction survived the defendant's bankruptcy, which discharged claims for a "right to an equitable remedy for breach of performance if such breach gives rise to a right to payment" that arose before confirmation of the bankruptcy plan. *Id. at 735-36*. It was clear that the injunction was an "equitable remedy"; the question was whether it gave "rise to a right of payment." *Id.*

The defendant in that case argued that, because it was no longer in the oil-refinery business, it would have to hire (and pay) someone else to comply with its injunction order. *Id. at 736*. In other words, the only way for the defendant to comply with the injunction would be to pay someone else to clean up its mess. The court rejected the defendant's attempt to characterize the injunction **[**20]** order as a claim for money. *Id. at 737*. The court specifically noted that the RCRA did not entitle the government to demand payment in lieu of action. *Id. at 736*. The defendant in that case was not ordered to pay for clean up; it was ordered to clean up. With regard to the means that the defendant employed to comply with its injunction, the court found no reason to "distinguish a check written to [the defendants'] employee from one written to an independent contractor," *Id. at 738*.

Apex's holding does not support Plaintiffs' position in the instant case. If Midwest Generation were ordered to modify the sources at issue, *Apex* teaches that it is immaterial whether Midwest Generation undertakes those modifications internally or hires outside contractors, so long as it complies with the terms of the injunction. ComEd, on the other hand, has no authority to modify Midwest Generation's plants; nor does it have any authority to hire someone else to make those modifications to property it does not own or control. Unlike the defendant in *Apex*, ComEd is not merely asserting that it lacks the practical resources necessary to comply with a mandatory injunction; it is asserting it has no right to **[**21]** perform the relief Plaintiffs request — independently or through third parties.

Plaintiffs argue that the Court can fashion the requested injunction under the All Writs Act. That argument is

[7] Plaintiffs merely cite to unpublished consent decrees in two cases, purportedly showing that former owners *agreed* to *expend money* to settle the claims against them.

misplaced. HN3[↑] The All Writs Act confers on federal courts the authority to "issue all writs necessary or appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law." 28 U.S.C. § 1651(a). It is not intended as a means for courts "to issue ad hoc writs whenever compliance with statutory procedures appears inconvenient or less appropriate." Pa. Bureau of Corr. v. U.S. Marshals Serv., 474 U.S. 34, 43, 106 S. Ct. 355, 88 L. Ed. 2d 189 (1985). Presumably, Plaintiffs would have the Court fashion relief by entering an injunction against ComEd and a writ against Midwest Generation: either forcing Midwest Generation to allow ComEd to enter its property, shut down its operations, and modify its facilities or forcing Midwest Generation to perform the modifications at ComEd's expense. Plaintiffs have offered no persuasive authority for such a broad exercise of judicial authority under the All Writs Act or otherwise.

In the alternative, Plaintiffs argue that the Court could enter an injunction requiring **[**22]** ComEd to purchase and retire sulfur-dioxide allowances to mitigate past illegal sulfur-dioxide emissions resulting from its past PSD violations. Such an order could not reasonably be characterized as an injunction to remedy the failure to obtain a permit; it would be a penalty. As noted above, claims for penalties are time barred.

[*686] Plaintiffs also argue that injunctions against former owners are supported by the plain text of the CAA's civil-enforcement provision. The CAA provides that the EPA Administrator shall commence a civil action for injunction and/or penalties against the owner or operator of an affected source and may commence such an action against "any other person." 42 U.S.C. § 7413(b). Plaintiffs contend that the reference to "any other person" would be superfluous if enforcement was limited to current owners. The argument is unpersuasive. The CAA's civil-enforcement provisions are not limited to injunctive relief. Had Plaintiffs brought this action within the applicable statute-of-limitations period, § 7413 arguably would have permitted the imposition of civil penalties against ComEd, despite the fact that it no longer owns the sources. Thus, the statutory language cannot **[**23]** reasonably be construed in a manner that requires the extreme remedy of injunctive relief only, as proposed by Plaintiffs.

HN4[↑] "Because a mandatory injunction requires the court to command the defendant to take a particular action," they are "sparingly issued." Graham v. Med. Mut. of Ohio, 130 F.3d 293, 295 (7th Cir. 1997); *see also* W.A. Mack, Inc. v. Gen. Motors Corp., 260 F.2d 886, 890 (7th Cir. 1958) ("[M]andatory injunctions are rarely issued."). Plaintiffs have failed to properly plead that this case presents such a rare situation. HN5[↑] Federal Rule of Civil Procedure 8(a) requires "a short and plain statement of the claim *showing that the pleader is entitled to relief.*" Fed. R. Civ. P. 8(a)(2) (emphasis added). It is not enough for Plaintiffs to simply allege that ComEd violated the CAA; they must allege a right to some form of relief from ComEd. With civil penalties off the table, Plaintiffs are unable to do so. ComEd cannot be compelled to modify sources it no longer owns and has no right to access. ComEd's motion to dismiss is granted. All claims against ComEd are dismissed.

Plaintiffs' Theory of Successor Liability

Plaintiffs finally attempt to revive their PSD claims by arguing that **[**24]** Midwest Generation expressly assumed ComEd's CAA liabilities (via EME) by the Agreement through which EME purchased the power plants at issue in this litigation. [8]

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[8] Similar to the arguments presented above, Midwest Generation again asserts that the Court has already decided this issue in its favor and that the law-of-the-case doctrine prevents Plaintiffs from re-arguing their position now. The purported adverse holding is contained in the following footnote in the March 9 Opinion:

> Plaintiffs also argue that Midwest Generation may be held liable for ComEd's conduct under a theory that Midwest Generation assumed ComEd's liabilities under an asset-purchase agreement. As set out above, the PSD provisions impose obligations on "persons," not "sources." Moreover, the allegations in the Complaint do not support this theory of transferred liability.

Midwest Generation, 694 F. Supp. 2d at 1008 n.9.

HN6[↑] The law-of-the-case doctrine provides that a court's decision "should continue to govern the same issues in subsequent stages in the same case." Jerrard v. CDI Telecomms., Inc., 408 F.3d 905, 911-12 (7th Cir. 2005). The rule is "based on sound policy that, when an issue is once litigated and decided, **[**25]** that should be the end of the matter." *Id.* at 912.

As noted in the above-quoted footnote, Plaintiffs' theory of transferred liability was not alleged in their original Complaint. The argument was raised for the first time in Plaintiffs' response to Midwest Generation's first motion to dismiss. Plaintiffs now have amended their Complaint to expressly

[*687] Midwest Generation and EME argue that Plaintiffs' successor-liability theory is not supported by the CAA, which specifically limits the class of persons subject to enforcement to the class of person who actually violated the CAA. The CAA's civil-enforcement provision is as follows:

> HN7[↑] The Administrator shall, as appropriate, in the case of any person that is the owner or operator of [**26] an affected source, a major emitting facility, or a major stationary source, and may, in the case of any other person, commence a civil action for a permanent or temporary injunction, or to assess and recover a civil penalty of not more than $25,000 per day for each violation, or both, in any of the following instances:
> (1) Whenever such person has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit.

42 U.S.C. § 7413(b).

Neither party has identified a case in which successor liability has been imposed under the CAA. Plaintiffs note that successor corporations have been found potentially liable in the context of other environmental laws, however. With regard to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), for example, the Seventh Circuit noted that "every circuit confronted with the question has determined that Congress intended successor liability to apply." N. Shore Gas Co. v. Salomon, Inc., 152 F.3d 642, 649 (7th Cir. 1998) (*North Shore Gas*), *overruled in part on other grounds* Envision Healthcare, Inc. v. PreferredOne Ins. Co., 604 F.3d 983, 986 n.1 (7th Cir. 2010).

The CERCLA provision [**27] at issue in *North Shore Gas* provides categories of "persons" who would be held liable for costs associated with the removal and remediation associated with environmental contaminants. The list includes current owners or operators of a facility and "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of." 42 U.S.C. § 9607(a)(2). The defendant's mineral-processing facility was added to the EPA's national priorities list, and the defendant was ordered to remove certain hazardous substances from its property. North Shore Gas, 152 F.3d at 645. The current owners of that facility then sought out former owners and operators to share in the response costs. *Id.* When it was discovered that the site may have been contaminated in the mid-1930s under the ownership of the North Shore Coke & Chemical Company, a company which had long since been liquidated, the current owner of the facility sought contribution from the defunct company's alleged successor. Id. at 645-46.

After noting that CERCLA did not specifically address corporate-successor liability, the Seventh Circuit held that HN8[↑] CERCLA should be interpreted [**28] in a manner that permits the flow of liabilities through principles of successor liability. Id. at 649. The court looked at CERCLA's definition of "person," which includes an "individual, firm, corporation, association, partnership, consortium, joint venture, [or] commercial entity." *Id.* (citing 42 U.S.C. § 9601(21)). The court then cited a rule of statutory construction codified at the beginning of the U.S. Code: that "[t]he word 'company' or 'association,' when used in reference to a corporation, shall be deemed to embrace the words 'successors and assigns of such company or association,' in like manner as [*688] if these last-named words, or words of similar import, were expressed." 1 U.S.C. § 5. The court determined that § 5 "lends credence to the notion that, when Congress defined 'person' by listing a variety of terms that apply to business entities, it intended to include all known forms of business and commercial enterprises." North Shore Gas, 152 F.3d at 649 (citation and internal quotation marks omitted). It ultimately held that CERCLA permits successor liability, though it does not *require* it "unless justified by the facts of each case." Id. at 650 (citation and internal quotation [**29] marks omitted).

Plaintiffs argue that the CAA's definition of "person" should be similarly interpreted to include successors. But the CAA's enforcement provision is fundamentally different from the CERCLA provision at issue in North Shore Gas. The provision at issue in *North Shore Gas* provided for remediation and recovery of cleanup costs. The Seventh Circuit specifically observed that "there is no concern — at least theoretically — about *punishing* the successor for the acts (or omissions) of the predecessor; CERCLA is a remedial measure which is

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allege the previously missing allegations supporting their theory of successor liability. The law-of-the-case doctrine applies only to issues that were previously litigated. Menards, Inc. v. Countryside Indus., Inc., No. 01 C 7142, 2004 U.S. Dist. LEXIS 10821, 2004 WL 1336382, at *2 (N.D. Ill. June 14, 2004). It has no application to issues that were not previously properly presented to the Court. Thus, the law-of-the-case doctrine does not bar Plaintiffs from now alleging successor liability.

aimed only at correcting environmentally dangerous conditions." North Shore Gas, 152 F.3d at 649-50 (emphasis added). By contrast, the Seventh Circuit has described the CAA provision at issue in the instant case — which allows for civil penalties and mandatory injunctions — as "quasi-criminal." See United States v. AM Gen. Corp., 34 F.3d 472, 474 (7th Cir. 1994).

To that end, as explained below, the plain language of this statute limits enforcement of these "quasi-criminal" mechanisms to those persons who actually violate the CAA. Title 1's definitional provisions, cited above, are only useful "[i]n determining the meaning of any Act of Congress **[**30]** . . . unless the context indicates otherwise." 1 U.S.C. § 1; see also Anspec Co. v. Johnson Controls, Inc., 922 F.2d 1240, 1247 (6th Cir. 1991) (determining that 1 U.S.C. § 5 only applies "unless the context indicates otherwise"). Here, the context does indicate otherwise. An action against an owner or operator of an affected source (i.e., Midwest Generation) may be commenced only "[w]henever *such person* has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit." 42 U.S.C. § 7413(b) (emphasis added). The only persons subject to enforcement are those persons who violated or are in violation of a relevant requirement or prohibition. Plaintiffs have failed to sufficiently allege that EME or Midwest Generation violated any such requirement or prohibition. Thus, under the CAA, neither EME nor Midwest Generation is subject to enforcement for ComEd's violations.

Moreover, Plaintiffs' theory that the Agreement expressly provides that CAA liabilities were transferred along with the assets sold by ComEd is not supported by the operative terms of the Agreement. [9]

In Illinois, "[t]he well-settled general rule is that HN9[↑] a corporation that purchases the assets of another corporation is not liable for the debts or liabilities of the transferor corporation." [10] Vernon v. Schuster, 179 Ill. 2d 338, 688 N.E.2d 1172, 1175, 228 Ill. Dec. 195 (Ill. 1997). There are four exceptions to that general rule; Plaintiffs assert one exception here: where **[*689]** there is an express or implied agreement of assumption of those debts or liabilities. Id. at 1175-76. Federal common law is in accord. See, e.g., North Shore Gas, 152 F.3d at 651. The theory of successor liability is an equitable doctrine, which courts have applied to a variety of state and federal claims. See, e.g., Gen. Foam Fabricators, Inc. v. Tenneco Chems., Inc., 695 F.2d 281, 287 (7th Cir. 1982) (contract claim); Panther Pumps & Equip. Co. v. Hydrocraft, Inc., 566 F.2d 8, 23-28 (7th Cir. 1977) (federal civil contempt); In re Aftermarket Filters Antitrust Litig., MDL No. 1957, 2010 U.S. Dist. LEXIS 95543, 2010 WL 3715137, at *2 (N.D. Ill. Sept. 14, 2010) (antitrust claim).

It is well established that HN10[↑] rules of contract interpretation are determined under state law. North Shore Gas, 152 F.3d at 652 (applying Illinois rules of contract interpretation in the context of CERCLA). Under Illinois law, "[a]n agreement, when reduced to writing, must be presumed to speak the intention of the parties who signed it. It speaks for itself, and the intention with which it was executed must be determined by the language used." Camico Mut. Ins. Co. v. Citizens Bank, 474 F.3d 989, 993 (7th Cir. 2007) (citations and internal quotation marks omitted). Contract terms are interpreted according to their plain meaning unless otherwise defined. *Id.* The Court must give effect to the parties' intent at the time the agreement was made. North Shore Gas, 152 F.3d at 652.

The assignment provision in the Agreement relied upon by Plaintiffs is expressly limited to non-compliance of *assets* (i.e., sources) — not non-compliance of ComEd. The Agreement provides as follows:

> 2.3 Purchaser's Liabilities. On the Closing Date, Purchaser will assume and be responsible and liable for (i) all obligations **[**33]** and liabilities related to, arising from or associated with ownership, occupancy, use or operation of the Assets from and after the Closing (other than Excluded Liabilities) and (ii) the following obligations and liabilities (collectively, "Purchaser's Liabilities"):
>
> (a) Environmental Liabilities. . . . (i) responsibility for compliance and liability for any non-compliance by *the Assets* with *Environmental Laws* (including fines, penalties and costs to correct) . . . whether occurring, existing or arising on, before or after the Closing (collectively, "Environmental Liabilities").

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[9] Because Plaintiffs attached the Agreement to their Amended Complaint, its terms **[**31]** can be considered in ruling on a motion to dismiss. See Centers v. Centennial Mortg., Inc., 398 F.3d 930, 933 (7th Cir. 2005).

[10] The Agreement, which is attached as Exhibit A to Plaintiffs' Amended Complaint, **[**32]** provides that it is governed by Illinois law unless preempted by federal law. See Agreement § 11.7.

Agreement § 2.3(ii)(a) (emphasis added).

Here, it is clear from this provision that Midwest Generation (allegedly through EME) agreed only to assume "responsibilities for compliance and liability for any noncompliance *by the Assets* with Environmental Laws . . . whether occurring, existing or arising on, before or after the Closing." *See id.* (emphasis added). The term "Assets" is defined to include, among other things, the sources at issue. *See* Agreement § 2.1. [11] The definition does not include persons, and no reasonable interpretation of the term *Assets* could include the *persons* who previously owned the Assets. **[**34]** Importantly, Section 2.3(ii)(a)(i), addressing non-compliance by the **Assets** specifically with regard to **Environmental Laws**, stands in contrast to the preceding **[*690]** general clause 2.3(i), which provides that the purchaser would assume responsibility and liability for "all obligations and liabilities related to, arising from or associated with ownership, occupancy, use or operation of the Assets from and after the Closing." Agreement § 2.3(i). Thus, assumed environmental liabilities for non-compliance by the assets include those that arise before, as well as after, closing, while personal assumed liabilities related to ownership and operation of the assets are limited to those that arise "from and after the Closing." Personal liabilities that arose before closing, such as ComEd's alleged failure to obtain a preconstruction permit, were clearly not intended to be assumed by the Agreement.

Ultimately, by amending their Complaint to add allegations of successor liability based on the Agreement, Plaintiffs only manage to provide further support for the Court's alternative reasons for rejecting Plaintiffs' successor-liability argument in the March 9 Opinion, "the PSD provisions impose obligations on 'persons,' not 'sources.'" *Midwest Generation, 694 F. Supp. 2d at 1008 n.9*. Plaintiffs' PSD claims are not based on allegations that the sources are out of compliance; they are based on allegations that ComEd failed to comply with the CAA's PSD provisions. A careful reading of the provision in the Agreement relied upon by Plaintiffs does not manifest an agreement by EME and Midwest Generation to assume liability for ComEd's unlawful acts.

Additionally, because, as discussed above, it has been determined that ComEd has no liability to Plaintiffs, there is no liability for Midwest Generation to assume under either theory. All claims for civil penalties are time barred; and ComEd is not subject to mandatory injunctive relief, i.e., to **[**36]** take any remedial action on property it no longer owns or controls. For the foregoing reasons, Plaintiffs' successor-liability theory fails. Counts 1, 2, 6, 7, 11, 12, 16, 17, 21, 22, 28, 29, 33, 34, 38, 39, 43, 44, 55, and 56 are dismissed.

Plaintiffs' Title V Claims

EME and Midwest Generation also move to dismiss Plaintiffs' Title V counts "to the extent they are based on dismissed PSD claims." Midwest Generation Mem. 15. Plaintiffs allege that Midwest Generation "failed to submit a complete application and/or update its application for a Title V operating permit" that "contains a compliance plan for all applicable requirements." *See, e.g.*, Compl. ¶¶ 123, 125. The "applicable requirements" allegedly omitted from Midwest Generation's permit include those contained in the PSD provisions and the Illinois State Implementation Plan's opacity requirements. Plaintiffs specifically allege that Midwest Generation was required to amend its existing applications to include required BACT limits. *See, e.g.*, Am. Compl. ¶ 121.

As explained in the March 9 Opinion, those BACT limits are imposed through the preconstruction-permit process. In the absence of such a permit, they do not exist. There "is **[**37]** no obligation to apply [BACT] in the abstract"; it "is a specific prerequisite to obtaining a preconstruction permit" that is "determined on a case-by-case basis through the [PSD] permitting process itself." *Midwest Generation, 694 F. Supp. 2d at 1007, HN11*[↑] "Title V does not impose additional requirements on sources but rather consolidates all applicable requirements in a single document to facilitate compliance." *Citizens Against Ruining the Env't v. EPA, 535 F.3d 670, 672 (7th Cir. 2008)*.

Plaintiffs' Amended Complaint does not allege any applicable PSD requirement that has been violated by EME or Midwest Generation, and Title V does not create new requirements. Plaintiffs cannot slip their PSD claims through the back **[*691]** door by recharacterizing them as Title V claims. To the extent

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[11] Section 1.1 of the Agreement contains a list of definitions. It provides that "'Assets' has the meaning set forth in Section 2.1 (Transfer of Assets)." Section 2.1, in turn, provides that the purchaser would acquire ComEd's interest in the following specific "Assets": real-property rights; improvements, **[**35]** buildings, structures, and fixtures; permits and licenses; personal property; assigned leases; assigned contracts; trading allowances; and records.

Plaintiffs' Title V claims are based on any alleged failure to obtain a permit for ComEd's PSD violations, those claims are dismissed.

Midwest Generation's Motion to Dismiss the Citizen Groups' Claims

The Citizen Groups' Amended Complaint generally tracks that of Plaintiffs' with regard to opacity and Title V violations. It also contains a single PSD count (Count 27), based on the only PSD count not entirely dismissed **[**38]** from Plaintiffs' original Complaint. The Citizen Groups allege that Midwest Generation acquired the Will County Station from ComEd in 1999 and, in February 2000, commenced construction of one or more major modifications without applying for or receiving PSD permits. Citizen Am. Compl. ¶ 217. As a result of Midwest Generation's unlawful modifications, pollutants have been, and continue to be, released into the atmosphere in amounts greater than permitted by law. Citizen Am. Compl. ¶ 219. The Citizen Groups also claim that Midwest Generation failed to submit a complete application for a Title V operating permit that identifies all applicable requirements, accurately certifies compliance with such requirements, and contains an appropriate compliance plan. Citizen Am. Compl. ¶ 233.

The Citizen Groups ask the Court to enter injunctive relief against Midwest Generation and order Midwest Generation to pay civil penalties pursuant to the CAA. As it did in response to Plaintiffs' original Complaint, Midwest Generation moves to dismiss the Citizen Groups' Amended Complaint as time barred to the extent it seeks civil penalties. Midwest Generation also argues that the Citizen Groups' claim for **[**39]** injunctive relief should be dismissed pursuant to the concurrent-remedies doctrine.

As explained above, *all* PSD claims were dismissed against Plaintiffs to the extent they sought civil penalties. The Court held that the general, five-year, federal statute of limitations applies to the CAA and that all PSD claims were alleged to have accrued more than five years ago. *See Midwest Generation, 694 F. Supp. 2d at 1008-09*. The Citizen Groups did not assert any PSD claims in their original complaint, and they now assert that the March 9 Opinion does not apply to their own claim for civil penalties.

The Citizen Groups offer two theories as to why their nearly identical claim for civil penalties is not also barred by the five-year statute of limitations. First, they argue that the five-year statute of limitations did not begin until the Citizen Groups *discovered* the alleged PSD violations. Alternatively, they ask the Court to apply the doctrine of equitable tolling based on the Illinois EPA's refusal to comply with the Citizen Groups' requests for certain information.

HN12[↑] The CAA does not provide its own statute of limitations. Therefore, the general, five-year, federal statute of limitations applies. **[**40]** *See 28 U.S.C. § 2462*; *United States v. Ill. Power Co., 245 F. Supp. 2d 951, 954 (S.D. Ill. 2003)* (stating that *§ 2462* is applicable to the CAA). *Section 2462* provides as follows:

> ***HN13***[↑] Except as otherwise provided by Act of Congress, an action, suit or proceeding for the enforcement of any civil fine, penalty, or forfeiture, pecuniary or otherwise, shall not be entertained unless commenced within five years from the date when the claim first accrued if, within the same period, the offender or the property is found within the United States in order that proper service may be made thereon.

28 U.S.C. § 2462.

In their opposition brief, the Citizen Groups argue that their claim did not accrue until March 2, 2010, when this Court **[*692]** entered a "Stipulation and Protective Order," which allowed them access to certain of Midwest Generation's documents they had attempted to obtain since March 2004 through Freedom of Information Act ("FOIA") requests.

The Citizen Groups cite Seventh Circuit cases for the proposition that a plaintiff's claim accrues upon his discovery of his injury. *See Cada v. Baxter Healthcare Corp., 920 F.2d 446, 450 (7th Cir. 1990)* (*Cada*) ("Accrual is the date on which the statute of limitations **[**41]** begins to run. It is not the date on which the wrong that injures the plaintiff occurs, but the date — often the same, but sometimes later — on which the plaintiff discovers that he has been injured."); *Stoleson v. United States, 629 F.2d 1265, 1269 (7th Cir. 1980)* ("[A]ny plaintiff who is blamelessly ignorant of the existence or cause of his injury shall be accorded the benefits of the discovery rule."). Neither of these cases addresses the statute in question.

Although the Seventh Circuit has not directly addressed the meaning of "accrued" in *28 U.S.C. § 2462*, it recently noted that the Supreme Court has not adopted

a general discovery rule in interpreting federal statutes of limitations. *See SEC v. Koenig, 557 F.3d 736, 739 (7th Cir. 2009)* (*Koenig*). "[S]ome periods of limitations start with discovery and others not, with the difference depending on each provision's text, context, and history." *Id.* (citing *TRW, Inc. v. Andrews, 534 U.S. 19, 27, 122 S. Ct. 441, 151 L. Ed. 2d 339 (2001)*).

Although the *Koenig* court found it unnecessary to decide when a claim "accrues" for purposes of *§ 2462*, generally, it noted that the discovery theory has been soundly rejected by other circuits. *Id.* In *3M Co. v. Browner, 17 F.3d 1453, 305 U.S. App. D.C. 100 (D.C. Cir. 1994)* **[**42]** (*3M*), for example, the District of Columbia Circuit examined this issue at length and held as follows:

> In light of the legal meaning of the word "accrued" in 1839, the retention of the word in the 1874 version of *§ 2462*, and its appearance in the current statute, we hold that an action, suit or proceeding to assess or impose a civil penalty must be commenced within five years of the date of the violation giving rise to the penalty. We reject the discovery of violation rule EPA advocates as unworkable; outside the language of the statute; inconsistent with judicial interpretations of *§ 2462*; unsupported by the discovery of injury rule adopted in non-enforcement, remedial cases; and incompatible with the functions served by a statute of limitations in penalty cases.

Id. at 1462-63. Other circuits have similarly held that *§ 2462* does not contemplate a discovery rule. *See Trawinski v. United Techs., 313 F.3d 1295, 1298 (11th Cir. 2002)* (per curiam); *Fed. Election Comm'n v. Williams, 104 F.3d 237, 240 (9th Cir. 1996)*; *United States v. Core Labs, Inc., 759 F.2d 480, 482-83 (5th Cir. 1985)*.

Although the Citizen Groups advance various policy arguments as to why a discovery rule should be applied **[**43]** to CAA cases brought by private citizens, the *3M* decision did not depend on the fact that the plaintiff was a government entity; it focused on the nature of relief, which is the same regardless of whether the claims are asserted by a government agency or private citizen groups. The rationale of a discovery rule, which "rests on the idea that plaintiffs cannot have a tenable claim for the recovery of damages unless and until they have been harmed," is inapposite to claims for fines, penalties, and forfeitures, which are a form of punishment asserted in suits regardless of damage. *3M, 17 F.3d at 1460*. The *3M* court also observed that *§ 2462* is a general statute of limitations; it is not limited to environmental **[*693]** cases, and its interpretation should not depend on any particular difficulties associated with enforcement in any specific case. *Id. at 1461*. Indeed, "nothing in the language of *§ 2462* even arguably makes the running of the limitations period turn on the degree of difficulty an agency experiences in detecting violations." *Id.*

HN14[↑] Where Congress has decided to graft a discovery rule into a statute of limitations, it has done so expressly. Certain CERCLA claims, for example, cannot be **[**44]** brought "unless the claim is presented within 3 years after . . . [t]he date *of the discovery* of the loss and its connection with the release in question." *42 U.S.C. § 9612(d)(2)* (emphasis added). *Section 2462*, by contrast, limits actions to "five years from the date when the claim first *accrued*." *28 U.S.C. § 2462* (emphasis added).

"[A] PSD violation occurs at the time the alleged construction or modification begins." *Midwest Generation, 694 F. Supp. 2d at 1009*. The Citizen Groups allege that Midwest Generation commenced construction on the relevant source in February 2000. Thus, their claim accrued in February 2000. The discovery rule does not afford the Citizen Groups relief from the statute of limitations.

Unless the Citizen Groups can succeed on their equitable-tolling argument, their claim for civil penalties is time barred. *HN15*[↑] "Equitable tolling is a doctrine used sparingly, reserved for those situations in which extraordinary circumstances prevent a party from filing on time." *Bensman v. U.S. Forest Serv., 408 F.3d 945, 964 (7th Cir. 2005)* (citing *Wilson v. Battles, 302 F.3d 745, 749 (7th Cir. 2002)*). The doctrine applies only when "circumstances prevent a litigant from filing despite **[**45]** the exercise of due diligence." *Id.* It "permits a plaintiff to avoid the bar of the statute of limitations if despite all due diligence he is unable to obtain vital information bearing on the existence of his claim." *Cada, 920 F.2d at 451*.

On its face, the Citizen Groups' Amended Complaint pleads a claim that is barred by the statute of limitations. The unlawful act occurred in 2000; the statute of limitations is five years; and the Citizen Groups' earliest Complaint was filed on January 21, 2010.

HN16[↑] A statute of limitations is an affirmative defense, however, which need not be anticipated by a

complaint. Leavell v. Kieffer, 189 F.3d 492, 494 (7th Cir. 1999) (citations omitted). A plaintiff may oppose a motion to dismiss with additional facts asserted by affidavit or brief if those facts are consistent with the allegations in the complaint. Hentosh v. Herman M. Finch Univ. of Health Sciences/The Chicago Med. Sch., 167 F.3d 1170, 1173 n.3 (7th Cir. 1999) (considering affidavit filed in connection with plaintiff's response to motion to dismiss in deciding whether equitable tolling should apply). Dismissal under Rule 12(b)(6) is premature if it is possible for a plaintiff to prove a set of **[**46]** facts that would show reason to apply the doctrine of equitable tolling. See Clark v. City of Braidwood, 318 F.3d 764, 768 (7th Cir. 2003).

The Seventh Circuit has applied the doctrine of equitable tolling to § 2462 in an action brought by the SEC. Koenig, 557 F.3d at 739-740. At least one court has applied the doctrine to § 2462 in an action brought under the CAA. See Penn. v. Allegheny Energy, Inc., No. 05-885, 2010 U.S. Dist. LEXIS 37818, 2010 WL 1541457, at *6 (W.D. Pa., Apr. 18, 2010) (holding that equitable tolling would apply if plaintiff could prove sufficient supporting facts at trial).

According to the Citizen Groups, their PSD claim falls squarely within the bounds of the equitable-tolling doctrine. **[*694]** The Citizen Groups argue in their opposition brief that they diligently tried to obtain the information necessary to support their claim from the Illinois EPA but that Midwest Generation's efforts to designate the information as confidential trade secrets prevented them from doing so. They assert that their first request was made in March 2004 and that they did not obtain the necessary information until March 2010, when this Court entered a protective order. Midwest Generation agreed to provide the Citizen **[**47]** Groups with the requested documents in exchange for the Citizen Groups' agreeing to withdraw their pending FOIA requests. Therefore, argue the Citizen Groups, the statute of limitations should be tolled from March 2004 through March 2010, which would bring the claim within the statute of limitations.

The Citizen Groups offer little support for this argument. They do not identify the specific newly acquired information that allowed them to make their PSD claims, detail the diligence of their efforts to obtain that information, or explain why they were unable to make these claims earlier. The only support for their equitable-tolling argument consists of citations to documents entered in proceedings pending before the Illinois Pollution Control Board. Nonetheless, they have presented enough to plausibly suggest that they are entitled to equitable tolling if they can prove that something beyond their control prevented them from bringing their claim earlier despite their diligent efforts to obtain the missing information. [12]

Midwest Generation's arguments as to the Citizen Groups' claim for injunctive relief and their Title V claim depend on dismissal of their claims for civil penalties. Because those claims are not dismissed, Midwest Generation's remaining arguments need not be addressed at this time.

CONCLUSION

For the reasons stated above, ComEd's motion to dismiss is granted in its entirety. Counts 3, 8, 13, 18, 23, 30, 35, 40, 45, and 57 are dismissed; and ComEd is dismissed from this action. EME and Midwest Generation's partial motion to dismiss Plaintiffs' Amended Complaint is granted. Counts 1, 2, 6, 7, 11, 12, 16, 17, 21, 22, 28, 29, 33, 34, 38, 39, 43, 44, 55, and 56 are dismissed in their entirety. Counts 5, 10, 15, 20, 25, 32, 37, 42, and 47 are dismissed to the extent they are based on the dismissed PSD claims. Midwest Generation's motion to dismiss the Citizen Groups' Amended Complaint is denied.

Date: March 16, 2011

/s/ John W. Darrah

JOHN W. DARRAH

United States District Court Judge

End of Document

[12] Although the Amended Complaint and the opposition brief were filed on behalf of all Citizen Groups, their brief does not assert that any group other than the Sierra **[**48]** Club diligently attempted to obtain the necessary information. If this is indeed the case, the doctrine of equitable tolling could be unavailable to those other groups.

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1. *United States v. Midwest Generation, LLC, 694 F. Supp. 2d 999*
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United States v. Midwest Generation, LLC

United States District Court for the Northern District of Illinois, Eastern Division

March 9, 2010, Decided; March 9, 2010, Filed

Case No. 09-cv-5277

Reporter
694 F. Supp. 2d 999 *; 2010 U.S. Dist. LEXIS 22729 **; 40 ELR 20081; 71 ERC (BNA) 1985

UNITED STATES OF AMERICA and the STATE OF ILLINOIS, Plaintiffs, and CITIZENS AGAINST RUINING THE ENVIRONMENT; THE ENVIRONMENTAL LAW AND POLICY CENTER; NATURAL RESOURCES DEFENSE COUNCIL, INC.; RESPIRATORY HEALTH ASSOCIATION OF METROPOLITAN CHICAGO; and SIERRA CLUB, Intervenor-Plaintiffs, v. MIDWEST GENERATION, LLC, Defendant.

Subsequent History: Claim dismissed by, Motion denied by *United States v. Midwest Generation, LLC, 781 F. Supp. 2d 677, 2011 U.S. Dist. LEXIS 27371 (N.D. Ill. 2011)*

Affirmed by *United States v. Midwest Generation, LLC, 720 F.3d 644, 2013 U.S. App. LEXIS 13709 (7th Cir. Ill., 2013)*

Core Terms

modification, preconstruction, regulations, violations, provisions, plants, counts, constructed, emissions, pollutant, time of construction, control technology, motion to dismiss, district court, civil penalty, air quality, injunctive, permits, limitations, obligations, modified, occurs, air, allegations, emitting, ongoing

Case Summary

Procedural Posture

In a suit under the Clean Air Act (CAA), *42 U.S.C.S. § 7401 et seq.*, defendant, the operator of six coal-fired plants in Illinois, moved to dismiss all prevention of significant deterioration (PSD) counts alleged by plaintiffs, the federal government and the State of Illinois, which sought injunctive relief and civil penalties. The motion to dismiss did not address claims asserted by intervenor environmental and public health groups.

Overview

The six plants had been modified by the previous owner without first obtaining preconstruction permits or installing the best available technology to control emissions, as required by the CAA, resulting in significant net emissions increases for particulate matter. The operator argued that all but one of the PSD counts should be dismissed for failure to state a claim and that all counts were time-barred to the extent they sought civil penalties. The governments argued that the operator was committing a continuing CAA violation under *42 U.S.C.S. § 7475* and applicable regulations for each day that it continued to operate the plants. The court declined to adopt the governments' continuing-violation theory and held that nothing in *42 U.S.C.S. § 7475* or the Environmental Protection Agency's PSD regulations prohibited the subsequent operation of a source when no construction permit had been obtained by a previous owner--i.e., there was no statutory basis for holding the operator liable for the previous owner's unauthorized modifications. The PSD counts were also time-barred by the five-year limitations period in *28 U.S.C.S. § 2462* to the extent that monetary damages were sought.

Outcome

The court granted the operator's motion to dismiss the PSD allegations in Counts 1, 4, 7, 10, 13, 18, 21, and 24 in their entirety. The court also granted the operator's motion to dismiss as to Count 36--which alleged that the operator itself made unauthorized plant modifications--but only to the extent that Count 36 sought civil penalties as opposed to equitable relief.

LexisNexis® Headnotes

Environmental Law > Air Quality > National Ambient Air Quality Standards
Business & Corporate Compliance > Environmental & Natural Resources > Air Quality > National Ambient Air Quality Standards

Environmental Law > Air Quality > Prevention of Significant Deterioration

Environmental Law > Air Quality > State Implementation Plans

HN1[] Air Quality, National Ambient Air Quality Standards

The Clean Air Act (CAA) is designed to protect and enhance the quality of the nation's air, so as to promote the public health and welfare and the productive capacity of its population. 42 U.S.C.S. § 7401(b)(1). The CAA requires the Administrator of the Environmental Protection Agency (EPA) to promulgate regulations for national ambient air quality standards (NAAQS) for certain pollutants. 42 U.S.C.S. § 7409. Each state is then required to designate those areas within its boundaries where the air quality is better or worse than the NAAQS for each pollutant or where the air quality cannot be classified due to insufficient data. 42 U.S.C.S. § 7407(d). The CAA sets forth prevention of significant deterioration (PSD) requirements in designated attainment or non-classifiable areas. 42 U.S.C.S. § 7470-7492. Each state is required to adopt and submit to the EPA for approval a State Implementation Plan (SIP) that includes, among other things, regulations to prevent the significant deterioration of air quality under the CAA. 42 U.S.C.S. § 7410. If a state does not have an EPA-approved PSD program, the federal PSD regulations set forth at 40 C.F.R. § 52.21 may be incorporated by reference into the SIP. 42 U.S.C.S. § 7410(c).

Civil Procedure > ... > Defenses, Demurrers & Objections > Motions to Dismiss > Failure to State Claim

HN2[] Motions to Dismiss, Failure to State Claim

A motion under Fed. R. Civ. P. 12(b)(6) challenges the sufficiency of the complaint. In ruling on a motion to dismiss, the court must accept as true all well-pleaded factual allegations and draw reasonable inferences in favor of the plaintiff. The allegations in the complaint must plausibly suggest that the plaintiff has a right to relief, raising that possibility above a speculative level; if they do not, the plaintiff pleads itself out of court. The district court need not accept as true legal conclusions or threadbare recitals of the elements of a cause of action, supported by mere conclusory statements. Although affirmative defenses are not usually resolved on a motion to dismiss, dismissal under Fed. R. Civ. P. 12(b)(6) is proper if the plaintiff's complaint, on its face, demonstrates that a claim is barred by a statute of limitations.

Governments > Legislation > Interpretation

HN3[] Legislation, Interpretation

When a court is faced with a question of whether certain conduct violates a statute, the starting point in determining congressional intent is the text of the statute at issue. When the statute's language is plain, the sole function of the courts--at least where the disposition required by the text is not absurd--is to enforce it according to its terms.

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN4[] Air Quality, Prevention of Significant Deterioration

See 42 U.S.C.S. § 7475(a).

Environmental Law > Air Quality > Prevention of Significant Deterioration

HN5[] Air Quality, Prevention of Significant Deterioration

According to the plain meaning of the statute's introductory language, the Clean Air Act, 42 U.S.C.S. § 7475, prohibits the construction of a major emitting facility unless each of requirements (1)-(8) are met. If those requirements are not met, construction is unauthorized. On its face, nothing in § 7475 prohibits the subsequent operation of such a facility without a permit. "Construction" includes "modification," which means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not

previously emitted. 42 U.S.C.S. §§ 7479(2)(C), 7411(a)(4).

Environmental Law > Air Quality > Operating Permits

HN6[] **Air Quality, Operating Permits**

See 42 U.S.C.S. § 7661a(a).

Environmental Law > Air Quality > Preconstruction Permits

HN7[] **Air Quality, Preconstruction Permits**

See 40 C.F.R. § 52.21(i)(1).

Environmental Law > Air Quality > Preconstruction Permits

HN8[] **Air Quality, Preconstruction Permits**

See 40 C.F.R. § 52.21(r)(1).

Environmental Law > Air Quality > Preconstruction Permits

HN9[] **Air Quality, Preconstruction Permits**

The plain language of the Clean Air Act indicates that violations of the preconstruction permitting requirements occur at the time of construction, not on a continuing basis.

Environmental Law > Air Quality > Preconstruction Permits

HN10[] **Air Quality, Preconstruction Permits**

Under the Clean Air Act, 42 U.S.C.S. § 7475, prevention of significant deterioration provisions only pertain to the construction or modification of plants--not their subsequent operation.

Environmental Law > Air Quality > Operating Permits

Environmental Law > Air Quality > Preconstruction Permits

HN11[] **Air Quality, Operating Permits**

The Clean Air Act, 42 U.S.C.S. § 7475, provides separate requirements for preconstruction permits and operating permits. All of the requirements enumerated in § 7475 must be undertaken prior to the construction or modification of a facility. A violation of § 7475 or the implementing regulations occurs at the time of construction or modification and is not continuing in nature.

Environmental Law > Air Quality > Operating Permits

Environmental Law > Air Quality > Preconstruction Permits

HN12[] **Air Quality, Operating Permits**

Under the Clean Air Act, 42 U.S.C.S. § 7475, failure to obtain an operations permit is a continuing violation for each day of operation without the permit. In contrast, failure to obtain a preconstruction permit is a discrete violation that occurs at the time of construction. Even though § 7475 imposes continuing obligations, the assumption of those obligations must be undertaken prior to the construction or modification of the facility. The relevant federal regulations clearly make commencing construction a violation, not operating the unpermitted facility following construction.

Environmental Law > Air Quality > Preconstruction Permits

HN13[] **Air Quality, Preconstruction Permits**

All of the requirements enumerated in the Clean Air Act, 42 U.S.C.S. § 7475, must be undertaken prior to the construction or modification of a facility.

Environmental Law > Air Quality > Preconstruction Permits

HN14[] **Air Quality, Preconstruction Permits**

By its plain terms, the Clean Air Act, 42 U.S.C.S. § 7475(a), does not impose liability on any person other than the one who fails to comply with its requirements. Preconstruction obligations are imposed only upon the person who actually seeks to construct or modify a facility within the meaning of the Act.

Environmental Law > Air Quality > Enforcement > Civil Actions

Governments > Legislation > Statute of Limitations > Time Limitations

HN15 **Enforcement, Civil Actions**

The five-year statute of limitations 28 U.S.C.S. § 2462 is applicable to the Clean Air Act, 42 U.S.C.S. § 7475.

Environmental Law > Air Quality > Enforcement > Civil Actions

Governments > Legislation > Statute of Limitations > Time Limitations

Environmental Law > Air Quality > Preconstruction Permits

HN16 **Enforcement, Civil Actions**

Under the Clean Air Act, 42 U.S.C.S. § 7475, a prevention of significant deterioration occurs at the time alleged construction or modification begins. Pursuant to 28 U.S.C.S. § 2462, all claims for civil penalties must be brought within five years of the claim's accrual.

Civil Procedure > Dismissal > Involuntary Dismissals > General Overview

Governments > Legislation > Statute of Limitations > Time Limitations

HN17 **Dismissal, Involuntary Dismissals**

Where a complaint itself reveals that an action is untimely under the governing statute of limitations, dismissal is appropriate.

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For Citizens Against Ruining The Environment, Sierra Club, Intervenor Plaintiffs: Keith Ian Harley, LEAD ATTORNEY, Chicago Legal Clinic, Inc., Chicago, IL.

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For Natural Resources Defense Council, Intervenor Plaintiff: Shannon Wanzer Fisk, LEAD ATTORNEY, Natural Resources Defense Council, Chicago, IL.

For Respiratory Health Association [**2] of Metropolitan Chicago, Intervenor Plaintiff: Michael Christopher Soules, LEAD ATTORNEY, PRO HAC VICE, Environmental Law & Policy Center, Minneapolis, MN.

Judges: JOHN W. DARRAH, United States District Court Judge.

Opinion by: JOHN W. DARRAH

Opinion

[*1000] MEMORANDUM OPINION AND ORDER

Plaintiffs, the United States of America and the State of Illinois, brought this action against Midwest Generation, LLC ("Midwest Generation"), seeking injunctive relief and civil penalties under the Clean Air Act ("CAA"), 42 U.S.C. § 7401 et seq. [1] **[*1001]** Among other things,

[1] On January 19, 2010, the following "Citizen Groups" were granted leave to intervene: Citizens Against Ruining the Environment; the Environmental Law and Policy Center; the Natural Resources Defense Council, Inc.; Respiratory Health

Plaintiffs allege that Midwest Generation is operating six coal-fired power plants in violation of certain CAA provisions for the prevention of significant deterioration ("PSD"). Midwest Generation moves to dismiss all PSD counts for failure to state a claim for relief.

BACKGROUND

Unless otherwise indicated, the following **[**3]** facts are taken from the allegations in the Complaint and are accepted as true for purposes of deciding this Motion to Dismiss. Midwest Generation owns and operates electricity-generating facilities, including six coal-fired power plants in Illinois. (Compl. P 2.) Midwest Generation purchased the plants from the Commonwealth Edison Company ("ComEd") in 1999. (Compl. P 2.) Before the sale, ComEd had modified each of the six plants and subsequently operated them without first obtaining appropriate preconstruction permits required by the CAA. (Compl. P 2.) ComEd also failed to install and employ the "best available control technology" to control emissions of nitrogen oxides, sulfur dioxide, and particulate matter as required by the CAA. (Compl. P 2.)

After purchasing the six plants from ComEd, Midwest Generation separately modified one of the plants (Will County) and continued to operate all six plants without obtaining any preconstruction permits. (Compl. P 2.) As a result of ComEd's operation of these unauthorized modifications, massive amounts of pollutants have been, and continue to be, released into the atmosphere. (Compl. P 3.)

HN1[] The CAA is designed "to protect and enhance the quality **[**4]** of the Nation's air, so as to promote the public health and welfare and the productive capacity of its population." *42 U.S.C. § 7401 (b)(1)*. The CAA requires the Administrator of the Environmental Protection Agency ("EPA") to promulgate regulations for national ambient air quality standards ("NAAQS") for certain pollutants. *42 U.S.C. § 7409*. Each state is then required to designate those areas within its boundaries where the air quality is better or worse than the NAAQS for each pollutant or where the air quality cannot be classified due to insufficient data. *42 U.S.C. § 7407(d)*.

The CAA sets forth PSD requirements in designated "attainment" or "nonclassifiable" areas. *See 42 U.S.C. § 7470-7492*. Each state is required to adopt and submit to the EPA for approval a State Implementation Plan ("SIP") that includes, among other things, regulations to prevent the significant deterioration of air quality under the CAA. *42 U.S.C. § 7410*. If a state does not have an EPA-approved PSD program, the federal PSD regulations set forth at *40 C.F.R. § 52.21* may be incorporated by reference into the SIP. *42 U.S.C. § 7410(c)*. On August 7, 1980, the EPA determined that the Illinois SIP did not meet the **[**5]** requirements of the CAA and incorporated federal PSD regulations into the Illinois SIP. (Compl. P 25.) Those federal regulations were part of the Illinois SIP at the time the alleged violations occurred. (Compl. P 25.)

Former owner and operator ComEd commenced construction of one or more major modifications without applying for or receiving PSD permits, and those modifications resulted in significant net emissions increases. *(See, e.g.,* Compl. P 65.) Midwest Generation then purchased and operated those plants without having or seeking PSD permits covering ComEd's modifications. *(See, e.g.,* Compl. P 66.) Since April 5, 2005, five of the six plants **[*1002]** have been in "nonattainment" areas for particulate matter. (Compl. P 20.) Plaintiffs allege that by operating a modified plant for which no PSD permit was obtained, Midwest Generation is in violation of the PSD provisions of the CAA and is thus subject to injunction and statutory fines.

LEGAL STANDARD

HN2[] "A motion under *Rule 12(b)(6)* challenges the sufficiency of the complaint." *Christensen v. County of Boone, Ill., 483 F.3d 454, 458 (7th Cir. 2007)*. In ruling on a motion to dismiss, the court must accept as true all well-pleaded factual allegations **[**6]** and draw reasonable inferences in favor of the plaintiff. *Sprint Spectrum L.P. v. City of Carmel, Ind., 361 F.3d 998, 1001 (7th Cir. 2004)*. The allegations in the complaint "must plausibly suggest that the plaintiff has a right to relief, raising that possibility above a 'speculative level'; if they do not, the plaintiff pleads itself out of court." *E.E.O.C. v. Concentra Health Servs., Inc., 496 F.3d 773, 776 (7th Cir. 2007)* (citing *Bell Atl. Corp. v. Twombly, 550 U.S. 544, 555, 127 S. Ct. 1955, 167 L. Ed. 2d 929 (2007)*).

The district court need not accept as true "legal conclusions" or "threadbare recitals of the elements of a cause of action, supported by mere conclusory statements." *Brooks v. Ross, 578 F.3d 574, 581 (7th*

Association of Metropolitan Chicago; and the Sierra Club. The instant Motion to Dismiss did not address the Intervenors' claims.

Cir. 2009) (quoting Ashcroft v. Iqbal, 556 U.S. 662, 129 S. Ct. 1937, 1949-50, 173 L. Ed. 2d 868 (2009)). Although affirmative defenses are not usually resolved on a motion to dismiss, dismissal under Rule 12(b)(6) is proper if the plaintiff's complaint, on its face, demonstrates that a claim is barred by a statute of limitations. See Whirlpool Fin. Corp. v. GN Holdings, Inc., 67 F.3d 605, 608 (7th Cir. 1995).

ANALYSIS

Midwest Generation argues that all but one of Plaintiffs' PSD counts must be dismissed for failure to state a claim **[**7]** and that all counts are time barred to the extent they seek civil penalties.

PSD Liability Based on Acts of Prior Owners

Plaintiffs allege that Midwest Generation has violated, and continues to violate, 42 U.S.C. § 7475 and the implementing PSD regulations by failing to obtain a PSD permit prior to the *operation* of major modifications undertaken by ComEd. Plaintiffs argue that a PSD violation is not a single, pre-project event, but an ongoing violation that continues until the source is brought into compliance by obtaining a permit and installing and operating the required pollution controls. Therefore, argue Plaintiffs, Midwest Generation violates the PSD provisions every day by continuing to operate plants that ComEd modified without a permit. Midwest Generation contends that neither the CAA nor the implementing regulations support such an interpretation and that Plaintiffs thus fail to state a claim for relief as to nine of their ten PSD counts. [2]

HN3[] When faced with a question of whether certain conduct violates a statute, **[*1003]** the starting point in determining congressional intent is the text of the statute at issue. Lamie v. U.S. Trustee, 540 U.S. 526, 534, 124 S. Ct. 1023, 157 L. Ed. 2d 1024 (2004) (*Lamie*). "It is well established that when the statute's language is plain, the sole function of the courts -- at least where the disposition required by the text is not absurd -- is to enforce it according to its terms. Middleton v. City of Chicago, 578 F.3d 655, 658 (7th Cir. 2009) (quoting Lamie, 540 U.S. at 534).

Section 7475 (which sets forth the PSD requirements) is entitled "Preconstruction Requirements" and provides as follows:

> HN4[] No major emitting facility . . . may be constructed in any area to which **[**9]** this part applies unless --
> (1) a permit has been issued for such proposed facility in accordance with this part setting forth emission limitations for such facility which conform to the requirements of this part;
> (2) the proposed permit has been subject to a review in accordance with this section, the required analysis has been conducted in accordance with regulations promulgated by the Administrator, and a public hearing has been held with opportunity for interested persons including representatives of the Administrator to appear and submit written or oral presentations on the air quality impact of such source, alternatives thereto, control technology requirements, and other appropriate considerations;
>
> (3) the owner or operator of such facility demonstrates, as required pursuant to section 7410(j) of this title, that emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of any (A) maximum allowable increase or maximum allowable concentration for any pollutant in any area to which this part applies more than one time per year, (B) national ambient air quality standard in any air quality control region, or (C) any other applicable **[**10]** emission standard or standard of performance under this chapter;
> (4) the proposed facility is subject to the best available control technology for each pollutant subject to regulation under this chapter emitted from, or which results from, such facility;
> (5) the provisions of subsection (d) of this section with respect to protection of class I areas have been complied with for such facility;
> (6) there has been an analysis of any air quality impacts projected for the area as a result of growth

[2] Nine of Plaintiffs' PSD counts allege that ComEd constructed or modified the plants at issue before they were acquired by Midwest Generation. Count 36, on the other hand, claims that Midwest Generation itself commenced construction of major **[**8]** modifications after acquiring the Will County plant from ComEd. Midwest Generation contends that the allegation is factually inaccurate but properly accepts it as true for purposes of this Motion to Dismiss. Midwest Generation moves to dismiss only the remaining nine counts in their entirety. As discussed below, Midwest Generation also moves to dismiss all counts -- including Count 36 - to the extent they seek monetary relief, on the basis that all counts are time barred.

> associated with such facility;
> (7) the person who owns or operates, or proposes to own or operate, a major emitting facility for which a permit is required under this part agrees to conduct such monitoring as may be necessary to determine the effect which emissions from any such facility may have, or is having, on air quality in any area which may be affected by emissions from such source; and
>
> (8) in the case of a source which proposes to construct in a class III area, emissions from which would cause or contribute to exceeding the maximum allowable increments applicable in a class II area and where no standard under section 7411 of this title has been promulgated subsequent to August 7, 1977, for **[**11]** such source category, the Administrator has approved the determination of best available technology as set forth in the permit.

42 U.S.C. § 7475(a). ***HN5***[↑] According to the plain meaning of the statute's introductory language, § 7475 thus prohibits the *construction* of a "major emitting facility" unless each of requirements (1)-(8) are met. If those requirements are not met, construction is unauthorized. On its face, **[*1004]** nothing in § 7475 prohibits the subsequent *operation* of such a facility without a permit. [3]

Indeed, the CAA provides separate rules governing the operation of facilities. *See* 42 U.S.C. § 7661a(a) (***HN6***[↑] "[I]t shall be unlawful for any person to violate any requirement of a permit issued under this subchapter, or to operate . . . any other source required to have a permit under [the PSD provisions] . . . except in compliance with a permit issued by a permitting authority **[**12]** under this subchapter. (Nothing in this subsection shall be construed to alter the applicable requirements of this chapter that a permit be obtained before construction or modification.)"); *United States v. Ill. Power Co., 245 F. Supp. 2d 951, 955 (S.D. Ill. 2003) (Illinois Power)* (noting distinction between violations of preconstruction permit requirements and operation permit requirements).

In this case, Plaintiffs have alleged violations of both the PSD provisions and the operation-permit provisions. *Compare, e.g.,* Compl. PP 65-69 *with* Compl. PP 78-81. Midwest Generation, as noted, moves to dismiss only the PSD counts.

The implementing EPA regulations similarly prohibit only the construction or modification of major stationary sources without a preconstruction permit: *HN7*[↑] "No stationary source or modification to which the requirements of paragraphs (j) through (r) of this section apply shall begin actual construction without a permit which states that the stationary source or modification would meet those requirements." 40 C.F.R. § 52.21(i)(1). Actions may only be enforced against an owner or operator who operates such a source not in accordance with the PSD application or permit or who **[**13]** commences construction of such a source without a permit:

> *HN8*[↑] Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.

40 C.F.R. § 52.21(r)(1). Again, nothing in the EPA's PSD regulations prohibits the subsequent operation of a source when no construction permit had been obtained.

Thus, the plain meaning of § 7475 and the implementing regulations simply do not support Plaintiffs' position that those provisions also prohibit *operating* a source in addition to *constructing* or *modifying* a source without a permit. And there appears to be no controlling case law on the subject. The Seventh Circuit has not specifically addressed the issue of whether § 7475 imposes any liability for the *operation* (as opposed to *construction)* of a newly constructed source or modification without a permit -- much less whether **[**14]** that section imposes any liability on a *subsequent* owner or operator who did not perform the unauthorized construction. However, in analyzing a specific issue under the PSD provisions, the Seventh Circuit stated that "the last possible moment at which a [PSD preconstruction] violation occurs is 'when the actual construction is commenced, and not at some later point in time.'" *Sierra Club v. Franklin County Power of Ill., LLC, 546 F.3d 918, 928 (7th Cir. 2008)*

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[3] "Construction" includes "modification," which means "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollutant not previously emitted." 42 U.S.C. §§ 7479(2)(C), 7411(a)(4).

(Sierra Club) (quoting *Illinois Power, 245 F. Supp. 2d at 957*). [4]

[*1005] Other Circuits have addressed the issue and expressly declined to adopt Plaintiffs' continuing-violation theory. In *National Parks & Conservation Ass'n, Inc. v. Tennessee Valley Authority, 502 F.3d 1316 (11th Cir. 2007)* *(National Parks)*, the Eleventh Circuit held that *HN9*[↑] the plain language of the CAA indicates that "violations of the preconstruction permitting **[**15]** requirements occur at the time of construction, not on a continuing basis." *Id. at 1322* (quoting *New York v. Niagara Mohawk Power Corp., 263 F. Supp. 2d 650, 661 (W.D.N.Y. 2003)* *(Niagara Mohawk)*.) The Fifth Circuit has cited *National Parks* with seeming approval. *See CleanCOALition v. TXU Power, 536 F.3d 469, 470 (5th Cir. 2008)* *(TXU Power)* (noting that the Eleventh Circuit was following a "long line of district court cases").

Furthermore, multiple district courts in this circuit and others have addressed this very issue and held that *HN10*[↑] PSD provisions only pertain to the construction or modification of plants -- not their subsequent operation. For example, in *United States v. Murphy Oil USA, Inc., 143 F. Supp. 2d 1054, 1083 (W.D. Wis. 2001)* *(Murphy Oil)*, a district court rejected the continuing-violation theory, stating, "It appears that nothing in the statute creates a continuing liability for a facility's failure to obtain a pre-construction permit . . . .").

In *Illinois Power*, a district court in the Southern District of Illinois concluded that the very same PSD regulations at issue here create a discrete violation at the time of construction and do not create liability for operation **[**16]** after construction, *245 F. Supp. 2d at 957-58*. The court first looked at the structure of *HN11*[↑] the CAA, noting that it "provides separate requirements for preconstruction permits and operating permits" and then noted that *"all* of the requirements enumerated in *§ 7475*[] must be undertaken *prior* to the construction or modification of the facility." *Id. at 967*. The court ultimately found that a violation of *§ 7475* or the implementing regulations "occurs at the time of construction or modification and is not continuing in nature." *Id.*

[4] *Sierra Club* addressed the issue of whether a PSD permit had expired by virtue of the permit holder's neglecting to commence construction within eighteen months of the permit's issuance. *546 F.3d at 922*. The court indicated agreement with *Illinois Power* but found that case to be inapplicable to the situation before it.

In *United States v. Southern Indiana Gas & Electric Co., No. IP 99-1692-C-M/F, 2002 U.S. Dist. LEXIS 14039, 2002 WL 1760752, at *4 (S.D. Ind. July 26, 2002)*, the court disagreed with the government's continuing-violation theory, stating, "The distinction between preconstruction permit violations and operation permit violations is crucial. It is generally recognized that *HN12*[↑] failure to obtain an operations permit is a continuing violation for each day of operation without the permit. In contrast, failure to obtain a preconstruction permit is a discrete violation that occurs at the time of construction." Even though *§ 7475* imposes continuing obligations, explained the court, the assumption of those **[**17]** obligations "must be undertaken *prior* to the construction or modification of the facility." *2002 U.S. Dist. LEXIS 14039, [WL] at *5*. The court also found that "the relevant federal regulations clearly make commencing construction a violation, not operating the unpermitted facility following construction." *Id.* [5]

[*1006] Notwithstanding the persuasive authority from this circuit, Plaintiffs argue that it is more logical to read the CAA as imposing continuing obligations such that a failure to comply with the initial requirements constitutes a continuing violation for as long as the plant is operated without a preconstruction permit. Plaintiffs contend that district courts are "evenly split" on this interpretive **[**18]** issue and that two of the three circuit courts to consider the issue have upheld a theory of ongoing violations.

Acknowledging the Eleventh Circuit's contrary interpretation in *National Parks*, Plaintiffs assert that the Fifth and Sixth Circuits support their interpretation of the PSD provisions, Neither circuit, however, has expressly held that the theory is tenable under the CAA. The Fifth Circuit's decision in *United States v. Marine Shale Processors, 81 F.3d 1329 (5th Cir. 1996)*, is inapposite. In that case, the court was presented with an issue regarding "minor source" violations, which are not subject to the PSD preconstruction requirements at issue in this case. *See id. at 1357*. Moreover, the

[5] District courts outside of the Seventh Circuit have also rejected Plaintiffs' continuing-violation theory. *See, e.g., Sierra Club v. Otter Tail Corp., 606 F. Supp. 2d 1120, 1127 (D.S.D. 2009)*; *Niagara Mohawk, 263 F. Supp. 2d at 661*; *United States v. Westvaco Corp., 144 F. Supp. 2d 439, 444 (D. Md. 2001)*; *United States v. Brotech Corp., No. Civ.A. 00-2428, 2000 U.S. Dist. LEXIS 13859, 2000 WL 1368023, at *3-4 (E.D. Pa. Sept. 19, 2000)*; *United States v. Campbell Soup Co., No. CIV-S-95-1854 DFL, 1997 U.S. Dist. LEXIS 3211, 1997 WL 258894, at * 1-3 (E.D. Cal. Mar. 11, 1997)*.

opinion has been criticized for being unclear as to "whether the government charged Marine Shale with violating the relevant construction permit requirements or the operation permit requirements or both, a distinction that is crucial in determining the continuing nature of the violation." *Murphy Oil, 143 F. Supp. 2d at 1083*; *see also United States v. Brotech Corp., No. Civ.A. 00-2428, 2000 U.S. Dist. LEXIS 13859, 2000 WL 1368023, at *3 (E.D. Pa. Sept. 19, 2000)* (finding *Marine Shale* "inapposite" in the context of PSD **[**19]** permits); *Niagara Mohawk, 263 F. Supp. 2d at 662 n.20* (same). More recently, the Fifth Circuit has held that violations occur at the time of construction. *See TXU Power, 536 F.3d at 470*.

The Sixth Circuit's decision in *National Parks Conservation Association, Inc. v. Tennessee Valley Authority, 480 F.3d 410 (6th Cir. 2007)*, is also of limited value. In that case, the Sixth Circuit was interpreting a Tennessee SIP that explicitly imposed an obligation to obtain an after-the-fact construction permit "where a source or modification was constructed without first obtaining a construction permit." *Id. at 419*. The federal regulations at issue in this case contain no such obligation. [6]

Plaintiffs also cite district court cases that purportedly support their interpretation of the PSD provisions. **[**20]** [7] None of those cases presents any compelling reason to disregard the obvious interpretation of the regulations rationally and persuasively supported by case law in this circuit.

Plaintiffs' remaining statutory-interpretation arguments are unpersuasive. First, Plaintiffs argue that *§ 7475* provides for certain ongoing obligations, which demonstrates congressional intent to make a PSD violation an ongoing violation. Specifically, Plaintiffs note that *§ 7475(a)(4)* provides that the proposed modification must be subject to "best available control technology," which by definition requires the limitation of air pollutants on a continuous basis. *See 42 U.S.C. §§ 7479(3)*, **[*1007]** *7602(k)*. Plaintiffs also note that *§ 7475(a)(7)* provides that a person who owns or operates a source for which a preconstruction **[**21]** permit is required must agree to conduct necessary monitoring of that source to determine the effect of its emissions. According to Plaintiffs, these continuing obligations indicate clear congressional intent to prohibit the operation of a source without a preconstruction permit.

But these enumerated requirements in *42 U.S.C. § 7475* are not freestanding; each is a specific prerequisite to obtaining a preconstruction permit. *See Illinois Power, 245 F. Supp. 2d at 957* (stating that ***HN13***[↑] *"all* of the requirements enumerated in *§ 7475*[] must be undertaken *prior* to the construction or modification of the facility."). The provision regarding "best available control technology" does not stand alone, but appears within the context of "preconstruction requirements." It is determined on a case-by-case basis through the permitting process itself. Tellingly, the Plaintiffs' brief states that "[i]f a PSD permit *had* been issued for each of the alleged modifications, each permit would have set forth [best available control technology] requirements." (Pl. Opp'n Br. 4.) This underscores the fact that the ongoing requirements cited by Plaintiffs are tied to the application of the permit and that it is the **[**22]** original failure to obtain that permit which violates these PSD provisions. There is no obligation to apply "best available control technology" in the abstract. *See National Parks, 502 F.3d at 1325 & n.2* (holding that identical regulatory language contained "no caveat continuing the obligation for the operating life of the source if it was not met during the construction phase"). Similarly, *42 U.S.C. § 7475(a)(7)* merely provides that no construction should occur unless the owner or operator "agrees to conduct such monitoring as may be necessary." It does not create a stand-alone provision that can form the basis for a separate violation.

Second, Plaintiffs argue that Midwest Generation's interpretation of the enforcement provisions in *§ 7477* ignores the larger scheme and purposes of the CAA. *Section 7477* provides that the Administrator of the EPA shall take measures as necessary "to prevent the construction or modification of a major emitting facility which does not conform to the PSD requirements." *42 U.S.C. § 7477*. Plaintiffs do not deny that *§ 7477* only

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[6] Also of note, the Sixth Circuit panel was split on the issue. Judge Batchelder dissented from the majority's series-of-discreet-violations theory, believing the situation presented not a continuing series of violations, but a single violation with a continuing series of harms such that the plaintiffs' claim accrued at the time of construction and was thus barred by the statute of limitations. *Id. at 420-21*.

[7] *Sierra Club v. Portland Gen. Elec. Co., 663 F. Supp. 2d 983, 2009 WL 3245917, at *7-8 (D. Or. 2009)*; *New Jersey v. Reliant Energy Mid-Atl. Power Holdings, LLC, No. 07-CV-5298, 2009 U.S. Dist. LEXIS 91617, 2009 WL 3234438, at *16 (E.D. Pa. Sept. 30, 2009)*; *United States v. E. Ky. Power Co-op., 498 F. Supp. 2d 970, 974-75 (E.D. Ky. 2007)*; *United States v. Am. Elec. Power Serv. Corp., 136 F. Supp. 2d 808, 811 (S.D. Ohio 2001)*.

applies preconstruction; instead, they argue that the primary enforcement mechanism is contained in § 7413(b), which grants enforcement **[**23]** powers whenever any person is "has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit." 42 U.S.C. § 7413(b)(1). But § 7413 does not alter the obvious: that there is nothing to enforce in the absence of a violation of § 7455. [8]

Plaintiffs also assert that § 7413's penalty provisions support their argument that a PSD violation is continuing. "[A] civil action may be commenced to assess civil penalties whenever a person has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit"; and that penalty may be assessed for each day of violation. 42 U.S.C. § 7413(b), (c)(2). If a violation only occurs at the time of construction, as determined above, the statutory penalty **[*1008]** **[**24]** would be limited to a single day. According to Plaintiffs, a single-day violation would be nonsensical in light of § 7413's allowance for multi-day penalties.

This same argument was rejected in *Murphy Oil*, in which the court stated, "[B]ecause defendant may be subject to injunctive remedies that can include shutting down the new construction or requiring extensive (and expensive) modifications, a $ 25,000 penalty does not amount to a cost-free decision for defendant." 143 F. Supp. 2d at 1083 (citation omitted). Moreover, § 7413 is not limited to violations of § 7475; multi-day penalties may apply for violations of other statutory provisions under the CAA.

Thus, because a violation of 42 U.S.C. § 7475 occurs at the time of construction and no later, Midwest Generation cannot be liable for any construction that occurred prior to Midwest Generation's ownership of the relevant sources. Plaintiffs' Complaint expressly alleges that it was "ComEd [that] commenced construction of one or more major modifications . . . without applying for or receiving a PSD permit." (Compl. PP 65, 83, 101, 119, 137, 165, 183, 201, 219.) There is no statutory basis for holding Midwest Generation liable for ComEd's **[**25]** actions.

Niagara Power is particularly instructive in this regard. In that case, the State of New York sued both the original and subsequent owners of two power plants for PSD violations. 263 F. Supp. 2d at 654-55. The court dismissed the PSD claims against the subsequent owner, holding that ***HN14*** "[b]y its plain terms, 42 U.S.C. § 7475(a) does not impose liability on any person other than the one who fails to comply with its requirements." *Id. at 668*. "Preconstruction obligations," the court reasoned, "are imposed only upon the person who actually seeks to construct or modify a facility within the meaning of the [CAA]." *Id. at 668-69*. The court found it "simply counterintuitive to construe the [CAA] in such a way as to impose liability for failure to follow the [CAA's] preconstruction requirements on a person for whom compliance would have been impossible." *Id. at 669*. Here, the modifications were completed before Midwest Generation acquired the facilities, and it would indeed be counterintuitive to hold Midwest Generation liable for ComEd's actions. [9]

Ultimately, Plaintiffs have failed to identify any PSD provision that Midwest Generation violated. Counts 1, 4, 7, 10, 13, 18, 21, 24, and 27 are therefore dismissed. [10]

Statute of Limitations

Each of Plaintiffs' PSD counts is also time barred to the extent it seeks monetary damages. The parties agree that the CAA does not provide its own statute of limitations such that the general, five-year, federal

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[8] Moreover, although Plaintiffs repeatedly assert that § 7413 can be invoked to enforce violations of a "source," the language of § 7413 only provides for enforcement against a "person." *See* 42 U.S.C. § 7413(b)(1) (providing enforcement mechanisms in instances "[w]henever such *person* has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit") (emphasis added).

[9] Plaintiffs also argue that Midwest Generation may be held liable for ComEd's conduct under a theory that Midwest Generation assumed ComEd's **[**26]** liabilities under an asset-purchase agreement. As set out above, the PSD provisions impose obligations on "persons," not "sources." Moreover, the allegations in the Complaint do not support this theory of transferred liability.

[10] As Midwest Generation notes, Plaintiffs' labored interpretation of the CAA and regulations is not the only way to address any air quality deterioration arising from a plant modification by a prior owner. The Illinois PSD program can be revised when necessary to prevent significant deterioration of air quality if the current plan is "substantially inadequate." *See* 40 C.F.R. § 51.166(a)(3). The EPA also may revise the Illinois SIP to impose additional requirements to "prevent significant deterioration" of air quality. *See id.*

statute of limitations applies. *See* 28 U.S.C. § 2462; **[**27]** *Ill. Power, 245 F. Supp. 2d at 954* (stating that *HN15*[↑] § 2462 is applicable to the CAA).

[*1009] As determined above, *HN16*[↑] a PSD violation occurs at the time the alleged construction or modification begins. Pursuant to 28 U.S.C. § 2462, all claims for civil penalties must be brought within five years of the claim's accrual. Here, the Complaint expressly alleges that all alleged modifications commenced no later than February 2000 -- more than nine years ago. *HN17*[↑] Where the complaint itself "reveals that an action is untimely under the governing statute of limitations," dismissal is appropriate. *United States v. Lewis, 411 F.3d 838, 842 (7th Cir. 2005)*. Accordingly, all counts -- including Count 36 -- also are dismissed to the extent they seek civil penalties (as opposed to equitable relief).

Noting that § 2462 applies only to civil penalties, Plaintiffs argue that injunctive relief is appropriate regardless of whether the violations are held to be continuing. But injunctive relief is not available to Plaintiffs unless they can establish that Midwest Generation actually violated the CAA. As discussed above, Plaintiffs have failed to state any basis for liability on nine out often of their PSD counts due to the **[**28]** undisputed fact that Midwest Generation did not own or operate the sources at issue when the alleged violations occurred. Therefore, Plaintiffs are not entitled to *any* relief on those claims -- injunctive or otherwise. However, because Plaintiffs have alleged that Midwest Generation itself constructed major modifications on its Will County plant without first obtaining a PSD permit, Count 36 cannot entirely be dismissed at this time. Although any claims for monetary relief are time barred, Plaintiffs may seek injunctive relief on Count 36 to the extent they can prove that Midwest Generation's modification of the Will County plant without a preconstruction permit violated the CAA's PSD provisions.

CONCLUSION

For the reasons discussed above, Midwest Generation's Motion to Dismiss is granted as to Counts 1, 4, 7, 10, 13, 18, 21, 24, and 27, and each of those counts is dismissed in its entirety. Midwest Generation's Motion to Dismiss is also granted as to Count 36, but only to the extent Count 36 seeks civil penalties (as opposed to equitable relief).

Date: March 9, 2010

/s/ John W. Darrah

JOHN W. DARRAH

United States District Court Judge

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United States v. Midwest Generation, LLC

United States Court of Appeals for the Seventh Circuit

September 20, 2012, Argued; July 8, 2013, Decided

Nos. 12-1026 & 12-1051

Reporter
720 F.3d 644 *; 2013 U.S. App. LEXIS 13709 **; 43 ELR 20153; 76 ERC (BNA) 1881; 2013 WL 3379319

UNITED STATES OF AMERICA and STATE OF ILLINOIS, Plaintiffs-Appellants, v. MIDWEST GENERATION, LLC, EDISON MISSION ENERGY, and COMMONWEALTH EDISON COMPANY, Defendants-Appellees.

Subsequent History: Counsel Amended July 9, 2013.

Prior History: [**1] Appeals from the United States District Court for the Northern District of Illinois, Eastern Division. No. 09 C 5277—John W. Darrah, Judge.

United States v. Midwest Generation, LLC, 694 F. Supp. 2d 999, 2010 U.S. Dist. LEXIS 22729 (N.D. Ill., 2010)

Disposition: AFFIRMED.

Core Terms

plant, modifications, construction permit, control technology, limitations, modified, district court, regulation, permits

Case Summary

Procedural Posture

Plaintiffs, the United States and the State of Illinois, appealed a judgment of the United States District Court for the Northern District of Illinois, Eastern Division, dismissing as untimely their claim against a coal-fired power plant owner based on *42 U.S.C.S. § 7475(a)*.

Overview

Plaintiffs' claim brought under *§ 7475(a)* was properly dismissed as untimely under *28 U.S.C.S. § 2462* because the action was filed more than five years after the last modifications were made to the owner's plants and the failure to obtain the required construction permit was not a continuing violation. Further, because *§ 7475* dealt with getting permission for construction, not with a plant's operations, the owner's violations of *§ 7475* that occurred in the 1990s did not make its current operations a violation of federal law, so they did not derivatively violate *415 ILCS 5/9.1(d)(2)*.

Outcome
The court affirmed the district court's judgment.

LexisNexis® Headnotes

Environmental Law > Air Quality > Preconstruction Permits

HN1[] **Air Quality, Preconstruction Permits**

Any "major emitting facility" built or substantially modified after August 7, 1977, in parts of the country subject to the rules about prevention of significant deterioration, needs a permit. *42 U.S.C.S. § 7475(a)*. This construction permit is in addition to the operating permits that many facilities require under the Clean Air Act and the need to comply with state implementation plans. One condition of a construction permit is installation of the best available control technology for each pollutant subject to regulation under the Act. *§ 7475(a)*.

Governments > Legislation > Statute of Limitations > Time Limitations

HN2[] **Statute of Limitations, Time Limitations**

The time for the United States to sue under *28 U.S.C.S.*

§ 2462 begins with the violation, not with a public agency's discovery of the violation.

Governments > Legislation > Statute of Limitations > Time Limitations

HN3 **Statute of Limitations, Time Limitations**

A claim accrues when the plaintiff has a complete and present cause of action, and the statute of limitations begins to run when the claim accrues.

Environmental Law > Air Quality > Preconstruction Permits

HN4 **Air Quality, Preconstruction Permits**

42 U.S.C.S. § 7475 bears the caption "Preconstruction requirements" and begins this way: "No major emitting facility on which construction is commenced after August 7, 1977, may be constructed in any area to which this part applies unless—". The rest of § 7475(a) spells out the conditions that must be met before the permit will issue. 40 C.F.R. § 52.21(r)(1). The text bears out the caption: it specifies a step the operator must take before constructing or modifying a "major emitting facility." The violation is complete when construction commences without a permit in hand. Nothing in the text of § 7475 even hints at the possibility that a fresh violation occurs every day until the end of the universe if an owner that lacks a construction permit operates a completed facility.

Governments > Legislation > Interpretation

Governments > Legislation > Statute of Limitations > Time Limitations

HN5 **Legislation, Interpretation**

Courts are not to read statutes in a way that would abolish effective time constraints on litigation.

Environmental Law > Air Quality > Preconstruction Permits

HN6 **Air Quality, Preconstruction Permits**

42 U.S.C.S. § 7475(a)(4) specifies what must be built, not how the source operates after construction. If the owners ripped out or deactivated the best available control technology after finishing construction that would not violate § 7475, though it might well violate some other statute, regulation, or implementation plan prescribing how polluters run their facilities.

Environmental Law > Air Quality > State Implementation Plans

HN7 **Air Quality, State Implementation Plans**

415 ILCS 5/9.1(d)(2) provides that no one shall "modify or operate" a point source except in compliance with the requirements of such sections of the Clean Air Act and federal regulations adopted pursuant thereto.

Environmental Law > Air Quality > State Implementation Plans

HN8 **Air Quality, State Implementation Plans**

No one can operate a plant except in compliance with federal law with or without 415 ILCS 5/9.1(d)(2).

Governments > Legislation > Statute of Limitations > General Overview

HN9 **Legislation, Statute of Limitations**

Enduring consequences of acts that precede the statute of limitations are not independently wrongful.

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Judges: Before EASTERBROOK, Chief Judge, and MANION and TINDER, Circuit Judges.

Opinion by: EASTERBROOK

Opinion

[*645] EASTERBROOK, **[**2]** *Chief Judge.* HN1[↑] Any "major emitting facility" built or substantially modified after August 7, 1977, in parts of the country subject to the rules about prevention of significant deterioration (PSD), needs a permit. 42 U.S.C. §7475(a). This construction permit is in addition to the operating permits that many facilities require under the Clean Air Act and the need to comply with state implementation plans. One condition of a construction permit is installation of "the best available control technology for each pollutant subject to regulation under" the Act. 42 U.S.C. §7475(a).

Between 1994 and 1999 Commonwealth Edison Co. modified five of its coal-fired power plants: Crawford and Fisk in Chicago; Powerton in Pekin; Waukegan Station in Waukegan; and Joliet in Joliet. All five plants had been operating on August 7, 1977, and were grandfathered until the modification. We must assume, given the posture of this litigation, that the modifications required permits under §7475(a). But Commonwealth Edison did not obtain permits. The question "how much repair or change requires a permit?" has been contentious and difficult. See, e.g., *Environmental Defense v. Duke Energy Corp.*, 549 U.S. 561, 127 S. Ct. 1423, 167 L. Ed. 2d 295 (2007); **[**3]** *United States v. Cinergy [*646] Corp.*, 458 F.3d 705 (7th Cir. 2006); *United States v. Cinergy Corp.*, 623 F.3d 455 (7th Cir. 2010). Commonwealth Edison took the position that permits were not required and that it therefore was not obliged to install "the best available control technology" (called BACT in the jargon of environmental law). This was a risky strategy because, if someone had contested the decision within the statute of limitations (five years; see 28 U.S.C. §2462), then Commonwealth Edison could have needed to undertake a further round of modifications to get the permit and might have had to pay hefty penalties for the delay. As it happened, however, no one sued until 2009, a decade after the last of the modifications had been completed. The district court dismissed as untimely the claim based on §7475(a). 694 F. Supp. 2d 999 (N.D. Ill. 2010), reconsideration denied, 781 F. Supp. 2d 677 (2011). Claims concerning another plant remain pending, as do claims related to a different permit requirement for these five plants and the emissions limits for their continued operation. But the district court entered a partial final judgment under Fed. R. Civ. P. 54(b) so that the claim under §7475(a) **[**4]** could proceed to appeal while the parties' remaining disputes were ongoing in the district court.

After finishing the modifications, Commonwealth Edison sold the five plants to Midwest Generation. This has introduced some complications. The United States and Illinois, the two plaintiffs in this suit, contend that Midwest is liable as Commonwealth Edison's successor, and it accuses the district court of allowing a corporate restructuring to wipe out liability for ongoing pollution. Adding another twist, Midwest and its corporate parent Edison Mission Energy filed petitions under the Bankruptcy Code after the appeal was argued. The parties have agreed that the law-enforcement exception to the automatic stay in bankruptcy, 11 U.S.C. §362(b)(4), applies to these proceedings, which therefore need not be consigned to limbo. Nor need we worry about whether the sale had any effect on liability, and if so who would be responsible today. Midwest cannot be liable when its predecessor in interest would not have been liable had it owned the plants continuously.

Commonwealth Edison needed permits before undertaking the modifications. By the time this suit commenced, between 10 and 15 years had passed **[**5]** since the modifications were finished, at least double the five-year period of limitations. Plaintiffs do not contend that the time was extended by delay in discovering the modifications and, after *Gabelli v. SEC*, 133 S. Ct. 1216, 185 L. Ed. 2d 297 (2013), no such argument would be tenable. (*Gabelli* holds that HN2[↑] the time for the United States to sue under §2462 begins with the violation, not with a public agency's discovery of the violation.) *Gabelli* observes that HN3[↑] "a claim accrues when the plaintiff has a

complete and present cause of action" (*133 S. Ct. at 1220*, quoting from *Wallace v. Kato, 549 U.S. 384, 388, 127 S. Ct. 1091, 166 L. Ed. 2d 973 (2007)*) and that the statute of limitations begins to run when the claim accrues. That occurred as early as 1994 for one plant and no later than 1999 for any of the five.

Plaintiffs concede all of this but reply that failure to obtain a construction permit is a continuing violation. The phrase "continuing violation" is ambiguous. It may mean any of at least three things: (1) ongoing discrete violations; (2) acts that add up to one violation only when repeated; and (3) lingering injury from a completed violation. Analysis will be easier if we call the first situation a continuing violation, the second **[**6]** a cumulative violation, and the third a continuing-injury situation. **[*647]** See *Turley v. Rednour, No. 11-1491, 729 F.3d 645, 2013 U.S. App. LEXIS 13571 (7th Cir. July 3, 2013)* (concurring opinion). Plaintiffs make arguments of both the continuing-violation and continuing-injury stripes.

The continuing-violation argument is that every day a plant operates without a *§7475* permit is a fresh violation of the Clean Air Act. Congress sometimes writes regulatory statutes that way, but *§7475* is not among them. *HN4*[↑] *Section 7475* bears the caption "Preconstruction requirements" and begins this way: "No major emitting facility on which construction is commenced after August 7, 1977, may be constructed in any area to which this part applies unless—". The rest of *§7475(a)* spells out the conditions that must be met before the permit will issue. See also *40 C.F.R. §52.21(r)(1)*. The text bears out the caption: it specifies a step the operator must take before constructing or modifying a "major emitting facility". The violation is complete when construction commences without a permit in hand. Nothing in the text of *§7475* even hints at the possibility that a fresh violation occurs every day until the end of the universe if an owner that lacks a construction **[**7]** permit operates a completed facility. *HN5*[↑] *Gabelli* tells us not to read statutes in a way that would abolish effective time constraints on litigation.

Two other courts of appeals have considered whether operating a new or modified plant, despite failure to obtain a construction permit, is a new violation of *§7475(a)*. Both have held that it is not. *Sierra Club v. Otter Tail Power Co., 615 F.3d 1008 (8th Cir. 2010)*; *National Parks and Conservation Association Inc. v. Tennessee Valley Authority, 502 F.3d 1316 (11th Cir. 2007)*. We agree with those decisions. Although plaintiffs insist that the construction permit has "an operational component," they mean only that under *§7475(a)(4)* the operator must install the best available control technology. *HN6*[↑] *Section 7475(a)(4)* specifies what must be built, not how the source operates after construction. If the owners ripped out or deactivated the best available control technology after finishing construction that would not violate *§7475*—though it might well violate some other statute, regulation, or implementation plan prescribing how polluters run their facilities.

Plaintiffs stress that *§7475(a)(4)* says that newly built or modified sources are "subject **[**8]** to" the need for the best available control technology. That obligation, they insist, continues after the construction work is done, which leads them to say that *National Parks and Conservation Association Inc. v. Tennessee Valley Authority, 480 F.3d 410 (6th Cir. 2007)*, disagrees with the eighth and eleventh circuits. Yet the sixth circuit's decision rests on Tennessee statutes and implementation plans that require certain sources to use the best available control technology, while *§7475* deals only with conditions precedent to construction or modification. Perhaps an Illinois statute, regulation, or implementation plan provides that any plant "subject to" BACT by virtue of *§7475(a)(4)* must use it in operation, but any claim of that sort remains pending in the district court. What BACT entails is plant-specific. *40 C.F.R. §52.21(b)(12)*. All we have for decision is a claim directly under *§7475*.

Plaintiffs maintain that *415 ILCS 5/9.1(d)(2)* works the same way as the Tennessee requirements that the sixth circuit considered. To the extent that this contention is independent of *§7475*, we leave it to the district judge in the first instance. To the extent that plaintiffs maintain that Commonwealth **[**9]** Edison has violated *§5/9.1(d)(2)* because it earlier violated *§7475*, the argument is wrong. *HN7*[↑] *Section 5/9.1(d)(2)* provides that no one shall "modify **[*648]** or operate" a point source "except in compliance with the requirements of such Sections [of the Clean Air Act] and federal regulations adopted pursuant thereto". Plaintiffs point to "or operate", which is missing from *§7475(a)*. This gets us nowhere, however; *HN8*[↑] no one can operate a plant except in compliance with federal law with or without *§5/9.1(d)(2)*. We have already concluded that *§7475* deals with getting permission for construction, not with a plant's operations; it follows that Commonwealth Edison's violations of *§7475* during the 1990s do not make its current operations a violation of federal law, so they do not derivatively violate *§5/9.1(d)(2)*.

Plaintiffs' contention that a continuing injury from failure to get a preconstruction permit (really, from failure to use BACT) makes this suit timely is unavailing. What these plants emit today is subject to ongoing regulation under rules other than §7475. Today's emissions cannot be called unlawful just because of acts that occurred more than five years before the suit began. Once the statute **[**10]** of limitations expired, Commonwealth Edison was entitled to proceed as if it possessed all required construction permits. That's the point of decisions such as *United Air Lines, Inc. v. McMann, 434 U.S. 192, 98 S. Ct. 444, 54 L. Ed. 2d 402 (1977)*, and *Ledbetter v. Goodyear Tire & Rubber Co., 550 U.S. 618, 127 S. Ct. 2162, 167 L. Ed. 2d 982 (2007)*, which hold that *HN9*[↑] enduring consequences of acts that precede the statute of limitations are not independently wrongful.

AFFIRMED

End of Document

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation, LLC	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	5/9/2017	
Keyword:		*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 23 2017

REVIEWER: EMI

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/785-1705

CONSTRUCTION PERMIT -- REVISED

MAY 09 2017

PERMITTEE

Midwest Generation, LLC
Attn: Sharene Shealey
529 East 135th Street
Romeoville, Illinois 60466

Application No.: 15030051 I.D. No.: 197809AAO
Applicant's Designation: Natural Gas Date Received: April 14, 2017
Subject: Natural Gas Conversion Project
Date Issued: MAY 09 2017
Location: Joliet Generating Station, 1800 Channahon Road, Joliet, Will County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and air pollution control equipment consisting of a natural gas conversion project as described in the above-referenced application. This Permit is subject to standard conditions attached hereto (as Attachment 2) and the following special conditions.

If you have any questions on this permit, please call Bob Smet at 217/785-9250.

Raymond E. Pilapil

Raymond E. Pilapil
Manager, Permit Section
Division of Air Pollution Control

REP:RPS:clc

cc: USEPA Region V (Lotus Notes)

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 23 2017

REVIEWER: EMI

PART 1: PROJECT-WIDE CONDITIONS

1.1 Introduction

a. This permit addresses a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units, as listed below, will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers (the main boilers) on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x) and particulate ($PM/PM_{10}/PM_{2.5}$).

Main Boiler(s)	Electrical Generating Unit
Boiler 5	Unit 6
Boilers 71 and 72	Unit 7
Boilers 81 and 82	Unit 8

b. This permit was revised on June 8, 2016 to address provisions of 35 IAC Part 201 Subpart I for startup and malfunction/ breakdown of each affected boiler as related to the applicable state standard for NOx, 35 IAC 217.141(a).

c. For Boiler 5, this revised permit provides additional time to conduct the emission testing required by Condition 2.1.7(b)(i), until September 30, 2018, to enable this testing to be conducted while this boiler is operating at its maximum load range.

1.2 Termination of Coal-Firing Capability

a. Upon initial startup of a main boiler following conversion to natural gas, as provided for by this permit, that boiler shall cease to fire coal.

b. On such date that a main boiler initially starts up following conversion to natural gas, the existing air pollution control operating permits that address burning of coal in the boilers shall terminate and be replaced by this construction permit:

Unit 6	Permit 73030837
Unit 7	Permit 73030838
Unit 8	Permit 73030839

1.3 Non-Applicability of New Source Review (MSSCAM and PSD)

a. This permit is issued based on this project not being a major project for purposes of Illinois' rules for Major Stationary

Sources Construction And Modification (MSSCAM), 35 IAC Part 203. For NO_x, this is because this project will reduce NOx emissions from the main boilers and the NOx emissions of the new emission units will not be significant. For volatile organic material (VOM), this is because the source will continue to not be a major source for VOM emissions. (See also Attachment 1.)

b. This permit is issued based on this project not being a major project for purposes of the federal rules for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This is because this project will reduce emissions of regulated PSD pollutants from the main boilers and the emissions of regulated PSD pollutants from the new emission units will not be significant. (See also Attachment 1.)

1.4 Applicability of 40 CFR 63 Subpart DDDDD

a. For purposes of applicability of 40 CFR 63, this permit is issued based on this plant being a major source of hazardous air pollutants (HAPs) on January 31, 2016, the compliance date of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Source: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD. As a consequence, the new auxiliary boiler, the fuel heaters and potentially the main boilers following conversion to natural gas will be subject to the applicable provisions of 40 CFR 63 Subpart DDDDD, which NESHAP addresses major sources of HAPs, notwithstanding the reductions in the HAP emissions of the plant that will result from this project.

1.5 Compliance with Emission Limits

a. The emission limits set by this permit address all emissions from affected emission units, including emissions during startup, shutdown and malfunction or breakdown.

b. When emission testing is conducted, hourly emission rates shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.

c. i. Except as provided below or unless otherwise specified in a particular provision, compliance with annual limits established by this permit shall be determined from a rolling total of 12 months of data, i.e., from the sum of the data for the current month and data for the preceding 11 months (12 month total), and shall consider all emissions, including emissions during startup, shutdown, and malfunction or breakdown.

ii. For the main boilers, for the first year (12 months) of operation following conversion of a main boiler or

boilers to natural gas, compliance shall be determined from a cumulative total of monthly data for the main boiler or boilers that have been converted, i.e., from the sum of the data for the current month and data for all preceding months for such boilers beginning on the date or dates that boiler or boilers first resumed operation following conversion on natural gas.

iii. For the new auxiliary boiler and fuel heaters, for the first year of operation, compliance shall be determined from a cumulative total of monthly data, i.e., from the sum of the data for the current month and data for all preceding months.

1.6 Retention and Availability of Records

a. Unless otherwise provided for by a Clean Air Act Permit Program (CAAPP) permit for the source, the Permittee shall retain all records and logs required by this permit for at least five years from the date of entry (unless a longer retention period is specified by a particular provision), keep the records at a location at the plant that is readily accessible to the Illinois EPA or USEPA, and make records available for inspection and copying by the Illinois EPA or USEPA upon reasonable request.

1.7 Submittals to the Illinois EPA

a. All reports and notifications required by this permit shall be sent to the Illinois EPA, Bureau of Air Compliance Section in Springfield.

b. A copy of all required reports and notifications concerning performance testing and emissions monitoring shall also be sent directly to the Source Monitoring Unit in the Illinois EPA, Bureau of Air, Compliance Section.

1.8 Authorization for Operation

The plant may be operated in accordance with this construction permit pursuant to this permit until a Clean Air Act Permit Program (CAAPP) permit is issued for the source that addresses this project, provided that the initial performance testing required by this permit for the main boilers by Condition 2.1.7 is completed in a timely manner and a complete application for a CAAPP permit for this source is submitted that addresses this project within one year of initial operation of a main boiler on natural gas or initial operation of a new unit, whichever occurs first, as provided by Section 39.5(5)(x) of the Act. This condition supersedes Standard Condition 6.

1.9 Standard Permit Conditions

Standard conditions for issuance of construction permits, attached hereto, shall apply to this project, unless superseded by other conditions in the permit. (Refer to Attachment 2.)

PART 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

Subpart 2.1: Unit-Specific Conditions for the Main Boilers

2.1.1 Description

The affected boilers for the purpose of these unit-specific conditions are the five existing generating unit boilers or "main boilers" at the plant following conversion to natural gas as described below. These boilers are served by three stacks, with two pairs of boilers having common stacks. When this conversion is completed for a boiler with installation of new natural gas burners, certain emission standards that are applicable to fuel combustion emission units that fire coal will no longer be applicable for the boiler. In addition, certain existing emission control equipment and systems that were used when burning coal, i.e., the electrostatic precipitators for particulate, the selective non-catalytic reduction systems for NO_x and the sorbent injection system for mercury, will no longer be needed. Continuous emissions monitoring will no longer be required for emissions of sulfur dioxide (SO_2) or mercury. It is also expected that continuous opacity monitoring will no longer be required.

Boiler/ Generating Unit	Description	Emission Control Equipment
Boiler 5 (BLR5)/ Unit 6	Babcock and Wilcox Boiler Nominal 3,543 mmBtu/hour	Over fired Air, and Gas Reburn
Boilers 71 & 72 (BLR71 & 72)/ Unit 7	Combustion Engineering Boilers Nominal 6,034 mmBtu/hour, combined	Low NOx Burners and Over-fired Air
Boilers 81 & 82 (BLR81 & 82)/ Unit 8	Combustion Engineering Boilers Nominal 6,386 mmBtu/hour, combined	Low NOx Burners, and Over-fired Air

2.1.2 New Applicable Emission Standards and Requirements

a. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD (the Boiler NESHAP), the affected boilers will become subject to the Boiler NESHAP when they cease to be subject to the provisions of the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU (commonly referred to as the Mercury and Air Toxics Standards or MATS). On such date, for each affected boiler, the Permittee must comply with applicable requirements of 40 CFR 63 Subpart DDDDD for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-

ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

iii. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, by the applicable compliance date for the first main boilers to comply with this NESHAP, the Permittee shall have one-time energy assessment performed for the plant by a qualified energy assessor, which assessment meets the relevant requirements of Table 3 and the definition of "energy assessment" in 40 CFR 63.7575.

b. i. Pursuant to 35 IAC 217.141, the NO_x emissions of Boiler 5 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: Boiler 5 was not previously subject to a NO_x limit pursuant to 35 IAC 217.141 because 35 IAC 217.141(d) excluded cyclone fired boilers burning solid fuel from this rule.

ii. Subject to the following terms and conditions, the Permittee is authorized to operate each affected boiler in violation of 35 IAC 217.141(a) during startup, pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. The Permittee shall conduct startup of each affected boiler in accordance with written procedures maintained by the Permittee which serve to minimize excess emissions from startups and that include, at a minimum, the following measures:

1. Review of the operational condition of the boiler prior to initiating startup; and

2. Management of the operational parameters of the boiler during each startup as necessary to

make appropriate adjustments to the startup to reduce or eliminate excess emissions.

B. The Permittee shall fulfill the recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(A) and (d), and 2.1.10(b)(iii) with respect to startups.

C. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions.

iii. Subject to the following terms and conditions, the Permittee is authorized to continue operation of each affected boiler in violation of 35 IAC 217.141(a) in the event of a malfunction or breakdown of each affected boiler. This authorization is made pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. This authorization only allows such continued operation as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment, provided however, that operation shall not continue solely for the economic benefit of the owner or operator of the plant.

B. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable take action(s) so that excess emissions cease.

C. The Permittee shall fulfill recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(C) and (d) and 2.1.10(b)(iii) and (c) with respect to malfunctions and breakdowns.

D. Following reporting of an incident to the Illinois EPA of a malfunction or breakdown that resulted in excess NOx emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

2.1.3 Changes to Emission Standards and Requirements

a. The affected boilers are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75.

Note: Condition 2.1.4(c) addresses the possibility that opacity monitoring will no longer be required for the affected boilers under the Acid Rain Program.

b. The affected boilers are not subject to the following standards in 35 IAC Part 212 Subpart E for emissions of particulate matter from existing fuel combustion emission units burning solid fuel:

Boiler 5: 35 IAC 212.201 and 212.203
Boilers 71, 72, 81 and 82: 35 IAC 212.201

c. The affected boilers are not subject to the standard in 35 IAC 214.141 for SO_2 emissions from existing fuel combustion emission units burning solid fuel that are located in the Chicago major Metropolitan Area.

d. Pursuant to 35 IAC 217.141, the NOx emissions of affected Boilers 71 and 72 and Boilers 81 and 82 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: This limit takes the place of the limit in 35 IAC 217.141(b), which limits the NOx emissions of such boilers firing solid fuel to 0.90 lbs/mmBtu of actual heat input.

2.1.4 Non-Applicability Provisions

a. This permit is issued based on the affected boilers not becoming subject to the New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60 Subpart Da, as a result of this project. This is because these boilers will not undergo modifications as addressed by 40 CFR 60.14, i.e., there will not be increases in the hourly rate of emissions of any pollutant for which this NSPS has standards from any of the boilers. This project will also not constitute reconstruction as addressed by 40 CFR 60.15. This is because the capital cost of the changes made to each affected boiler will not exceed 50 percent of the capital cost of a replacement boiler.

b. Pursuant to 40 CFR 63.10000(f), this permit is issued based on affected EGUs not being subject to the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU, or MATS, beginning six months after coal is last combusted in the EGU unless the Permittee elects to remain subject to the provisions of MATS. This is because, pursuant to 40 CFR 63.9981, MATS only applies to a "coal-fired EGU or oil-fired EGU," as defined by 40 CFR 63.10042. In addition, 40 CFR 63.10000(f) only requires that an EGU that is subject to MATS continue to be subject to its provisions for six months following the last date that the EGU met the definition of an EGU subject to MATS.

c. This permit is issued based on the Permittee potentially no longer being required to conduct continuous monitoring for opacity for the affected boilers:

i. For purposes of 35 IAC Part 201 Subpart L, Continuous Monitoring, this is because natural gas is the only fuel burned in the EGU and the EGUs are excluded from such opacity monitoring pursuant to 35 IAC 201.401(a)(1)(A)(i).

ii. For purposes of the Acid Rain Program, this is because, pursuant to 40 CFR 75.14(c), the affected boilers or EGUs will qualify as "gas-fired units," as defined by 40 CFR 72.2, for purposes of 40 CFR Part 75, Continuous Emission Monitoring, if the designated representative for the source submits to USEPA either:

A. A minimum of 720 hours of unit operating data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its heat input is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil, and a statement that this changed pattern of fuel usage is considered permanent and is projected to continue for the foreseeable future; or

B. Three calendar years of data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its average annual heat input during the previous three calendar years, and no less than 85.0 percent of its annual heat input during any one of the previous three calendar years, is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil.

2.1.5 Operational Requirements

a. Before beginning operation of each affected boiler on natural gas pursuant to this permit, the Permittee shall clean the interior of the boilers to remove accumulated ash.

2.1.6 Operational and Emission Limits

a. i. The combined heat input to the affected boilers shall not exceed 12.0 million mmBtu/month and 69.9 million mmBtu/year.

ii. The heat input to Boiler 5 shall not exceed 2.6 million mmBtu/month and 15.52 million mmBtu/year.

b. i. The NO_x emissions of the affected boilers shall not exceed the following limits. Compliance with the limits below in lbs/mmBtu shall be determined on a 30-boiler operating day rolling average basis, in accordance with the provisions of 40 CFR 60.48Da(d). Compliance with the limits in lbs/mmBtu and tons/year shall consider all emissions, including emissions during periods of startup or malfunction/breakdown. Compliance with the limits in lbs/hour, which are set to address non-applicability of the NSPS, 40 CFR 60 Subpart Da, shall only consider normal operation.

	Limits		
Boiler(s)	Lbs/mmBtu	Lbs/Hour	Tons/Year
Boiler 5	0.135	2103	1047.6
Boiler 71/72	0.110	4136	---
Boiler 81/82	0.110	1251	---
Total	---	---	4040

ii. The VOM emissions of the affected boilers shall not exceed the following limits:

A. 0.0027 lb/mmBtu, and

B. 94.9 tons/year.

c. Notwithstanding Conditions 2.1.6(a)(i) and (b)(ii)(A), until results of emission testing conducted pursuant to Condition 2.1.7 have been submitted to the Illinois EPA showing that the VOM emissions of the affected boilers do not exceed 0.0027 lb/mmBtu, the combined heat input to the affected boilers shall not exceed 34.5 million mmBtu/year (rather than 69.9 million mmBtu/year) and the VOM emissions of the affected boilers shall not exceed 0.0055 lb/mmBtu (rather than 0.0027 lb/mmBtu).

Note: The limits in Condition 2.1.6 address the operation and emissions of Boilers 5, 71/72 and 81/82 following their conversion to natural gas.

2.1.7 Emission Testing

a. The Permittee shall have emissions testing conducted for the affected boiler(s) for CO and VOM as follows:

b. The timing of this testing shall be as follows:

i. Within one year (365 days) after initially operating Boilers 71/72 and Boilers 81/82, following conversion to natural gas and for Boiler 5, by September 30, 2018, the Permittee shall have initial emission tests conducted for such boiler(s) while the boiler(s) are operating at maximum rates and other representative operating conditions.

ii. Until a CAAPP permit is issued that addresses the affected boilers, this testing shall be repeated within at least three years of the previous testing.

iii. The Permittee shall perform emission tests as provided below for boiler(s) as requested by the Illinois EPA within 90 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

c. i. The following methods and procedures shall be used for this testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

ii. In conjunction with the initial emission tests, the Permittee shall also conduct measurements for opacity. These measurements shall be conducted using the continuous opacity monitors (COMS) on the boiler(s) or by Method 9, if the COMS are no longer in service.

d. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.1. In addition to other required information, if test runs that are longer than one-hour in duration are planned, the expected duration of the runs and the reason for extended runs shall be explained in the test plans and in the test reports.

e. In addition to other information required in a test report, test reports shall include detailed information on the

operating conditions of the affected boiler(s) during testing, including:

A. Firing rate (mmBtu/hour).

B. Significant operating parameters of the affected boiler(s).

C. Opacity of the exhaust from the affected boiler(s), 6-minute averages.

D. Turbine Generator output (MW_e gross).

2.1.8-1 Continuous Emissions Monitoring for NOx

a. For the affected boilers or EGUs, the Permittee shall continue to calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the NOx emissions in accordance with the applicable monitoring requirements of the federal Acid Rain Program, 40 CFR Part 75, and the Cross State Air Pollution Rule, 40 CFR 96 Subpart HHH unless it obtains approval from USEPA to transition to the alternative monitoring protocol for a natural gas-fired peaking unit for such boilers or EGUs.

b. For the affected boilers or EGUs, this monitoring for NOx emissions conducted above shall also be used to determine compliance with the limits for NOx emissions in Condition 2.1.6(b)(i), except that the provisions for substitution of missing data need not be used.

2.1.8-2 Changes in Monitoring for Emissions of SO_2 and Mercury and for Opacity

a. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of SO_2 CEMS on the affected boilers or EGUs and beginning monitoring of SO_2 emissions on such units using the Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units, Appendix D to 40 CFR Part 75, as provided for by 40 CFR 75.11(d)(2). With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA for this change in monitoring methodology for SO_2 emissions; and 2) If the EGU is still subject to MATS, a showing that the EGU now qualifies as a low emitting EGU for SO_2 emissions under the MATS, as addressed by 40 CFR 63.10005(h)(1), or that an SO_2 CEMS is no longer otherwise required by MATS.

b. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of mercury CEMS on the affected boilers or EGUs. With this notification, if the EGU is still subject to MATS, the Permittee shall provide a demonstration that the EGU now qualifies as a low emitting EGU for mercury

emissions under the MATS, as addressed by 40 CFR 63.10005(h)(2), or that a mercury CEMS is no longer otherwise required by MATS. Unless 35 IAC Part 225 Subpart B has been amended to provide that its requirements related to mercury emissions no longer apply when an EGU permanently ceases combustion of coal, this notification shall also include a demonstration that such EGU is eligible to use the low mass emission excepted monitoring methodology, as provided for by 35 IAC 225.240(a)(4), and will continue to comply with a mercury emission standard in 35 IAC 225.294(c)(i) (0.0080 lbs mercury/GWh gross electrical output) for the remainder of the calendar year.

c. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of COMS on affected boilers or EGUs. With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA pursuant to 40 CFR 75.24(c)(c) showing that the EGU now qualifies as a "gas-fired unit" for purposes of monitoring under 40 CFR Part 75; 2) Confirmation that continued use of COMS is not required by 35 IAC 201.401(a)(1), 3) The average and maximum values of opacity, 6-minute average, monitored for the EGU during the previous 720 hours of operation, not including any time after conversion to natural gas when the ESPs on the EGU were still being operated, and 4) If the ESPs are operated for any time after conversion to natural gas, the average and maximum value of opacity for such periods when the ESPs were operated.

2.1.9 Recordkeeping

a. For the affected boilers, unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, the Permittee shall maintain the records required by this NESHAP, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain the records of the following information for Boiler 5, Boilers 71/72 and Boilers 81/82, on a monthly and annual basis:

i. Fuel consumption, in million scf.

ii. Heat input, in mmBtu.

iii. Total operating hours of the generating unit.

iv. Total number of boiler startups.

c. The Permittee shall maintain the following records for the operation and maintenance of each affected boiler:

i. An operating log for the boiler that, at a minimum, shall address:

A. Each startup of the boiler, including the date, time when burning of natural gas began, time startup was completed and description.

B. Each shutdown of the boiler, including the date and time, and description.

C. Any upset of the boiler that significantly impaired emission performance, including a description of the event, corrective actions taken, and preventative actions taken to address similar events.

ii. Inspection, maintenance and repair log(s) for the boiler and associated control system that, at a minimum, shall identify dates and nature of activities performed related to components that may affect emissions; the reason for such activities, i.e., whether planned or initiated due to a specific event or condition; and any failure to carry out the established maintenance procedures, with explanation.

d. The Permittee shall record the information specified by Condition 3.3 for any period during which the affected boiler deviated from an applicable emission limit or other requirement.

e. For the affected boilers, the Permittee shall maintain the following records related to NOx emissions:

i. The following records for Boiler 5, Boilers 71/72 and Boilers 81/82, with supporting data and calculations:

A. NO_x emissions, recorded hourly in units of lbs/hour and lbs/mmBtu, which shall be determined from monitoring in accordance with Condition 2.1.8-1.

B. NO_x emissions, in lbs/mmBtu, on a 30 boiler-operating-day rolling average basis.

C. NO_x emissions (tons/month and tons/year).

ii. Records for the combined NO_x emissions of the affected boilers (tons/month and tons/year).

f. For the affected boilers, the Permittee shall maintain the following records related to VOM emissions:

i. A file containing a determination of the maximum hourly VOM emission rates of Boiler 5, Boilers 71/72 and Boilers

81/82, (lbs/mmBtu and lbs/hour), with supporting documentation And calculations.

ii. Records of combined actual VOM emissions of the boilers (tons/month and tons/year), with supporting calculations.

2.1.10 Notification and Reporting

a. For the affected boilers, the Permittee shall notify the Illinois EPA within 30 days of the following events:

i. The date that each affected boiler or EGU last fires coal. With this notification, the Permittee shall notify the Illinois EPA if it intends to voluntarily continue to comply with MATS for longer than six months from this date.

ii. The date that each affected boiler or EGU initially fires natural gas following conversion pursuant to this permit.

b. The Permittee shall notify the Illinois EPA of deviations of affected boiler(s) from applicable requirements of this permit as follows. These notifications shall include the information specified by Condition 3.4.

i. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, deviations from requirements of the Boiler NESHAP shall be reported in the reports required by the Boiler NESHAP or otherwise in accordance with Condition 2.1.10(b)(iv).

ii. Deviations from the limits for NO_x emissions in lbs/mmBtu in Condition 2.1.6(b)(i) shall be reported in the semi-annual monitoring reports for the NO_x CEMS.

iii. Deviations from the NO_x limits shall be reported within 30 days.

iv. Other deviations from applicable requirements, including deviations that occurred during startup or malfunction/breakdown, shall be reported in a quarterly report.

d. Pursuant to 35 IAC 201.263, the Permittee shall submit a report to the Illinois EPA for any incident when operation of each affected boiler continued for more than two hours with NOx emissions in excess of 35 IAC 217.141(a) during malfunction/ breakdown, as addressed by Condition 2.1.2(b)(iii). This requirement does not apply for excess emissions, if any that occur during startup or shutdown of the affected boiler. These reports shall be expeditiously provided by telephone, facsimile

or electronic mail to the Illinois EPA, Air Compliance Section and Air Regional Office. These reports shall include a description of the incident and, if excess emissions are still continuing, a description of the corrective actions that are being taken or are planned and the expected duration of the incident.

Subpart 2.2: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILERS

2.2.1 Description

The affected boiler for the purpose of these unit-specific conditions is the new natural gas-fired auxiliary boiler, as described below that will be installed to support the operation of the plant on natural gas. The auxiliary boiler will supply steam for heating and to assist in the startup of the electrical generating units. The steam from this boiler will not be sent to the existing steam turbine generators to produce electricity that goes to the grid.

Emission Unit	Nominal Heat Input Capacity	Control Measures
Auxiliary Boiler	286 mmBtu/hour	Low-NOx Combustion Technology

2.2.2 Applicable Federal Emission Standards

a. The affected boiler is an affected facility under the federal NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. For the affected boiler, the Permittee shall comply with applicable requirements of this NSPS and applicable requirements of 40 CFR 60 Subpart A, General Provisions, including the following:

i. The NO_x emissions of the affected boiler shall not exceed 43 ng/J (0.10 lb/million Btu) on a 30-day rolling average, pursuant to 40 CFR 60.44b(a), on and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first.

ii. The Permittee shall at all times, maintain and operate the affected boiler in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

b. The affected boiler is subject to 40 CFR 63 Subpart DDDDD (the Boiler NESHAP). For the affected boiler, the Permittee must comply with applicable requirements of this NESHAP for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate

and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

2.2.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.122(a), the opacity of the exhaust from the affected boiler shall not exceed 20 percent, except as provided by 35 IAC 212.122(b).

b. Pursuant to 35 IAC 216.121, the CO emissions from the affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air.

c. Pursuant to 35 IAC 217.164, the NO_x emissions of the affected boiler on an ozone season basis (May 1 through September 30) and an annual basis shall not exceed 0.08 lbs/mmBtu, as applicable for a boiler that firee natural gas.

d. Pursuant to 35 IAC 217.150(e), the Permittee shall operate the affected boiler in a manner consistent with good air pollution control practices to minimize NOx emissions.

2.2.4 Non-Applicability Provisions

a. This permit is issued based on certain provisions of the NSPS, 40 CFR 60 Subpart Db, as follows, not being applicable to the affected boiler:

i. The standard for PM and opacity, because this boiler only burns natural gas. [40 CFR 60.43b(f) and (h)(1)]

ii. The SO_2 standards, because this boiler only fires fuel with a potential SO_2 emission rate of 0.32 lb/mmBtu heat input or less. [40 CFR 60.42b(k)(2), 60.47b(f) and 60.49b(r)]

iii. The opacity monitoring requirements of this NSPS, 40 CFR 60.48b, because this boiler only burns gaseous fuels, without post-combustion technology to reduce SO2 or PM emissions. [40 CFR 60.48b(j)(2)]

b. The affected boiler is not subject to the federal Acid Rain Program pursuant to Title IV of the federal Clean Air Act since it does not qualify as a utility unit or an electrical generating unit for the purpose of this program.

2.2.5 Operational Requirements, Work Practices and Production Limits

a. Natural gas shall be the only fuel fired in the affected boiler.

b. The nominal rated heat input capacity of the affected boiler shall not exceed 286 mmBtu/hour.

c. The usage of fuel in the affected boiler shall not exceed 260,000 mmBtu/month and 1,380,000 mmBtu/year.

d. The steam from the affected boiler shall not be used to produce electricity for commercial sale to the grid.

e. The Permittee shall maintain and operate the affected boiler in a manner consistent with good air pollution control practices to minimize emissions.

2.2.6 Emission Limits

a. The NO_x emissions from the affected boiler shall not exceed 0.036 lb/mmBtu, 30-day average, determined in accordance with the methodology of the NSPS.

b. i. The emissions of the affected boiler shall not exceed the following limits.

Pollutant	Short-Term Emissions (lbs/mmBtu)	Annual Emissions (tons/year)
NO_x	*	24.8
CO	0.037	25.2
VOM	0.0042	2.9
PM	0.0019	1.31
$PM_{10}/PM_{2.5}$	0.0076	5.24

* See Condition 2.2.6(a)

ii. This permit is issued based on minimal emissions of SO_2 from the affected boiler, i.e., emissions of no more than 0.4 tons/year.

2.2.7 Emission Testing Requirements

a. i. For the affected boiler, for NO_x emissions, the Permittee shall fulfill applicable performance testing requirements of the NSPS, including 40 CFR 60.8(a), (c) and (d) and 60.46b(e).

ii. For each performance evaluation conducted to demonstrate compliance with the NSPS, in addition to submitting a test report to the Illinois EPA, the Permittee shall electronically submit the test data to USEPA if required by the NSPS.

b. The Permittee shall have emissions testing conducted for the affected boiler as follows, at its expense by a qualified

testing service under representative operating conditions, for emissions of VOM and CO.

i. The timing of testing shall be as follows:

A. Testing shall initially be conducted for the affected boiler within 365 days after initial startup of the boiler.

B. In addition, the Permittee shall have testing performed as requested by the Illinois EPA for an affected boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

ii. Appropriate USEPA test methods, including the following methods, shall be used for testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.1.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler during testing, including:

A. Fuel consumption (scf);

B. Firing rate (mmBtu/hour) and other significant operating parameters of the affected boiler;

C. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9, if visible emissions are normally present, as determined by Method 22.

2.2.8-1 Monitoring Requirements for NOx Emissions

a. Pursuant to 40 CFR 60.48b, for the affected boiler, the Permittee shall install, calibrate, operate and maintain a CEMS for NOx emissions discharged from the affected boiler and the concentration of CO_2 or O_2 in the exhaust.

i. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of these CEMS. This CEMS shall be operated during all periods of

operation of the affected boiler except for CEMS breakdowns and repairs. This CEMS shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive units operating days as specified and pursuant to 40 CFR 60.48b(f). Data is to be obtained in the scheduling and course of performing calibration checks, and zero and span adjustments as specified in the NSPS.*

* Fulfillment of the above criteria for availability of emission data from the CEMS does not shield the Permittee from potential enforcement for failure to properly maintain and operate the CEMS.

ii. The 1-hour average NO_x emission rates measured by the CEMS shall be expressed in lbs/mmBtu heat input and shall be used to calculate average emission rates pursuant to the NSPS. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2), except as allowed under 60.48b(b)(2).

iii. This CEMS shall also be used to determine compliance with the NO_x limits in Conditions 2.2.3(c) and 2.2.6.

b. The Permittee shall fulfill applicable requirements of the NSPS for this continuous monitoring system, including the following, unless alternative requirements are approved by USEPA pursuant to 40 CFR 60.13(i). For this purpose, pursuant to 40 CFR 60.13(b), the continuous monitoring system shall be installed and operational prior to conducting the initial performance test for NO_x under 40 CFR 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the monitoring devices.

i. Applicable notification requirements, including 40 CFR 60.7(a)(5), 60.8(d) and 60.49b(b).

ii. Applicable operational requirements, including 40 CFR 60.13(e) and 60.48b(c), which provide that a continuous monitoring system shall be operated during all periods of operation of an affected facility except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustment.

iii. Applicable recordkeeping requirements, including 40 CFR 60.49b(g).

iv. Applicable reporting requirements, including 40 CFR 60.7(c), (d) and/or (e) and 60.49b(h).

c. The Permittee shall also fulfill applicable requirements of 35 IAC Part 217 Subpart D for this monitoring system, including the following:

i. Applicable notification requirements of 35 IAC 217.155.

ii. Applicable recordkeeping requirements of 35 IAC 217.156(b)(9) and (b)(10).

iii. Applicable operational requirements of 35 IAC 217.157(a)(1).

iv. Applicable reporting requirements of 35 IAC 217.156(j).

2.2.8-2 Instrumentation Requirements

a. The Permittee shall install, calibrate, operate and maintain instrumentation for the affected boiler for fuel usage, scf.

2.2.8-3 Opacity Observations

a. The Permittee shall perform opacity observations for the affected boiler in accordance with Method 9 on at least an annual basis if visible emissions are normally present when the boiler is operating, as determined by Method 22.

2.2.9 Recordkeeping Requirements

a. For the affected boiler, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain a file or other record containing the following information for the affected boiler:

i. If the maximum design heat input capacity is not stated on the nameplate attached to the affected boiler, the maximum design heat input capacity of the affected boiler, mmBtu/hour, with supporting documentation.

ii. The Permittee's established operating and maintenance procedures for the affected boiler.

c. An operating log or other records for the affected boiler that, at a minimum, shall include the information specified in Condition 3.2 and the following information:

i. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

ii. Information for any incident in which the operation of the affected boiler continued during malfunction or breakdown, including: date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken, as addressed by 40 CFR 60.7(b).

d. The Permittee shall maintain the following operating records for the affected boiler:

i. Daily records of fuel use, which records shall be prepared and maintained following the procedures of 40 CFR 60.49b(d);

ii. Amount of fuel consumed, (million scf/month and million scf/year) and the annual capacity factor, determined on a 12-month rolling basis with a new annual capacity factor calculated for each month pursuant to 40 CFR 60.49b(d).

iii. For the affected boiler, pursuant to 40 CFR 60.49b(r), the fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as that term is defined in 40 CFR 60.41b, and the applicable sulfur limit.

iv. Pursuant to 35 IAC Part 217 Subparts D and E, the following operating records for the affected boiler:

A. Usage of natural gas, in million scf per month and million scf per year.

B. The actual heat input in mmBtu per ozone season and mmBtu per year with supporting documentation for the heat content of the fuel.

C. The applicable NO_x emission limitation in lbs/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.165.

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected boiler that contains the information specified in Condition 3.2(b).

f. The Permittee shall maintain records of the following information for the NO_x emissions of the affected boiler for each operating day, pursuant to 40 CFR 60.49b(g) unless alternative recordkeeping requirements are approved for the boiler in conjunction with USEPA approval of alternative monitoring procedures under the NSPS:

i. Calendar date.

ii. The measured average hourly emission rates (expressed in lbs/mmBtu heat input).

iii. The 30-day average emission rate (lbs/mmBtu heat input and lbs/hour) calculated at the end of each operating day from the measured hourly emission rates for the preceding 30 unit operating days.

iv. Identification of the operating days when the calculated 30-day average emission rates are in excess of an applicable standard or limit, with the reasons for such excess emissions as well as a description of corrective actions taken.

v. Identification of the operating days for which emission data have not been obtained, including a description of corrective actions taken.

vi. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

vii. If continuous emissions monitoring is conducted, the information specified by 40 CFR 60.49b(g)(5), (6), (7), (8) and (9).

g. Pursuant to 35 IAC Part 217 Subpart D and E, the Permittee shall maintain the following records related to the NO_x emissions of the affected boiler:

i. The average hourly NO_x emission data as determined by the CEMS.

ii. The ozone season and annual NO_x emissions (pounds).

iii. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input), calculated within 30 days of the end of the averaging periods (i.e., calculated by October 30 for ozone season averaging period and by January 30 of the following year for annual averaging period).

h. The Permittee shall keep the following records related to the emissions of NO_x, CO, VOM, PM and $PM_{10}/PM_{2.5}$ from the affected boiler:

i. For NO_x, the emissions of NOx from the affected boiler based on continuous emissions monitoring data (tons/month and tons/year).

ii. For pollutants other than NO_x:

A. A file containing the emission factors that are used to calculate emissions, with supporting documentation; and

B. The emissions of the affected boiler based on operating data and applicable emission factors, in tons/month and tons/year, with supporting calculations.

2.2.10 Notification and Reporting Requirements

a. For the affected boiler, the Permittee shall fulfill applicable notification and reporting requirements of the NSPS, 40 CFR 60.7 and 60.49b, by sending required notifications and reports to the Illinois EPA, including the following reports:

i. Written notification of commencement of construction, no later than 30 days after such date. [40 CFR 60.7(a)(1)]

ii. Written notification of the actual date of initial startup, within 15 days after such date. [40 CFR 60.7(a)(3)]

iii. Reports containing the information recorded under 40 CFR 60.49b(a), (b), (g) and (j).

iv. Periodic reports for excess emissions, as further addressed by Condition 2.2.10(d)(i).

v. With the periodic compliance reports, reports certifying that only natural gas that is known to contain insignificant amounts of sulfur were combusted in the affected boilers during the reporting period, pursuant to 40 CFR 60.49b(r).

b. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

c. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of 35 IAC Part 217 Subpart D, including 35 IAC 217.155(b) and 217.156((g) and (j).

d. For the affected boiler, the Permittee shall submit periodic compliance reports to the Illinois EPA for the affected boilers, which reports shall include the following information related to excess NOx emissions and deviations from other

permit requirements. These reports shall be submitted on a semi-annual basis, with each report submitted no later than 30 days following the end of the reporting period.

i. As related to the NSPS standard for NOx (Condition 2.2.2(a)(i)), the state emission standard for NO_x (Conditions 2.2.3(c)) and the limits for NOx emissions set by this permit (Conditions 2.2.6(a) and (b)), the information required for reporting of exceedances under 40 CFR 60.7(c) or (d) and 60.49b(h) and (j) and the information specified by Condition 3.4. If there are no such exceedances during the reporting period, the report shall state that no exceedances occurred during the reporting period.

ii. Information for other deviations during the reporting period, if any, which shall include the information specified by Condition 3.4.

iii. When no excess emissions or deviations have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Subpart 2.3: UNIT-SPECIFIC CONDITIONS FOR THE HEATERS

2.3.1 Description

The affected units for the purpose of these unit-specific conditions are natural gas-fired pipeline heaters. These heaters are used to indirectly heat natural gas to counteract the cooling that occurs when the pressure of natural gas is lowered when transitioning between pipelines. The conversion project may need up to six fuel heaters with nominal rated heat input capacities of up to 11.0 mmBtu/hour each to heat the natural gas supply to the main boilers.

2.3.2 Applicable Federal Emission Standards

a. The affected units are subject to the Boiler NESHAP, 40 CFR 63 Subpart DDDDD. For each affected unit, the Permittee must comply with applicable requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of each affected unit as specified in 40 CFR 63.7540(a)(10), (11), (12) or (13), as applicable. (See also Condition 2.3.4(d).)

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected units, must operate and maintain each unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

b. i. Each affected unit with a heat input capacity of 10 mmBtu/hour or greater is an affected facility under the federal New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc. As an affected facility, the Permittee must comply with applicable requirements of the NSPS, 40 CFR 60 Subpart Dc, and related requirements of 40 CFR 60 Subpart A, General Provisions, for the heater.

ii. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each affected unit with a heat input capacity of 10 mmBtu/hour or greater in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each affected unit shall not exceed 30 percent, except as provided by 35 IAC 212.123(b).

b. Pursuant to 35 IAC 216.121, for each affected unit with actual heat input greater than 10 mmBtu/hour, the CO emissions from the affected unit shall not exceed 200 ppm, corrected to 50 percent excess air.

2.3.3 Non-applicability Provisions

a. This permit is based on the affected units not being subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ, because the source is a major source of HAP.

2.3.4 Operational Limits and Work Practice Requirements

a. Natural gas shall be the only fuel fired in the affected units.

b. The rated heat input capacity of each affected unit shall not exceed 11.0 million Btu/hour.

c. The combined usage of fuel in the affected units shall not exceed 31,000 mmBtu/month and 184,000 mmBtu/year.

d. Pursuant to 40 CFR 63.7500 and Table 3 of the Boiler NESHAP, the Permittee shall conduct periodic tune-ups of the affected units as specified in 40 CFR 63.7540 as follows. These tune-ups shall also serve as work practices for the emissions of CO and VOM of the affected units.

i. For each affected unit without a continuous oxygen trim system and with a heat input capacity of 10 mmBtu per hour or greater: Annually.

ii. For each affected unit without a continuous oxygen trim system and with a heat input capacity of less than 10 mmBtu per hour but greater than 5 mmBtu per hour: Biennially.

iii. For each affected unit with a continuous oxygen trim system that maintains an optimum air to fuel ratio or with a heat input capacity of less than or equal to 5 mmBtu per hour: At least every five years.

2.3.5 Emissions

a. Total emissions from the affected units, combined, shall not exceed the following limits. Compliance with these limits shall be determined from a running total of monthly data.

Pollutant	Limits	
	lb/mmBtu, HHV	Tons/Year
NO_x	0.101	9.3
CO	0.050	4.4
VOM	0.002	0.2

b. This permit is issued based on minimal emissions of PM, $PM_{10}/PM_{2.5}$ and SO_2 from the affected units, i.e., total emissions of each pollutant that are no more than 0.7 tons/year.

2.3.6 Recordkeeping Requirements

a. For the affected units, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)((vi) and 63.7555(a)(1), (i) and (j).

b. For the affected units, the Permittee shall maintain a file containing the following information for each affected unit: model name, serial number, maximum design heat input capacity (mmBtu/hour), the date installed, the date the unit last operated and the date removed from service.

c. The Permittee shall maintain the following records for the amount of fuel combusted in the affected units (scf/month and scf/year).

d. For the affected units, the Permittee shall maintain an operating log or other records for the affected units that, at a minimum, shall include the following information:

i. An inspection, maintenance, and repair log or other records with dates and the nature of such activities for the affected units.

ii. A. For the affected units with a heat input capacity of 10 mmBtu/hour or greater, information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

B. Information for any incident in which the operation of the affected unit continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable

standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

e. The Permittee shall keep the following records related to emissions of NOx, CO and VOM of the affected units, with supporting calculations:

i. A file containing a determination of the maximum emission rates of each pollutant in lbs/mmBtu, with supporting documentation.

ii. Records of actual emissions of each pollutant (tons/month and tons/year), with supporting calculations.

iii. Records of the actual emissions of each pollutant from all affected units, combined (tons/month and tons/year), with supporting calculations.

2.3.7 Notification and Reporting Requirements

a. For the affected units, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

b. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to commencement of construction and operation of the affected units:

i. The date construction of the affected unit commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1) and 40 CFR 60.48c(a).

ii. The actual date of initial startup of the affected units, postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), which shall be accompanied by the following information:

A. The design heat input capacity of the units and identification of the fuels to be combusted in the affected units, pursuant to 40 CFR 60.48c(a)(1).

B. The annual capacity factor at which the Permittee anticipates operating the units based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).

c. For the affected units, the Permittee shall notify the Illinois EPA of deviations from the permit requirements within 30 days of an occurrence. Reports shall include the information specified in Condition 3.4.

PART 3: GENERAL CONDITIONS

3.1 General Requirements for Emission Testing

a. At least 60 days prior to the actual date of initial emission testing required by this permit, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing and shall include at a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.

iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations.

iv. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of testing. Notwithstanding applicable rules, the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.

c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain the following. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

i. A tabular summary of results which includes:

- Process rates (e.g., fuel usage rate or firing rate)
- Measured emission rates for different pollutants tested
- Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu
- Compliance demonstrated - Yes/No.

ii. Description of test method(s) and procedures, including a description of sampling points, sampling train, analysis equipment, and test schedule.

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g., the usage and type of fuel or raw material and the firing or operating rate.)
- Control equipment information (i.e., monitored data and other relevant operating parameters during testing).

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

3.2 General Requirements for "Logs" or Similar Records

a. Operating logs or other similar records required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Information identifying periods when an emission unit or group of related emission units was not in service.

ii. For periods when a unit or group of related units is in service and operating normally, relevant process and control system information to generally confirm normal operation.

iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s), the potential consequences for additional emissions from the unit(s), the potential of any excess emissions from the affected unit(s), the actions taken to restore normal operation, and any actions taken to prevent similar events in the future.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is operated in accordance with good air pollution control practices.

b. Inspection, maintenance and repair logs or other similar information required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Identification of equipment, with date, time, responsible employee and type of activity.

ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.

iii. For maintenance and repair activity, a description of actions taken, reason for action (e.g., preventative measure or corrective action as a result of inspection), probable cause for requiring maintenance or repair if not routine or preventative, and the condition of equipment following completion of the activity.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is maintained in accordance with good air pollution control practices, including prompt repair of defects that interfere with effective control of emissions.

c. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be available for inspection and copying by the Illinois EPA upon request. Any record retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of an on-site inspection. The logs required by this permit may be part of a larger database maintained by the Permittee provided that the information that is required to be kept is readily accessible.

3.3 General Requirements for Records for Deviations

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown

associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

3.4 General Requirements for Reporting of Deviations

a. The Permittee shall include the following information in records and reports for deviations:

i. Identity of the deviation, with date, time, duration and description.

ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.

iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.

b. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a calendar quarter, a report shall be submitted no later than 45 days after the end of the quarter. This report shall also provide a listing of all deviations for which earlier reporting was required, but need not include copies of the previously submitted information.

c. For the purpose of determining whether a deviation must be reported prior to a periodic compliance report, a deviation shall be considered to continue even if operation of an emission unit is interrupted if the deviation is still present when operation of the unit is resumed.

ATTACHMENT 1: SUMMARY OF PROJECT EMISSIONS

Summary of Project Emissions[a] (Tons/Year)

Emission Unit(s)	NO_x	CO	SO_2	PM	PM_{10}[b]	$PM_{2.5}$[b]
Existing Units (Main Boilers)						
Baseline Actual Emissions	6160	5355	17060	2440	2023	1049
Future Emissions	4040	3811	21	66	266	266
Change	-2120	-1744	-17039	-2374	-1757	-783
New Units						
Auxiliary Boilers	24.8	25.2	0.41	1.31	5.24	5.24
Fuel Heaters	9.3	4.4	0.7	0.7	0.7	0.7
Subtotal	34.1	29.6	1.11	2.01	5.94	5.94
Total	-2086	-1714	-17038	-2372	-1751	-777
Total w/o Decreases	34.1	29.6	1.11	2.0	5.9	5.94
Significant Emission Rate	40	100	40	25	15	10
Greater Than Significant?	No	No	No	No	No	No

Notes:

a. For VOM emissions, the Joliet Station will continue to be a non-major source, permitted for annual future VOM emission less than 100 tons.

Emission Unit(s)	Permitted VOM Emissions (Tons/Year)
Main Boilers	94.9
Auxiliary Boilers	2.9
Fuel Heaters	0.2
Total	98.0

b. PM_{10} and $PM_{2.5}$ include filterable particulate and condensable particulate.

ATTACHMENT 2: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. To obtain and remove samples of any discharge or emissions of pollutants, and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

d. Does not take into consideration or attest to the structural stability of any units or parts of the project; and

e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

b. Upon finding that any standard or special conditions have been violated, or

c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Calculation Sheet

Company: Midwest Generation/nrg **ID: 197809AAO**
PN: 15030051

Analyst: Bob Smet **Date Received: April 14, 2017**
Current Date: May 8, 2017

3rd application – MidGen is seeking a revised permit to allow additional time to conduct the emission testing required by Condition 2.1.7(b)(i) until September 30, 2018 for Boiler 5, so as to enable this testing to be conducted while this boiler is operating at its maximum load range. Conditions 1.1(c) and 2.1.7(b)(i) were tweaked to allow for this additional testing time. Note: Timing for testing is impacted by ambient conditions of the boiler, less than 45 percent capacity factor, and permitted water temperature in the Des Plaines River, which can be higher during summer months thereby accommodating operation of boiler at capacity. cm 5/9/17

2nd application – MidGen is seeking an expedited permit to allow them permission to exceed the 35 IAC 217.141(a) standard of 0.3 lb NOx/mmBtu during startup. Appropriate language has been added for SMB. See permit for details

1st application -- Company is seeking to obtain a permit to address a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NOx) and particulate ($PM/PM_{10}/PM_{2.5}$). Netting was not required since the only increase was from VOM, but facility-wide VOM emissions will be below the major source threshold of 100 tpy so NSR will not need to be examined.

Since the boilers are not being modified and will not see an increase in any lb/hr rates of any pollutant addressed by the NSPS.

The project had to go out for public comment anyway so EJ notification was not necessary. No comments from the public.

We got 4 comments from David Ogulei: (a) he asked why Boiler 5 had its own annual tpy emissions (b/c it is the worst-case emitter in lb/mmBtu); (b) in Condition 2.1.7(b)(ii), he did not want stack testing to be held hostage based on the delays in CAAPP permit issuance (we'll let the CAAPP engineer) decide in the future how often testing should be conducted);, (c) he wanted the PTE for the gas-fired boiler to be limited in the boiler (no need since gas-firing is optional); and he wanted to require commencement of the conversion by a certain date (we have no authority to do so).

See permit for specific details. **GRANT**

R007412

197 809 AAO
15 03 0051

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

April 13, 2017

VIA OVERNIGHT MAIL

RECEIVED
STATE OF ILLINOIS
APR 14 2017
Environmental Protection Agency
BUREAU OF AIR

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Acting Section Manager
1021 N. Grand Avenue East
Springfield, IL 62702

Re: Joliet Generating Station (ID No. 197809AAO)
Permit Application No. 15030051
Request for Construction Permit Modification

Dear Mr. Pilapil:

This letter and attachments comprise a request for modification of Construction Permit Application No. 15030051 (the "Construction Permit") issued to Joliet Generating Station ("Joliet Station") for conversion of the electric generating units ("EGUs") from coal-fired to natural-gas fired EGUs. Joliet Station is comprised of three EGUs, Units 6, 7 and 8 and is located in Will County, Illinois.

Condition 2.1.7.b of the Construction Permit requires that the EGUs perform stack emissions testing for carbon monoxide ("CO") and volatile organic matter ("VOM") within one year of firing natural gas as primary fuel. The initial operation following conversion to natural gas for Unit 6 occurred on May 30, 2016, for Unit 7 on May 31, 2016 and for Unit 8 on June 18, 2016. The Construction Permit test requirement is given here:

> *2.1.7 Emission Testing*
>
> *a. The Permittee shall have emissions testing conducted for the affected boiler(s) for CO and VOM as follows:*
>
> *b. The timing of this testing shall be as follows:*
> *i. Within one year (365 days) after initially operating Boiler 5, Boilers 71/72 and Boilers 81/82, following conversion to natural gas, the Permittee shall have initial emission tests conducted for such boiler(s) while the boiler(s) are operating at maximum rates and other representative operating conditions.*

This submittal is to request a change to the permit test requirement to allow for two calendar years (730 days) from the date of first natural gas firing for completion of the required stack testing at maximum rates and other representative operating conditions ("maximum representative conditions") for Joliet Unit 6. This request does not change the source's emissions or applicability of any state or federal regulations.

Joliet Station Units 7 and 8 completed the required stack testing at representative conditions on August 16 and 17, 2016 respectively and the stack test reports were submitted to the Illinois Environmental Protection Agency (the "Illinois EPA" or the "Agency") in reports dated September 21, 2016. Table 1 shows the average emission rates and Unit loads from three test runs performed for each parameter in accordance with the requirements of U.S. Environmental Protection Agency Test Methods 10 (CO) and 25A (VOM) as given at 40 CFR Part 60 Appendices A-4 and A-7 respectively.

Table 1: Summary Emissions Testing Results for Joliet Units 7 and 8, August 16-17, 2016

Unit	Average CO Emission Rate (ppm at 50% excess air)	Average VOM Emission Rate (lb/mmBtu)	Average Load (MW)
7	73.2	0.00097	546
8	12.7	0.00050	549

The required stack testing for Unit 6 completed on February 23, 2017 and the unit was specifically forced into service to conduct this testing along with winter hydrothermal and fishery studies. While emissions data were collected in accordance with the requirements of Test Methods 10 and 25A, operating conditions did not reflect maximum representative conditions for stack testing (though the conditions were suitable for completing in-river surveys).

Operations were curtailed on the scheduled test date to maintain compliance with the NPDES permit conditions as described below. Stack test results were delivered to the Illinois EPA on April 4, 2017 and summary data from the February 23, 2017 emissions testing are presented in Attachment A. These data show that Unit 6 did not meet the load required for maximum representative conditions, load greater than or equal to 307 MW. While the Unit 6 data show large margins of compliance with the emission limits given at Title 35 of the Illinois Administrative Code Section 216.121 (CO) and Construction Permit condition 2.1.6.b.ii (VOM), emissions were not measured at maximum representative operating conditions. As such, **Joliet Station is requesting an additional year to complete the required emissions testing for Unit 6 at maximum representative conditions.** The reasons for this request are as follows:

- Scheduling of emissions stack testing requires coordination between plant operations, test personnel and the Agency. As stated in Construction Permit Condition 3.1.c, Joliet Station is required to provide notice to the Agency at least 30 days prior to the scheduled stack test date.
- Joliet Unit 6 has operated less as a natural gas fired EGU than it did as a coal fired EGU. From May – December 2016, Unit 6 operated at a 3% net capacity factor firing natural gas as primary fuel. Compare that to the coal fired operations from May – December 2015, during which time Unit 6 operated at a 40% net capacity factor. Reduced operation has made scheduling emissions testing difficult.
- Joliet Station is restricted in thermal loading to the Des Plaines River by National Pollutant Discharge Elimination System ("NPDES") Permit Numbers IL0064254 for Joliet 29 Station (Units 7 and 8) and IL0002216 for Joliet 9 Station (Unit 6). The temperature compliance point of relevance for both Joliet Stations during winter months is located downstream of the Joliet Stations at the I-55 Bridge. The two permits contain the same condition, given in part below:

C. In the main channel of the Lower Des Plaines River, at the I-55 Bridge, the effluent shall not alone or in combination with other sources cause temperatures to exceed the temperatures set forth in the following table, except in accordance with the allowable monthly excursions detailed below.

	Jan	Feb	Mar	Apr 1-15	Apr 16-30	May 1-15	May 16-31	June 1-15	June 16-30	July	Aug	Sept	Oct	Nov	Dec
°F	60	60	65	73	80	85	90	90	91	91	91	90	85	75	65

These standards are in lieu of the requirements of 35 Ill. Adm. Code 302.211(d) and (e) and may be exceeded by no more than 3°F during 2% of the hours in the 12-month period ending December 31, except that at no time shall Midwest Generation's plants cause the water temperature at the I-55 Bridge to exceed 93°F. Excursion hours for the purposes of this part is defined as the hours in which the temperatures of this part are exceeded.

D. When it appears that discharges from Outfall 001 have the reasonable potential to cause water temperatures at the I-55 Bridge to exceed the values set forth in the above table, the permittee shall determine whether, and the extent to which, station operations must be restricted to avoid violating the above-stated limits. The permittee shall make such a determination based upon the outputs of a predictive model reasonably suited for such a purpose and which has been submitted to the Agency.

Note that the compliance temperature limit for the month of February is 60° F and that if there is a reasonable potential for an exceedance of that limit, operation of the station(s) must be restricted.

* Preliminary data from the U.S. Geological Survey ("USGS"), available at https://waterdata.usgs.gov/il/nwis/uv/?site_no=05538020&agency_cd=USGS, show that the Des Plaines River temperature immediately upstream of Joliet Station during the planned test period was unseasonably warm. Figure 1 shows USGS temperature data from February 18 – 24, 2017 and Figure 2 shows USGS temperature data for the same period in 2016. Note that the maximum measured river temperature for the one-week period was approximately 54° F in 2017 and 46° F in 2016. Also note that these figures show temperature upstream of the Joliet Stations and do not include predicted impacts of station operations at the downstream compliance point, where the I-55 Bridge crosses the Des Plaines River. On the scheduled stack test date, Illinois EPA Bureau of Water approved modelling predicted that full-load operation of Unit 6 would cause an exceedance of the standard at the I-55 Bridge. Model predictions led to the decision to curtail operations during the emissions stack testing to maintain compliance with the NPDES permits.

Figure 1: USGS river temperature data, February 18- 24, 2017

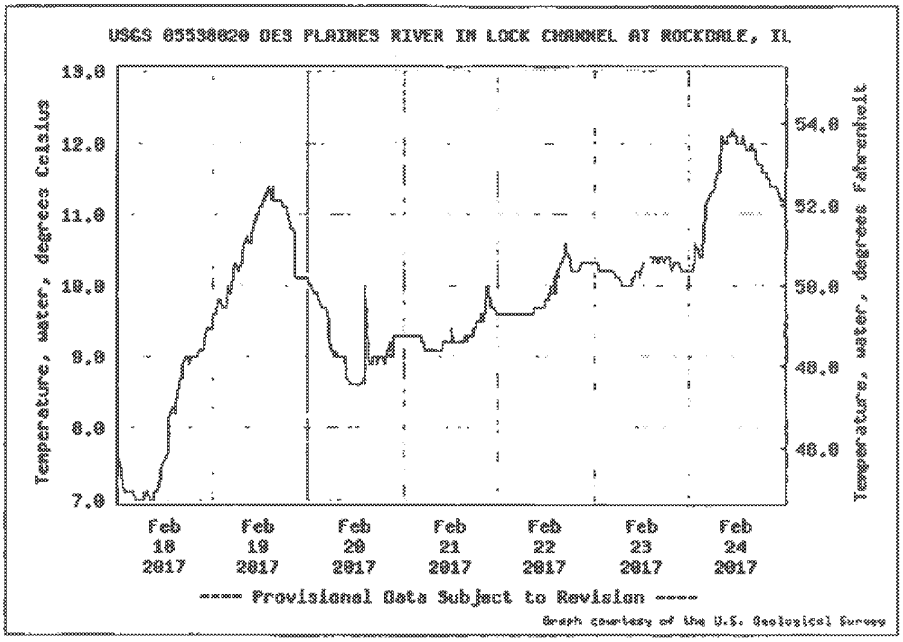
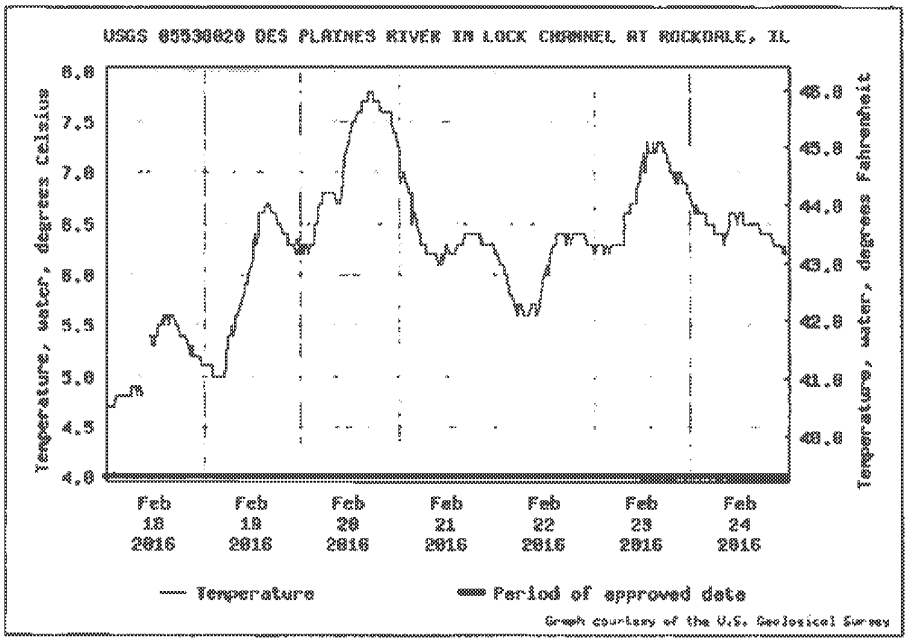


Figure 2: USGS river temperature data, February 18- 24, 2016



To allow time for necessary planning and to avoid forcing Unit 6 on-line outside of planned operating time for completion of the required emissions stack testing at representative load, **Joliet Station is requesting modification of the Construction Permit to provide an additional year to perform stack testing for CO and VOM on Unit 6.**

The following supporting documentation is included:

- Attachment A: Data from the stack test performed on Unit 6 on February 23, 2017
- Attachment B: Permit Application Forms 197-CAAPP and 199-CAAPP
- Attachment C: Permit Application Fee

Joliet Station is looking forward to a favorable review of this submittal and issuance of a modified Construction Permit prior to the current Unit 6 emissions stack testing due date, May 29, 2017. If you have any questions regarding this submittal, please contact Ms. Sharene Shealey at 724-255-3220 or sharene.shealey@nrg.com or Mr. Pete O'Day at 815-207-5489 or peter.oday@nrg.com.

Sincerely,

William Naglosky
Joliet Generating Station
Station Director

Attachments

cc: Chris Romaine, Illinois EPA (electronic copy)
Bob Smet, Illinois EPA (electronic copy)
Scott Twait, Illinois EPA (electronic copy, cover letter only)
Pete O'Day, Joliet Generating Station

Attachment A

Data from the stack test performed on Unit 6
on February 23, 2017

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 23 2017

REVIEWER: EMI

Compliance Emissions Test Report

Midwest Generation, LLC
Joliet Generating Station
Station ID# 197809AAO
Unit 6 Stack
ORISLP 874, Boiler 5
Joliet, Illinois 60436
Project No. M170209A
February 23, 2017

mostardi platt

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, Illinois 60436

March 30, 2017

Yasmine Keppner-Bauman
Illinois Environmental Protection Agency
Bureau of Air, Compliance Section # 40
P.O. Box 19276
Springfield, IL 62794-9276

Subject: Joliet Gas Conversion CO-VOC-Opacity Compliance Test Reports
Midwest Generation, LLC
Joliet Unit 6
Station ID: 197809AAO
County: Will

Dear Ms. Yasmine Keppner-Bauman:

Midwest Generation, LLC (MWG), per the requirements of the Joliet Natural Gas Conversion Project application #15030051 hereby submits the Compliance Test Report for emissions testing of Carbon Monoxide (CO) and Volatile Organic Material (VOM). Visible emissions measurements are also detailed where required utilizing opacity measurements by continuous opacity monitors (COMS).

Testing was not completed at representative load conditions, as required by construction permit condition 2.1.7b.i. On the scheduled day of testing, Des Plaines river temperature limited the load achievable by Unit 6. NPDES Permit No. IL0002216, special condition 4 states that during the month of February, Joliet Station cannot cause river temperatures at the I-55 bridge to exceed 60F. To avoid an exceedance at the I-55 bridge, Unit 6 was derated to maintain compliance with the NPDES permit.

A request to extend the time allowed for completion of Unit 6 CO and VOM testing will be submitted to the Illinois EPA in the form of a permit modification request. This request will be submitted under separate cover and if approved, testing will be conducted as specified in the modified permit.

If you have any questions, please contact Pete O'Day by phone at (815) 671-2258 or email at Peter.O'Day@nrg.com.

Sincerely,

William Naglosky

William Naglosky
Plant Manager
Joliet Generating Station

cc: Ron Robeen IEPA, (email/pdf), Ron.Robeen@illinois.gov
Kevin Mattison IEPA, Des Plaines (email/pdf), Kevin.Mattison@illinois.gov

mostardi platt

Compliance Emissions Test Report

Midwest Generation, LLC
Joliet Generating Station
Station ID# 197809AAO
Unit 6 Stack
ORISLP 384, Boiler 5
Joliet, Illinois 60436
February 23, 2017

Report Submittal Date
March 28, 2017

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MAY 23 2017
REVIEWER: EMI

Project No. M170209A

888 Industrial Drive
Elmhurst, Illinois 60126
630-993-2100

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1.0 EXECUTIVE SUMMARY

MOSTARDI PLATT conducted a compliance emissions test program for Midwest Generation, LLC on February 23, 2017 at the Unit 6 Stack at Joliet Generating Station in Joliet, Illinois. This report summarizes the results of the test program and test methods used.

The test location, test date, and test parameters are summarized below.

TEST INFORMATION		
Test Location	**Test Date**	**Test Parameters**
Unit 6 Stack	February 23, 2017	Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

The purpose of the test program was to determine CO and VOC emissions in order to comply with permitted emission limits. Visible emissions (VE) were determined by the certified continuous opacity monitor (COMS). Six-minute averages collected during the test period have been included in the report.

Selected results of the test program are summarized below. A complete summary of emission test results follows the narrative portion of this report.

TEST RESULTS SUMMARY			
Test Location	**Test Parameter**	**Emission Limits**	**Actual Test Result**
Unit 6 Slack	CO	≤ 200 ppmvd	12.3 ppmvd
	VOC	0.0027 lb/mmBtu	0.000 lb/mmBtu
		94.9 ton/yr	0.0 ton/yr

Emissions on a lb/mmBtu basis were determined using a standard F_d-Factor of 8,710.0 dscf/mmBtu for natural gas. Operating data as provided by Midwest Generation, LLC is included in Appendix A.

The identifications of the individuals associated with the test program are summarized below.

TEST PERSONNEL INFORMATION		
Location	**Address**	**Contact**
Test Coordinator	NRG Energy Services Dickerson Generating Station 21200 Martinsburg Road Dickerson, Maryland 20842	Mr. David Matthews CEM & Air Compliance Services 240-299-2104 (phone) David.Matthews@nrg.com
Test Facility	Midwest Generation, LLC Joliet Generating Station 1800 Channahon Road Joliet, Illinois 60436	Mr. Pete O'Day Environmental Specialist (815) 207-5489 (phone) Peter.O'Day@nrgenergy.com
Testing Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126	Mr. Patrick Lyons Project Manager 630-993-2100 (phone) plyons@mp-mail.com

The test program was conducted by Messrs. J. Adams, L. Sorce, E. Ehlers, and P. Lyons of Mostardi Platt.

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2.0 TEST METHODOLOGY

Emission testing was conducted following the methods specified in 40 CFR, Part 60, Appendix A. Schematics of the test section diagram and sampling trains used are included in Appendix B and C, respectively. Calculation nomenclature and example calculations are found in Appendix D. Copies of reference method test data and field data sheets for each test run are included in Appendix E and F, respectively.

The following methodologies were used during the test program:

Method 1 Traverse Point Determination

Test measurement points were selected in accordance with Method 1. The characteristics of the measurement location are summarized below.

TEST POINT INFORMATION						
Location	Stack Diameter	Stack Area	Upstream Diameters	Downstream Diameters	Test Parameter	Number of Sampling Points
Unit 6 Stack	14.354 Feet	161.82 Square Feet	> 0.5	> 2.0	Volumetric Flow	16
					CO, CO_2, O_2	12
					VOC	1

Gaseous Stratification Test

A twelve-point stratification test was performed during Run 1. The results were greater than 10% actual difference and twelve test points were used for Runs 2 and 3.

Method 2 Volumetric Flowrate Determination

Gas velocity was measured following Method 2, for purposes of calculating stack gas volumetric flow rate and VOC emission rates on a tons/year basis. An S-type pitot tube, differential pressure gauge, thermocouple and temperature readout were used to determine gas velocity at each sample point. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G.

Method 3A Oxygen (O_2)/Carbon Dioxide (CO_2) Determination

Stack gas molecular weight was determined in accordance with Method 3A. Servomex analyzers were used to determine stack gas oxygen and carbon dioxide content and, by difference, nitrogen content. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G and copies of the gas cylinder certifications are found in Appendix H.

Method 4 Moisture Determination

Stack gas moisture content was determined using a Method 4 sampling train. In this technique, flue gas is drawn through a probe after which moisture is condensed through a series of four impingers. The first two impingers were charged with approximately 100 mls of deionized, distilled water. Impinger three was left empty and impinger four was charged with clean, dried silica gel. The water volumes of the impinger train were measured and the silica gel was weighed before and after each test run to determine the mass of moisture condensed.

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During testing, the sample train was operated in the manner generally specified in USEPA Method 4. All of the data specified in Method 4 (gas volume, delta H, impinger outlet well temperature, etc.) was recorded on field data sheets.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G.

Method 10 Carbon Monoxide (CO) Determination

Stack gas carbon monoxide concentrations and emission rates were determined in accordance with Method 10. A Thermo Scientific carbon monoxide analyzer was used to determine carbon monoxide concentrations in the manner specified in the Method. The instrument has a chemiluminescent reaction-based detector and operated in the range of 0.0 parts per million (ppm) to the high-level span calibration gas.

Stack gas was delivered to the analyzer via a Teflon® sampling line, heated to a minimum temperature of 250°F. Excess moisture in the stack gas was removed using a refrigerated condenser. The entire system was calibrated in accordance with the Method, using certified calibration gases introduced at the probe, before and after each test run. The response time of the analyzer in this sample system was one and a half minutes.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G. The gas cylinder certifications are found in Appendix H.

Method 25A Volatile Organic Concentration Determination

The Method 25A sampling and measurement system meets the requirements for sampling of VOCs set forth by the United States Environmental Protection Agency (USEPA). In particular, it meets the requirements of USEPA Reference Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer," 40CFR60, Appendix A. This method applies to the measurement of total gaseous organic concentration of hydrocarbons. With this method, a gas sample was extracted from the sample location through a heated Teflon sample line to the analyzer.

The flame ionization detector (FID) used during this program was a Thermo Model 55i Direct Methane & Non-Methane Hydrocarbon Analyzer. The instrument was calibrated using ultra-zero air and methane in air EPA Protocol standards for the methane determination and ultra-zero air and propane in air EPA Protocol standards for the non-methane (VOC) determination. The calibrations were performed before and after sampling with calibration checks performed between each test run. Sample times and locations are logged simultaneously on data loggers.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data are presented in Appendix G. The gas cylinder certifications are found in Appendix H.

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3.0 TEST RESULTS SUMMARY

Midwest Generation, LLC
Joliet Station
Unit 6 Stack
Gaseous Summary

Test No.	Date	Start Time	End Time	CO ppmvd	O_2 % (dry)	Flowrate, SCFM	VOC ppm as C_3H_8 (wet)	O2 Based VOC lb/mmBtu	VOC lb/hr	VOC tons/yr
1	02/23/17	11:30	12:40	3.5	7.0	670,456	0.0	0.000	0.0	0.0
2	02/23/17	13:00	14:08	22.8	6.9	695,530	0.0	0.000	0.0	0.0
3	02/23/17	14:21	15:27	10.8	8.4	562,430	0.0	0.000	0.0	0.0
Average				12.3	7.4	642,805	0.0	0.000	0.0	0.0

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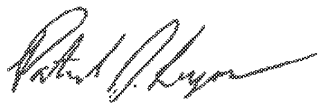
4.0 CERTIFICATION

MOSTARDI PLATT is pleased to have been of service to Midwest Generation, LLC. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

CERTIFICATION

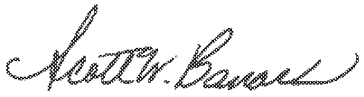
As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT



Program Manager

Patrick Lyons



Quality Assurance

Scott W. Banach

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APPENDICES

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Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation, LLC	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	7/9/2020	
Keyword:		*
Comment:		*
Part:	of	*

* If applicable

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
SEP 22 2020
REVIEWER KAJ

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR
JOHN J. KIM, DIRECTOR

217/785-1705

CONSTRUCTION PERMIT -- REVISED[1]

PERMITTEE

Midwest Generation, LLC
Attn: Sharene Shealey
529 East 135th Street
Romeoville, Illinois 60466

Application No.: 15030051
Applicant's Designation: Natural Gas
Subject: Natural Gas Conversion Project
Date Issued: July 9, 2020
Location: Joliet Generating Station, 1800 Channahon Road, Joliet, Will County

I.D. No.: 197809AAO
Date Received: July 7, 2020

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and air pollution control equipment consisting of a natural gas conversion project as described in the above-referenced application. This Permit is subject to standard conditions attached hereto (as Attachment 2) and the following special conditions.

If you have any questions on this permit, please call Bob Smet at 217/785-9250.

Raymond E. Pilapil

Raymond E. Pilapil
Manager, Permit Section
Bureau of Air

REP:RPS:tan

cc: USEPA Region V (Lotus Notes)

[1] This permit has been revised at the request of the Permittee to revise the emission testing requirements for Boiler 5 to no longer require periodic testing in three years. This is because this boiler is now being operated much less than originally expected. Emission testing would still be required to be conducted for this boiler pursuant to a specific request from the Illinois EPA.

PART 1: PROJECT-WIDE CONDITIONS

1.1 Introduction

a. This permit addresses a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units, as listed below, will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers (the main boilers) on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NOx) and particulate ($PM/PM_{10}/PM_{2.5}$).

Main Boiler(s)	Electrical Generating Unit
Boiler 5	Unit 6
Boilers 71 and 72	Unit 7
Boilers 81 and 82	Unit 8

b. This permit was revised on June 8, 2016 to address provisions of 35 IAC Part 201 Subpart I for startup and malfunction/ breakdown of each affected boiler as related to the applicable state standard for NOx, 35 IAC 217.141(a).

c. For Boiler 5, this revised permit provides additional time to conduct the emission testing required by Condition 2.1.7(b)(i) until September 30, 2018, to enable this testing to be conducted while this boiler is operating at its maximum load range.

1.2 Termination of Coal-Firing Capability

a. Upon initial startup of a main boiler following conversion to natural gas, as provided for by this permit, that boiler shall cease to fire coal.

b. On such date that a main boiler initially starts up following conversion to natural gas, the existing air pollution control operating permits that address burning of coal in the boilers shall terminate and be replaced by this construction permit:

Unit 6	Permit 73030837
Unit 7	Permit 73030838
Unit 8	Permit 73030839

1.3 Non-Applicability of New Source Review (MSSCAM and PSD)

a. This permit is issued based on this project not being a major project for purposes of Illinois' rules for Major Stationary Sources Construction And Modification (MSSCAM), 35 IAC Part 203. For NOx, this is because this project will reduce NOx

emissions from the main boilers and the NOx emissions of the new emission units will not be significant. For volatile organic material (VOM), this is because the source will continue to not be a major source for VOM emissions. (See also Attachment 1.)

b. This permit is issued based on this project not being a major project for purposes of the federal rules for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This is because this project will reduce emissions of regulated PSD pollutants from the main boilers and the emissions of regulated PSD pollutants from the new emission units will not be significant. (See also Attachment 1.)

1.4 Applicability of 40 CFR 63 Subpart DDDDD

a. For purposes of applicability of 40 CFR 63, this permit is issued based on this plant being a major source of hazardous air pollutants (HAPs) on January 31, 2016, the compliance date of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Source: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD. As a consequence, the new auxiliary boiler, the fuel heaters and potentially the main boilers following conversion to natural gas will be subject to the applicable provisions of 40 CFR 63 Subpart DDDDD, which NESHAP addresses major sources of HAPs, notwithstanding the reductions in the HAP emissions of the plant that will result from this project.

1.5 Compliance with Emission Limits

a. The emission limits set by this permit address all emissions from affected emission units, including emissions during startup, shutdown and malfunction or breakdown.

b. When emission testing is conducted, hourly emission rates shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.

c. i. Except as provided below or unless otherwise specified in a particular provision, compliance with annual limits established by this permit shall be determined from a rolling total of 12 months of data, i.e., from the sum of the data for the current month and data for the preceding 11 months (12 month total), and shall consider all emissions, including emissions during startup, shutdown, and malfunction or breakdown.

ii. For the main boilers, for the first year (12 months) of operation following conversion of a main boiler or boilers to natural gas, compliance shall be determined from a cumulative total of monthly data for the main boiler or boilers that have been converted, i.e., from the sum of the data for the current month and data for

all preceding months for such boilers beginning on the date or dates that boiler or boilers first resumed operation following conversion on natural gas.

iii. For the new auxiliary boiler and fuel heaters, for the first year of operation, compliance shall be determined from a cumulative total of monthly data, i.e., from the sum of the data for the current month and data for all preceding months.

1.6 Retention and Availability of Records

a. Unless otherwise provided for by a Clean Air Act Permit Program (CAAPP) permit for the source, the Permittee shall retain all records and logs required by this permit for at least five years from the date of entry (unless a longer retention period is specified by a particular provision), keep the records at a location at the plant that is readily accessible to the Illinois EPA or USEPA, and make records available for inspection and copying by the Illinois EPA or USEPA upon reasonable request.

1.7 Submittals to the Illinois EPA

a. All reports and notifications required by this permit shall be sent to the Illinois EPA, Bureau of Air Compliance Section in Springfield.

b. A copy of all required reports and notifications concerning performance testing and emissions monitoring shall also be sent directly to the Source Monitoring Unit in the Illinois EPA, Bureau of Air, Compliance Section.

1.8 Authorization for Operation

The plant may be operated in accordance with this construction permit pursuant to this permit until a Clean Air Act Permit Program (CAAPP) permit is issued for the source that addresses this project, provided that the initial performance testing required by this permit for the main boilers by Condition 2.1.7 is completed in a timely manner and a complete application for a CAAPP permit for this source is submitted that addresses this project within one year of initial operation of a main boiler on natural gas or initial operation of a new unit, whichever occurs first, as provided by Section 39.5(5)(x) of the Act. This condition supersedes Standard Condition 6.

1.9 Standard Permit Conditions

Standard conditions for issuance of construction permits, attached hereto, shall apply to this project, unless superseded by other conditions in the permit. (Refer to Attachment 2.)

PART 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

Subpart 2.1: Unit-Specific Conditions for the Main Boilers

2.1.1 Description

The affected boilers for the purpose of these unit-specific conditions are the five existing generating unit boilers or "main boilers" at the plant following conversion to natural gas as described below. These boilers are served by three stacks, with two pairs of boilers having common stacks. When this conversion is completed for a boiler with installation of new natural gas burners, certain emission standards that are applicable to fuel combustion emission units that fire coal will no longer be applicable for the boiler. In addition, certain existing emission control equipment and systems that were used when burning coal, i.e., the electrostatic precipitators for particulate, the selective non-catalytic reduction systems for NOx and the sorbent injection system for mercury, will no longer be needed. Continuous emissions monitoring will no longer be required for emissions of sulfur dioxide (SO_2) or mercury. It is also expected that continuous opacity monitoring will no longer be required.

Boiler/ Generating Unit	Description	Emission Control Equipment
Boiler 5 (BLR5)/ Unit 6	Babcock and Wilcox Boiler Nominal 3,543 mmBtu/hour	Over fired Air, and Gas Reburn
Boilers 71 & 72 (BLR71 & 72)/ Unit 7	Combustion Engineering Boilers Nominal 6,034 mmBtu/hour, combined	Low NOx Burners and Over-fired Air
Boilers 81 & 82 (BLR81 & 82)/ Unit 8	Combustion Engineering Boilers Nominal 6,386 mmBtu/hour, combined	Low NOx Burners, and Over-fired Air

2.1.2 New Applicable Emission Standards and Requirements

a. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD (the Boiler NESHAP), the affected boilers will become subject to the Boiler NESHAP when they cease to be subject to the provisions of the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU (commonly referred to as the Mercury and Air Toxics Standards or MATS). On such date, for each affected boiler, the Permittee must comply with applicable requirements of 40 CFR 63 Subpart DDDDD for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-

ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

iii. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, by the applicable compliance date for the first main boilers to comply with this NESHAP, the Permittee shall have one-time energy assessment performed for the plant by a qualified energy assessor, which assessment meets the relevant requirements of Table 3 and the definition of "energy assessment" in 40 CFR 63.7575.

b. i. Pursuant to 35 IAC 217.141, the NOx emissions of Boiler 5 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: Boiler 5 was not previously subject to a NOx limit pursuant to 35 IAC 217.141 because 35 IAC 217.141(d) excluded cyclone fired boilers burning solid fuel from this rule.

ii. Subject to the following terms and conditions, the Permittee is authorized to operate each affected boiler in violation of 35 IAC 217.141(a) during startup, pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. The Permittee shall conduct startup of each affected boiler in accordance with written procedures maintained by the Permittee which serve to minimize excess emissions from startups and that include, at a minimum, the following measures:

1. Review of the operational condition of the boiler prior to initiating startup; and

2. Management of the operational parameters of the boiler during each startup as necessary to make appropriate adjustments to the startup to reduce or eliminate excess emissions.

B. The Permittee shall fulfill the recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(A) and (d), and 2.1.10(b)(iii) with respect to startups.

C. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions.

iii. Subject to the following terms and conditions, the Permittee is authorized to continue operation of each affected boiler in violation of 35 IAC 217.141(a) in the event of a malfunction or breakdown of each affected boiler. This authorization is made pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. This authorization only allows such continued operation as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment, provided however, that operation shall not continue solely for the economic benefit of the owner or operator of the plant.

B. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable take action(s) so that excess emissions cease.

C. The Permittee shall fulfill recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(C) and (d) and 2.1.10(b)(iii) and (c) with respect to malfunctions and breakdowns.

D. Following reporting of an incident to the Illinois EPA of a malfunction or breakdown that resulted in excess NOx emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

2.1.3 Changes to Emission Standards and Requirements

a. The affected boilers are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75.

Note: Condition 2.1.4(c) addresses the possibility that opacity monitoring will no longer be required for the affected boilers under the Acid Rain Program.

b. The affected boilers are not subject to the following standards in 35 IAC Part 212 Subpart E for emissions of particulate matter from existing fuel combustion emission units burning solid fuel:

Boiler 5: 35 IAC 212.201 and 212.203
Boilers 71, 72, 81 and 82: 35 IAC 212.201

c. The affected boilers are not subject to the standard in 35 IAC 214.141 for SO_2 emissions from existing fuel combustion emission units burning solid fuel that are located in the Chicago major Metropolitan Area.

d. Pursuant to 35 IAC 217.141, the NOx emissions of affected Boilers 71 and 72 and Boilers 81 and 82 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: This limit takes the place of the limit in 35 IAC 217.141(b), which limits the NOx emissions of such boilers firing solid fuel to 0.90 lbs/mmBtu of actual heat input.

2.1.4 Non-Applicability Provisions

a. This permit is issued based on the affected boilers not becoming subject to the New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60 Subpart Da, as a result of this project. This is because these boilers will not undergo modifications as addressed by 40 CFR 60.14, i.e., there will not be increases in the hourly rate of emissions of any pollutant for which this NSPS has standards from any of the boilers. This project will also not constitute reconstruction as addressed by 40 CFR 60.15. This is because the capital cost of the changes made to each affected boiler will not exceed 50 percent of the capital cost of a replacement boiler.

b. Pursuant to 40 CFR 63.10000(f), this permit is issued based on affected EGUs not being subject to the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63

Subpart UUUUU, or MATS, beginning six months after coal is last combusted in the EGU unless the Permittee elects to remain subject to the provisions of MATS. This is because, pursuant to 40 CFR 63.9981, MATS only applies to a "coal-fired EGU or oil-fired EGU," as defined by 40 CFR 63.10042. In addition, 40 CFR 63.10000(f) only requires that an EGU that is subject to MATS continue to be subject to its provisions for six months following the last date that the EGU met the definition of an EGU subject to MATS.

c. This permit is issued based on the Permittee potentially no longer being required to conduct continuous monitoring for opacity for the affected boilers:

i. For purposes of 35 IAC Part 201 Subpart L, Continuous Monitoring, this is because natural gas is the only fuel burned in the EGU and the EGUs are excluded from such opacity monitoring pursuant to 35 IAC 201.401(a)(1)(A)(i).

ii. For purposes of the Acid Rain Program, this is because, pursuant to 40 CFR 75.14(c), the affected boilers or EGUs will qualify as "gas-fired units," as defined by 40 CFR 72.2, for purposes of 40 CFR Part 75, Continuous Emission Monitoring, if the designated representative for the source submits to USEPA either:

A. A minimum of 720 hours of unit operating data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its heat input is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil, and a statement that this changed pattern of fuel usage is considered permanent and is projected to continue for the foreseeable future; or

B. Three calendar years of data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its average annual heat input during the previous three calendar years, and no less than 85.0 percent of its annual heat input during any one of the previous three calendar years, is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil.

2.1.5 Operational Requirements

a. Before beginning operation of each affected boiler on natural gas pursuant to this permit, the Permittee shall clean the interior of the boilers to remove accumulated ash.

2.1.6 Operational and Emission Limits

a. i. The combined heat input to the affected boilers shall not exceed 12.0 million mmBtu/month and 69.9 million mmBtu/year.

ii. The heat input to Boiler 5 shall not exceed 2.6 million mmBtu/month and 15.52 million mmBtu/year.

b. i. The NOx emissions of the affected boilers shall not exceed the following limits. Compliance with the limits below in lbs/mmBtu shall be determined on a 30-boiler operating day rolling average basis, in accordance with the provisions of 40 CFR 60.48Da(d). Compliance with the limits in lbs/mmBtu and tons/year shall consider all emissions, including emissions during periods of startup or malfunction/breakdown. Compliance with the limits in lbs/hour, which are set to address non-applicability of the NSPS, 40 CFR 60 Subpart Da, shall only consider normal operation.

	Limits		
Boiler(s)	Lbs/mmBtu	Lbs/Hour	Tons/Year
Boiler 5	0.135	2103	1047.6
Boiler 71/72	0.110	4136	---
Boiler 81/82	0.110	1251	---
Total	---	---	4040

ii. The VOM emissions of the affected boilers shall not exceed the following limits:

A. 0.0027 lb/mmBtu, and

B. 94.9 tons/year.

c. Notwithstanding Conditions 2.1.6(a)(i) and (b)(ii)(A), until results of emission testing conducted pursuant to Condition 2.1.7 have been submitted to the Illinois EPA showing that the VOM emissions of the affected boilers do not exceed 0.0027 lb/mmBtu, the combined heat input to the affected boilers shall not exceed 34.5 million mmBtu/year (rather than 69.9 million mmBtu/year) and the VOM emissions of the affected boilers shall not exceed 0.0055 lb/mmBtu (rather than 0.0027 lb/mmBtu).

Note: The limits in Condition 2.1.6 address the operation and emissions of Boilers 5, 71/72 and 81/82 following their conversion to natural gas.

2.1.7 Emission Testing

a. The Permittee shall have emissions testing conducted for the affected boiler(s) for CO and VOM as follows:

b. The timing of this testing shall be as follows:

i. Within one year (365 days) after initially operating Boilers 71/72 and Boilers 81/82, following conversion to natural gas and for Boiler 5, by September 30, 2018, the Permittee shall have initial emission tests conducted for such boiler(s) while the boiler(s) are operating at maximum rates and other representative operating conditions.

ii. Until a CAAPP permit is issued that addresses the affected boilers, for Boilers 71/72 and Boilers 81/82, emissions testing shall be repeated within three years of the previous testing.

iii. Upon written request by the Illinois EPA, for Boilers 71/72, Boilers 81/82 and/or Boiler 5, as specified by the Illinois EPA in the request, with such emission testing conducted within 90 days of the written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

c. i. The following methods and procedures shall be used for this testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

ii. In conjunction with the initial emission tests, the Permittee shall also conduct measurements for opacity. These measurements shall be conducted using the continuous opacity monitors (COMS) on the boiler(s) or by Method 9, if the COMS are no longer in service.

d. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.1. In addition to other required information, if test runs that are longer than one-hour in duration are planned, the expected duration of the runs and the reason for extended runs shall be explained in the test plans and in the test reports.

e. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler(s) during testing, including:

A. Firing rate (mmBtu/hour).

B. Significant operating parameters of the affected boiler(s).

C. Opacity of the exhaust from the affected boiler(s), 6-minute averages.

D. Turbine Generator output (MWe gross).

2.1.8-1 Continuous Emissions Monitoring for NOx

a. For the affected boilers or EGUs, the Permittee shall continue to calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the NOx emissions in accordance with the applicable monitoring requirements of the federal Acid Rain Program, 40 CFR Part 75, and the Cross State Air Pollution Rule, 40 CFR 96 Subpart HHH unless it obtains approval from USEPA to transition to the alternative monitoring protocol for a natural gas-fired peaking unit for such boilers or EGUs.

b. For the affected boilers or EGUs, this monitoring for NOx emissions conducted above shall also be used to determine compliance with the limits for NOx emissions in Condition 2.1.6(b)(i), except that the provisions for substitution of missing data need not be used.

2.1.8-2 Changes in Monitoring for Emissions of SO_2 and Mercury and for Opacity

a. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of SO_2 CEMS on the affected boilers or EGUs and beginning monitoring of SO_2 emissions on such units using the Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units, Appendix D to 40 CFR Part 75, as provided for by 40 CFR 75.11(d)(2). With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA for this change in monitoring methodology for SO_2 emissions; and 2) If the EGU is still subject to MATS, a showing that the EGU now qualifies as a low emitting EGU for SO_2 emissions under the MATS, as addressed by 40 CFR 63.10005(h)(1), or that an SO_2 CEMS is no longer otherwise required by MATS.

b. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of mercury CEMS on the affected boilers or EGUs. With this notification, if the EGU is still subject to MATS, the Permittee shall provide a demonstration that the EGU now qualifies as a low emitting EGU for mercury emissions under the MATS, as addressed by 40 CFR 63.10005(h)(2), or that a mercury CEMS is no longer otherwise required by MATS. Unless 35 IAC Part 225 Subpart B has been amended to provide that its requirements related to mercury emissions no longer apply when an EGU permanently ceases combustion of coal, this notification shall also include a demonstration that such EGU is eligible to use the low mass emission excepted monitoring methodology, as provided for by 35 IAC 225.240(a)(4), and will continue to comply with a mercury emission standard in 35 IAC 225.294(c)(i) (0.0080 lbs

mercury/GWh gross electrical output) for the remainder of the calendar year.

c. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of COMS on affected boilers or EGUs. With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA pursuant to 40 CFR 75.14(c)(c) showing that the EGU now qualifies as a "gas-fired unit" for purposes of monitoring under 40 CFR Part 75; 2) Confirmation that continued use of COMS is not required by 35 IAC 201.401(a)(1), 3) The average and maximum values of opacity, 6-minute average, monitored for the EGU during the previous 720 hours of operation, not including any time after conversion to natural gas when the ESPs on the EGU were still being operated, and 4) If the ESPs are operated for any time after conversion to natural gas, the average and maximum value of opacity for such periods when the ESPs were operated.

2.1.9 Recordkeeping

a. For the affected boilers, unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, the Permittee shall maintain the records required by this NESHAP, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain the records of the following information for Boiler 5, Boilers 71/72 and Boilers 81/82, on a monthly and annual basis:

i. Fuel consumption, in million scf.

ii. Heat input, in mmBtu.

iii. Total operating hours of the generating unit.

iv. Total number of boiler startups.

c. The Permittee shall maintain the following records for the operation and maintenance of each affected boiler:

i. An operating log for the boiler that, at a minimum, shall address:

A. Each startup of the boiler, including the date, time when burning of natural gas began, time startup was completed and description.

B. Each shutdown of the boiler, including the date and time, and description.

C. Any upset of the boiler that significantly impaired emission performance, including a description of the

event, corrective actions taken, and preventative actions taken to address similar events.

ii. Inspection, maintenance and repair log(s) for the boiler and associated control system that, at a minimum, shall identify dates and nature of activities performed related to components that may affect emissions; the reason for such activities, i.e., whether planned or initiated due to a specific event or condition; and any failure to carry out the established maintenance procedures, with explanation.

d. The Permittee shall record the information specified by Condition 3.3 for any period during which the affected boiler deviated from an applicable emission limit or other requirement.

e. For the affected boilers, the Permittee shall maintain the following records related to NOx emissions:

i. The following records for Boiler 5, Boilers 71/72 and Boilers 81/82, with supporting data and calculations:

A. NOx emissions, recorded hourly in units of lbs/hour and lbs/mmBtu, which shall be determined from monitoring in accordance with Condition 2.1.8-1.

B. NOx emissions, in lbs/mmBtu, on a 30 boiler-operating-day rolling average basis.

C. NOx emissions (tons/month and tons/year).

ii. Records for the combined NOx emissions of the affected boilers (tons/month and tons/year).

f. For the affected boilers, the Permittee shall maintain the following records related to VOM emissions:

i. A file containing a determination of the maximum hourly VOM emission rates of Boiler 5, Boilers 71/72 and Boilers 81/82, (lbs/mmBtu and lbs/hour), with supporting documentation and calculations.

ii. Records of combined actual VOM emissions of the boilers (tons/month and tons/year), with supporting calculations.

2.1.10 Notification and Reporting

a. For the affected boilers, the Permittee shall notify the Illinois EPA within 30 days of the following events:

i. The date that each affected boiler or EGU last fires coal. With this notification, the Permittee shall notify the Illinois EPA if it intends to voluntarily continue to

comply with MATS for longer than six months from this date.

ii. The date that each affected boiler or EGU initially fires natural gas following conversion pursuant to this permit.

b. The Permittee shall notify the Illinois EPA of deviations of affected boiler(s) from applicable requirements of this permit as follows. These notifications shall include the information specified by Condition 3.4.

i. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, deviations from requirements of the Boiler NESHAP shall be reported in the reports required by the Boiler NESHAP or otherwise in accordance with Condition 2.1.10(b)(iv).

ii. Deviations from the limits for NOx emissions in lbs/mmBtu in Condition 2.1.6(b)(i) shall be reported in the semi-annual monitoring reports for the NOx CEMS.

iii. Deviations from the NOx limits shall be reported within 30 days.

iv. Other deviations from applicable requirements, including deviations that occurred during startup or malfunction/breakdown, shall be reported in a quarterly report.

c. Pursuant to 35 IAC 201.263, the Permittee shall submit a report to the Illinois EPA for any incident when operation of each affected boiler continued for more than two hours with NOx emissions in excess of 35 IAC 217.141(a) during malfunction/ breakdown, as addressed by Condition 2.1.2(b)(iii). This requirement does not apply for excess emissions, if any that occur during startup or shutdown of the affected boiler. These reports shall be expeditiously provided by telephone, facsimile or electronic mail to the Illinois EPA, Air Compliance Section and Air Regional Office. These reports shall include a description of the incident and, if excess emissions are still continuing, a description of the corrective actions that are being taken or are planned and the expected duration of the incident.

d. Beginning with the Annual Emissions Report for 2020 required by 35 IAC Part 254, accompanying this report the Permittee shall also report the number of days that Boiler 5 was operated in each month of the calendar year addressed by the report.

Subpart 2.2: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILERS

2.2.1 Description

The affected boiler for the purpose of these unit-specific conditions is the new natural gas-fired auxiliary boiler, as described below that will be installed to support the operation of the plant on natural gas. The auxiliary boiler will supply steam for heating and to assist in the startup of the electrical generating units. The steam from this boiler will not be sent to the existing steam turbine generators to produce electricity that goes to the grid.

Emission Unit	Nominal Heat Input Capacity	Control Measures
Auxiliary Boiler	286 mmBtu/hour	Low-NOx Combustion Technology

2.2.2 Applicable Federal Emission Standards

a. The affected boiler is an affected facility under the federal NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. For the affected boiler, the Permittee shall comply with applicable requirements of this NSPS and applicable requirements of 40 CFR 60 Subpart A, General Provisions, including the following:

i. The NOx emissions of the affected boiler shall not exceed 43 ng/J (0.10 lb/million Btu) on a 30-day rolling average, pursuant to 40 CFR 60.44b(a), on and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first.

ii. The Permittee shall at all times, maintain and operate the affected boiler in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

b. The affected boiler is subject to 40 CFR 63 Subpart DDDDD (the Boiler NESHAP). For the affected boiler, the Permittee must comply with applicable requirements of this NESHAP for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in

a manner consistent with safety and good air pollution control practices for minimizing emissions.

2.2.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.122(a), the opacity of the exhaust from the affected boiler shall not exceed 20 percent, except as provided by 35 IAC 212.122(b).

b. Pursuant to 35 IAC 216.121, the CO emissions from the affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air.

c. Pursuant to 35 IAC 217.164, the NOx emissions of the affected boiler on an ozone season basis (May 1 through September 30) and an annual basis shall not exceed 0.08 lbs/mmBtu, as applicable for a boiler that fires natural gas.

d. Pursuant to 35 IAC 217.150(e), the Permittee shall operate the affected boiler in a manner consistent with good air pollution control practices to minimize NOx emissions.

2.2.4 Non-Applicability Provisions

a. This permit is issued based on certain provisions of the NSPS, 40 CFR 60 Subpart Db, as follows, not being applicable to the affected boiler:

i. The standard for PM and opacity, because this boiler only burns natural gas. [40 CFR 60.43b(f) and (h)(1)]

ii. The SO_2 standards, because this boiler only fires fuel with a potential SO_2 emission rate of 0.32 lb/mmBtu heat input or less. [40 CFR 60.42b(k)(2), 60.47b(f) and 60.49b(r)]

iii. The opacity monitoring requirements of this NSPS, 40 CFR 60.48b, because this boiler only burns gaseous fuels, without post-combustion technology to reduce SO2 or PM emissions. [40 CFR 60.48b(j)(2)]

b. The affected boiler is not subject to the federal Acid Rain Program pursuant to Title IV of the federal Clean Air Act since it does not qualify as a utility unit or an electrical generating unit for the purpose of this program.

2.2.5 Operational Requirements, Work Practices and Production Limits

a. Natural gas shall be the only fuel fired in the affected boiler.

b. The nominal rated heat input capacity of the affected boiler shall not exceed 286 mmBtu/hour.

c. The usage of fuel in the affected boiler shall not exceed 260,000 mmBtu/month and 1,380,000 mmBtu/year.

d. The steam from the affected boiler shall not be used to produce electricity for commercial sale to the grid.

e. The Permittee shall maintain and operate the affected boiler in a manner consistent with good air pollution control practices to minimize emissions.

2.2.6 Emission Limits

a. The NOx emissions from the affected boiler shall not exceed 0.036 lb/mmBtu, 30-day average, determined in accordance with the methodology of the NSPS.

b. i. The emissions of the affected boiler shall not exceed the following limits.

Pollutant	Short-Term Emissions (lbs/mmBtu)	Annual Emissions (tons/year)
NOx	*	24.8
CO	0.037	25.2
VOM	0.0042	2.9
PM	0.0019	1.31
$PM_{10}/PM_{2.5}$	0.0076	5.24

* See Condition 2.2.6(a)

ii. This permit is issued based on minimal emissions of SO_2 from the affected boiler, i.e., emissions of no more than 0.4 tons/year.

2.2.7 Emission Testing Requirements

a. i. For the affected boiler, for NOx emissions, the Permittee shall fulfill applicable performance testing requirements of the NSPS, including 40 CFR 60.8(a), (c) and (d) and 60.46b(e).

ii. For each performance evaluation conducted to demonstrate compliance with the NSPS, in addition to submitting a test report to the Illinois EPA, the Permittee shall electronically submit the test data to USEPA if required by the NSPS.

b. The Permittee shall have emissions testing conducted for the affected boiler as follows, at its expense by a qualified testing service under representative operating conditions, for emissions of VOM and CO.

i. The timing of testing shall be as follows:

A. Testing shall initially be conducted for the affected boiler within 365 days after initial startup of the boiler.

B. In addition, the Permittee shall have testing performed as requested by the Illinois EPA for an affected boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

ii. Appropriate USEPA test methods, including the following methods, shall be used for testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.1.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler during testing, including:

A. Fuel consumption (scf);

B. Firing rate (mmBtu/hour) and other significant operating parameters of the affected boiler;

C. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9, if visible emissions are normally present, as determined by Method 22.

2.2.8-1 Monitoring Requirements for NOx Emissions

a. Pursuant to 40 CFR 60.48b, for the affected boiler, the Permittee shall install, calibrate, operate and maintain a CEMS for NOx emissions discharged from the affected boiler and the concentration of CO_2 or O_2 in the exhaust.

i. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of these CEMS. This CEMS shall be operated during all periods of operation of the affected boiler except for CEMS breakdowns and repairs. This CEMS shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive units operating days as specified and pursuant to 40 CFR 60.48b(f). Data is to be obtained in the scheduling and course of performing

calibration checks, and zero and span adjustments as specified in the NSPS.*

* Fulfillment of the above criteria for availability of emission data from the CEMS does not shield the Permittee from potential enforcement for failure to properly maintain and operate the CEMS.

ii. The 1-hour average NOx emission rates measured by the CEMS shall be expressed in lbs/mmBtu heat input and shall be used to calculate average emission rates pursuant to the NSPS. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2), except as allowed under 60.48b(b)(2).

iii. This CEMS shall also be used to determine compliance with the NOx limits in Conditions 2.2.3(c) and 2.2.6.

b. The Permittee shall fulfill applicable requirements of the NSPS for this continuous monitoring system, including the following, unless alternative requirements are approved by USEPA pursuant to 40 CFR 60.13(i). for this purpose, pursuant to 40 CFR 60.13(b), the continuous monitoring system shall be installed and operational prior to conducting the initial performance test for NOx under 40 CFR 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the monitoring devices.

i. Applicable notification requirements, including 40 CFR 60.7(a)(5), 60.8(d) and 60.49b(b).

ii. Applicable operational requirements, including 40 CFR 60.13(e) and 60.48b(c), which provide that a continuous monitoring system shall be operated during all periods of operation of an affected facility except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustment.

iii. Applicable recordkeeping requirements, including 40 CFR 60.49b(g).

iv. Applicable reporting requirements, including 40 CFR 60.7(c), (d) and/or (e) and 60.49b(h).

c. The Permittee shall also fulfill applicable requirements of 35 IAC Part 217 Subpart D for this monitoring system, including the following:

i. Applicable notification requirements of 35 IAC 217.155.

ii. Applicable recordkeeping requirements of 35 IAC 217.156(b)(9) and (b)(10).

iii. Applicable operational requirements of 35 IAC 217.157(a)(1).

iv. Applicable reporting requirements of 35 IAC 217.156(j).

2.2.8-2 Instrumentation Requirements

a. The Permittee shall install, calibrate, operate and maintain instrumentation for the affected boiler for fuel usage, scf.

2.2.8-3 Opacity Observations

a. The Permittee shall perform opacity observations for the affected boiler in accordance with Method 9 on at least an annual basis if visible emissions are normally present when the boiler is operating, as determined by Method 22.

2.2.9 Recordkeeping Requirements

a. For the affected boiler, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain a file or other record containing the following information for the affected boiler:

i. If the maximum design heat input capacity is not stated on the nameplate attached to the affected boiler, the maximum design heat input capacity of the affected boiler, mmBtu/hour, with supporting documentation.

ii. The Permittee's established operating and maintenance procedures for the affected boiler.

c. An operating log or other records for the affected boiler that, at a minimum, shall include the information specified in Condition 3.2 and the following information:

i. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

ii. Information for any incident in which the operation of the affected boiler continued during malfunction or breakdown, including: date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken, as addressed by 40 CFR 60.7(b).

d. The Permittee shall maintain the following operating records for the affected boiler:

i. Daily records of fuel use, which records shall be prepared and maintained following the procedures of 40 CFR 60.49b(d);

ii. Amount of fuel consumed, (million scf/month and million scf/year) and the annual capacity factor, determined on a 12-month rolling basis with a new annual capacity factor calculated for each month pursuant to 40 CFR 60.49b(d).

iii. For the affected boiler, pursuant to 40 CFR 60.49b(r), the fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as that term is defined in 40 CFR 60.41b, and the applicable sulfur limit.

iv. Pursuant to 35 IAC Part 217 Subparts D and E, the following operating records for the affected boiler:

A. Usage of natural gas, in million scf per month and million scf per year.

B. The actual heat input in mmBtu per ozone season and mmBtu per year with supporting documentation for the heat content of the fuel.

C. The applicable NOx emission limitation in lbs/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.165.

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected boiler that contains the information specified in Condition 3.2(b).

f. The Permittee shall maintain records of the following information for the NOx emissions of the affected boiler for each operating day, pursuant to 40 CFR 60.49b(g) unless alternative recordkeeping requirements are approved for the boiler in conjunction with USEPA approval of alternative monitoring procedures under the NSPS:

i. Calendar date.

ii. The measured average hourly emission rates (expressed in lbs/mmBtu heat input).

iii. The 30-day average emission rate (lbs/mmBtu heat input and lbs/hour) calculated at the end of each operating day from the measured hourly emission rates for the preceding 30 unit operating days.

iv. Identification of the operating days when the calculated 30-day average emission rates are in excess of an applicable standard or limit, with the reasons for such excess emissions as well as a description of corrective actions taken.

v. Identification of the operating days for which emission data have not been obtained, including a description of corrective actions taken.

vi. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

vii. If continuous emissions monitoring is conducted, the information specified by 40 CFR 60.49b(g)(5), (6), (7), (8) and (9).

g. Pursuant to 35 IAC Part 217 Subpart D and E, the Permittee shall maintain the following records related to the NOx emissions of the affected boiler:

i. The average hourly NOx emission data as determined by the CEMS.

ii. The ozone season and annual NOx emissions (pounds).

iii. The ozone season average and annual average NOx emission rates (lbs/mmBtu heat input), calculated within 30 days of the end of the averaging periods (i.e., calculated by October 30 for ozone season averaging period and by January 30 of the following year for annual averaging period).

h. The Permittee shall keep the following records related to the emissions of NOx, CO, VOM, PM and $PM_{10}/PM_{2.5}$ from the affected boiler:

i. For NOx, the emissions of NOx from the affected boiler based on continuous emissions monitoring data (tons/month and tons/year).

ii. For pollutants other than NOx:

A. A file containing the emission factors that are used to calculate emissions, with supporting documentation; and

B. The emissions of the affected boiler based on operating data and applicable emission factors, in tons/month and tons/year, with supporting calculations.

2.2.10 Notification and Reporting Requirements

a. For the affected boiler, the Permittee shall fulfill applicable notification and reporting requirements of the NSPS, 40 CFR 60.7 and 60.49b, by sending required notifications and reports to the Illinois EPA, including the following reports:

i. Written notification of commencement of construction, no later than 30 days after such date. [40 CFR 60.7(a)(1)]

ii. Written notification of the actual date of initial startup, within 15 days after such date. [40 CFR 60.7(a)(3)]

iii. Reports containing the information recorded under 40 CFR 60.49b(a), (b), (g) and (j).

iv. Periodic reports for excess emissions, as further addressed by Condition 2.2.10(d)(i).

v. With the periodic compliance reports, reports certifying that only natural gas that is known to contain insignificant amounts of sulfur were combusted in the affected boilers during the reporting period, pursuant to 40 CFR 60.49b(r).

b. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

c. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of 35 IAC Part 217 Subpart D, including 35 IAC 217.155(b) and 217.156((g) and (j).

d. For the affected boiler, the Permittee shall submit periodic compliance reports to the Illinois EPA for the affected boilers, which reports shall include the following information related to excess NOx emissions and deviations from other permit requirements. These reports shall be submitted on a semi-annual basis, with each report submitted no later than 30 days following the end of the reporting period.

i. As related to the NSPS standard for NOx (Condition 2.2.2(a)(i)), the state emission standard for NOx (Conditions 2.2.3(c)) and the limits for NOx emissions set by this permit (Conditions 2.2.6(a) and (b)), the information required for reporting of exceedances under 40 CFR 60.7(c) or (d) and 60.49b(h) and (j) and the information specified by Condition 3.4. If there are no such exceedances during the reporting period, the report shall state that no exceedances occurred during the reporting period.

ii. Information for other deviations during the reporting period, if any, which shall include the information specified by Condition 3.4.

iii. When no excess emissions or deviations have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Subpart 2.3: UNIT-SPECIFIC CONDITIONS FOR THE HEATERS

2.3.1 Description

The affected units for the purpose of these unit-specific conditions are natural gas-fired pipeline heaters. These heaters are used to indirectly heat natural gas to counteract the cooling that occurs when the pressure of natural gas is lowered when transitioning between pipelines. The conversion project may need up to six fuel heaters with nominal rated heat input capacities of up to 11.0 mmBtu/hour each to heat the natural gas supply to the main boilers.

2.3.2 Applicable Federal Emission Standards

a. The affected units are subject to the Boiler NESHAP, 40 CFR 63 Subpart DDDDD. For each affected unit, the Permittee must comply with applicable requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of each affected unit as specified in 40 CFR 63.7540(a)(10), (11), (12) or (13), as applicable. (See also Condition 2.3.4(d).)

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected units, must operate and maintain each unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

b. i. Each affected unit with a heat input capacity of 10 mmBtu/hour or greater is an affected facility under the federal New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc. As an affected facility, the Permittee must comply with applicable requirements of the NSPS, 40 CFR 60 Subpart Dc, and related requirements of 40 CFR 60 Subpart A, General Provisions, for the heater.

ii. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each affected unit with a heat input capacity of 10 mmBtu/hour or greater in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each affected unit shall not exceed 30 percent, except as provided by 35 IAC 212.123(b).

b. Pursuant to 35 IAC 216.121, for each affected unit with actual heat input greater than 10 mmBtu/hour, the CO emissions from the affected unit shall not exceed 200 ppm, corrected to 50 percent excess air.

2.3.3 Non-applicability Provisions

a. This permit is based on the affected units not being subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ, because the source is a major source of HAP.

2.3.4 Operational Limits and Work Practice Requirements

a. Natural gas shall be the only fuel fired in the affected units.

b. The rated heat input capacity of each affected unit shall not exceed 11.0 million Btu/hour.

c. The combined usage of fuel in the affected units shall not exceed 31,000 mmBtu/month and 184,000 mmBtu/year.

d. Pursuant to 40 CFR 63.7500 and Table 3 of the Boiler NESHAP, the Permittee shall conduct periodic tune-ups of the affected units as specified in 40 CFR 63.7540 as follows. These tune-ups shall also serve as work practices for the emissions of CO and VOM of the affected units.

i. For each affected unit without a continuous oxygen trim system and with a heat input capacity of 10 mmBtu per hour or greater: Annually.

ii. For each affected unit without a continuous oxygen trim system and with a heat input capacity of less than 10 mmBtu per hour but greater than 5 mmBtu per hour: Biennially.

iii. For each affected unit with a continuous oxygen trim system that maintains an optimum air to fuel ratio or with a heat input capacity of less than or equal to 5 mmBtu per hour: At least every five years.

2.3.5 Emissions

a. Total emissions from the affected units, combined, shall not exceed the following limits. Compliance with these limits shall be determined from a running total of monthly data.

Pollutant	Limits	
	lb/mmBtu, HHV	Tons/Year
NOx	0.101	9.3
CO	0.050	4.4
VOM	0.002	0.2

b. This permit is issued based on minimal emissions of PM, $PM_{10}/PM_{2.5}$ and SO_2 from the affected units, i.e., total emissions of each pollutant that are no more than 0.7 tons/year.

2.3.6 Recordkeeping Requirements

a. For the affected units, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)((vi) and 63.7555(a)(1), (i) and (j).

b. For the affected units, the Permittee shall maintain a file containing the following information for each affected unit: model name, serial number, maximum design heat input capacity (mmBtu/hour), the date installed, the date the unit last operated and the date removed from service.

c. The Permittee shall maintain the following records for the amount of fuel combusted in the affected units (scf/month and scf/year).

d. For the affected units, the Permittee shall maintain an operating log or other records for the affected units that, at a minimum, shall include the following information:

i. An inspection, maintenance, and repair log or other records with dates and the nature of such activities for the affected units.

ii. A. For the affected units with a heat input capacity of 10 mmBtu/hour or greater, information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

B. Information for any incident in which the operation of the affected unit continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions

taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

e. The Permittee shall keep the following records related to emissions of NOx, CO and VOM of the affected units, with supporting calculations:

i. A file containing a determination of the maximum emission rates of each pollutant in lbs/mmBtu, with supporting documentation.

ii. Records of actual emissions of each pollutant (tons/month and tons/year), with supporting calculations.

iii. Records of the actual emissions of each pollutant from all affected units, combined (tons/month and tons/year), with supporting calculations.

2.3.7 Notification and Reporting Requirements

a. For the affected units, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

b. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to commencement of construction and operation of the affected units:

i. The date construction of the affected unit commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1) and 40 CFR 60.48c(a).

ii. The actual date of initial startup of the affected units, postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), which shall be accompanied by the following information:

A. The design heat input capacity of the units and identification of the fuels to be combusted in the affected units, pursuant to 40 CFR 60.48c(a)(1).

B. The annual capacity factor at which the Permittee anticipates operating the units based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).

c. For the affected units, the Permittee shall notify the Illinois EPA of deviations from the permit requirements within 30 days of an occurrence. Reports shall include the information specified in Condition 3.4.

PART 3: GENERAL CONDITIONS

3.1 General Requirements for Emission Testing

a. At least 60 days prior to the actual date of initial emission testing required by this permit, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing and shall include at a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.

iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations.

iv. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of testing. Notwithstanding applicable rules, the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.

c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain the following. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

i. A tabular summary of results which includes:

- Process rates (e.g., fuel usage rate or firing rate)
- Measured emission rates for different pollutants tested
- Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu
- Compliance demonstrated - Yes/No.

ii. Description of test method(s) and procedures, including a description of sampling points, sampling train, analysis equipment, and test schedule.

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g., the usage and type of fuel or raw material and the firing or operating rate.)
- Control equipment information (i.e., monitored data and other relevant operating parameters during testing).

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

3.2 General Requirements for "Logs" or Similar Records

a. Operating logs or other similar records required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Information identifying periods when an emission unit or group of related emission units was not in service.

ii. For periods when a unit or group of related units is in service and operating normally, relevant process and control system information to generally confirm normal operation.

iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s), the potential consequences for additional emissions from the unit(s), the potential of any excess emissions from the affected unit(s), the actions taken to restore normal operation, and any actions taken to prevent similar events in the future.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is operated in accordance with good air pollution control practices.

b. Inspection, maintenance and repair logs or other similar information required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Identification of equipment, with date, time, responsible employee and type of activity.

ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.

iii. For maintenance and repair activity, a description of actions taken, reason for action (e.g., preventative measure or corrective action as a result of inspection), probable cause for requiring maintenance or repair if not routine or preventative, and the condition of equipment following completion of the activity.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is maintained in accordance with good air pollution control practices, including prompt repair of defects that interfere with effective control of emissions.

c. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be available for inspection and copying by the Illinois EPA upon request. Any record retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of an on-site inspection. The logs required by this permit may be part of a larger database maintained by the Permittee provided that the information that is required to be kept is readily accessible.

3.3 General Requirements for Records for Deviations

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

3.4 General Requirements for Reporting of Deviations

a. The Permittee shall include the following information in records and reports for deviations:

i. Identity of the deviation, with date, time, duration and description.

ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.

iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.

b. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a calendar quarter, a report shall be submitted no later than 45 days after the end of the quarter. This report shall also provide a listing of all deviations for which earlier reporting was required but need not include copies of the previously submitted information.

c. For the purpose of determining whether a deviation must be reported prior to a periodic compliance report, a deviation shall be considered to continue even if operation of an emission unit is interrupted if the deviation is still present when operation of the unit is resumed.

ATTACHMENT 1: SUMMARY OF PROJECT EMISSIONS

Summary of Project Emissions[a] (Tons/Year)

Emission Unit(s)	NOx	CO	SO_2	PM	PM_{10}[b]	$PM_{2.5}$[b]
Existing Units (Main Boilers)						
Baseline Actual Emissions	6160	5355	17060	2440	2023	1049
Future Emissions	4040	3611	21	66	266	266
Change	-2120	-1744	-17039	-2374	-1757	-783
New Units						
Auxiliary Boilers	24.8	25.2	0.41	1.31	5.24	5.24
Fuel Heaters	9.3	4.4	0.7	0.7	0.7	0.7
Subtotal	34.1	29.6	1.11	2.01	5.94	5.94
Total	-2086	-1714	-17038	-2372	-1751	-777
Total w/o decreases	34.1	29.6	1.11	2.0	5.9	5.94
Significant Emission Rate	40	100	40	25	15	10
Greater Than Significant?	No	No	No	No	No	No

Notes:

a. For VOM emissions, the Joliet Station will continue to be a non-major source, permitted for annual future VOM emission less than 100 tons.

Emission Unit(s)	Permitted VOM Emissions (Tons/Year)
Main Boilers	94.9
Auxiliary Boilers	2.9
Fuel Heaters	0.2
Total	98.0

b. PM_{10} and $PM_{2.5}$ include filterable particulate and condensable particulate.

R007463

ATTACHMENT 2: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. To obtain and remove samples of any discharge or emissions of pollutants, and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project; and

   e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

   b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Calculation Sheet

Company: Midwest Generation/NRG **ID: 197809AAO**
PN: 15030051

Analyst: Bob Smet **Date Received: July 7, 2020**
Current Date: July 9, 2020

4th application/revision request. Midwest Generation is seeking a revision of the emission testing requirements for Boiler 5 to no longer require periodic testing in three years. This is because this boiler is now being operated much less than originally expected. Emission testing would still be required to be conducted for this boiler pursuant to a specific request from the Illinois EPA. The only changes to the previous permit are the Please Note Footnote on Page 1, Conditions 2.1.7(b)(ii) and (iii), and new Condition 2.1.10(e). See permit for details. We had to issue very quickly (not expedited) since MidGen would have needed to test the following week which they could not have done (since the boiler was shut down).

3rd application/revision – MidGen is seeking a revised permit to allow additional time to conduct the emission testing required by Condition 2.1.7(b)(i) until September 30, 2018 for Boiler 5, so as to enable this testing to be conducted while this boiler is operating at its maximum load range. Conditions 1.1(c) and 2.1.7(b)(i) were tweaked to allow for this additional testing time.

2nd application/revision – MidGen is seeking an expedited permit to allow them permission to exceed the 35 IAC 217.141(a) standard of 0.3 lb NOx/mmBtu during startup. Appropriate language has been added for SMB. See permit for details

1st application -- Company is seeking to obtain a permit to address a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NOx) and particulate ($PM/PM_{10}/PM_{2.5}$). Netting was not required since the only increase was from VOM, but facility-wide VOM emissions will be below the major source threshold of 100 tpy so NSR will not need to be examined.

Since the boilers are not being modified and will not see an increase in any lb/hr rates of any pollutant addressed by the NSPS.

The project had to go out for public comment anyway so EJ notification was not necessary. No comments from the public.

We got 4 comments from David Ogulei: (a) he asked why Boiler 5 had its own annual tpy emissions (b/c it is the worst-case emitter in lb/mmBtu); (b) in Condition 2.1.7(b)(ii), he did not want stack testing to be held hostage based on the delays in CAAPP permit issuance (we'll let the CAAPP engineer) decide in the future how often testing should be conducted);, (c) he wanted the PTE for the gas-fired boiler to be limited in the boiler (no need since gas-firing is optional); and he wanted to require commencement of the conversion by a certain date (we have no authority to do so).

See permit for specific details.

GRANT

197809 AAO
15030051

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

July 7, 2020

VIA OVERNIGHT MAIL

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Manager, Permit Section
1021 N. Grand Avenue East
Springfield, IL 62702

RECEIVED
STATE OF ILLINOIS
JUL 07 2020
Environmental Protection Agency
BUREAU OF AIR

Re: ***Joliet Generating Station (ID No. 197809AAO)***
Permit Application No. 15030051
Request for Construction Permit Modification – Unit 6 Stack Testing

Dear Mr. Pilapil:

This letter and attachments comprise an application to modify Construction Permit Application No. 15030051 (the "Construction Permit") condition 2.1.7.b.ii issued to Joliet Generating Station ("Joliet Station") for conversion of the electric generating units ("EGUs") from coal-fired to natural gas fired EGUs. Joliet Station is comprised of three EGUs, Units 6, 7 and 8 and is located in Will County, Illinois.

Construction Permit condition 2.1.7.b.ii requires that stack emissions testing ("stack testing" or "testing") be performed at each EGU for carbon monoxide ("CO") and volatile organic matter ("VOM") at least once every three years from the previous test. Joliet Station requests that the obligation for repeat emissions testing at Joliet Unit 6 (Boiler 5) be removed. This requested change will not change Joliet Station's emissions or applicability of any state or federal regulations.

Joliet Unit 6 has not operated due to electric demand in calendar year 2020 would have to be forced into operation to complete repeat stack testing. Unit 6 is a "peaking unit" as defined at 40 CFR Section 72.2 (***emphasis added***):

> *Peaking unit* means:
>
> (1) A unit that has:
>
> ***(i) An average capacity factor of no more than 10.0 percent during the previous three calendar years and***
>
> (ii) A capacity factor of no more than 20.0 percent in each of those calendar years.
>
> (2) For purposes of part 75 of this chapter, a unit may initially qualify as a peaking unit if the designated representative demonstrates to the satisfaction of the Administrator that the requirements of paragraph (1) of this definition are met, or will in the future be met, through one of the following submissions:
>
> ...

> ***(ii) For a unit for which a monitoring plan has already been submitted under §75.62, that has not qualified as a peaking unit under paragraph (2)(i) of this definition, and where capacity factor changes, the designated representative submits either:***
>
> ***(A) Three calendar years of data following the change in the unit's capacity factor showing an average capacity factor of no more than 10.0 percent during the three previous calendar years and a capacity factor of no more than 20.0 percent in each of those calendar years; or***
>
> ...

Table 1 shows the data submitted to qualify Unit 6 as a peaking unit for calendar years 2019 and 2020 and annual gross megawatt-hour output, NOx emissions, and VOM emissions for calendar years 2017 through June 2020. This data shows that Joliet Unit 6 has both low operation and emissions since conversion to natural gas firing for electricity generation.

Table 1: Joliet Unit 6 Operations and Emissions Summary

Year	Capacity Factor (%)	3 Year Avg Capacity Factor (%)	Gross MWh	NOx Emissions (Tons)	VOM Emissions (Tons)
2016	8.2		-	-	-
2017	1.7		51,194	25	0.29
2018	0.4		4,459	7	0.08
2019	0.3	3.4	3,186	6	0.06
2020*	0	0.8	0	0.1	0.01

*January 1 – June 30, 2020

Because Joliet Unit 6 is a peaking unit and would have to be forced into operation to complete stack testing, Joliet Station requests that the Construction Permit be modified so that routine stack testing is not required for Unit 6. Forms 197-CAAPP and 199-CAAPP are included. The application fee will be forwarded as soon as possible under separate cover.

Joliet Station is looking forward to a favorable review of this submittal and issuance of a modified Construction Permit. If you have any questions regarding this submittal, please contact Ms. Sharene Shealey at 724-255-3220 or sharene.shealey@nrg.com or Mr. Pete O'Day at 815-207-5489 or peter.oday@nrg.com.

Sincerely,

William Naglosky
Joliet Generating Station
Plant Manager

cc: Chris Romaine, Illinois EPA (electronic copy)
Bob Smet, Illinois EPA (electronic copy)
Pete O'Day, Joliet Generating Station

RECEIVED
STATE OF ILLINOIS
JUL 07 2020
Environmental Protection Agency
BUR AU OF AIR

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source

For Illinois EPA use only

ID No.: 197 809AAO
Appl. No.: 15030051
Date Rec'd: 7-7-2020
Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
Joliet Generating Station - Unit 6 Stack Testing Mod. Request

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 197809AAO

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 15030051

4. Brief Description of Proposed Project:
Modification to construction permit requested to remove requirement for routine stack testing of Joliet Unit 6.

Source Information

1. Source name:* Joliet Generating Station

2. Source street address:* 1800 Channahon Road

3. City: Joliet	4. County: Will	5. Zip code:* 60436

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

6. Is the source located within city limits? ☐ Yes ☒ No
If no, provide Township Name: Joliet

7. Description of source and product(s) produced:	8. Primary Classification Code of source:
Electric power generation	SIC: 4911 or NAICS:
9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant?	2. All correspondence to: (check one)
☐ Owner ☒ Operator	☐ Source ☐ Owner ☒ Operator
3. Applicant's FEIN:	4. Attention name and/or title for written correspondence:
33-0861760	Sharene Shealey/ Sr. Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*		
1. Name: Midwest Generation, LLC		
2. Address: 804 Carnegie Center		
3. City: Princeton	4. State: NJ	5. Zip code: 08540

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*		
1. Name Joliet Generating Station		
2. Address: 1800 Channahon Road		
3. City: Joliet	4. State: IL	5. Zip code: 60436

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application	
1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant	
2. Applicant's technical contact person for application: Sharene Shealey	
3. Contact person's telephone number(s) 724-255-3220	4. Contact person's e-mail address: sharene.shealey@nrg.com
5. Consultant for application: Not applicable	
6. Consultant's telephone number(s):	7. Consultant's e-mail address:

Other Addresses for the Permit Applicant	
ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.	
1. Address for billing Site Fees for the source: ☒ Source ☐ Other (provide below):	
2. Contact person for Site Fees: Peter O'Day	3. Contact person's telephone number: 815-671-2258
4. Address for Annual Emission Report for the source: ☒ Source ☐ Other (provide below):	
5. Contact person for Annual Emission Report: Peter O'Day	6. Contact person's telephone number: 815-671-2258

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☐ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☐ Yes ☒ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☐ Yes ☐ No ☒ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☐ Yes ☐ No ☒ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☐ Yes ☐ No ☒ N/A* * Source not major ☐ Project not major ☒
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☐ Yes ☐ No ☒ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☐ Yes ☐ No ☒ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☐ Yes ☐ No ☒ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: William Naglosky — Plant Manager

AUTHORIZED SIGNATURE — TITLE OF SIGNATORY

William Naglosky — 1 7 20

TYPED OR PRINTED NAME OF SIGNATORY — DATE

RECEIVED
STATE OF ILLINOIS
JUL 07 2020
Environmental Protection Agency
BUREAU OF AIR

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: 197809 AAO Permit #: 15030051

☐ Complete ☐ Incomplete Date Complete:

Check Number: Account Name:

App was emailed. Check-Original on its way

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: Joliet Generating Station
2. Project Name: Joliet Unit 6 Stack Testing Mod. Request
3. Source ID #: (if applicable) 197809AAO
4. Contact Name: Sharene Shealey
5. Contact Phone #: 724-255-3220

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal $0.00 + Section 2, 3 or 4 Subtotal $500.00 = $500.00 Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- Major Source is a source that is required to obtain a CAAPP permit.
- Synthetic Minor Source is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g., FESOP).
- Non-Major Source is a source that is not a major or synthetic minor source.

☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

☐ New non-major source. Proceed to Section 3.

☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

$0.00 Section 1 Subtotal

This agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 ET SEQ. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Section 2: Special Case Filing Fee

8. Filing Fee. If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

☐ Addition or replacement of control devices on permitted units.

☐ Pilot projects/trial burns by a permitted unit

☐ Land remediation projects $500.00

☑ Revisions related to methodology or timing for emission testing

☐ Minor administrative-type change to a permit

Section 3: Fees for Current or Projected Non-Major Sources

9. This application consists of a single new emission unit or no more than two modified emission units. ($500 fee)

10. This application consists of more than one new emission unit or more than two modified units. ($1,000 fee)

11. This application consists of a new source or emission unit subject to Section 39.2 of the Act (i.e., Local Siting Review); a commercial incinerator or a municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or an emission unit designated as a complex source by agency rulemaking. ($15,000 fee)

12. A public hearing is held (see instructions). ($10,000 fee)

13. Section 3 subtotal. (lines 9 through 12 - entered on page 1) 13. $0.00

Section 4: Fees for Current or Projected Major or Synthetic Minor Sources

Application contains modified emission units only	14. For the first modified emission unit, enter $2,000.	
	15. Number of additional modified emission units = x $1,000.	
	16. Line 14 plus line 15, or $5,000, whichever is less.	16. $0.00
Application contains new and/or modified emission units	17. For the first new emission unit, enter $4,000.	
	18. Number of additional new and/or modified emission units = x $1,000.	
	19. Line 17 plus line 18, or $10,000, whichever is less.	19. $0.00
Application contains netting exercise	20. Number of individual pollutants that rely on a netting exercise or contemporaneous emissions decrease to avoid application of PSD or nonattainment area NSR = x $3,000.	20. $0.00
Additional Supplemental Fees	21. If the new source or emission unit is subject to Section 39.2 of the Act (i.e. siting); a commercial incinerator or other municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or one or more other emission units designated as a complex source by Agency rulemaking, enter $25,000.	
	22. If the source is a new major source subject to PSD, enter $12,000.	
	23. If the project is a major modification subject to PSD, enter $6,000.	
	24. If this is a new major source subject to nonattainment area (NAA) NSR, enter $20,000.	
	25. If this is a major modification subject to NAA NSR, enter $12,000.	
	26. If the application involves a determination of MACT for a pollutant and the project is not subject to BACT or LAER for the related pollutant under PSD or NSR (e.g., VOM for organic HAP), enter $5,000 per unit for which a determination is requested or otherwise required. x $5,000.	26. $0.00
	27. If a public hearing is held (see instructions), enter $10,000.	
28. Section 4 subtotal (line 16 and lines 19 through 28) to be entered on page1		28 $0.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: William Nagiosky — Signature

William Nagiosky — Typed or Printed Name of Signatory

Plant Manager — Title of Signatory

7/7/20 — Date

Morrissey, Michelle

From: Smet, Robert
Sent: Tuesday, July 7, 2020 12:48 PM
To: Morrissey, Michelle
Subject: FW: Joliet Station (ID No. 197809AAO) request to modify permit 15030051 - Unit 6 stack testing
Attachments: Joliet Station Prmt Mod App Unit 6 Stk Test 07-07-20.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

An application that was just submitted is attached. Can you open this as an application to be revised?

Thanks!

From: Shealey, Sharene <Sharene.Shealey@nrg.com>
Sent: Tuesday, July 7, 2020 12:43 PM
To: Smet, Robert <Robert.Smet@Illinois.gov>
Cc: O'Day, Peter <Peter.ODay@nrg.com>; Romaine, Chris <Chris.Romaine@Illinois.gov>
Subject: [External] Joliet Station (ID No. 197809AAO) request to modify permit 15030051 - Unit 6 stack testing
Importance: High

Hi Bob,

Please find attached a permit application to request removal of the requirement for repeat stack testing at Unit 6. The hardcopy will be mailed for delivery tomorrow and the payment of $500 will follow as soon as we can get a check. Please don't hesitate to call or email me with any questions.

Thank you,
Sharene

Sharene Shealey
Sr. Manager, Environmental
Will County Generating Station – 529 E. 135th Street – Romeoville, IL 60446
(724) 255-3220

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

197809AAO
15030051

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

July 7, 2020

VIA OVERNIGHT MAIL

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Manager, Permit Section
1021 N. Grand Avenue East
Springfield, IL 62702

RECEIVED
STATE OF ILLINOIS
JUL 09 2020
Environmental Protection Agency
BUREAU OF AIR

Re: Joliet Generating Station (ID No. 197809AAO)
Permit Application No. 15030051
Request for Construction Permit Modification – Unit 6 Stack Testing

Dear Mr. Pilapil:

This letter and attachments comprise an application to modify Construction Permit Application No. 15030051 (the "Construction Permit") condition 2.1.7.b.ii issued to Joliet Generating Station ("Joliet Station") for conversion of the electric generating units ("EGUs") from coal-fired to natural gas fired EGUs. Joliet Station is comprised of three EGUs, Units 6, 7 and 8 and is located in Will County, Illinois.

Construction Permit condition 2.1.7.b.ii requires that stack emissions testing ("stack testing" or "testing") be performed at each EGU for carbon monoxide ("CO") and volatile organic matter ("VOM") at least once every three years from the previous test. Joliet Station requests that the obligation for repeat emissions testing at Joliet Unit 6 (Boiler 5) be removed. This requested change will not change Joliet Station's emissions or applicability of any state or federal regulations.

Joliet Unit 6 has not operated due to electric demand in calendar year 2020 would have to be forced into operation to complete repeat stack testing. Unit 6 is a "peaking unit" as defined at 40 CFR Section 72.2 (***emphasis added***):

> *Peaking unit* means:
>
> (1) A unit that has:
>
> ***(i) An average capacity factor of no more than 10.0 percent during the previous three calendar years and***
>
> (ii) A capacity factor of no more than 20.0 percent in each of those calendar years.
>
> (2) For purposes of part 75 of this chapter, a unit may initially qualify as a peaking unit if the designated representative demonstrates to the satisfaction of the Administrator that the requirements of paragraph (1) of this definition are met, or will in the future be met, through one of the following submissions:
>
> ...

> ***(ii) For a unit for which a monitoring plan has already been submitted under §75.62, that has not qualified as a peaking unit under paragraph (2)(i) of this definition, and where capacity factor changes, the designated representative submits either:***
>
> ***(A) Three calendar years of data following the change in the unit's capacity factor showing an average capacity factor of no more than 10.0 percent during the three previous calendar years and a capacity factor of no more than 20.0 percent in each of those calendar years; or***
>
> ...

Table 1 shows the data submitted to qualify Unit 6 as a peaking unit for calendar years 2019 and 2020 and annual gross megawatt-hour output, NOx emissions, and VOM emissions for calendar years 2017 through June 2020. This data shows that Joliet Unit 6 has both low operation and emissions since conversion to natural gas firing for electricity generation.

Table 1: Joliet Unit 6 Operations and Emissions Summary

Year	Capacity Factor (%)	3 Year Avg Capacity Factor (%)	Gross MWh	NOx Emissions (Tons)	VOM Emissions (Tons)
2016	8.2		-	-	-
2017	1.7		51,194	25	0.29
2018	0.4		4,459	7	0.08
2019	0.3	3.4	3,186	6	0.06
2020*	0	0.8	0	0.1	0.01

*January 1 – June 30, 2020

Because Joliet Unit 6 is a peaking unit and would have to be forced into operation to complete stack testing, Joliet Station requests that the Construction Permit be modified so that routine stack testing is not required for Unit 6. Forms 197-CAAPP and 199-CAAPP are included. The application fee will be forwarded as soon as possible under separate cover.

Joliet Station is looking forward to a favorable review of this submittal and issuance of a modified Construction Permit. If you have any questions regarding this submittal, please contact Ms. Sharene Shealey at 724-255-3220 or sharene.shealey@nrg.com or Mr. Pete O'Day at 815-207-5489 or peter.oday@nrg.com.

Sincerely,

William Naglosky
Joliet Generating Station
Plant Manager

cc: Chris Romaine, Illinois EPA (electronic copy)
Bob Smet, Illinois EPA (electronic copy)
Pete O'Day, Joliet Generating Station

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

RECEIVED
STATE OF ILLINOIS
JUL 09 2020
Illinois Environmental Protection Agency
BUREAU OF AIR

Construction Permit Application for a Proposed Project at a CAAPP Source

For Illinois EPA use only
ID No.: 197809AAO
Appl. No.: 15030051
Date Rec'd: 7-9-2020
Chk No./Amt:

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications," Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
Joliet Generating Station - Unit 6 Stack Testing Mod. Request

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 197809AAO

3. Does this application request a revision to an existing construction permit issued by the BOA?
☐ No ☒ Yes If Yes, provide Permit Number: 15030051

4. Brief Description of Proposed Project:
Modification to construction permit requested to remove requirement for routine stack testing of Joliet Unit 6.

Source Information

1. Source name:* Joliet Generating Station

2. Source street address:* 1800 Channahon Road

3. City:	4. County:	5. Zip code:*
Joliet	Will	60436

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

6. Is the source located within city limits? ☐ Yes ☒ No
If no, provide Township Name: Joliet

7. Description of source and product(s) produced:	8. Primary Classification Code of source:
Electric power generation	SIC: 4911 or NAICS:

9. Latitude (DD:MM:SS.SSSS):	10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant?	2. All correspondence to: (check one)
☐ Owner ☒ Operator	☐ Source ☐ Owner ☒ Operator

3. Applicant's FEIN:	4. Attention name and/or title for written correspondence:
33-0861760	Sharene Shealey/ Sr. Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*

1. Name: Midwest Generation, LLC
2. Address: 804 Carnegie Center

3. City:	4. State:	5. Zip code:
Princeton	NJ	08540

* Is this information idifferent than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*

1. Name Joliet Generating Stalton
2. Address: 1800 Channahon Road

3. City:	4. State:	5. Zip code:
Joliet	IL	60436

* Is this information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application

1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant
2. Applicant's technical contact person for application:
   Sharene Shealey
3. Contact person's telephone number(s)
   724-255-3220
4. Contact person's e-mail address:
   sharene.shealey@nrg.com
5. Consultant for application:
   Not applicable
6. Consultant's telephone number(s):
7. Consultant's e-mail address:

Other Addresses for the Permit Applicant

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

1. Address for billing Site Fees for the source: ☒ Source ☐ Other (provide below):
2. Contact person for Site Fees:
   Peter O'Day
3. Contact person's telephone number:
   815-671-2258
4. Address for Annual Emission Report for the source: ☒ Source ☐ Other (provide below):
5. Contact person for Annual Emission Report:
   Peter O'Day
6. Contact person's telephone number:
   815-671-2258

Review Of Contents of the Application	
NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE	
1. Does the application include a narrative description of the proposed project?	☐ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☐ Yes ☒ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☐ No ☒ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☐ Yes ☐ No ☒ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☐ Yes ☐ No ☒ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☐ Yes ☐ No ☒ N/A* * Source not major ☐ Project not major ☒
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☐ Yes ☐ No ☒ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☐ Yes ☐ No ☒ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☐ Yes ☐ No ☒ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: William Naglosky — AUTHORIZED SIGNATURE

Plant Manager — TITLE OF SIGNATORY

William Naglosky — TYPED OR PRINTED NAME OF SIGNATORY

7 7 20 — DATE

RECEIVED
STATE OF ILLINOIS
JUL 09 2020

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

Environmental Protection Agency
BUREAU OF AIR

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: 197809 AAO Permit #: 15030051 Check being sent Separately

☐ Complete ☐ Incomplete Date Complete:

Check Number: Account Name:

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: Joliet Generating Station
2. Project Name: Joliet Unit 6 Stack Testing Mod. Request
3. Source ID #: (if applicable) 197809AAO
4. Contact Name: Sharene Shealey
5. Contact Phone #: 724-255-3220

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal $0.00 + Section 2, 3 or 4 Subtotal $500.00 = $500.00 Grand Total

Section 1: Status of Source/Purpose of Submittal

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☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

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☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

$0.00 Section 1 Subtotal

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8. **Filing Fee.** If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

☐ Addition or replacement of control devices on permitted units.
☐ Pilot projects/trial burns by a permitted unit
☐ Land remediation projects $500.00
☑ Revisions related to methodology or timing for emission testing
☐ Minor administrative-type change to a permit

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9. This application consists of a single new emission unit or no more than two modified emission units. ($500 fee)

10. This application consists of more than one new emission unit or more than two modified units. ($1,000 fee)

11. This application consists of a new source or emission unit subject to Section 39.2 of the Act (i.e., Local Siting Review); a commercial incinerator or a municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or an emission unit designated as a complex source by agency rulemaking. ($15,000 fee)

12. A public hearing is held (see instructions). ($10,000 fee)

13. Section 3 subtotal. (lines 9 through 12 - entered on page 1) 13. $0.00

Section 4: Fees for Current or Projected Major or Synthetic Minor Sources

Application contains modified emission units only	14. For the first modified emission unit, enter $2,000.	
	15. Number of additional modified emission units = x $1,000.	
	16. Line 14 plus line 15, or $5,000, whichever is less.	16. $0.00
Application contains new and/or modified emission units	17. For the first new emission unit, enter $4,000.	
	18. Number of additional new and/or modified emission units = x $1,000.	
	19. Line 17 plus line 18, or $10,000, whichever is less.	19. $0.00
Application contains netting exercise	20. Number of individual pollutants that rely on a netting exercise or contemporaneous emissions decrease to avoid application of PSD or nonattainment area NSR = x $3,000.	20. $0.00
Additional Supplemental Fees	21. If the new source or emission unit is subject to Section 39.2 of the Act (i.e. siting); a commercial incinerator or other municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or one or more other emission units designated as a complex source by Agency rulemaking, enter $25,000.	
	22. If the source is a new major source subject to PSD, enter $12,000.	
	23. If the project is a major modification subject to PSD, enter $6,000.	
	24. If this is a new major source subject to nonattainment area (NAA) NSR, enter $20,000.	
	25. If this is a major modification subject to NAA NSR, enter $12,000.	
	26. If the application involves a determination of MACT for a pollutant and the project is not subject to BACT or LAER for the related pollutant under PSD or NSR (e.g., VOM for organic HAP), enter $5,000 per unit for which a determination is requested or otherwise required. x $5,000.	26. $0.00
	27. If a public hearing is held (see instructions), enter $10,000.	
28. Section 4 subtotal (line 16 and lines 19 through 28) to be entered on page1		28. $0.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: William Naglosky — Signature
William Naglosky — Typed or Printed Name of Signatory
Plant Manager — Title of Signatory
1/7/20 — Date

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation LLC (NRG)	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	7/15/2016	
Keyword:	Choose an item.	*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

AUG 2 3 2016

REVIEWER: JKS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/785-1705

CONSTRUCTION PERMIT -- REVISED

PERMITTEE

Midwest Generation, LLC
Attn: Sharene Shealey
529 East 135th Street
Romeoville, Illinois 60466

Application No.: 15030051 I.D. No.: 197809AAO
Applicant's Designation: Natural Gas Date Received: June 8, 2016
Subject: Natural Gas Conversion Project
Date Issued: JUL 15 2016
Location: Joliet Generating Station, 1800 Channahon Road, Joliet, Will County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and air pollution control equipment consisting of a natural gas conversion project as described in the above-referenced application. This Permit is subject to standard conditions attached hereto (as Attachment 2) and the following special conditions.

If you have any questions on this permit, please call Bob Smet at 217/785-9250.

Raymond E. Pilapil

Raymond E. Pilapil
Manager, Permit Section
Division of Air Pollution Control

REP:RPS:clc

cc: USEPA Region V (Lotus Notes)

PART 1: PROJECT-WIDE CONDITIONS

1.1 Introduction

a. This permit addresses a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units, as listed below, will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers (the main boilers) on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x) and particulate ($PM/PM_{10}/PM_{2.5}$).

Main Boiler(s)	Electrical Generating Unit
Boiler 5	Unit 6
Boilers 71 and 72	Unit 7
Boilers 81 and 82	Unit 8

b. This revised permit addresses provisions of 35 IAC Part 201 Subpart I for startup and malfunction/breakdown of each affected boiler as related to the applicable state standard for NO_x, 35 IAC 217.141(a).

1.2 Termination of Coal-Firing Capability

a. Upon initial startup of a main boiler following conversion to natural gas, as provided for by this permit, that boiler shall cease to fire coal.

b. On such date that a main boiler initially starts up following conversion to natural gas, the existing air pollution control operating permits that address burning of coal in the boilers shall terminate and be replaced by this construction permit:

Unit 6	Permit 73030837
Unit 7	Permit 73030838
Unit 8	Permit 73030839

1.3 Non-Applicability of New Source Review (MSSCAM and PSD)

a. This permit is issued based on this project not being a major project for purposes of Illinois' rules for Major Stationary Sources Construction And Modification (MSSCAM), 35 IAC Part 203. For NO_x, this is because this project will reduce NOx emissions from the main boilers and the NOx emissions of the new emission units will not be significant. For volatile organic material (VOM), this is because the source will

continue to not be a major source for VOM emissions. (See also Attachment 1.)

b. This permit is issued based on this project not being a major project for purposes of the federal rules for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This is because this project will reduce emissions of regulated PSD pollutants from the main boilers and the emissions of regulated PSD pollutants from the new emission units will not be significant. (See also Attachment 1.)

1.4 Applicability of 40 CFR 63 Subpart DDDDD

a. For purposes of applicability of 40 CFR 63, this permit is issued based on this plant being a major source of hazardous air pollutants (HAPs) on January 31, 2016, the compliance date of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Source: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD. As a consequence, the new auxiliary boiler, the fuel heaters and potentially the main boilers following conversion to natural gas will be subject to the applicable provisions of 40 CFR 63 Subpart DDDDD, which NESHAP addresses major sources of HAPs, notwithstanding the reductions in the HAP emissions of the plant that will result from this project.

1.5 Compliance with Emission Limits

a. The emission limits set by this permit address all emissions from affected emission units, including emissions during startup, shutdown and malfunction or breakdown.

b. When emission testing is conducted, hourly emission rates shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.

c. i. Except as provided below or unless otherwise specified in a particular provision, compliance with annual limits established by this permit shall be determined from a rolling total of 12 months of data, i.e., from the sum of the data for the current month and data for the preceding 11 months (12 month total), and shall consider all emissions, including emissions during startup, shutdown, and malfunction or breakdown.

ii. For the main boilers, for the first year (12 months) of operation following conversion of a main boiler or boilers to natural gas, compliance shall be determined from a cumulative total of monthly data for the main boiler or boilers that have been converted, i.e., from the sum of the data for the current month and data for all preceding months for such boilers beginning on the

date or dates that boiler or boilers first resumed operation following conversion on natural gas.

iii. For the new auxiliary boiler and fuel heaters, for the first year of operation, compliance shall be determined from a cumulative total of monthly data, i.e., from the sum of the data for the current month and data for all preceding months.

1.6 Retention and Availability of Records

a. Unless otherwise provided for by a Clean Air Act Permit Program (CAAPP) permit for the source, the Permittee shall retain all records and logs required by this permit for at least five years from the date of entry (unless a longer retention period is specified by a particular provision), keep the records at a location at the plant that is readily accessible to the Illinois EPA or USEPA, and make records available for inspection and copying by the Illinois EPA or USEPA upon reasonable request.

1.7 Submittals to the Illinois EPA

a. All reports and notifications required by this permit shall be sent to the Illinois EPA, Bureau of Air Compliance Section in Springfield.

b. A copy of all required reports and notifications concerning performance testing and emissions monitoring shall also be sent directly to the Source Monitoring Unit in the Illinois EPA, Bureau of Air, Compliance Section.

1.8 Authorization for Operation

The plant may be operated in accordance with this construction permit pursuant to this permit until a Clean Air Act Permit Program (CAAPP) permit is issued for the source that addresses this project, provided that the initial performance testing required by this permit for the main boilers by Condition 2.1.7 is completed in a timely manner and a complete application for a CAAPP permit for this source is submitted that addresses this project within one year of initial operation of a main boiler on natural gas or initial operation of a new unit, whichever occurs first, as provided by Section 39.5(5)(x) of the Act. This condition supersedes Standard Condition 6.

1.9 Standard Permit Conditions

Standard conditions for issuance of construction permits, attached hereto, shall apply to this project, unless superseded by other conditions in the permit. (Refer to Attachment 2.)

PART 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

Subpart 2.1: Unit-Specific Conditions for the Main Boilers

2.1.1 Description

The affected boilers for the purpose of these unit-specific conditions are the five existing generating unit boilers or "main boilers" at the plant following conversion to natural gas as described below. These boilers are served by three stacks, with two pairs of boilers having common stacks. When this conversion is completed for a boiler with installation of new natural gas burners, certain emission standards that are applicable to fuel combustion emission units that fire coal will no longer be applicable for the boiler. In addition, certain existing emission control equipment and systems that were used when burning coal, i.e., the electrostatic precipitators for particulate, the selective non-catalytic reduction systems for NO_x and the sorbent injection system for mercury, will no longer be needed. Continuous emissions monitoring will no longer be required for emissions of sulfur dioxide (SO_2) or mercury. It is also expected that continuous opacity monitoring will no longer be required.

Boiler/ Generating Unit	Description	Emission Control Equipment
Boiler 5 (BLR5)/ ... Unit 6	Babcock and Wilcox Boiler Nominal 3,543 mmBtu/hour	Over fired Air, and Gas Reburn
Boilers 71 & 72 (BLR71 & 72)/ Unit 7	Combustion Engineering Boilers Nominal 6,034 mmBtu/hour, combined	Low NOx Burners and Over-fired Air
Boilers 81 & 82 (BLR81 & 82)/ Unit 8	Combustion Engineering Boilers Nominal 6,386 mmBtu/hour, combined	Low NOx Burners, and Over-fired Air

2.1.2 New Applicable Emission Standards and Requirements

a. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD (the Boiler NESHAP), the affected boilers will become subject to the Boiler NESHAP when they cease to be subject to the provisions of the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU (commonly referred to as the Mercury and Air Toxics Standards or MATS). On such date, for each affected boiler, the Permittee must comply with applicable requirements of 40 CFR 63 Subpart DDDDD for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-

ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

iii. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, by the applicable compliance date for the first main boilers to comply with this NESHAP, the Permittee shall have one-time energy assessment performed for the plant by a qualified energy assessor, which assessment meets the relevant requirements of Table 3 and the definition of "energy assessment" in 40 CFR 63.7575.

b. i. Pursuant to 35 IAC 217.141, the NO_x emissions of Boiler 5 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: Boiler 5 was not previously subject to a NO_x limit pursuant to 35 IAC 217.141 because 35 IAC 217.141(d) excluded cyclone fired boilers burning solid fuel from this rule.

ii. Subject to the following terms and conditions, the Permittee is authorized to operate each affected boiler in violation of 35 IAC 217.141(a) during startup, pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. The Permittee shall conduct startup of each affected boiler in accordance with written procedures maintained by the Permittee which serve to minimize excess emissions from startups and that include, at a minimum, the following measures:

1. Review of the operational condition of the boiler prior to initiating startup; and

2. Management of the operational parameters of the boiler during each startup as necessary to

make appropriate adjustments to the startup to reduce or eliminate excess emissions.

B. The Permittee shall fulfill the recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(A) and (d), and 2.1.10(b)(iii) with respect to startups.

C. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions.

iii. Subject to the following terms and conditions, the Permittee is authorized to continue operation of each affected boiler in violation of 35 IAC 217.141(a) in the event of a malfunction or breakdown of each affected boiler. This authorization is made pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. This authorization only allows such continued operation as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment, provided however, that operation shall not continue solely for the economic benefit of the owner or operator of the plant.

B. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable take action(s) so that excess emissions cease.

C. The Permittee shall fulfill recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(C) and (d) and 2.1.10(b)(iii) and (c) with respect to malfunctions and breakdowns.

D. Following reporting of an incident to the Illinois EPA of a malfunction or breakdown that resulted in excess NOx emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

2.1.3 Changes to Emission Standards and Requirements

a. The affected boilers are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75.

Note: Condition 2.1.4(c) addresses the possibility that opacity monitoring will no longer be required for the affected boilers under the Acid Rain Program.

b. The affected boilers are not subject to the following standards in 35 IAC Part 212 Subpart E for emissions of particulate matter from existing fuel combustion emission units burning solid fuel:

Boiler 5: 35 IAC 212.201 and 212.203
Boilers 71, 72, 81 and 82: 35 IAC 212.201

c. The affected boilers are not subject to the standard in 35 IAC 214.141 for SO_2 emissions from existing fuel combustion emission units burning solid fuel that are located in the Chicago major Metropolitan Area.

d. Pursuant to 35 IAC 217.141, the NOx emissions of affected Boilers 71 and 72 and Boilers 81 and 82 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: This limit takes the place of the limit in 35 IAC 217.141(b), which limits the NOx emissions of such boilers firing solid fuel to 0.90 lbs/mmBtu of actual heat input.

2.1.4 Non-Applicability Provisions

a. This permit is issued based on the affected boilers not becoming subject to the New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60 Subpart Da, as a result of this project. This is because these boilers will not undergo modifications as addressed by 40 CFR 60.14, i.e., there will not be increases in the hourly rate of emissions of any pollutant for which this NSPS has standards from any of the boilers. This project will also not constitute reconstruction as addressed by 40 CFR 60.15. This is because the capital cost of the changes made to each affected boiler will not exceed 50 percent of the capital cost of a replacement boiler.

b. Pursuant to 40 CFR 63.10000(f), this permit is issued based on affected EGUs not being subject to the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU, or MATS, beginning six months after coal is last combusted in the EGU unless the Permittee elects to remain subject to the provisions of MATS. This is because, pursuant to 40 CFR 63.9981, MATS only applies to a "coal-fired EGU or oil-fired EGU," as defined by 40 CFR 63.10042. In addition, 40 CFR 63.10000(f) only requires that an EGU that is subject to MATS continue to be subject to its provisions for six months following the last date that the EGU met the definition of an EGU subject to MATS.

c. This permit is issued based on the Permittee potentially no longer being required to conduct continuous monitoring for opacity for the affected boilers:

i. For purposes of 35 IAC Part 201 Subpart L, Continuous Monitoring, this is because natural gas is the only fuel burned in the EGU and the EGUs are excluded from such opacity monitoring pursuant to 35 IAC 201.401(a)(1)(A)(i).

ii. For purposes of the Acid Rain Program, this is because, pursuant to 40 CFR 75.14(c), the affected boilers or EGUs will qualify as "gas-fired units," as defined by 40 CFR 72.2, for purposes of 40 CFR Part 75, Continuous Emission Monitoring, if the designated representative for the source submits to USEPA either:

A. A minimum of 720 hours of unit operating data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its heat input is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil, and a statement that this changed pattern of fuel usage is considered permanent and is projected to continue for the foreseeable future; or

B. Three calendar years of data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its average annual heat input during the previous three calendar years, and no less than 85.0 percent of its annual heat input during any one of the previous three calendar years, is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil.

2.1.5 Operational Requirements

a. Before beginning operation of each affected boiler on natural gas pursuant to this permit, the Permittee shall clean the interior of the boilers to remove accumulated ash.

2.1.6 Operational and Emission Limits

a. i. The combined heat input to the affected boilers shall not exceed 12.0 million mmBtu/month and 69.9 million mmBtu/year.

ii. The heat input to Boiler 5 shall not exceed 2.6 million mmBtu/month and 15.52 million mmBtu/year.

b. i. The NO_x emissions of the affected boilers shall not exceed the following limits. Compliance with the limits below in lbs/mmBtu shall be determined on a 30-boiler operating day rolling average basis, in accordance with the provisions of 40 CFR 60.48Da(d). Compliance with the limits in lbs/mmBtu and tons/year shall consider all emissions, including emissions during periods of startup or malfunction/breakdown. Compliance with the limits in lbs/hour, which are set to address non-applicability of the NSPS, 40 CFR 60 Subpart Da, shall only consider normal operation.

	Limits		
Boiler(s)	Lbs/mmBtu	Lbs/Hour	Tons/Year
Boiler 5	0.135	2103	1047.6
Boiler 71/72	0.110	4136	---
Boiler 81/82	0.110	1251	---
Total	---	---	4040

ii. The VOM emissions of the affected boilers shall not exceed the following limits:

A. 0.0027 lb/mmBtu, and

B. 94.9 tons/year.

c. Notwithstanding Conditions 2.1.6(a)(i) and (b)(ii)(A), until results of emission testing conducted pursuant to Condition 2.1.7 have been submitted to the Illinois EPA showing that the VOM emissions of the affected boilers do not exceed 0.0027 lb/mmBtu, the combined heat input to the affected boilers shall not exceed 34.5 million mmBtu/year (rather than 69.9 million mmBtu/year) and the VOM emissions of the affected boilers shall not exceed 0.0055 lb/mmBtu (rather than 0.0027 lb/mmBtu).

Note: The limits in Condition 2.1.6 address the operation and emissions of Boilers 5, 71/72 and 81/82 following their conversion to natural gas.

2.1.7 Emission Testing

a. The Permittee shall have emissions testing conducted for the affected boiler(s) for CO and VOM as follows:

b. The timing of this testing shall be as follows:

i. Within one year (365 days) after initially operating Boiler 5, Boilers 71/72 and Boilers 81/82, following conversion to natural gas, the Permittee shall have initial emission tests conducted for such boiler(s) while the boiler(s) are operating at maximum rates and other representative operating conditions.

ii. Until a CAAPP permit is issued that addresses the affected boilers, this testing shall be repeated within at least three years of the previous testing.

iii. The Permittee shall perform emission tests as provided below for boiler(s) as requested by the Illinois EPA within 90 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

c. i. The following methods and procedures shall be used for this testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

ii. In conjunction with the initial emission tests, the Permittee shall also conduct measurements for opacity. These measurements shall be conducted using the continuous opacity monitors (COMS) on the boiler(s) or by Method 9, if the COMS are no longer in service.

d. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.1. In addition to other required information, if test runs that are longer than one-hour in duration are planned, the expected duration of the runs and the reason for extended runs shall be explained in the test plans and in the test reports.

e. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler(s) during testing, including:

A. Firing rate (mmBtu/hour).

B. Significant operating parameters of the affected boiler(s).

C. Opacity of the exhaust from the affected boiler(s), 6-minute averages.

D. Turbine Generator output (MW_e gross).

2.1.8-1 Continuous Emissions Monitoring for NOx

a. For the affected boilers or EGUs, the Permittee shall continue to calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the NOx emissions in accordance with the applicable monitoring requirements of the federal Acid Rain Program, 40 CFR Part 75, and the Cross State Air Pollution Rule, 40 CFR 96 Subpart HHH unless it obtains approval from USEPA to transition to the alternative monitoring protocol for a natural gas-fired peaking unit for such boilers or EGUs.

b. For the affected boilers or EGUs, this monitoring for NOx emissions conducted above shall also be used to determine compliance with the limits for NOx emissions in Condition 2.1.6(b)(i), except that the provisions for substitution of missing data need not be used.

2.1.8-2 Changes in Monitoring for Emissions of SO_2 and Mercury and for Opacity

a. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of SO_2 CEMS on the affected boilers or EGUs and beginning monitoring of SO_2 emissions on such units using the Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units, Appendix D to 40 CFR Part 75, as provided for by 40 CFR 75.11(d)(2). With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA for this change in monitoring methodology for SO_2 emissions; and 2) If the EGU is still subject to MATS, a showing that the EGU now qualifies as a low emitting EGU for SO_2 emissions under the MATS, as addressed by 40 CFR 63.10005(h)(1), or that an SO_2 CEMS is no longer otherwise required by MATS.

b. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of mercury CEMS on the affected boilers or EGUs. With this notification, if the EGU is still subject to MATS, the Permittee shall provide a demonstration that the EGU now qualifies as a low emitting EGU for mercury emissions under the MATS, as addressed by 40 CFR 63.10005(h)(2), or that a mercury CEMS is no longer otherwise

required by MATS. Unless 35 IAC Part 225 Subpart B has been amended to provide that its requirements related to mercury emissions no longer apply when an EGU permanently ceases combustion of coal, this notification shall also include a demonstration that such EGU is eligible to use the low mass emission excepted monitoring methodology, as provided for by 35 IAC 225.240(a)(4), and will continue to comply with a mercury emission standard in 35 IAC 225.294(c)(i) (0.0080 lbs mercury/GWh gross electrical output) for the remainder of the calendar year.

c. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of COMS on affected boilers or EGUs. With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA pursuant to 40 CFR 75.14(c)(c) showing that the EGU now qualifies as a "gas-fired unit" for purposes of monitoring under 40 CFR Part 75; 2) Confirmation that continued use of COMS is not required by 35 IAC 201.401(a)(1), 3) The average and maximum values of opacity, 6-minute average, monitored for the EGU during the previous 720 hours of operation, not including any time after conversion to natural gas when the ESPs on the EGU were still being operated, and 4) If the ESPs are operated for any time after conversion to natural gas, the average and maximum value of opacity for such periods when the ESPs were operated.

2.1.9 Recordkeeping

a. For the affected boilers, unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, the Permittee shall maintain the records required by this NESHAP, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain the records of the following information for Boiler 5, Boilers 71/72 and Boilers 81/82, on a monthly and annual basis:

i. Fuel consumption, in million scf.

ii. Heat input, in mmBtu.

iii. Total operating hours of the generating unit.

iv. Total number of boiler startups.

c. The Permittee shall maintain the following records for the operation and maintenance of each affected boiler:

i. An operating log for the boiler that, at a minimum, shall address:

A. Each startup of the boiler, including the date, time when burning of natural gas began, time startup was completed and description.

B. Each shutdown of the boiler, including the date and time, and description.

C. Any upset of the boiler that significantly impaired emission performance, including a description of the event, corrective actions taken, and preventative actions taken to address similar events.

ii. Inspection, maintenance and repair log(s) for the boiler and associated control system that, at a minimum, shall identify dates and nature of activities performed related to components that may affect emissions; the reason for such activities, i.e., whether planned or initiated due to a specific event or condition; and any failure to carry out the established maintenance procedures, with explanation.

d. The Permittee shall record the information specified by Condition 3.3 for any period during which the affected boiler deviated from an applicable emission limit or other requirement.

e. For the affected boilers, the Permittee shall maintain the following records related to NOx emissions:

i. The following records for Boiler 5, Boilers 71/72 and Boilers 81/82, with supporting data and calculations:

A. NO_x emissions, recorded hourly in units of lbs/hour and lbs/mmBtu, which shall be determined from monitoring in accordance with Condition 2.1.8-1.

B. NO_x emissions, in lbs/mmBtu, on a 30 boiler-operating-day rolling average basis.

C. NO_x emissions (tons/month and tons/year).

ii. Records for the combined NO_x emiesions of the affected boilers (tons/month and tons/year).

f. For the affected boilers, the Permittee shall maintain the following records related to VOM emissions:

i. A file containing a determination of the maximum hourly VOM emission rates of Boiler 5, Boilers 71/72 and Boilers 81/82, (lbs/mmBtu and lbs/hour), with supporting documentation And calculations.

ii. Records of combined actual VOM emissions of the boilers (tons/month and tons/year), with supporting calculations.

2.1.10 Notification and Reporting.

a. For the affected boilers, the Permittee shall notify the Illinois EPA within 30 days of the following events:

i. The date that each affected boiler or EGU last fires coal. With this notification, the Permittee shall notify the Illinois EPA if it intends to voluntarily continue to comply with MATS for longer than six months from this date.

ii. The date that each affected boiler or EGU initially fires natural gas following conversion pursuant to this permit.

b. The Permittee shall notify the Illinois EPA of deviations of affected boiler(s) from applicable requirements of this permit as follows. These notifications shall include the information specified by Condition 3.4.

i. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, deviations from requirements of the Boiler NESHAP shall be reported in the reports required by the Boiler NESHAP or otherwise in accordance with Condition 2.1.10(b)(iv).

ii. Deviations from the limits for NO_x emissions in lbs/mmBtu in Condition 2.1.6(b)(i) shall be reported in the semi-annual monitoring reports for the NO_x CEMS.

iii. Deviations from the NO_x limits shall be reported within 30 days.

iv. Other deviations from applicable requirements, including deviations that occurred during startup or malfunction/breakdown, shall be reported in a quarterly report.

c. Pursuant to 35 IAC 201.263, the Permittee shall submit a report to the Illinois EPA for any incident when operation of each affected boiler continued for more than two hours with NOx emissions in excess of 35 IAC 217.141(a) during malfunction/breakdown, as addressed by Condition 2.1.2(b)(iii). This requirement does not apply for excess emissions, if any that occur during startup or shutdown of the affected boiler. These reports shall be expeditiously provided by telephone, facsimile or electronic mail to the Illinois EPA, Air Compliance Section and Air Regional Office. These reports shall include a description of the incident and, if excess emissions are still

continuing, a description of the corrective actions that are being taken or are planned and the expected duration of the incident.

and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

2.2.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.122(a), the opacity of the exhaust from the affected boiler shall not exceed 20 percent, except as provided by 35 IAC 212.122(b).

b. Pursuant to 35 IAC 216.121, the CO emissions from the affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air.

c. Pursuant to 35 IAC 217.164, the NO_x emissions of the affected boiler on an ozone season basis (May 1 through September 30) and an annual basis shall not exceed 0.08 lbs/mmBtu, as applicable for a boiler that fires natural gas.

d. Pursuant to 35 IAC 217.150(e), the Permittee shall operate the affected boiler in a manner consistent with good air pollution control practices to minimize NOx emissions.

2.2.4 Non-Applicability Provisions

a. This permit is issued based on certain provisions of the NSPS, 40 CFR 60 Subpart Db, as follows, not being applicable to the affected boiler:

i. The standard for PM and opacity, because this boiler only burns natural gas. [40 CFR 60.43b(f) and (h)(1)]

ii. The SO_2 standards, because this boiler only fires fuel with a potential SO_2 emission rate of 0.32 lb/mmBtu heat input or less. [40 CFR 60.42b(k)(2), 60.47b(f) and 60.49b(r)]

iii. The opacity monitoring requirements of this NSPS, 40 CFR 60.48b, because this boiler only burns gaseous fuels, without post-combustion technology to reduce SO2 or PM emissions. [40 CFR 60.48b(j)(2)]

b. The affected boiler is not subject to the federal Acid Rain Program pursuant to Title IV of the federal Clean Air Act since it does not qualify as a utility unit or an electrical generating unit for the purpose of this program.

2.2.5 Operational Requirements, Work Practices and Production Limits

a. Natural gas shall be the only fuel fired in the affected boiler.

Subpart 2.2: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILERS

2.2.1 Description

The affected boiler for the purpose of these unit-specific conditions is the new natural gas-fired auxiliary boiler, as described below that will be installed to support the operation of the plant on natural gas. The auxiliary boiler will supply steam for heating and to assist in the startup of the electrical generating units. The steam from this boiler will not be sent to the existing steam turbine generators to produce electricity that goes to the grid.

Emission Unit	Nominal Heat Input Capacity	Control Measures
Auxiliary Boiler	286 mmBtu/hour	Low-NOx Combustion Technology

2.2.2 Applicable Federal Emission Standards

a. The affected boiler is an affected facility under the federal NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. For the affected boiler, the Permittee shall comply with applicable requirements of this NSPS and applicable requirements of 40 CFR 60 Subpart A, General Provisions, including the following:

i. The NO_x emissions of the affected boiler shall not exceed 43 ng/J (0.10 lb/million Btu) on a 30-day rolling average, pursuant to 40 CFR 60.44b(a), on and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first.

ii. The Permittee shall at all times, maintain and operate the affected boiler in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

b. The affected boiler is subject to 40 CFR 63 Subpart DDDDD (the Boiler NESHAP). For the affected boiler, the Permittee must comply with applicable requirements of this NESHAP for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate

b. The nominal rated heat input capacity of the affected boiler shall not exceed 286 mmBtu/hour.

c. The usage of fuel in the affected boiler shall not exceed 260,000 mmBtu/month and 1,380,000 mmBtu/year.

d. The steam from the affected boiler shall not be used to produce electricity for commercial sale to the grid.

e. The Permittee shall maintain and operate the affected boiler in a manner consistent with good air pollution control practices to minimize emissions.

2.2.6 Emission Limits

a. The NO_x emissions from the affected boiler shall not exceed 0.036 lb/mmBtu, 30-day average, determined in accordance with the methodology of the NSPS.

b. i. The emissions of the affected boiler shall not exceed the following limits.

Pollutant	Short-Term Emissions (lbs/mmBtu)	Annual Emissions (tons/year)
NO_x	*	24.8
CO	0.037	25.2
VOM	0.0042	2.9
PM	0.0019	1.31
$PM_{10}/PM_{2.5}$	0.0076	5.24

* See Condition 2.2.6(a)

ii. This permit is issued based on minimal emissions of SO_2 from the affected boiler, i.e., emissions of no more than 0.4 tons/year.

2.2.7 Emission Testing Requirements

a. i. For the affected boiler, for NO_x emissions, the Permittee shall fulfill applicable performance testing requirements of the NSPS, including 40 CFR 60.8(a), (c) and (d) and 60.46b(e).

ii. For each performance evaluation conducted to demonstrate compliance with the NSPS, in addition to submitting a test report to the Illinois EPA, the Permittee shall electronically submit the test data to USEPA if required by the NSPS.

b. The Permittee shall have emissions testing conducted for the affected boiler as follows, at its expense by a qualified

testing service under representative operating conditions, for emissions of VOM and CO.

i. The timing of testing shall be as follows:

A. Testing shall initially be conducted for the affected boiler within 365 days after initial startup of the boiler.

B. In addition, the Permittee shall have testing performed as requested by the Illinois EPA for an affected boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

ii. Appropriate USEPA test methods, including the following methods, shall be used for testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.1.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler during testing, including:

A. Fuel consumption (scf);

B. Firing rate (mmBtu/hour) and other significant operating parameters of the affected boiler;

C. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9, if visible emissions are normally present, as determined by Method 22.

2.2.8-1 Monitoring Requirements for NOx Emissions

a. Pursuant to 40 CFR 60.48b, for the affected boiler, the Permittee shall install, calibrate, operate and maintain a CEMS for NOx emissions discharged from the affected boiler and the concentration of CO_2 or O_2 in the exhaust.

i. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of these CEMS. This CEMS shall be operated during all periods of

operation of the affected boiler except for CEMS breakdowns and repairs. This CEMS shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive units operating days as specified and pursuant to 40 CFR 60.48b(f). Data is to be obtained in the scheduling and course of performing calibration checks, and zero and span adjustments as specified in the NSPS.*

* Fulfillment of the above criteria for availability of emission data from the CEMS does not shield the Permittee from potential enforcement for failure to properly maintain and operate the CEMS.

ii. The 1-hour average NO_x emission rates measured by the CEMS shall be expressed in lbs/mmBtu heat input and shall be used to calculate average emission rates pursuant to the NSPS. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2), except as allowed under 60.48b(b)(2).

iii. This CEMS shall also be used to determine compliance with the NO_x limits in Conditions 2.2.3(c) and 2.2.6.

b. The Permittee shall fulfill applicable requirements of the NSPS for this continuous monitoring system, including the following, unless alternative requirements are approved by USEPA pursuant to 40 CFR 60.13(i). For this purpose, pursuant to 40 CFR 60.13(b), the continuous monitoring system shall be installed and operational prior to conducting the initial performance test for NO_x under 40 CFR 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the monitoring devices.

i. Applicable notification requirements, including 40 CFR 60.7(a)(5), 60.8(d) and 60.49b(b).

ii. Applicable operational requirements, including 40 CFR 60.13(e) and 60.48b(c), which provide that a continuous monitoring system shall be operated during all periods of operation of an affected facility except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustment.

iii. Applicable recordkeeping requirements, including 40 CFR 60.49b(g).

iv. Applicable reporting requirements, including 40 CFR 60.7(c), (d) and/or (e) and 60.49b(h).

c. The Permittee shall also fulfill applicable requirements of 35 IAC Part 217 Subpart D for this monitoring system, including the following:

i. Applicable notification requirements of 35 IAC 217.155.

ii. Applicable recordkeeping requirements of 35 IAC 217.156(b)(9) and (b)(10).

iii. Applicable operational requirements of 35 IAC 217.157(a)(1).

iv. Applicable reporting requirements of 35 IAC 217.156(j).

2.2.8-2 Instrumentation Requirements

a. The Permittee shall install, calibrate, operate and maintain instrumentation for the affected boiler for fuel usage, scf.

2.2.8-3 Opacity Observations

a. The Permittee shall perform opacity observations for the affected boiler in accordance with Method 9 on at least an annual basis if visible emissions are normally present when the boiler is operating, as determined by Method 22.

2.2.9 Recordkeeping Requirements

a. For the affected boiler, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain a file or other record containing the following information for the affected boiler:

i. If the maximum design heat input capacity is not stated on the nameplate attached to the affected boiler, the maximum design heat input capacity of the affected boiler, mmBtu/hour, with supporting documentation.

ii. The Permittee's established operating and maintenance procedures for the affected boiler.

c. An operating log or other records for the affected boiler that, at a minimum, shall include the information specified in Condition 3.2 and the following information:

i. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

ii. Information for any incident in which the operation of the affected boiler continued during malfunction or breakdown, including: date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken, as addressed by 40 CFR 60.7(b).

d. The Permittee shall maintain the following operating records for the affected boiler:

i. Daily records of fuel use, which records shall be prepared and maintained following the procedures of 40 CFR 60.49b(d);

ii. Amount of fuel consumed, (million scf/month and million scf/year) and the annual capacity factor, determined on a 12-month rolling basis with a new annual capacity factor calculated for each month pursuant to 40 CFR 60.49b(d).

iii. For the affected boiler, pursuant to 40 CFR 60.49b(r), the fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as that term is defined in 40 CFR 60.41b, and the applicable sulfur limit.

iv. Pursuant to 35 IAC Part 217 Subparts D and E, the following operating records for the affected boiler:

A. Usage of natural gas, in million scf per month and million scf per year.

B. The actual heat input in mmBtu per ozone season and mmBtu per year with supporting documentation for the heat content of the fuel.

C. The applicable NO_x emission limitation in lbs/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.165.

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected boiler that contains the information specified in Condition 3.2(b).

f. The Permittee shall maintain records of the following information for the NO_x emissions of the affected boiler for each operating day, pursuant to 40 CFR 60.49b(g) unless alternative recordkeeping requirements are approved for the boiler in conjunction with USEPA approval of alternative monitoring procedures under the NSPS:

i. Calendar date.

ii. The measured average hourly emission rates (expressed in lbs/mmBtu heat input).

iii. The 30-day average emission rate (lbs/mmBtu heat input and lbs/hour) calculated at the end of each operating day from the measured hourly emission rates for the preceding 30 unit operating days.

iv. Identification of the operating days when the calculated 30-day average emission rates are in excess of an applicable standard or limit, with the reasons for such excess emissions as well as a description of corrective actions taken.

v. Identification of the operating days for which emission data have not been obtained, including a description of corrective actions taken.

vi. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

vii. If continuous emissions monitoring is conducted, the information specified by 40 CFR 60.49b(g)(5), (6), (7), (8) and (9).

g. Pursuant to 35 IAC Part 217 Subpart D and E, the Permittee shall maintain the following records related to the NO_x emissions of the affected boiler:

i. The average hourly NO_x emission data as determined by the CEMS.

ii. The ozone season and annual NO_x emissions (pounds).

iii. The ozone season average and annual average NO_x emission rates (lbs/mmBtu heat input), calculated within 30 days of the end of the averaging periods (i.e., calculated by October 30 for ozone season averaging period and by January 30 of the following year for annual averaging period).

h. The Permittee shall keep the following records related to the emissions of NO_x, CO, VOM, PM and $PM_{10}/PM_{2.5}$ from the affected boiler:

i. For NO_x, the emissions of NOx from the affected boiler based on continuous emissions monitoring data (tons/month and tons/year).

ii. For pollutants other than NO_x:

A. A file containing the emission factors that are used to calculate emissions, with supporting documentation; and

B. The emissions of the affected boiler based on operating data and applicable emission factors, in tons/month and tons/year, with supporting calculations.

2.2.10 Notification and Reporting Requirements

a. For the affected boiler, the Permittee shall fulfill applicable notification and reporting requirements of the NSPS, 40 CFR 60.7 and 60.49b, by sending required notifications and reports to the Illinois EPA, including the following reports:

i. Written notification of commencement of construction, no later than 30 days after such date. [40 CFR 60.7(a)(1)]

ii. Written notification of the actual date of initial startup, within 15 days after such date. [40 CFR 60.7(a)(3)]

iii. Reports containing the information recorded under 40 CFR 60.49b(a), (b), (g) and (j).

iv. Periodic reports for excess emissions, as further addressed by Condition 2.2.10(d)(i).

v. With the periodic compliance reports, reports certifying that only natural gas that is known to contain insignificant amounts of sulfur were combusted in the affected boilers during the reporting period, pursuant to 40 CFR 60.49b(r).

b. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

c. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of 35 IAC Part 217 Subpart D, including 35 IAC 217.155(b) and 217.156((g) and (j).

d. For the affected boiler, the Permittee shall submit periodic compliance reports to the Illinois EPA for the affected boilers, which reports shall include the following information related to excess NOx emissions and deviations from other

permit requirements. These reports shall be submitted on a semi-annual basis, with each report submitted no later than 30 days following the end of the reporting period.

i. As related to the NSPS standard for NOx (Condition 2.2.2(a)(i)), the state emission standard for NO_x (Conditions 2.2.3(c)) and the limits for NOx emissions set by this permit (Conditions 2.2.6(a) and (b)), the information required for reporting of exceedances under 40 CFR 60.7(c) or (d) and 60.49b(h) and (j) and the information specified by Condition 3.4. If there are no such exceedances during the reporting period, the report shall state that no exceedances occurred during the reporting period.

ii. Information for other deviations during the reporting period, if any, which shall include the information specified by Condition 3.4.

iii. When no excess emissions or deviations have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Subpart 2.3: UNIT-SPECIFIC CONDITIONS FOR THE HEATERS

2.3.1 Description

The affected units for the purpose of these unit-specific conditions are natural gas-fired pipeline heaters. These heaters are used to indirectly heat natural gas to counteract the cooling that occurs when the pressure of natural gas is lowered when transitioning between pipelines. The conversion project may need up to six fuel heaters with nominal rated heat input capacities of up to 11.0 mmBtu/hour each to heat the natural gas supply to the main boilers.

2.3.2 Applicable Federal Emission Standards

a. The affected units are subject to the Boiler NESHAP, 40 CFR 63 Subpart DDDDD. For each affected unit, the Permittee must comply with applicable requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of each affected unit as specified in 40 CFR 63.7540(a)(10), (11), (12) or (13), as applicable. (See also Condition 2.3.4(d).)

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected units, must operate and maintain each unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

b. i. Each affected unit with a heat input capacity of 10 mmBtu/hour or greater is an affected facility under the federal New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc. As an affected facility, the Permittee must comply with applicable requirements of the NSPS, 40 CFR 60 Subpart Dc, and related requirements of 40 CFR 60 Subpart A, General Provisions, for the heater.

ii. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each affected unit with a heat input capacity of 10 mmBtu/hour or greater in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each affected unit shall not exceed 30 percent, except as provided by 35 IAC 212.123(b).

b. Pursuant to 35 IAC 216.121, for each affected unit with actual heat input greater than 10 mmBtu/hour, the CO emissions from the affected unit shall not exceed 200 ppm, corrected to 50 percent excess air.

2.3.3 Non-applicability Provisions

a. This permit is based on the affected units not being subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ, because the source is a major source of HAP.

2.3.4 Operational Limits and Work Practice Requirements

a. Natural gas shall be the only fuel fired in the affected units.

b. The rated heat input capacity of each affected unit shall not exceed 11.0 million Btu/hour.

c. The combined usage of fuel in the affected units shall not exceed 31,000 mmBtu/month and 184,000 mmBtu/year.

d. Pursuant to 40 CFR 63.7500 and Table 3 of the Boiler NESHAP, the Permittee shall conduct periodic tune-ups of the affected units as specified in 40 CFR 63.7540 as follows. These tune-ups shall also serve as work practices for the emissions of CO and VOM of the affected units.

i. For each affected unit without a continuous oxygen trim system and with a heat input capacity of 10 mmBtu per hour or greater: Annually.

ii. For each affected unit without a continuous oxygen trim system and with a heat input capacity of less than 10 mmBtu per hour but greater than 5 mmBtu per hour: Biennially.

iii. For each affected unit with a continuous oxygen trim system that maintains an optimum air to fuel ratio or with a heat input capacity of less than or equal to 5 mmBtu per hour: At least every five years.

2.3.5 Emissions

a. Total emissions from the affected units, combined, shall not exceed the following limits. Compliance with these limits shall be determined from a running total of monthly data.

Pollutant	Limits	
	lb/mmBtu, HHV	Tons/Year
NO_x	0.101	9.3
CO	0.050	4.4
VOM	0.002	0.2

b. This permit is issued based on minimal emissions of PM, $PM_{10}/PM_{2.5}$ and SO_2 from the affected units, i.e., total emissions of each pollutant that are no more than 0.7 tons/year.

2.3.6 Recordkeeping Requirements

a. For the affected units, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)((vi) and 63.7555(a)(1), (i) and (j).

b. For the affected units, the Permittee shall maintain a file containing the following information for each affected unit: model name, serial number, maximum design heat input capacity (mmBtu/hour), the date installed, the date the unit last operated and the date removed from service.

c. The Permittee shall maintain the following records for the amount of fuel combusted in the affected units (scf/month and scf/year).

d. For the affected units, the Permittee shall maintain an operating log or other records for the affected units that, at a minimum, shall include the following information:

i. An inspection, maintenance, and repair log or other records with dates and the nature of such activities for the affected units.

ii. A. For the affected units with a heat input capacity of 10 mmBtu/hour or greater, information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

B. Information for any incident in which the operation of the affected unit continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable

standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

e. The Permittee shall keep the following records related to emissions of NOx, CO and VOM of the affected units, with supporting calculations:

i. A file containing a determination of the maximum emission rates of each pollutant in lbs/mmBtu, with supporting documentation.

ii. Records of actual emiesions of each pollutant (tons/month and tons/year), with supporting calculations.

iii. Records of the actual emissions of each pollutant from all affected units, combined (tons/month and tons/year), with supporting calculations.

2.3.7 Notification and Reporting Requirements

a. For the affected units, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

b. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to commencement of construction and operation of the affected units:

i. The date construction of the affected unit commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1) and 40 CFR 60.48c(a).

ii. The actual date of initial startup of the affected units, postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), which shall be accompanied by the following information:

A. The design heat input capacity of the units and identification of the fuels to be combusted in the affected units, pursuant to 40 CFR 60.48c(a)(1).

B. The annual capacity factor at which the Permittee anticipates operating the units based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).

c. For the affected units, the Permittee shall notify the Illinois EPA of deviations from the permit requirements within 30 days of an occurrence. Reports shall include the information specified in Condition 3.4.

PART 3: GENERAL CONDITIONS

3.1 General Requirements for Emission Testing

a. At least 60 days prior to the actual date of initial emission testing required by this permit, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing and shall include at a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.

iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations.

iv. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of testing. Notwithstanding applicable rules, the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.

c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain the following. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

i. A tabular summary of results which includes:

- Process rates (e.g., fuel usage rate or firing rate)
- Measured emission rates for different pollutants tested
- Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu
- Compliance demonstrated - Yes/No.

ii. Description of test method(s) and procedures, including a description of sampling points, sampling train, analysis equipment, and test schedule.

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g., the usage and type of fuel or raw material and the firing or operating rate.)
- Control equipment information (i.e., monitored data and other relevant operating parameters during testing).

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

3.2 General Requirements for "Logs" or Similar Records

a. Operating logs or other similar records required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Information identifying periods when an emission unit or group of related emission units was not in service.

ii. For periods when a unit or group of related units is in service and operating normally, relevant process and control system information to generally confirm normal operation.

iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s), the potential consequences for additional emissions from the unit(s), the potential of any excess emissions from the affected unit(s), the actions taken to restore normal operation, and any actions taken to prevent similar events in the future.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is operated in accordance with good air pollution control practices.

b. Inspection, maintenance and repair logs or other similar information required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Identification of equipment, with date, time, responsible employee and type of activity.

ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.

iii. For maintenance and repair activity, a description of actions taken, reason for action (e.g., preventative measure or corrective action as a result of inspection), probable cause for requiring maintenance or repair if not routine or preventative, and the condition of equipment following completion of the activity.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is maintained in accordance with good air pollution control practices, including prompt repair of defects that interfere with effective control of emissions.

c. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be available for inspection and copying by the Illinois EPA upon request. Any record retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of an on-site inspection. The logs required by this permit may be part of a larger database maintained by the Permittee provided that the information that is required to be kept is readily accessible.

3.3 General Requirements for Records for Deviations

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown

associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

3.4 General Requirements for Reporting of Deviations

a. The Permittee shall include the following information in records and reports for deviations:

i. Identity of the deviation, with date, time, duration and description.

ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.

iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.

b. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a calendar quarter, a report shall be submitted no later than 45 days after the end of the quarter. This report shall also provide a listing of all deviations for which earlier reporting was required, but need not include copies of the previously submitted information.

c. For the purpose of determining whether a deviation must be reported prior to a periodic compliance report, a deviation shall be considered to continue even if operation of an emission unit is interrupted if the deviation is still present when operation of the unit is resumed.

ATTACHMENT 1: SUMMARY OF PROJECT EMISSIONS

Summary of Project Emissions[a] (Tons/Year)

Emission Unit(s)	NO_x	CO	SO_2	PM	PM_{10}[b]	$PM_{2.5}$[b]
Existing Units (Main Boilers)						
Baseline Actual Emissions	6160	5355	17060	2440	2023	1049
Future Emissions	4040	3611	21	66	266	266
Change	-2120	-1744	-17039	-2374	-1757	-783
New Units						
Auxiliary Boilers	24.8	25.2	0.41	1.31	5.24	5.24
Fuel Heaters	9.3	4.4	0.7	0.7	0.7	0.7
Subtotal	34.1	29.6	1.11	2.01	5.94	5.94
Total	-2086	-1714	-17036	-2372	-1751	-777
Total w/o decreases	34.1	29.6	1.11	2.0	5.9	5.94
Significant Emission Rate	40	100	40	25	15	10
Greater Than Significant?	No	No	No	No	No	No

Notes:

a. For VOM emissions, the Joliet Station will continue to be a non-major source, permitted for annual future VOM emission less than 100 tons.

Emission Unit(s)	Permitted VOM Emissions (Tons/Year)
Main Boilers	94.9
Auxiliary Boilers	2.9
Fuel Heaters	0.2
Total	98.0

b. PM_{10} and $PM_{2.5}$ include filterable particulate and condensable particulate.

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ATTACHMENT 2: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. To obtain and remove samples of any discharge or emissions of pollutants, and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project; and

   e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

   b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Calculation Sheet

Company: Midwest Generation/nrg

ID: 197809AAO
PN: 15030051

Analyst: Bob Smet

Date Received: June 8, 2016
Current Date: July 15, 2016

2nd application – MidGen is seeking an expedited permit to allow them permission to exceed the 35 IAC 217.141(a) standard of 0.3 lb NOx/mmBtu during startup. Appropriate language has been added for SMB. See permit for details

1st application – Company is seeking to obtain a permit to address a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO2), nitrogen oxides (NOx) and particulate ($PM/PM_{10}/PM_{2.5}$). Netting was not required since the only increase was from VOM, but facility-wide VOM emissions will be below the major source threshold of 100 tpy so NSR will not need to be examined.

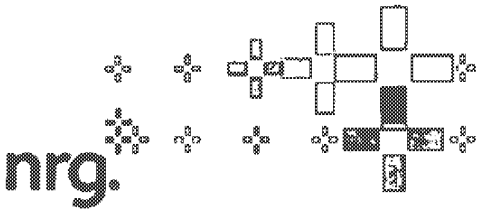
Since the boilers are not being modified and will not see an increase in any lb/hr rates of any pollutant addressed by the NSPS.

The project had to go out for public comment anyway so EJ notification was not necessary. No comments from the public.

We got 4 comments from David Ogulei: (a) he asked why Boiler 5 had its own annual tpy emissions (b/c it is the worst-case emitter in lb/mmBtu); (b) in Condition 2.1.7(b)(ii), he did not want stack testing to be held hostage based on the delays in CAAPP permit issuance (we'll let the CAAPP engineer) decide in the future how often testing should be conducted);, (c) he wanted the PTE for the gas-fired boiler to be limited in the boiler (no need since gas-firing is optional); and he wanted to require commencement of the conversion by a certain date (we have no authority to do so).

See permit for specific details.

GRANT



Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

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JUN 29 2016
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June 28, 2016

OVERNIGHT MAIL

Mr. Eric Jones
Illinois Environmental Protection Agency
Division of Air Pollution Control – Compliance Section
1021 North Grand Avenue East
Springfield, IL 62702

Mr. Ray Pilapil
Illinois Environmental Protection Agency
Division of Air Pollution Control – Permit Section
1021 North Grand Avenue East
Springfield, IL 62702

Re: ***Joliet Generating Station***
Facility ID 197809AAO
Construction Permit Application Number 15030051
Units 6, 7, and 8 Notification of Commencement Natural Gas Firing and MACT Standard Applicability

Dear Mr. Jones & Mr. Pilapil:

In accordance with the requirements of Condition 2.1.10.a.ii of Construction Permit Application Number 15030051 and Title 35 of the Illinois Administrative Code ("35 IAC") Section 225.293(d), this letter is to provide notice that the Electric Generating Units ("EGUs") at Joliet Generating Station initially fired natural gas as primary fuel as listed below:

Joliet Unit 6: **May 30, 2016**
Joliet Unit 7: **May 31, 2016**
Joliet Unit 8: **June 18, 2016**

Additionally, please note that as referenced in Construction Permit Conditions 2.1.2.a and 2.1.10.b.i., USEPA published revisions to 40 CFR 63 Subpart DDDDD ("Boiler NESHAP") so that the Joliet EGUs are no longer affected units under either MACT standard.

Boiler NESHAP (40 CFR 63 Subpart DDDDD):

> **§63.7491 Are any boilers or process heaters not subject to this subpart?**
> The types of boilers and process heaters listed in paragraphs (a) through (n) of this section are not subject to this subpart.
> (a) An electric utility steam generating unit (EGU) covered by subpart UUUUU of this part or a natural gas-fired EGU as defined in subpart UUUUU of this part firing at least 85 percent natural gas on an annual heat input basis.
> [76 FR 15664, Mar. 21, 2011, as amended at 78 FR 7162, Jan. 31, 2013; 80 FR 72806, Nov. 20, 2015]

The section of 40 CFR 63 given above states that the EGUs are not subject to the provisions of the Boiler NESHAP and as such, are no longer subject to the requirements of the referenced permit conditions.

If you have any questions regarding this notice, please call Ms. Sharene Shealey at 724-255-3220 or email at sharene.shealey@nrg.com.

Sincerely,

William Naglosky
Station Director

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

June 7, 2016

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STATE OF ILLINOIS

JUN 0 8 2016

Environmental Protection Agency
BUREAU OF AIR

VIA ELECTRONIC AND OVERNIGHT MAIL

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Acting Section Manager
1021 N. Grand Avenue East
Springfield, IL 62794-9506

Re: Joliet Generating Station (ID No. 197809AAO)
Modification to Construction Permit Application Number 15030051
Request for Authorization to Operate During Startup, Malfunction, and Breakdown Events

Dear Mr. Pilapil:

Joliet Generating Station ("Joliet") is an electric generating station located in Joliet Township, Will County, Illinois. Joliet has three electric generating units, Unit 6, Unit 7, and Unit 8 (collectively, the "EGUs" or the "Units") that are currently being converted from coal as primary fuel to natural gas as primary fuel. The construction related to conversion of the Units to natural gas firing was authorized by the Illinois Environmental Protection Agency ("IEPA" or the "Agency") under Construction Permit Application Number 15030051 ("Permit 15030051").

Conversion of the Units from coal to natural gas firing will greatly reduce emissions as described in the referenced construction permit application. These emission reductions are not only reductions in potential emissions, but are also expected to be reductions in actual emissions.

In accordance with the requirements of Title 35 of the Illinois Administrative Code ("35 IAC") Sections 201.261 and 201.264, this letter and attachments are an application to modify the referenced Construction Permit to authorize operation of the Joliet Units with alternate emissions limits/work practice standards during unit malfunction, breakdown, or startup events.

Actions required to minimize emissions during malfunction, breakdown, or startup events (work practice standards) will be taken as necessary and excess emissions are not expected. The alternate emissions standards will apply only during malfunction, breakdown or startup events. Accordingly, Joliet is requesting authorization from the Agency to operate the affected Unit or Units on a short-term basis during malfunction, breakdown, or startup events to enable unit operators time to either bring the Unit(s) to normal operating load, reduce unit load, or bring the Unit(s) off-line by initiating shut down procedures.

During malfunction, breakdown or startup events, particulate matter, opacity, sulfur oxide, carbon monoxide, or volatile organic matter emission standards are not expected to be exceeded. There exists though, the potential to exceed the steady-state NOx emission standard given at 35 IAC 217.141(a) on a

short-term basis during these events. It is possible that NOx emissions can approach 0.6 lb/mmBtu in an hour during malfunction, breakdown or startup events.

Routine startup events have the potential to realize short-term NOx excursions as Unit Operators safely increase steam flow through the boilers to bring the units online. NOx emissions will be monitored and appropriate warning alarms set to allow Unit Operators time to adjust parameters to reduce NOx emissions to avoid excess emissions. It is expected that excursions during startup events will be short-term and intermittent through the startup period. The total normal startup period is up to 22-23 hours from first fire to initial Unit production. Excursion events during this process would be limited to the extent practicable and, if not correctable in a reasonable time, startup will be aborted.

Also included in this submittal is a request for authorization to continue to operate during excursions of the hourly NOx standard in the event of malfunction or breakdown events. Unit Operators have been and will continue to be trained on boiler operations under the new operating mode. Malfunction or breakdown events are non-routine and unpredictable. If malfunction or breakdown events occur with emission excursions, Unit Operators will take all measures to address reducing emissions as safely and quickly as possible, up to and including initiating unit shutdown. At most, it is anticipated that a malfunction or breakdown event would last for up to four hours.

Joliet Generating Station is looking forward to a favorable and expeditious review of this application. To that end, Joliet is requesting that the Agency process this permit under expedited review. Please contact Ms. Sharene Shealey at (724) 255-3220 or sharene.shealey@nrg.com so that expedited review can be initiated as soon as possible.

Sincerely,

William Naglosky

William Naglosky
Joliet Station Director

Attachments

Cc: Chris Romaine, IEPA (via electronic mail)
Bob Smet, IEPA (via electronic mail)

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STATE OF ILLINOIS
JUN 13 2016
Environmental Protection Agency
BUREAU OF AIR

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-19506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: 197809AAO Permit #: 15030057
☒ Complete ☐ Incomplete Date Complete: 6-13-16
Check Number: 01004977 Account Name: Midwest Generation $2,000

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: Joliet Generating Station
2. Project Name: Joliet Generating Station Gas Conversion 3. Source ID #: (if applicable) 197809AAO
4. Contact Name: Sharene Shealey 5. Contact Phone #: 724-255-3220

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal $0.00 + Section 2, 3 or 4 Subtotal $2,000.00 = $2,000.00 Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g.,FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

☐ New non-major source. Proceed to Section 3.

$0.00 Section 1 Subtotal

☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

This agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 ET SEQ. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Section 2: Special Case Filing Fee

8. **Filing Fee.** If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

Addition or replacement of control devices on permitted units.

Pilot projects/trial burns by a permitted unit

Land remediation projects

Revisions related to methodology or timing for emission testing

Minor administrative-type change to a permit

Cited By (4) (/feed/search/?type=o&q=cites%3A(2114977))

This case has been cited by other opinions:

- United States v. EME Homer City Generation, L.P. (2013) (/opinion/1038028/united-states-v-eme-homer-city-generation-lp/?)
- SEC v. Guy Gentile (2019) (/opinion/4664651/sec-v-guy-gentile/?)
- SEC v. Microtune, Incorporated (2012) (/opinion/3099024/sec-v-microtune-incorporated/?)
- United States v. Midwest Generation, LLC (2013) (/opinion/2709576/united-states-v-midwest-generation-llc/?)

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Authorities (38)

This opinion cites:

- United States v. Midwest Generation, LLC, 694 F. Supp. 2d ... (/opinion/2557504/united-states-v-midwest-generation-llc/?) (14 times)
- North Shore Gas Company v. Salomon Inc. 152 F.3d 642 (7th Cir. 1998) (/opinion/757071/north-shore-gas-company-v-salomon-inc/?) (12 times)
- United States v. Apex Oil Co., Inc., 579 F.3d 734 (7th Cir. 2009) (/opinion/1358739/united-states-v-apex-oil-co-inc/?) (9 times)
- Vernon v. Schuster, 688 N.E.2d 1172 (Ill. 1997) (/opinion/2023674/vernon-v-schuster/?) (4 times)
- Bell Atlantic Corp. v. Twombly, 550 U.S. 544 (/opinion/145730/bell-atlantic-corp-v-twombly/?) (3 times)

View All Authorities (/opinion/2114977/united-states-v-midwest-generation-llc/authorities/?)

Related Opinions

The following opinions cover similar topics:

- Sierra Club v. Portland General Electric Co. (/opinion/2426469/sierra-club-v-portland-general-electric-co/?)
- State of Alaska, Department of Environmental Conservation v. United States ... (/opinion/778575/state-of-alaska-department-of-environmental-conservation-v-united-states/?)
- Sierra Club v. Otter Tail Power Co. (/opinion/15290/sierra-club-v-otter-tail-power-co/?)
- Alaska Department of Environmental Conservation v. Environmental Protection Agency (/opinion/131157/alaska-department-of-environmental-conservation-v-environmental-protection/?)
- Redoil v. Epa (/opinion/858996/redoil-v-epa/?)

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https://www.courtlistener.com/opinion/2114977/united-states-v-midwest-generation-llc/

United States v. Midwest Generation, LLC, 781 F. Supp. 2d 677 (N.D. Ill. 2011)

District Court, N.D. Illinois

Filed: March 16th, 2011

Precedential Status: Precedential

Citations: 781 F. Supp. 2d 677

Docket Number: Case 09-cv-5277

Author: John W. Darrah (/person/797/john-w-darrah/)

UNITED STATES of America and the State of Illinois, Plaintiffs, and Citizens Against Ruining the Environment; the Environmental Law and Policy Center; Natural Resources Defense Council, Inc.; Respiratory Health Association of Metropolitan Chicago; and Sierra Club, Intervenor-Plaintiffs, v. MIDWEST GENERATION, LLC; Edison Mission Energy, Inc.; and Commonwealth Edison Co., Defendants.

Case No. 09-cv-5277.

United States District Court, N.D. Illinois, Eastern Division.

March 16, 2011.

*679 Jennifer Lukas-Jackson, Justin Aaron Savage, Kristin M. Furrie, U.S. Department of Justice, Washington, DC, Charles V. Mikalian, United States Department of Justice, Jonathan C. Haile, United States Attorney's Office, Susan M. Tennenbaum, United States Environmental Protection Agency, Andrew Barrett Armstrong, Rose-Marie E. Cazeau, Stephen J. Sylvester, Illinois Attorney General's Office, Chicago, IL, for Plaintiffs.

Keith Ian Harley, Chicago Legal Clinic, Inc., Shannon Wanzer Fisk, Natural Resources Defense Council, Faith E. Bugel, Chicago, IL, Michael Christopher Soules, Minneapolis, MN, for Intervenor-Plaintiffs.

Daniel E. Reidy, Brian Joseph Murray, Jones Day, Adrienne Banks Pitts, Byron F. Taylor, Kathleen Lynn Roach, Margaret R. Sobota, Sidley Austin LLP, Chicago, IL, James Michael Jones, Jones Day, Pittsburgh, PA, Kevin P. Holewinski, Jones Day, Washington, DC, for Defendants.

MEMORANDUM OPINION AND ORDER

JOHN W. DARRAH, District Judge.

This action arising under the federal Clean Air Act ("CAA"), *codified at* 42 U.S.C. § 7401 *et seq.*, was originally brought by the United States of America and the State of Illinois (collectively, "Plaintiffs") against Midwest Generation, LLC ("Midwest Generation"), the owner and operator of several coal-fired power plants in this district. Several "Citizen Groups" were later granted leave to intervene.[1] Plaintiffs' original Complaint, filed on October 27, 2009, asserted three types of CAA violations: (1) claims that Midwest Generation violated the CAA's provisions for the Prevention of Significant Deterioration of air quality ("PSD"); (2) claims for violations of opacity and particulate-matter limitations under Illinois law; and (3) claims under the CAA's Title V operating-permit provisions. Among other things, Plaintiffs alleged that Midwest Generation's continued operation of units unlawfully modified by a former owner constitutes continuing violations of the CAA's PSD provisions. Midwest Generation moved to dismiss Plaintiffs' PSD counts.

The motion was granted on March 9, 2010. *See United States v. Midwest Generation, LLC*, 694 F. Supp. 2d 999 (/opinion/2567504/united-states-v-midwest-generation-llc/), 1008 (N.D.Ill.2010) (the "March 9 Opinion"). With one exception, all PSD counts were dismissed in their entirety.[2] The Court "680 held that "because a violation of 42 U.S.C. § 7475 [regarding preconstruction permits] occurs at the time of construction and no later, Midwest Generation cannot be liable for any construction that occurred prior to Midwest Generation's ownership of the relevant sources." *See Midwest Generation*, 694 F.Supp.2d at 1008. Section 7475 prohibits the *construction* of a "major emitting facility" unless certain statutory requirements are met; it does not prohibit the subsequent *operation* of such a facility without a permit. *Id.* at 1003-04. Similarly, "nothing in the EPA's PSD regulations prohibits the subsequent operation of a source when no construction permit had been obtained." *Id.* at 1004.[3] Additionally, because *all* modifications – including those commenced by Midwest Generation – were commenced well over five years before the initiation of this action, all claims for civil penalties were dismissed as time barred. *Id.* at 1009.

With leave of the Court, Plaintiffs then filed an Amended Complaint, alleging new theories of PSD violations and also adding Commonwealth Edison Company ("ComEd"), the former owner, and Edison Mission Energy, Inc. ("EME"), Midwest Generation's parent company. The Amended Complaint seeks both civil penalties and injunctive relief. The Citizen Groups also filed an Amended Complaint with leave of the Court.

Midwest Generation and EME jointly move to dismiss multiple counts in Plaintiffs' Amended Complaint, and ComEd separately moves to dismiss all claims against it. Midwest Generation also moves to dismiss the only two counts in the Citizen Groups' Amended Complaint that allege violations of the CAA's PSD provisions. A consolidated briefing scheduling order was entered, and the matter is now fully briefed and before the Court for ruling.

BACKGROUND

The following facts are taken from Plaintiffs' Amended Complaint and the Citizen Groups' Amended Complaint. Additional background information and a brief discussion of the CAA's PSD provisions can be found in the March 9 Opinion. *See Midwest Generation*, 694 F.Supp.2d at 1001-02.

In 1999, ComEd sold six power plants, containing a total of fourteen coal-fired generating units, to EME. Am. Compl. ¶¶ 2, 69, 74.[4] EME then transferred control of those plants to Midwest Generation, who operates them currently. Am. Compl. ¶¶ 2, 87. Prior to selling the plants to EME, ComEd modified nine of the fourteen generating units without first obtaining a preconstruction permit as required by the CAA. Am. Compl. ¶ 2. A tenth unit was modified by Midwest Generation – also without a preconstruction permit – after it was acquired from ComEd.[5] *Id.* Had such permits been issued, they would have required ComEd to operate its plants in a manner that employed the "Best Available Control Technology" ("BACT") to prevent significant deterioration in air quality. *Id.*

The transfer of the plants from ComEd to EME was accomplished by way of an "681 asset sale agreement ("Agreement") dated March 22, 1999. Am. Compl. ¶ 74. The Agreement, as more fully set out below, provided that EME would assume certain responsibilities for ComEd's environmental liabilities. *See* Am. Compl. ¶ 75. The Agreement's definition of "Environmental Laws" includes requirements relating to "air emissions" and the "impact upon human health or the environment" of "matters governed by ... the Clean Air Act (42 U.S.C. § 7401 *et seq.*) ... and all state counterpart statutes." Am. Compl. ¶ 76.

The Agreement also provides that Environmental Liabilities may exist, that EME had received ComEd's environmental reports and had the opportunity to perform due diligence, and that those potential liabilities were reflected in the purchase price of the assets. Am. Compl. ¶ 78. The Agreement further provides that EME could assign its equity interests under the Agreement to another corporation, in which case the assignee would be required to "assume in writing all of [EME]'s obligations [t]hereunder ... with respect to the rights so assigned." Am. Compl. ¶ 79.

On December 31, 2009, Midwest Generation filed a Form 10-K Report with the Securities and Exchange Commission ("SEC"), stating: "In connection with the acquisition of the Midwest Generation Plants, Midwest Generation agreed to indemnify Commonwealth Edison with respect to specified environmental liabilities before and after December 15, 1999, the date of sale."[6] Am. Compl. ¶ 85. Based upon the representations to the SEC, Plaintiffs infer that EME has assigned to Midwest Generation some or all of its rights and/or obligations under, and in accordance with, the Agreement. Am. Compl. ¶ 87.

After assuming control of the power plants at issue, Midwest Generation has operated them in a manner that results in the release of significant amounts of pollutants into the atmosphere. Am. Compl. ¶ 3.

In their Amended Complaint, Plaintiffs now attempt to revive their previously dismissed PSD claims by presenting three new theories of recovery. First, they quote additional language from 415 ILCS 5/9.1(d), *see* Am. Compl. ¶ 65, and allege that the newly quoted language provides independent grounds under state law for prohibiting Midwest Generation from *operating* sources that were *constructed* without a preconstruction permit, *see, e.g.*, Am. Compl. ¶ 93. Second, they have joined ComEd as a Defendant and claim that ComEd can be held liable for PSD violations committed during the time ComEd owned and operated the plants at issue. *See* Am. Compl. Counts 3, 8, 13, 18, 23, 30, 35, 40, 45. Third, they claim that EME's and Midwest Generation's assumption of ComEd's environmental liabilities under the Agreement subjects those Defendants to enforcement under the CAA through principles of successor liability.

The Citizen Groups' Amended Complaint named Midwest Generation as the only Defendant and asserts only one PSD count. *See* Citizen Am. Compl. Count 27. The Citizen Groups make no claim as to ComEd's unlawful modifications. They only claim that Midwest Generation is subject to civil enforcement for its own unlawful modifications.

*682 LEGAL STANDARD

"A motion under Rule 12(b)(6) challenges the sufficiency of the complaint." *Christensen v. County of Boone, Ill.*, 483 F.3d 454 (/opinion/797469/anita-christensen-and-robert-alty-v-county-of-boone-illinois-and-edward/), 458 (7th Cir.2007). In ruling on a motion to dismiss, the court must accept as true all well-pleaded factual allegations and draw reasonable inferences in favor of the plaintiff. *Sprint Spectrum L.P. v. City of Carmel, Ind.*, 361 F.3d 998 (/opinion/785498/sprint-spectrum-lp-v-the-city-of-carmel-indiana-the-board-of-zoning/), 1001 (7th Cir.2004). The allegations in the complaint "must plausibly suggest that the plaintiff has a right to relief, raising that possibility above a `speculative level'; if they do not, the plaintiff pleads itself out of court." *E.E.O.C. v. Concentra Health Servs., Inc.*, 496 F.3d 773 (/opinion/1452795/eeoc-v-concentra-health-services-inc/), 776 (7th Cir. 2007) (citing *Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (/opinion/145730/bell-atlantic-corp-v-twombly/), 555, 127 S. Ct. 1955 (/opinion/145730/bell-atlantic-corp-v-twombly/), 167 L. Ed. 2d 929 (/opinion/145730/bell-atlantic-corp-v-twombly/)(2007)).

The district court need not accept as true "legal conclusions" or "threadbare recitals of the elements of a cause of action, supported by mere conclusory statements." *Brooks v. Ross*, 578 F.3d 574 (/opinion/1456401/brooks-v-ross/), 581 (7th Cir.2009) (quoting *Ashcroft v. Iqbal*, ____ U.S. ____, 129 S. Ct. 1937 (/opinion/145875/ashcroft-v-iqbal/), 1949-50, 173 L. Ed. 2d 868 (/opinion/145875/ashcroft-v-iqbal/)(2009)). Although affirmative defenses are not usually resolved on a motion to dismiss, dismissal under Rule 12(b)(6) is proper if the plaintiffs complaint, on its face, demonstrates that a claim is barred by a statute of limitations. *See Whirlpool Fin. Corp. v. GN Holdings, Inc.*, 67 F.3d 605 (/opinion/705830/fed-sec-l-rep-p-98918-whirlpool-financial-corporation-v-gn-holdings/), 608 (7th Cir.1995).

ANALYSIS

Plaintiffs' Theory of Direct Liability Under 415 ILCS 5/9.1(d)

As explained above, Plaintiffs introduce several new theories of recovery in their Amended Complaint. The first theory is that Illinois law goes above and beyond the CAA to prohibit the *operation* of any source constructed without a preconstruction permit. Plaintiffs' argument is based on their interpretation of 415 ILCS 5/9.1(d). Although they cited this statute in their original Complaint, they now purportedly assert a new "independent and direct claim against Midwest Generation] pursuant to CAA § 113(b)(1) for illegally operating its plants in violation of § 9.1(d)(2)." *See* Pl. Opp'n Br. 19. Midwest Generation argues that Plaintiffs' failure to present this theory in response to the motion to dismiss the original Complaint constitutes a waiver of any right to do so now.

In their original Complaint, Plaintiffs claimed that, by failing to obtain a PSD permit prior to their operation of the sources at issue and failing to apply BACT, "[Midwest Generation] has violated, and continues to violate, Section 165(a) of the Act, 42 U.S.C. § 7475(a), and the PSD regulations set forth in 40 C.F.R. § 52.21, incorporated into the Illinois SIP, and Section 9.1(d) of the Illinois Act, 415 ILCS 5/9.1(d)" and that they were therefore subject to injunctive relief and civil penalties "[a]s provided in Section 113(b) of the Act." *See, e.g.*, Compl. ¶¶ 67-69 (emphasis added). The allegations in this regard in their Amended Complaint add nothing new. Plaintiffs allege that ComEd unlawfully modified and operated the sources at issue without obtaining a PSD permit and that "Midwest Gen is directly liable for this alleged PSD claim pursuant to the federally enforceable provisions of the Illinois Act, 415 ILCS 5/9.1(d), which U.S. EPA has approved as part of the Illinois SIP." *See* Am. Compl. ¶¶ 92-93. In both the original and the amended version of their Complaint, Plaintiffs allege a direct violation of 415 ILCS 5/9.1(d) for, among other things, failing to apply BACT in the operation of the sources at issue.

Although a direct violation of section 9.1(d) was alleged in their original Complaint, Plaintiffs did not assert a claimed violation of section 9.1(d) as grounds to "683 deny Midwest Generation's motion to dismiss Plaintiffs' PSD claims. As discussed above, those claims were dismissed in their entirety. By specifically quoting a portion of section 9.1(d) in their Amended Complaint, Plaintiffs do not present any cause of action that was not presented in their original Complaint, nor do they allege any new facts to support a violation of Illinois law. Instead, Plaintiffs simply raise a new question of statutory interpretation. The opportunity for such arguments has passed.

At any rate, Plaintiffs' argument that Illinois law provides an operational restriction not present under the CAA is unpersuasive. Section 9.1(d) provides, in relevant part:

No person shall:

> (1) violate any provisions of Sections 111, 112, 165 [i.e., the preconstruction-permit provision] or 173 of the Clean Air Act, as now or hereafter amended, or federal regulations adopted pursuant thereto; or
>
> (2) construct, install, modify or operate any equipment, building, facility, source or installation which is subject to regulation under Sections 111, 112, 165 or 173 of the Clean Air Act, as now or hereafter amended, except in compliance with the requirements of such Sections and federal regulations adopted pursuant thereto, and no such action shall be undertaken without a permit granted by the Agency or in violation of any conditions imposed by such permit.

415 ILCS 5/9.1(d).

According to Plaintiffs, section 9.1(d)(1) merely incorporates the CAA and federal regulations into Illinois law while section 9.1(d)(2) broadens the scope of Illinois law beyond that of the CAA by prohibiting a person from operating any source that does not comply with the preconstruction-permit requirements or by operating a source without first obtaining a permit or in violation of any conditions imposed by a permit.

Section 9.1(d)(2) prohibits the operation of any source subject to PSD requirements "except in compliance with the requirements of [the CAA] and federal regulations." As explained in the March 9 Opinion, "compliance with the requirements of [the CAA] and federal regulations" does not include any operational requirements in situations where a preconstruction permit was not obtained. *Midwest Generation*, 694 F.Supp.2d at 1003-04. Plaintiffs' new interpretation of the application of section 9.1(d) is inconsistent with, and contrary to, this Court's prior ruling that Midwest Generation does not commit a PSD violation by operating a source that was previously constructed without a preconstruction permit.

The remainder of section 9.1(d)(2) simply provides that no person shall "construct, install, modify or operate" any source without a permit or in violation of an issued permit. With respect to the sources at issue, Plaintiffs do not allege that Midwest Generation constructed, installed, or modified anything. Nor do they allege that Midwest Generation failed to obtain an operating permit or that they violated any conditions in an operating permit that had been issued. Instead, they ask this Court to read section 9.1(d)(2) as prohibiting the *operation* of a source without a *construction* permit. Plaintiffs' argument for this interpretation is unsupported. The plain meaning of the statute is obvious: a person may not construct a source except in compliance with provisions regarding construction and may not operate a source except in compliance with provisions regarding operation.

Thus, even if their argument had not been waived, Plaintiffs have failed to state a claim for any direct violation of section 9.1(d) that is sufficient to survive Midwest "684 Generation and EME's motion to dismiss under this theory.

Plaintiffs' Direct Claims Against ComEd

Plaintiffs' second new theory of recovery is to hold ComEd directly liable for the unlawful acts it committed prior to selling the power plants to EME. Although ComEd was allegedly responsible for unlawful modifications to the sources at issue in this litigation, it no longer owns them. Plaintiffs do not expressly seek civil penalties from ComEd; they seek injunctive relief only. Specifically, they ask the Court to order all Defendants "to remedy their past violations by, among other things, requiring Defendants to install and/or operate the best available control technology or lowest achievable emission rate, as appropriate, at the units subject to this action" or to "take other appropriate actions to remedy, mitigate, and offset the harm to public health and the environment." Am. Compl. p. 123.

ComEd argues that it cannot be the subject of a complaint for injunctive relief that would require ComEd to modify sources it no longer owns and that such an order would be unprecedented. Plaintiffs have not identified any case in which a court has ordered a former property owner to remedy PSD violations on property it no longer owns.[7] ComEd, on the other hand, has identified such a case. *New Jersey v. Reliant Energy Mid-Atl. Power Holdings, LLC*, No. 07-CV-5928, 2009 Wl. 3234438 (E.D.Pa. Sept. 30, 2009) (*Reliant*). In *Reliant*, the district court dismissed the plaintiffs' PSD claims to the extent they sought injunctive relief against a former property owner who allegedly modified sources without complying with the CAA's preconstruction-permit provisions. *See id.* at *17. The court specifically rejected the plaintiffs' argument that an injunction could issue against the former owners of the sources, forcing them to pay for the installation of BACT. *Id.* The court reasoned that, despite their attempts to characterize their requested relief as an injunction, the plaintiffs were essentially seeking a legal remedy. *Id.*

Notably, Plaintiffs cited *Reliant* in support of their opposition to Midwest Generation's first motion to dismiss. In doing so, Plaintiffs asserted that Midwest Generation is the *only* party capable of performing the modifications necessary to bring the sources into compliance:

> As the current owner/operator, Midwest Gen is the only entity that can implement the appropriate relief: reducing emissions from the violating units by installing BACT-level pollution controls or shutting the units down. Indeed, the *Reliant* court dismissed claims against the prior owner in that action, finding that the prior owner could not implement pollution controls at the plant.

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Having since added ComEd as a Defendant, Plaintiffs now contend that *Reliant* should *not* be followed and that this Court can simply enter an injunction that would force ComEd to pay for Plaintiffs' requested modification to Midwest Generation's plants. More specifically, Plaintiffs assert that *Reliant* is at odds with the Seventh Circuit's decision in *United States v. Apex Oil Co., Inc.*, 579 F.3d 734 (/opinion/1358739/united-states-v-apex-oil-co-inc)(7th Cir.2009) (*Apex*). In addressing an appeal from an injunction entered pursuant to the Resource Conservation and Recovery Act ("RCRA"), the *Apex* court stated: "That equitable remedies are always orders to act or not to act, rather than to pay, is a myth; equity often orders payment." *Id.* at 736. The injunction entered by the district court in that case required the "685 defendant to clean up a site that was contaminated by an oil refinery owned by the defendant's predecessor. *Id.* at 735. The specific issue on appeal was whether the government's claim to an injunction survived the defendant's bankruptcy, which discharged claims for a "right to an equitable remedy for breach of performance if such breach gives rise to a right to payment" that arose before confirmation of the bankruptcy plan. *Id.* at 735-36. It was clear that the injunction was an "equitable remedy"; the question was whether it gave "rise to a right of payment." *Id.*

The defendant in that case argued that, because it was no longer in the oil-refinery business, it would have to hire (and pay) someone else to comply with its injunction order. *Id.* at 736. In other words, the only way for the defendant to comply with the injunction would be to pay someone else to clean up its mess. The court rejected the defendant's attempt to characterize the injunction order as a claim for money. *Id.* at 737. The court specifically noted that the RCRA did not entitle the government to demand payment in lieu of action. *Id.* at 738. The defendant in that case was not ordered to pay for clean up; it was ordered to clean up. With regard to the means that the defendant employed to comply with its injunction, the court found no reason to "distinguish a check written to [the defendants'] employee from one written to an independent contractor." *Id.* at 736.

Apex's holding does not support Plaintiffs' position in the instant case. If Midwest Generation were ordered to modify the sources at issue, *Apex* teaches that it is immaterial whether Midwest Generation undertakes those modifications internally or hires outside contractors, so long as it complies with the terms of the injunction. ComEd, on the other hand, has no authority to modify Midwest Generation's plants; nor does it have any authority to hire someone else to make those modifications to property it does not own or control. Unlike the defendant in *Apex*, ComEd is not merely asserting that it lacks the practical resources necessary to comply with a mandatory injunction; it is asserting it has *no right* to perform the relief Plaintiffs request - independently or through third parties.

Plaintiffs argue that the Court can fashion the requested injunction under the All Writs Act. That argument is misplaced. The All Writs Act confers on federal courts the authority to "issue all writs necessary or appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law." 28 U.S.C. § 1651(a). It is not intended as a means for courts "to issue ad hoc writs whenever compliance with statutory procedures appears inconvenient or less appropriate." *Pa. Bureau of Corr. v. U.S. Marshals Serv.*, 474 U.S. 34 (/opinion/111538/pa-bureau-of-correction-v-us-marshals-service/), 43, 106 S. Ct. 355 (/opinion/111538/pa-bureau-of-correction-v-us-marshals-service/)(1985). Presumably, Plaintiffs would have the Court fashion relief by entering an injunction against ComEd and a writ against Midwest Generation: either forcing Midwest Generation to allow ComEd to enter its property, shut down its operations, and modify its facilities or forcing Midwest Generation to perform the modifications at ComEd's expense. Plaintiffs have offered no persuasive authority for such a broad exercise of judicial authority under the All Writs Act or otherwise.

In the alternative, Plaintiffs argue that the Court could enter an injunction requiring ComEd to purchase and retire sulfur-dioxide allowances to mitigate past illegal sulfur-dioxide emissions resulting from its past PSD violations. Such an order could not reasonably be characterized as an injunction to remedy the failure to obtain a permit; it would be a penalty. As noted above, claims for penalties are time barred.

*686 Plaintiffs also argue that injunctions against former owners are supported by the plain text of the CAA's civil-enforcement provision. The CAA provides that the EPA Administrator shall commence a civil action for injunction and/or penalties against the owner or operator of an affected source and may commence such an action against "any other person." 42 U.S.C. § 7413(b). Plaintiffs contend that the reference to "any other person" would be superfluous if enforcement was limited to current owners. The argument is unpersuasive. The CAA's civil-enforcement provisions are not limited to injunctive relief. Had Plaintiffs brought this action within the applicable statute-of-limitations period, § 7413 arguably would have permitted the imposition of civil penalties against ComEd, despite the fact that it no longer owns the sources. Thus, the statutory language cannot reasonably be construed in a manner that requires the extreme remedy of injunctive relief only, as proposed by Plaintiffs.

"Because a mandatory injunction requires the court to command the defendant to take a particular action," they are "sparingly issued." *Graham v. Med. Mut. of Ohio*, 130 F.3d 293 (/opinion/748617/kimberly-k-graham-and-jon-s-graham-v-medical-mutual-of-ohio-fka-blue/), 295 (7th Cir.1997); *see also W.A. Mack, Inc. v. Gen. Motors Corp.*, 260 F.2d 886 (/opinion/246469/w-a-mack-inc-an-illinois-corporation-v-general-motors-corporation-a/), 890 (7th Cir.1958) ("[Mandatory injunctions are rarely issued."). Plaintiffs have failed to properly plead that this case presents such a rare situation. Federal Rule of Civil Procedure 8(a) requires "a short and plain statement of the claim *showing that the pleader is entitled to relief*." Fed.R.Civ.P. 8(a)(2) (emphasis added). It is not enough for Plaintiffs to simply allege that ComEd violated the CAA; they must allege a right to some form of relief from ComEd. With civil penalties off the table, Plaintiffs are unable to do so. ComEd cannot be compelled to modify sources it no longer owns and has no right to access. ComEd's motion to dismiss is granted. All claims against ComEd are dismissed.

Plaintiffs' Theory of Successor Liability

Plaintiffs finally attempt to revive their PSD claims by arguing that Midwest Generation expressly assumed ComEd's CAA liabilities (via EME) by the Agreement through which EME purchased the power plants at issue in this litigation.[8]

*687 Midwest Generation and EME argue that Plaintiffs' successor-liability theory is not supported by the CAA, which specifically limits the class of persons subject to enforcement to the class of person who actually violated the CAA. The CAA's civilenforcement provision is as follows:

> The Administrator shall, as appropriate, in the case of any person that is the owner or operator of an affected source, a major emitting facility, or a major stationary source, and may, in the case of any other person, commence a civil action for a permanent or temporary injunction, or to assess and recover a civil penalty of not more than $25,000 per day for each violation, or both, in any of the following instances:
>
> (1) Whenever such person has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit.

42 U.S.C. § 7413(b).

Neither party has identified a case in which successor liability has been imposed under the CAA. Plaintiffs note that successor corporations have been found potentially liable in the context of other environmental laws, however. With regard to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), for example, the Seventh Circuit noted that "every circuit confronted with the question has determined that Congress intended successor liability to apply." *N. Shore Gas Co. v. Salomon, Inc.*, 152 F.3d 642 (/opinion/757071/north-shore-gas-company-v-salomon-inc/), 649 (7th Cir.1998) *(North Shore Gas), overruled in part on other grounds Envision Healthcare, Inc. v. PreferredOne Ins. Co.*, 604 F.3d 983 (/opinion/146277/envision-healthcare-inc-v-preferredone-ins-co/), 986 n. 1 (7th Cir.2010).

The CERCLA provision at issue in *North Shore Gas* provides categories of "persons" who would be held liable for costs associated with the removal and remediation associated with environmental contaminants. The list includes current owners or operators of a facility and "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of." 42 U.S.C. § 9607(a)(2). The defendant's mineral-processing facility was added to the EPA's national priorities list, and the defendant was ordered to remove certain hazardous substances from its property. *North Shore Gas*, 152 F.3d at 645. The current owners of that facility then sought out former owners and operators to share in the response costs. *Id.* When it was discovered that the site may have been contaminated in the mid-1930s under the ownership of the North Shore Coke & Chemical Company, a company which had long since been liquidated, the current owner of the facility sought contribution from the defunct company's alleged successor. *Id.* at 645-46.

After noting that CERCLA did not specifically address corporate-successor liability, the Seventh Circuit held that CERCLA should be interpreted in a manner that permits the flow of liabilities through principles of successor liability. *Id.* at 649. The court looked at CERCLA's definition of "person," which includes an "individual, firm, corporation, association, partnership, consortium, joint venture, [or] commercial entity." *Id.* (citing 42 U.S.C. § 9601(21)). The court then cited a rule of statutory construction codified at the beginning of the U.S. Code: that "[t]he word `company' or `association,' when used in reference to a corporation, shall be deemed to embrace the words `successors and assigns of such company or association,' in like manner as *688 if these last-named words, or words of similar import, were expressed." 1 U.S.C. § 5. The court determined that § 5 "lends credence to the notion that, when Congress defined `person' by listing a variety of terms that apply to business entities, it intended to include all known forms of business and commercial enterprises." *North Shore Gas*, 152 F.3d at 649 (citation and internal quotation marks omitted). It ultimately held that CERCLA permits successor liability, though it does not *require* it "unless justified by the facts of each case." *Id.* at 650 (citation and internal quotation marks omitted).

Plaintiffs argue that the CAA's definition of "person" should be similarly interpreted to include successors. But the CAA's enforcement provision is fundamentally different from the CERCLA provision at issue in *North Shore Gas*. The provision at issue in *North Shore Gas* provided for remediation and recovery of cleanup costs. The Seventh Circuit specifically observed that "there is no concern — at least theoretically — about *punishing* the successor for the acts (or omissions) of the predecessor; CERCLA is a remedial measure which is aimed only at correcting environmentally dangerous conditions." *North Shore Gas*, 152 F.3d at 649-50 (emphasis added). By contrast, the Seventh Circuit has described the CAA provision at issue in the instant case — which allows for civil penalties and mandatory injunctions — as "quasi-criminal." *See United States v. AM Gen. Corp.*, 34 F.3d 472 (/opinion/677377/united-states-v-am-general-corporation/), 474 (7th Cir.1994).

To that end, as explained below, the plain language of this statute limits enforcement of these "quasi-criminal" mechanisms to those persons who actually violate the CAA. Title 1's definitional provisions, cited above, are only useful "[i]n determining the meaning of any Act of Congress ... unless the context indicates otherwise." 1 U.S.C. § 1; *see also Anspec Co. v. Johnson Controls, Inc.*, 922 F.2d 1240 (/opinion/553868/the-anspec-company-inc-and-hugh-montgomery-v-johnson-controls-inc/), 1247 (6th Cir.1991) (determining that 1 U.S.C. § 5 only applies "unless the context indicates otherwise"). Here, the context does indicate otherwise. An action against an owner or operator of an affected source (i.e., Midwest Generation) may be commenced only "[w]henever *such person* has violated, or is in violation of, any requirement or prohibition of an applicable implementation plan or permit." 42 U.S.C. § 7413(b) (emphasis added). The only persons subject to enforcement are those persons who violated or are in violation of a relevant requirement or prohibition. Plaintiffs have failed to sufficiently allege that EME or Midwest Generation violated any such requirement or prohibition. Thus, under the CAA, neither EME nor Midwest Generation is subject to enforcement for ComEd's violations.

Moreover, Plaintiffs' theory that the Agreement expressly provides that CAA liabilities were transferred along with the assets sold by ComEd is not supported by the operative terms of the Agreement.[9]

In Illinois, "[t]he well-settled general rule is that a corporation that purchases the assets of another corporation is not liable for the debts or liabilities of the transferor corporation."[10] *Vernon v. Schuster*, 179 Ill. 2d 338 (/opinion/2023674/vernon-v-schuster/), 228 Ill. Dec. 195, 686 N.E.2d 1172 (/opinion/2023674/vernon-v-schuster/), 1175 (1997). There are four exceptions to that general rule; Plaintiffs assert one exception here: where *689 there is an express or implied agreement of assumption of those debts or liabilities. *Id.*, 228 Ill. Dec. 195, 686 N.E.2d at 1175-76. Federal common law is in accord. *See, e.g., North Shore Gas*, 152 F.3d at 651. The theory of successor liability is an equitable doctrine, which courts have applied to a variety of state and federal claims. *See, e.g., Gen. Foam Fabricators, Inc. v. Tenneco Chems., Inc.*, 695 F.2d 281 (/opinion/411765/general-foam-fabricators-inc-plaintiff-counterdefendant-appellant-vi/), 287 (7th Cir.1982) (contract claim); *Panther Pumps & Equip. Co. v. Hydrocraft, Inc.*, 566 F.2d 8 (/opinion/350819/panther-pumps-equipment-company-inc-now-morrison-pump-co-inc-vi/), 23-28 (7th Cir.1977) (federal civil contempt); *In re Aftermarket Filters Antitrust Litig.*, MDL No. 1957, 2010 WL 3715137, at *2 (N.D.Ill. Sept. 14, 2010) (antitrust claim).

It is well established that rules of contract interpretation are determined under state law. *North Shore Gas*, 152 F.3d at 652 (applying Illinois rules of contract interpretation in the context of CERCLA). Under Illinois law, "[a]n agreement, when reduced to writing, must be presumed to speak the intention of the parties who signed it. It speaks for itself, and the intention with which it was executed must be determined by the language used." *Carnico Mut. Ins. Co. v. Citizens Bank*, 474 F.3d 989 (/opinion/796613/carnico-mutual-insurance-company-v-citizens-bank-v-navarro-elisco/), 993 (7th Cir.2007) (citations and internal quotation marks omitted). Contract terms are interpreted according to their plain meaning unless otherwise defined. *Id.* The Court must give effect to the parties' intent at the time the agreement was made. *North Shore Gas*, 152 F.3d at 652.

The assignment provision in the Agreement relied upon by Plaintiffs is expressly limited to non-compliance of *assets* (i.e., sources) — not non-compliance of ComEd. The Agreement provides as follows:

> 2.3 *Purchaser's Liabilities*. On the Closing Date, Purchaser will assume and be responsible and liable for (i) all obligations and liabilities related to, arising from or associated with ownership, occupancy, use or operation of the Assets from and after the Closing (other than Excluded Liabilities) and (ii) the following obligations and liabilities (collectively, "Purchaser's Liabilities"):
>
> (a) *Environmental Liabilities*. ... (i) responsibility for compliance and liability for any non-compliance by *the Assets* with *Environmental Laws* (including fines, penalties and costs to correct) ... whether occurring, existing or arising on, before or after the Closing (collectively, "Environmental Liabilities").

Agreement § 2.3(ii)(a) (emphasis added).

Here, it is clear from this provision that Midwest Generation (allegedly through EME) agreed only to assume "responsibilities for compliance and liability for any non-compliance *by the Assets* with Environmental Laws ... whether occurring, existing or arising on, before or after the Closing." *See id.* (emphasis added). The term "Assets" is defined to include, among other things, the sources at issue. *See* Agreement § 2.1.[11] The definition does not include persons, and no reasonable interpretation of the term *Assets* could include the *persons* who previously owned the Assets. Importantly, Section 2.3(ii)(a)(i), addressing non-compliance by the Assets specifically with regard to Environmental Laws, stands in contrast to the preceding "690 general clause 2.3(i), which provides that the purchaser would assume responsibility and liability for "all obligations and liabilities related to, arising from or associated with ownership, occupancy, use or operation of the Assets from and after the Closing." Agreement § 2.3(i). Thus, assumed environmental liabilities for non-compliance by the assets include those that arise before, as well as after, closing, while personal assumed liabilities related to ownership and operation of the assets are limited to those that arise "from and after the Closing." Personal liabilities that arose before closing, such as ComEd's alleged failure to obtain a preconstruction permit, were clearly not intended to be assumed by the Agreement.

Ultimately, by amending their Complaint to add allegations of successor liability based on the Agreement, Plaintiffs only manage to provide further support for the Court's alternative reasons for rejecting Plaintiffs' successor-liability argument in the March 9 Opinion. "the PSD provisions impose obligations on 'persons,' not 'sources.'" *Midwest Generation*, 694 F.Supp.2d at 1008 n. 9. Plaintiffs' PSD claims are not based on allegations that the sources are out of compliance; they are based on allegations that ComEd failed to comply with the CAA's PSD provisions. A careful reading of the provision in the Agreement relied upon by Plaintiffs does not manifest an agreement by EME and Midwest Generation to assume liability for ComEd's unlawful acts.

Additionally, because, as discussed above, it has been determined that ComEd has no liability to Plaintiffs, there is no liability for Midwest Generation to assume under either theory. All claims for civil penalties are time barred; and ComEd is not subject to mandatory injunctive relief, i.e., to take any remedial action on property it no longer owns or controls. For the foregoing reasons, Plaintiffs' successor-liability theory fails. Counts 1, 2, 5, 7, 11, 12, 16, 17, 21, 22, 28, 29, 33, 34, 38, 39, 43, 44, 55, and 56 are dismissed.

Plaintiffs' Title V Claims

EME and Midwest Generation also move to dismiss Plaintiffs' Title V counts "to the extent they are based on dismissed PSD claims." Midwest Generation Mem. 15. Plaintiffs allege that Midwest Generation "failed to submit a complete application and/or update its application for a Title V operating permit" that "contains a compliance plan for all applicable requirements." *See, e.g.*, Compl. ¶¶ 123, 125. The "applicable requirements" allegedly omitted from Midwest Generation's permit include those contained in the PSD provisions and the Illinois State Implementation Plan's opacity requirements. Plaintiffs specifically allege that Midwest Generation was required to amend its existing applications to include required BACT limits. *See, e.g.*, Am. Compl. ¶121.

As explained in the March 9 Opinion, those BACT limits are imposed through the preconstruction-permit process. In the absence of such a permit, they do not exist. There "is no obligation to apply [BACT] in the abstract", it "is a specific prerequisite to obtaining a preconstruction permit" that is "determined on a case-by-case basis through the [PSD] permitting process itself." *Midwest Generation*, 694 F.Supp.2d at 1007. "Title V does not impose additional requirements on sources but rather consolidates all applicable requirements in a single document to facilitate compliance." *Citizens Against Ruining the Env't v. EPA*, 535 F.3d 670 (/opinion/1323463/citizens-against-ruining-the-environment-v-epa/), 672 (7th Cir.2008).

Plaintiffs' Amended Complaint does not allege any applicable PSD requirement that has been violated by EME or Midwest Generation, and Title V does not create new requirements. Plaintiffs cannot slip their PSD claims through the back "691 door by recharacterizing them as Title V claims. To the extent Plaintiffs' Title V claims are based on any alleged failure to obtain a permit for ComEd's PSD violations, those claims are dismissed.

Midwest Generation's Motion to Dismiss the Citizen Groups' Claims

The Citizen Groups' Amended Complaint generally tracks that of Plaintiffs' with regard to opacity and Title V violations. It also contains a single PSD count (Count 27), based on the only PSD count not entirely dismissed from Plaintiffs' original Complaint. The Citizen Groups allege that Midwest Generation acquired the Will County Station from ComEd in 1999 and, in February 2000, commenced construction of one or more major modifications without applying for or receiving PSD permits. Citizen Am. Compl. ¶ 217. As a result of Midwest Generation's unlawful modifications, pollutants have been, and continue to be, released into the atmosphere in amounts greater than permitted by law. Citizen Am. Compl. ¶ 219. The Citizen Groups also claim that Midwest Generation failed to submit a complete application for a Title V operating permit that identifies all applicable requirements, accurately certifies compliance with such requirements, and contains an appropriate compliance plan. Citizen Am. Compl. ¶ 233.

The Citizen Groups ask the Court to enter injunctive relief against Midwest Generation and order Midwest Generation to pay civil penalties pursuant to the CAA. As it did in response to Plaintiffs' original Complaint, Midwest Generation moves to dismiss the Citizen Groups' Amended Complaint as time barred to the extent it seeks civil penalties. Midwest Generation also argues that the Citizen Groups' claim for injunctive relief should be dismissed pursuant to the concurrent-remedies doctrine.

As explained above, all PSD claims were dismissed against Plaintiffs to the extent they sought civil penalties. The Court held that the general, five-year, federal statute of limitations applies to the CAA and that all PSD claims were alleged to have accrued more than five years ago. *See Midwest Generation*, 694 F.Supp.2d at 1008-09. The Citizen Groups did not assert any PSD claims in their original complaint, and they now assert that the March 9 Opinion does not apply to their own claim for civil penalties.

The Citizen Groups offer two theories as to why their nearly identical claim for civil penalties is not also barred by the five-year statute of limitations. First, they argue that the five-year statute of limitations did not begin until the Citizen Groups discovered the alleged PSD violations. Alternatively, they ask the Court to apply the doctrine of equitable tolling based on the Illinois EPA's refusal to comply with the Citizen Groups' requests for certain information.

The CAA does not provide its own statute of limitations. Therefore, the general, five-year, federal statute of limitations applies. *See* 28 U.S.C. § 2462, *United States v. Ill. Power Co.*, 245 F. Supp. 2d 951 (/opinion/2515031/united-states-v-illinois-power-co/), 954 (S.D.Ill.2003) (stating that § 2462 is applicable to the CAA). Section 2462 provides as follows:

> Except as otherwise provided by Act of Congress, an action, suit or proceeding for the enforcement of any civil fine, penalty, or forfeiture, pecuniary or otherwise, shall not be entertained unless commenced within five years from the date when the claim first accrued if, within the same period, the offender or the property is found within the United States in order that proper service may be made thereon.

28 U.S.C. § 2462.

In their opposition brief, the Citizen Groups argue that their claim did not accrue until March 2, 2010, when this Court "692 entered a "Stipulation and Protective Order," which allowed them access to certain of Midwest Generation's documents they had attempted to obtain since March 2004 through Freedom of Information Act ("FOIA") requests.

The Citizen Groups cite Seventh Circuit cases for the proposition that a plaintiff's claim accrues upon his discovery of his injury. *See Cada v. Baxter Healthcare Corp.*, 920 F.2d 446 (/opinion/562394/joseph-f-cada-v-baxter-healthcare-corporation/), 450 (7th Cir.1990) (*Cada*) ("Accrual is the date on which the statute of limitations begins to run. It is not the date on which the wrong that injures the plaintiff occurs, but the date - often the same, but sometimes later - on which the plaintiff discovers that he has been injured."); *Stolerson v. United States*, 629 F.2d 1265 (/opinion/381955/helen-j-stolerson-v-united-states/), 1269 (7th Cir.1980) ("[A]ny plaintiff who is blamelessly ignorant of the existence or cause of his injury shall be accorded the benefits of the discovery rule."). Neither of these cases addresses the statute in question.

Although the Seventh Circuit has not directly addressed the meaning of "accrued" in 28 U.S.C. § 2462, it recently noted that the Supreme Court has not adopted a general discovery rule in interpreting federal statutes of limitations. *See SEC v. Koenig*, 557 F.3d 736 (/opinion/1433897/sec-v-koenig/), 739 (7th Cir.2009) (*Koenig*.) "[S]ome periods of limitations start with discovery and others not, with the difference depending on each provision's text, context, and history." *Id.* (citing *TRW, Inc. v. Andrews*, 534 U.S. 19 (/opinion/118465/trw-inc-v-andrews/), 27, 122 S. Ct. 441 (/opinion/118465/trw-inc-v-andrews/), 151 L. Ed. 2d 339 (/opinion/118465/trw-inc-v-andrews/)(2001)).

Although the *Koenig* court found it unnecessary to decide when a claim "accrues" for purposes of § 2462, generally, it noted that the discovery theory has been soundly rejected by other circuits. *Id.* In *3M Co. v. Browner*, 17 F.3d 1453 (/opinion/664610/3m-company-minnesota-mining-and-manufacturing-v-carol-m-browner/)(D.C.Cir. 1994) (*3M*), for example, the District of Columbia Circuit examined this issue at length and held as follows:

> In light of the legal meaning of the word "accrued" in 1839, the retention of the word in the 1874 version of § 2462, and its appearance in the current statute, we hold that an action, suit or proceeding to assess or impose a civil penalty must be commenced within five years of the date of the violation giving rise to the penalty. We reject the discovery of violation rule EPA advocates as unworkable; outside the language of the statute; inconsistent with judicial interpretations of § 2462; unsupported by the discovery of injury rule adopted in non-enforcement, remedial cases; and incompatible with the functions served by a statute of limitations in penalty cases.

Id. at 1462-63. Other circuits have similarly held that § 2462 does not contemplate a discovery rule. *See Trawinski v. United Techs.*, 313 F.3d 1295 (/opinion/780225/benon-john-trawinski-irene-monahan-trawinski-v-united-technologies/), 1298 (11th Cir.2002) (*per curiam*); *Fed. Election Comm'n v. Williams*, 104 F.3d 237 (/opinion/732513/federal-election-commission-v-larry-r-williams/), 240 (9th Cir.1996); *United States v. Core Labs., Inc.*, 759 F.2d 480 (/opinion/450601/united-states-v-core-laboratories-inc/), 482-83 (5th Cir. 1985).

Although the Citizen Groups advance various policy arguments as to why a discovery rule should be applied to CAA cases brought by private citizens, the *3M* decision did not depend on the fact that the plaintiff was a government entity; it focused on the nature of relief, which is the same regardless of whether the claims are asserted by a government agency or private citizen groups. The rationale of a discovery rule, which "rests on the idea that plaintiffs cannot have a tenable claim for the recovery of damages unless and until they have been harmed," is inapposite to claims for fines, penalties, and forfeitures, which are a form of punishment asserted in suits regardless of damage. *3M*, 17 F.3d at 1460. The *3M* court also observed that § 2462 is a general statute of limitations; it is not limited to environmental "693 cases, and its interpretation should not depend on any particular difficulties associated with enforcement in any specific case. *Id.* at 1461. Indeed, "nothing in the language of § 2462 even arguably makes the running of the limitations period turn on the degree of difficulty an agency experiences in detecting violations." *Id.*

Where Congress has decided to graft a discovery rule into a statute of limitations, it has done so expressly. Certain CERCLA claims, for example, cannot be brought "unless the claim is presented within 3 years after ... [t]he date *of the discovery* of the loss and its connection with the release in question." 42 U.S.C. § 9612(d)(2) (emphasis added). Section 2462, by contrast, limits actions to "five years from the date when the claim first *accrued*." 28 U.S.C. § 2462 (emphasis added).

"[A] PSD violation occurs at the time the alleged construction or modification begins." *Midwest Generation*, 694 F.Supp.2d at 1009. The Citizen Groups allege that Midwest Generation commenced construction on the relevant source in February 2000. Thus, their claim accrued in February 2000. The discovery rule does not afford the Citizen Groups relief from the statute of limitations.

Unless the Citizen Groups can succeed on their equitable-tolling argument, their claim for civil penalties is time barred. "Equitable tolling is a doctrine used sparingly, reserved for those situations in which extraordinary circumstances prevent a party from filing on time." *Bensman v. U.S. Forest Serv.*, 408 F.3d 945 (/opinion/790328/jim-bensman-mark-donham-and-heartwood-incorporated-v-united-states/), 964 (7th Cir.2005) (citing *Wilson v. Battles*, 302 F.3d 745 (/opinion/779031/earl-wilson-v-john-c-battles-warden/), 749 (7th Cir.2002)). The doctrine applies only when "circumstances prevent a litigant from filing despite the exercise of due diligence." *Id.* It "permits a plaintiff to avoid the bar of the statute of limitations if despite all due diligence he is unable to obtain vital information bearing on the existence of his claim." *Cada*, 920 F.2d at 451.

On its face, the Citizen Groups' Amended Complaint pleads a claim that is barred by the statute of limitations. The unlawful act occurred in 2000; the statute of limitations is five years; and the Citizen Groups' earliest Complaint was filed on January 21, 2010.

A statute of limitations is an affirmative defense, however, which need not be anticipated by a complaint. *Leavell v. Kieffer*, 189 F.3d 492 (/opinion/765888/daniel-r-leavell-and-eva-l-leavell-v-charles-michael-kieffer/), 494 (7th Cir.1999) (citations omitted). A plaintiff may oppose a motion to dismiss with additional facts asserted by affidavit or brief if those facts are consistent with the allegations in the complaint. *Henkosh v. Herman M. Finch Univ. of Health Sciences/The Chicago Med. Sch.*, 167 F.3d 1170 (/opinion/761745/patricia-henkosh-phd-v-herman-m-finch-university-of-health/), 1173 n. 3 (7th Cir.1999) (considering affidavit filed in connection with plaintiff's response to motion to dismiss in deciding whether equitable tolling should apply). Dismissal under Rule 12(b)(6) is premature if it is possible for a plaintiff to prove a set of facts that would show reason to apply the doctrine of equitable tolling. *See Clark v. City of Braidwood*, 318 F.3d 764 (/opinion/780753/james-clark-v-the-city-of-braidwood/), 768 (7th Cir. 2003).

The Seventh Circuit has applied the doctrine of equitable tolling to § 2462 in an action brought by the SEC. *Koenig*, 557 F.3d at 739-740. At least one court has applied the doctrine to § 2462 in an action brought under the CAA. *See Penn. v. Allegheny Energy, Inc.*, No. 05-885, 2010 WL 1541457, at *6 (W.D.Pa., Apr. 18, 2010) (holding that equitable tolling would apply if plaintiff could prove sufficient supporting facts at trial).

According to the Citizen Groups, their PSD claim falls squarely within the bounds of the equitable-tolling doctrine. *694 The Citizen Groups argue in their opposition brief that they diligently tried to obtain the information necessary to support their claim from the Illinois EPA but that Midwest Generation's efforts to designate the information as confidential trade secrets prevented them from doing so. They assert that their first request was made in March 2004 and that they did not obtain the necessary information until March 2010, when this Court entered a protective order. Midwest Generation agreed to provide the Citizen Groups with the requested documents in exchange for the Citizen Groups' agreeing to withdraw their pending FOIA requests. Therefore, argue the Citizen Groups, the statute of limitations should be tolled from March 2004 through March 2010, which would bring the claim within the statute of limitations.

The Citizen Groups offer little support for this argument. They do not identify the specific newly acquired information that allowed them to make their PSD claims, detail the diligence of their efforts to obtain that information, or explain why they were unable to make these claims earlier. The only support for their equitable-tolling argument consists of citations to documents entered in proceedings pending before the Illinois Pollution Control Board. Nonetheless, they have presented enough to plausibly suggest that they are entitled to equitable tolling if they can prove that something beyond their control prevented them from bringing their claim earlier despite their diligent efforts to obtain the missing information.[12]

Midwest Generation's arguments as to the Citizen Groups' claim for injunctive relief and their Title V claim depend on dismissal of their claims for civil penalties. Because those claims are not dismissed, Midwest Generation's remaining arguments need not be addressed at this time.

CONCLUSION

For the reasons stated above, ComEd's motion to dismiss is granted in its entirety. Counts 3, 8, 13, 18, 23, 30, 35, 40, 45, and 57 are dismissed; and ComEd is dismissed from this action. EME and Midwest Generation's partial motion to dismiss Plaintiffs' Amended Complaint is granted. Counts 1, 2, 6, 7, 11, 12, 16, 17, 21, 22, 28, 29, 33, 34, 38, 39, 43, 44, 55, and 56 are dismissed in their entirety. Counts 5, 10, 15, 20, 25, 32, 37, 42, and 47 are dismissed to the extent they are based on the dismissed PSD claims. Midwest Generation's motion to dismiss the Citizen Groups' Amended Complaint is denied.

NOTES

[1] The Citizen Groups are: Citizens Against Ruining the Environment; the Environmental Law and Policy Center; the Natural Resources Defense Council, Inc.; the Respiratory Health Association of Metropolitan Chicago; and the Sierra Club.

[2] Plaintiffs alleged that Midwest Generation was operating a number of unlawfully modified coal-fired generating units at six plants, most of which had been modified by a former owner. The Complaint pled that only one had been modified by Midwest Generation. Midwest Generation did not move to dismiss the PSD count pertaining to the unit that was allegedly modified by Midwest Generation.

[3] The Eighth Circuit recently reached the same conclusion. *See Sierra Club v. Otter Tail Power Co.*, 615 F.3d 1008 (/opinion/152902/sierra-club-v-otter-tail-power-co/), 1018 (8th Cir.2010) ("[T]he plain language of the [PSD] statute and the regulations applicable to Otter Tail prohibited only modification of the Big Stone plant without a PSD permit or BACT [Best Available Control Technology], not its operation.").

[4] Plaintiffs' Amended Complaint is cited as "Am. Compl. ¶ ___." The Citizen Groups' Amended Complaint is cited as "Citizen Am. Compl. ¶ ___."

[5] Plaintiffs plead, in the alternative, that ComEd modified the tenth unit as well. *See* Am. Compl. ¶ 468.

[6] EME similarly acknowledged an obligation to indemnify ComEd for environmental liabilities in its own Form 10-K Report: "In connection with the acquisition of the Midwest Generation Plants, EME agreed to indemnify Commonwealth Edison with respect to specified environmental liabilities before and after December 15, 1999, the date of sale." Am. Compl. ¶ 82.

[7] Plaintiffs merely cite to unpublished consent decrees in two cases, purportedly showing that former owners *agreed* to *expend money* to settle the claims against them.

[8] Similar to the arguments presented above, Midwest Generation again asserts that the Court has already decided this issue in its favor and that the law-of-the-case doctrine prevents Plaintiffs from re-arguing their position now. The purported adverse holding is contained in the following footnote in the March 9 Opinion:

Plaintiffs also argue that Midwest Generation may be held liable for ComEd's conduct under a theory that Midwest Generation assumed ComEd's liabilities under an asset-purchase agreement. As set out above, the PSD provisions impose obligations on "persons," not "sources." Moreover, the allegations in the Complaint do not support this theory of transferred liability.

Midwest Generation, 694 F.Supp.2d at 1008 n.9.

The law-of-the-case doctrine provides that a court's decision "should continue to govern the same issues in subsequent stages in the same case." *Jarrard v. CDI Telecomms., Inc.*, 408 F.3d 905 (/opinion/790322/gilbert-jarrard-v-cdi-telecommunications-inc-and-crawford-company/), 911-12 (7th Cir.2005). The rule is "based on sound policy that, when an issue is once litigated and decided, that should be the end of the matter." *Id.* at 912.

As noted in the above-quoted footnote, Plaintiffs' theory of transferred liability was not alleged in their original Complaint. The argument was raised for the first time in Plaintiffs' response to Midwest Generation's first motion to dismiss. Plaintiffs now have amended their Complaint to expressly allege the previously missing allegations supporting their theory of successor liability. The law-of-the-case doctrine applies only to issues that were previously litigated. *Menard, Inc. v. Countryside Indus., Inc.*, No. 01 C 7142, 2004 WL 1336382, at *2 (N.D.Ill. June 14, 2004). It has no application to issues that were not previously properly presented to the Court. Thus, the law-of-the-case doctrine does not bar Plaintiffs from now alleging successor liability.

[9] Because Plaintiffs attached the Agreement to their Amended Complaint, its terms can be considered in ruling on a motion to dismiss. *See Centers v. Centennial Mortg., Inc.*, 398 F.3d 930 (/opinion/769315/william-k-centers-v-centennial-mortgage-inc-and-matthew-t-kane/), 933 (7th Cir.2005).

[10] The Agreement, which is attached as Exhibit A to Plaintiffs' Amended Complaint, provides that it is governed by Illinois law unless preempted by federal law. *See* Agreement § 11.7.

[11] Section 1.1 of the Agreement contains a list of definitions. It provides that "'*Assets*' has the meaning set forth in *Section 2.1* (Transfer of Assets)." Section 2.1, in turn, provides that the purchaser would acquire ComEd's interest in the following specific "Assets": real-property rights; improvements, buildings, structures, and fixtures; permits and licenses; personal property; assigned leases; assigned contracts; trading allowances; and records.

[12] Although the Amended Complaint and the opposition brief were filed on behalf of all Citizen Groups, their brief does not assert that any group other than the Sierra Club diligently attempted to obtain the necessary information. If this is indeed the case, the doctrine of equitable tolling could be unavailable to those other groups.

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation LLC	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	10/16/2015	
Keyword:	APP SUP	*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
DEC 04 2015
REVIEWER EAV

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

AUG 05 2015

REVIEWER: JKS

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

August 3, 2015

VIA ELECTRONIC AND OVERNIGHT MAIL

RECEIVED
STATE OF ILLINOIS

AUG 04 2015

Environmental Protection Agency
BUREAU OF AIR

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Acting Section Manager
1021 N. Grand Avenue East
Springfield, IL 62794-9506

Re: Joliet Generating Station (ID No. 197809AAO)
Natural Gas Conversion Project Construction Permit Application Revision and Supplement

Dear Mr. Pilapil:

Please find enclosed an application revision and supplement for the Joliet Generating Station ("Joliet") Natural Gas Conversion Project ("the Project") Construction Permit Application. The Project proposes to add full load natural gas firing capability to Joliet Units 6, 7, and 8 (collectively, "the Units"). The application supplement (in duplicate) is intended to provide additional information or revise information previously submitted.

Auxiliary Boiler Design Changes

The Project Construction Permit Application had a preliminary design that included two new gas-fired auxiliary boilers to provide plant heat and auxiliary start-up steam as needed (Joliet 9 Aux Boiler, rated at 140 MMBtu/hr and Joliet 29 Aux Boiler, rated at 168 MMBtu/hr). Upon review and refinement, the Project design has been changed to include only one auxiliary boiler, rated at 286 MMBtu/hr. To that end, this submittal includes a CAAPP-240 Form for the single auxiliary boiler that replaces the CAAPP-240 Forms that were previously submitted for the two auxiliary boilers and revisions to the emission calculations that reflect the change in design. The emission calculation revisions are presented as Table 1R through Table 6R and Table 10.

VOM Emissions/Requested Emission Limit

The Project Construction Permit Application dated July 7, 2015 included VOM emissions calculated using emissions factors from USEPA AP-42. While AP-42 provides an appropriate emission factor for VOM emissions for Joliet Unit 6, there are emission factors based on stack testing for both Joliet Units 7 and 8. As such, baseline emissions for Units 7 & 8 were recalculated and are presented in the above referenced emission tables. The projected actual emissions from the existing units given in Table 1R reflect the requested emission limit for VOM for existing units – 94.1 tons per year. With addition of projected VOM emissions from the new units, Joliet is requesting a facility wide VOM emission limit of 98 tons per year, such that the facility will become a minor source of VOM.

Midwest Generation, LLC is looking forward to a favorable and expeditious review of this application. If you have any questions or require further information, please contact me at (724) 255-3220 or Keith Schmidt at (724) 597-8193.

Sincerely,

Sharene Shealey
Environmental Manager

Attachments

Cc: Robert Smet, IEPA

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Rd.
Joliet, IL 60436

Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

240-CAAPP
Auxiliary Boiler

R007544

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL -- PERMIT SECTION
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

FOR APPLICANT'S USE
Revision #: __1_____
Date: _08_ / _03_ / _2015__
Page _____ of _____
Source Designation:

FUEL COMBUSTION EMISSION UNIT DATA AND INFORMATION

FOR AGENCY USE ONLY
ID NUMBER:
EMISSION POINT #:
DATE:

SOURCE INFORMATION

1) SOURCE NAME:
Joliet Generating Station

2) DATE FORM PREPARED:	3) SOURCE ID NO. (IF KNOWN):
August 2015 (UPDATE)	*197809AAO*

GENERAL INFORMATION

4) NAME OF EMISSION UNIT:
Joliet Aux Boiler

5) NAME OF PROCESS:
Auxiliary Boiler

6) DESCRIPTION OF PROCESS:
Steam Boiler Producing Startup Steam and Building Heat

7) DESCRIPTION OF ITEM OR MATERIAL PRODUCED OR ACTIVITY ACCOMPLISHED:
Steam Production

8) FLOW DIAGRAM DESIGNATION OF EMISSION UNIT:
To be determined ("TBD")

9) MANUFACTURER OF EMISSION UNIT (IF KNOWN):
Babcock & Wilcox

10) MODEL NUMBER (IF KNOWN).	11) SERIAL NUMBER (IF KNOWN):
FM 120-124	*TBD*

12) DATES OF COMMENCING CONSTRUCTION, OPERATION AND/OR MOST RECENT MODIFICATION OF THIS EMISSION UNIT (ACTUAL OR PLANNED)	a) CONSTRUCTION (MONTH/YEAR): *Upon permit issuance*
	b) OPERATION (MONTH/YEAR): *Upon construction completion*
	c) LATEST MODIFICATION (MONTH/YEAR):

13) DESCRIPTION OF MODIFICATION (IF APPLICABLE):

THIS AGENCY IS AUTHORIZED TO REQUIRE THIS INFORMATION UNDER ILLINOIS REVISED STATUTES, 1991, AS AMENDED 1992, CHAPTER 111 1/2, PAR. 1039.5. DISCLOSURE OF THIS INFORMATION IS REQUIRED UNDER THAT SECTION. FAILURE TO DO SO MAY PREVENT THIS FORM FROM BEING PROCESSED AND COULD RESULT IN THE APPLICATION BEING DENIED. THIS FORM HAS BEEN APPROVED BY THE FORMS MANAGEMENT CENTER.

FOR APPLICANT'S USE

14) DOES THE EMISSION UNIT HAVE MORE THAN ONE MODE OF OPERATION? ☐ YES ☒ NO

IF YES, EXPLAIN AND IDENTIFY WHICH MODE IS COVERED BY THIS FORM (NOTE: A SEPARATE PROCESS EMISSION UNIT FORM 240-CAAPP MUST BE COMPLETED FOR EACH MODE):

15) PROVIDE THE NAME AND DESIGNATION OF ALL AIR POLLUTION CONTROL EQUIPMENT CONTROLLING THIS EMISSION UNIT, IF APPLICABLE (FORM 260-CAAPP AND THE APPROPRIATE 260-CAAPP ADDENDUM FORM MUST BE COMPLETED FOR EACH ITEM OF AIR POLLUTION CONTROL EQUIPMENT):

None

16) WILL EMISSIONS DURING STARTUP EXCEED EITHER THE ALLOWABLE EMISSION RATE PURSUANT TO A SPECIFIC RULE, OR THE ALLOWABLE EMISSION LIMIT AS ESTABLISHED BY AN EXISTING OR PROPOSED PERMIT CONDITION? ☐ YES ☒ NO

IF YES, COMPLETE AND ATTACH FORM 203-CAAPP, "REQUEST TO OPERATE WITH EXCESS EMISSIONS DURING STARTUP OF EQUIPMENT".

17) PROVIDE ANY LIMITATIONS ON SOURCE OPERATION AFFECTING EMISSIONS OR ANY WORK PRACTICE STANDARDS (E.G., ONLY ONE UNIT IS OPERATED AT A TIME):

None

OPERATING INFORMATION

18) ATTACH THE CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSION RELATED, FROM WHICH THE FOLLOWING OPERATING INFORMATION, MATERIAL USAGE INFORMATION AND FUEL USAGE DATA WERE BASED AND LABEL AS EXHIBIT 240-1. REFER TO SPECIAL NOTES OF FORM 202-CAAPP.

19a) MAXIMUM OPERATING HOURS	HOURS/DAY:	DAYS/WEEK:	WEEKS/YEAR:	
4900 (estimated)	*24*	*7*	*29*	
b) TYPICAL OPERATING HOURS	HOURS/DAY:	DAYS/WEEK:	WEEKS/YEAR:	
3700 (estimated)	*24*	*7*	*20*	
20) ANNUAL THROUGHPUT	DEC-FEB(%):	MAR-MAY(%):	JUN-AUG(%):	SEP-NOV(%):
1380 mmscf gas (estimated)	*50*	*15*	*5*	*30*

FIRING RATE INFORMATION

21a) RATED OR DESIGN HEAT INPUT CAPACITY (MILLION BTU/HR): *286*

b) IS MORE THAN ONE FUEL FIRED AT A TIME? ☐ YES ☒ NO

IF YES, EXPLAIN:

21c) IF HEAT INPUT CAPACITY IS 100 MILLION BTU/HOUR OR GREATER, PROVIDE FURNACE VOLUME (CUBIC FEET)
NOTE: FURNACE VOLUME IS DEFINED AS THAT VOLUME BOUNDED BY THE FRONT FURNACE WALL WHERE THE BURNER IS LOCATED, THE FURNACE SIDE WATERWALL, AND EXTENDING TO THE LEVEL JUST BELOW OR IN FRONT OF THE FIRST ROW OF CONVECTION PASS TUBES.

TBD

	NATURAL GAS	FUEL OIL	COAL	OTHER
d) SINGLE FUEL (MAXIMUM - MILLION BTU/HOUR)	*286*	*0*	*0*	*0*
e) SINGLE FUEL (TYPICAL - MILLION BTU/HOUR)	*0*	*0*	*0*	*0*
f) COMBINED FUEL (TYPICAL - MILLION BTU/HOUR) (IF APPLICABLE)				

NATURAL GAS FIRING

22a) CURRENT ORIGIN OF NATURAL GAS:

☒ PIPELINE (FIRM CONTRACT) ☐ BY-PRODUCT, SPECIFY ORIGIN:

☒ PIPELINE (INTERRUPTIBLE SUPPLY CONTRACT) ☐ OTHER, - SPECIFY:

b) TYPICAL HEAT CONTENT (BTU/SCF):

1000

c) MAXIMUM CONSUMPTION	SCF/MONTH: *213 x 10^6*	SCF/YEAR: *1380 x 10^6*
d) TYPICAL CONSUMPTION	SCF/MONTH: *TBD*	SCF/YEAR: *TBD*

OIL FIRING - NOT APPLICABLE

23a) OIL TYPE (CHECK ONE):

☐ NO. 1 ☐ NO. 2 ☐ NO. 4 ☐ NO. 5 ☐ NO. 6

☐ OTHER, SPECIFY (INCLUDE GENERATOR OR SUPPLIER):

b) TYPICAL HEAT CONTENT:

☐ BTU/LB - OR - ☐ BTU/GAL

c) IS OIL USED ONLY AS A RESERVE FUEL? ☐ YES ☐ NO

d) TYPICAL SULFUR CONTENT AS FIRED (WT %):

e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	GAL/MONTH:	GAL/YEAR:
g) TYPICAL CONSUMPTION	GAL/MONTH:	GAL/YEAR:

h) FIRING DIRECTION:
☐ HORIZONTAL ☐ TANGENTIAL ☐ OTHER, SPECIFY:

SOLID FUEL FIRING - NOT APPLICABLE

*24a) SOLID FUEL TYPE (CHECK ALL THAT APPLY):
☐ SUB-BITUMINOUS COAL ☐ LIGNITE COAL ☐ BITUMINOUS COAL
☐ ANTHRACITE COAL ☐ OTHER, SPECIFY:

b) TYPICAL HEAT CONTENT AS FIRED (BTU/LB):	c) TYPICAL MOISTURE CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %):	e) TYPICAL ASH CONTENT AS FIRED (WT %):
f) TYPICAL FINES CONTENT (% LESS THAN 1/8 INCH):	g) IS THE COAL CLEANED? ☐ YES ☐ NO

h) HOW MUCH COAL REFUSE IS IN THE FUEL? (WT %):

i) MAXIMUM CONSUMPTION	TON/MONTH:	TON/YEAR:
j) TYPICAL CONSUMPTION	TON/MONTH:	TON/YEAR:

k) FIRING TYPE (CHECK ONE):
☐ TRAVELING GRATE ☐ SPREADER STOKER
% REINJECTION:
☐ CYCLONE ☐ PULVERIZED, TYPE (CIRCLE ONE):
WET BOTTOM DRY BOTTOM
☐ HORIZONTALLY OPPOSED ☐ OTHER, SPECIFY:

*NOTE: IF REQUIRED, SUBMIT COPIES OF THOSE PORTIONS OF COAL SUPPLY CONTRACTS WHICH SET FORTH THE SPECIFICATIONS OF THE FUEL AND THE DURATION OF THE CONTRACT. IF THE ACTUAL FUEL FIRED IS A BLEND OF COAL, SUBMIT APPROPRIATE PORTIONS OF ALL FUEL CONTRACTS AND STATE THE MANNER BY WHICH THE FUELS ARE BLENDED AND ACTUALLY FIRED. ATTACH AND LABEL AS EXHIBIT 240-2.

OTHER FUEL FIRING - NOT APPLICABLE

25a) OTHER FUEL FIRING

	TYPE	SUPPLIER
a)		
b)		

b) TYPICAL HEAT CONTENT (SPECIFY UNITS):	c) TYPICAL NITROGEN CONTENT AS FIRED (WT %):
d) TYPICAL SULFUR CONTENT AS FIRED (WT %):	e) TYPICAL ASH CONTENT AS FIRED (WT %):

f) MAXIMUM CONSUMPTION	(SPECIFY UNITS/MONTH):	(SPECIFY UNITS/YEAR):
g) TYPICAL CONSUMPTION	(SPECIFY UNITS/MONTH):	(SPECIFY UNITS/YEAR):

APPLICABLE RULES

28) PROVIDE ANY SPECIFIC EMISSION STANDARD(S) AND LIMITATION(S) SET BY RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT (E.G., PARTICULATE MATTER, IAC 212.206, <= 0.10 LBS/MMBTU):

REGULATED AIR POLLUTANT(S)	EMISSION STANDARD(S)	REQUIREMENT(S)
Opacity	*IAC 212.123*	*<=30%*
CO	*IAC 216.121*	*CO <= 200 ppm, 50% excess air*
NOx	*IAC 217.164*	*NOx <= 0.08 lb/mmBtu*
NOx	*40 CFR 60.44b(a)*	*High heat release rate NOx <=0.20 lb/mmBtu.*

27) PROVIDE ANY SPECIFIC RECORDKEEPING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	RECORDKEEPING RULE(S)	REQUIREMENT(S)
NOx	*IAC 217.156*	
HazardousAir Pollutants ("HAP")	*40 CFR 63.7555*	

28) PROVIDE ANY SPECIFIC REPORTING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	REPORTING RULE(S)	REQUIREMENT(S)
Criteria Pollutants	*IAC 254*	*Report annual emissions*

29) PROVIDE ANY SPECIFIC MONITORING RULE(S) WHICH ARE APPLICABLE TO THIS EMISSION UNIT:

REGULATED AIR POLLUTANT(S)	MONITORING RULE(S)	REQUIREMENT(S)
NOx	*IAC 217.157*	*CEMS*
NOx	*40 CFR 60.48b*	*CEMS*

30) PROVIDE ANY SPECIFIC TESTING RULES AND/OR PROCEDURES WHICH ARE APPLICABLE TO THIS EMISSION UNIT :

REGULATED AIR POLLUTANT(S)	TESTING RULE(S)	REQUIREMENT(S)

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31) DOES THE EMISSION UNIT QUALIFY FOR AN EXEMPTION FROM AN OTHERWISE APPLICABLE RULE? ☐ YES ☒ NO

IF YES, THEN LIST BOTH THE RULE FROM WHICH IT IS EXEMPT AND THE RULE WHICH ALLOWS THE EXEMPTION. PROVIDE A DETAILED EXPLANATION JUSTIFYING THE EXEMPTION. INCLUDE DETAILED SUPPORTING DATA AND CALCULATIONS. ATTACH AND LABEL AS EXHIBIT 240-3, OR REFER TO OTHER ATTACHMENT(S) WHICH ADDRESS AND JUSTIFY THIS EXEMPTION.

COMPLIANCE INFORMATION

32) IS THE EMISSION UNIT IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS? ☒ YES ☐ NO

IF NO, THEN FORM 294-CAAPP "COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE – ADDENDUM FOR NON COMPLYING EMISSION UNITS" MUST BE COMPLETED AND SUBMITTED WITH THIS APPLICATION.

The emission unit is not constructed.

33) EXPLANATION OF HOW INITIAL COMPLIANCE IS TO BE, OR WAS PREVIOUSLY, DEMONSTRATED.

Good operating and maintenance practices.

34) EXPLANATION OF HOW ONGOING COMPLIANCE WILL BE DEMONSTRATED

Recordkeeping related to fuel usage, unit operation, and maintenance.

TESTING, MONITORING, RECORDKEEPING AND REPORTING

35a) LIST THE PARAMETERS THAT RELATE TO AIR EMISSIONS FOR WHICH RECORDS ARE BEING MAINTAINED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE UNIT OF MEASUREMENT, THE METHOD OF MEASUREMENT, AND THE FREQUENCY OF SUCH RECORDS (E.G., HOURLY, DAILY, WEEKLY)

PARAMETER	UNIT OF MEASUREMENT	METHOD OF MEASUREMENT	FREQUENCY
NOx	*TBD*	*CEMS*	*Continuous*
Fuel Flow	*TBD*	*Fuel flow meter*	*Continuous*
Operating Hours	*Hours*	*Operator Log*	*Upon Occurance*

35b) BRIEFLY DESCRIBE THE METHOD BY WHICH RECORDS WILL BE CREATED AND MAINTAINED. FOR EACH RECORDED PARAMETER INCLUDE THE METHOD OF RECORDKEEPING, TITLE OF PERSON RESPONSIBLE FOR RECORDKEEPING, AND TITLE OF PERSON TO CONTACT FOR REVIEW OF RECORDS:

PARAMETER	METHOD OF RECORDKEEPING	TITLE OF PERSON RESPONSIBLE	TITLE OF CONTACT PERSON
TBD	*TBD*	*TBD*	*TBD*

c) IS COMPLIANCE OF THE EMISSION UNIT READILY DEMONSTRATED BY REVIEW OF THE RECORDS? ☒ YES ☐ NO

IF NO, EXPLAIN:

The emission unit is not constructed.

d) ARE ALL RECORDS READILY AVAILABLE FOR INSPECTION, COPYING AND SUBMITTAL TO THE AGENCY UPON REQUEST? ☒ YES ☐ NO

IF NO, EXPLAIN:

The emission unit is not constructed.

36a) DESCRIBE ANY MONITORS OR MONITORING ACTIVITIES USED TO DETERMINE FEES, RULE APPLICABILITY OR COMPLIANCE:

NOx emissions will be monitored in accordance with IAC 217.157. Fuel throughput will be monitored in accordance with regulations.

b) WHAT PARAMETER(S) IS(ARE) BEING MONITORED (E.G., OPACITY)?

NOx
Fuel throughput

c) DESCRIBE THE LOCATION OF EACH MONITOR (E.G., IN STACK MONITOR):
NOx monitor will be an in-stack monitor. Location of fuel flow meter is TBD.

36d) IS EACH MONITOR EQUIPPED WITH A RECORDING DEVICE? ☒ YES ☐ NO

IF NO, LIST ALL MONITORS WITHOUT A RECORDING DEVICE:

e) IS EACH MONITOR REVIEWED FOR ACCURACY ON AT LEAST A QUARTERLY BASIS? ☒ YES ☐ NO

IF NO, EXPLAIN:

f) IS EACH MONITOR OPERATED AT ALL TIMES THE ASSOCIATED EMISSION UNIT IS IN OPERATION? ☒ YES ☐ NO

IF NO, EXPLAIN:
NOx emissions will be monitored at all times the unit is operating with exception of required quality assurance/quality control activities and monitor malfunctions.

37) PROVIDE INFORMATION ON THE MOST RECENT TESTS, IF ANY, IN WHICH THE RESULTS ARE USED FOR PURPOSES OF THE DETERMINATION OF FEES, RULE APPLICABILITY OR COMPLIANCE. INCLUDE THE TEST DATE, TEST METHOD USED, TESTING COMPANY, OPERATING CONDITIONS EXISTING DURING THE TEST AND A SUMMARY OF RESULTS. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 240-4:

No testing has been performed.

TEST DATE	TEST METHOD	TESTING COMPANY	OPERATING CONDITIONS	SUMMARY OF RESULTS

38) DESCRIBE ALL REPORTING REQUIREMENTS AND PROVIDE THE TITLE AND FREQUENCY OF REPORT SUBMITTALS TO THE AGENCY:

REPORTING REQUIREMENTS	TITLE OF REPORT	FREQUENCY
IAC 254	*Annual Emissions Report*	*Annual*

(39)EMISSION INFORMATION

☒ [1]ACTUAL EMISSION RATE
☐ [1]UNCONTROLLED EMISSION RATE

REGULATED AIR POLLUTANT		LBS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[3]OTHER TERMS	[4]DM	ALLOWABLE BY RULE EMISSION RATE: [5]RATE (UNITS)	APPLICABLE RULES	TONS PER YEAR (TONS/YR)	[2]PERMITTED EMISSION RATE: RATE (UNITS)	TONS PER YEAR (TONS/YR)
CARBON MONOXIDE (CO)	MAXIMUM:	10.5	25.2	50 ppm		4	200 (ppm)		NA		
	TYPICAL:	10.5	TBD				( )				
LEAD	MAXIMUM:						( )				
	TYPICAL:						( )				
NITROGEN OXIDES (NOx)	MAXIMUM:	10.3	24.8			4	0.08 (lb/mmBtu)	IAC 217.164	NA		
	TYPICAL:	10.3	TBD				( )				
PARTICULATE MATTER (PART)	MAXIMUM:	0.5	1.3	1.9 lb/mmscf		3	( )				
	TYPICAL:	0.5	TBD				( )				
PARTICULATE MATTER <= 10 MICROMETERS (PM10)	MAXIMUM	2.2	5.2	7.6 lb/mmscf		3	( )				
	TYPICAL:	2.2	TBD				( )				
SULFUR DIOXIDE (SO2)	MAXIMUM:	0.2	0.4	0.0006 lb/mmBtu		3	( )				
	TYPICAL:	0.2	TBD	0.0006 lb/mmBtu			( )				
VOLATILE ORGANIC MATERIAL (VOM)	MAXIMUM:	1.2	2.9	0.002 lb/mmBtu		3	( )				
	TYPICAL:	1.2	TBD	0.002 lb/mmBtu		3	( )				
OTHER, SPECIFY: __PM2.5_____	MAXIMUM:	2.2	5.2	7.6 lb/mmscf		3	( )				
	TYPICAL:	2.2	TBD				( )				
EXAMPLE: PARTICULATE MATTER	MAXIMUM:	5.00	21.9	0.3 GR/DSCF		1	6.0 (LBS/HR)	212.321	26.28	5.5 LBS/HR	22
	TYPICAL:	4.00	14.4	0.24 GR/DSCF		4	5.5 (LBS/HR)	212.321	19.80		

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-5.

[1]CHECK UNCONTROLLED EMISSION RATE BOX IF CONTROL EQUIPMENT IS USED, OTHERWISE CHECK AND PROVIDE THE ACTUAL EMISSION RATE TO ATMOSPHERE, INCLUDING INDOORS. SEE INSTRUCTIONS.
[2]PROVIDE THE EMISSION RATE THAT WILL BE USED AS A PERMIT SPECIAL CONDITION. THIS LIMIT WILL BE USED TO DETERMINE THE PERMIT FEE.
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G. PPM, GR/DSCF, ETC.)
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS), 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS)
[5]RATE - ALLOWABLE EMISSION RATE SPECIFIED BY MOST STRINGENT APPLICABLE RULE.

NOTE: Maximum emissions based on unit operating at full rated capacity for 4818 hours per year. Typical (expected) operation is based on company projections.

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(40) HAZARDOUS AIR POLLUTANT EMISSION INFORMATION

HAP INFORMATION		☐ [1]ACTUAL EMISSION RATE ☐ [1]UNCONTROLLED EMISSION RATE				ALLOWABLE BY RULE	
NAME OF HAP EMITTED	[2]CAS NUMBER		POUNDS PER HOUR (LBS/HR)	TONS PER YEAR (TONS/YR)	[3]OTHER TERMS	[4]DM	[5]RATE OR STANDARD	APPLICABLE RULE
Please see Table 10		MAXIMUM					NONE Gas-fired industrial boilers do not have emission limits under 40 CFR 63 Subpart DDDDD	40 CFR 63 Subpart DDDDD
		TYPICAL						
		MAXIMUM						
		TYPICAL						
		MAXIMUM						
		TYPICAL						
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		TYPICAL						
EXAMPLE:								
Benzene	*71432*	MAXIMUM	*10.0*	*1.2*		*2*	*98% by wt control device*	*CFR 61*
		TYPICAL	*8.0*	*0.8*		*2*	*leak-tight trucks*	*61.302(b),(d)*

IMPORTANT: ATTACH CALCULATIONS, TO THE EXTENT THEY ARE AIR EMISSIONS RELATED, ON WHICH EMISSIONS WERE DETERMINED AND LABEL AS EXHIBIT 240-6.

[1]PROVIDE UNCONTROLLED EMISSIONS IF CONTROL EQUIPMENT IS USED. OTHERWISE, PROVIDE ACTUAL EMISSIONS TO THE ATMOSPHERE, INCLUDING INDOORS. CHECK BOX TO SPECIFY.
[2]CAS - CHEMICAL ABSTRACT SERVICE NUMBER
[3]PLEASE PROVIDE ANY OTHER EMISSION RATE WHICH IS COMMONLY USED, REQUIRED BY A SPECIFIC LIMITATION OR THAT WAS MEASURED (E.G., PPM, GR/DSCF, ETC.).
[4]DM - DETERMINATION METHOD: 1) STACK TEST, 2) MATERIAL BALANCE, 3) STANDARD EMISSION FACTOR (AP-42 OR AIRS, 4) ENGINEERING ESTIMATE, 5) SPECIAL EMISSION FACTOR (NOT AP-42 OR AIRS).
[5]RATE - ALLOWABLE EMISSION RATE OR STANDARD SPECIFIED BY MOST STRINGENT APPLICABLE RULE

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EXHAUST POINT INFORMATION

THIS SECTION SHOULD NOT BE COMPLETED IF EMISSIONS ARE EXHAUSTED THROUGH AIR POLLUTION CONTROL EQUIPMENT.

41) FLOW DIAGRAM DESIGNATION OF EXHAUST POINT:
TBD

42) DESCRIPTION OF EXHAUST POINT (STACK, VENT, ROOF MONITOR, INDOORS, ETC.). IF THE EXHAUST POINT DISCHARGES INDOORS, DO NOT COMPLETE THE REMAINING ITEMS.
STACK

43) DISTANCE TO NEAREST PLANT BOUNDARY FROM EXHAUST POINT DISCHARGE (FT):
TBD

44) DISCHARGE HEIGHT ABOVE GRADE (FT):
TBD

45) GOOD ENGINEERING PRACTICE (GEP) HEIGHT, IF KNOWN (FT):
TBD

46) DIAMETER OF EXHAUST POINT (FT): NOTE: FOR A NON CIRCULAR EXHAUST POINT, THE DIAMETER IS 1.128 TIMES THE SQUARE ROOT OF THE AREA.
TBD

47) EXIT GAS FLOW RATE	a) MAXIMUM (ACFM):	b) TYPICAL (ACFM):
TBD	TBD	TBD

48) EXIT GAS TEMPERATURE	a) MAXIMUM (°F):	b) TYPICAL (°F):
TBD	TBD	TBD

49) DIRECTION OF EXHAUST (VERTICAL, LATERAL, DOWNWARD):
VERTICAL

50) LIST ALL EMISSION UNITS AND CONTROL DEVICES SERVED BY THIS EXHAUST POINT:

	NAME	FLOW DIAGRAM DESIGNATION
a)	*Joliet Aux Boiler*	*TBD*
b)		
c)		
d)		
e)		

THE FOLLOWING INFORMATION NEED ONLY BE SUPPLIED IF READILY AVAILABLE.

51a) LATITUDE:	b) LONGITUDE:

52) UTM ZONE:	b) UTM VERTICAL (KM):	c) UTM HORIZONTAL (KM):

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Rd.
Joliet, IL 60436

Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

NSR Applicability Calculations
Revised

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis
Table 1R
Project Emissions Comparison Summary

Pollutant	Pollutant Type (PSD or NNSR)	Existing Units BAE (tons/year) (1)	Existing Units PAE (tons/year) (2)	Existing Units Emissions Increase (tons/year) (= 0 if PAE < BAE)	New Units PTE (tons/year) (3)	Project Projected Emissions Increase (tons/year) (4)	NSR Significance Level (tons/year) (5)	Significant Emissions Increase?	Non-NSR Summary Project Emissions Increase (Decrease) (tons/year) (6)
NOx	NNSR	6160.3	4039.5	0.0	34.1	34.1	40	No	(2,086.7)
CO	PSD	5354.8	3611.4	0.0	29.6	29.6	100	No	(1,713.7)
VOM	NNSR	70.3	94.9	24.7	3.1	27.7	40	No	27.7
SOx	PSD	17059.6	21.0	0.0	0.5	0.5	40	No	(17,038.1)
PM10	PSD	2022.6	265.7	0.0	5.9	5.9	15	No	(1,751.0)
PM2.5	PSD	1048.9	265.7	0.0	5.9	5.9	10	No	(777.3)
FPM	PSD	2440.0	66.4	0.0	1.5	1.5	25	No	(2,372.1)

Notes:

NOx and VOC are considered non-attainment pollutants based on the non-attainment designation for the Chicago-Naperville, IL-N-WI area for the 2008 8-Hour Ozone NAAQS (40 CFR §81.314).
NOx and VOM are thus subject to IL NNSR applicability determination per 35 IAC 203.

1 Emissions based on maximum annual-averaged emissions from consecutive 24 month period in the last 5 years [40CFR52.21(b)(48)(i) and 35 IAC 203.104]
For convenience, baseline emissions were selected based on calendar year summaries. The baseline period is CY 2010-2011.
Per 35 IAC 203.104(a), MWG submits that the CY 2010-2011 period is more representative of the historic (previous 10 years) normal source operation as compared with the most-recent two-y
Please see the CAMD Data worksheet, which shows that source operations / utilization were generally the lowest during the most-recent two-year period.

2 Projected Actual Emissions from the Existing Emissions Units [40 CFR 52.21(b)(41)(ii)(d) and 35 IAC 203.104(c)]
The PAEs are the potential-to-emit emissions per 40 CFR 52.21(b)(4) and 35 IAC 203.128
The Existing Units PAE for VOM is equal to the VOM requested emission limit for existing units.

3 New units emissions shown as the sum of the new unit requested emission limits. The new units are an auxiliary boiler, rated at 268 MMBtu/hr and six pipeline heaters, three rated at 11 MMBtu/hr each
Aux Boiler: NOx = 0.036 lb/mmBtu; CO = 0.038 lb/mmBtu; VOM = 0.005 lb/mmBtu; SOx = 0.0006 lb/mmBtu; PM = 1.9 lb/mmscf; PM10 = PM2.5 = 7.6 lb/mmscf
Pipeline Heaters: NOx = 0.101 lb/mmBtu; CO = 0.0481 lb/mmBtu; VOM = 0.002 lb/mmBtu; SOx = 0.0006 lb/mmBtu; PM = PM10 = PM2.5 = 0.05 lb/mmscf

4 The "Project Projected Emissions Increase" = Existing Units Emissions Increase + New Units PTE

5 Significance Level for PSD [40 CFR 52.23(i)] or NNSR [35 IAC 203.209]

6 Calculated as Existing Units PAE + New Units PTE - Existing Units BAE.
For VOM, the calculated value represents the maximum potential emissions increase. For all other pollutants, the calculated value represents the minimum potential emissions decrease.

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Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 2R
Baseline Actual Emissions (BAE) - Existing Units

Emission Unit Unit 6 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	2530.70	2806.60	683.80	959.90	802.90
CO	1087.82	1059.21	1015.80	1142.23	833.23
VOM	45.04	60.76	37.15	49.22	1.79
SOx[2]	3161.50	4069.90	2210.40	3059.10	2553.90
PM10	412.17	510.50	331.06	445.85	352.23
PM2.5	201.40	308.23	211.67	276.98	216.38
FPM	484.29	632.11	373.08	527.73	424.56

Emission Unit Unit 7 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	1838.90	1688.90	1227.00	1426.40	1450.30
CO	1989.88	2106.71	1778.99	1043.85	1924.07
VOM	5.41	5.97	2.99	5.62	6.13
SOx[2]	6949.80	5419.50	5361.80	6166.20	5430.00
PM10	825.75	736.39	725.44	739.03	769.09
PM2.5	344.90	407.90	389.30	364.06	414.75
FPM	1010.83	864.43	884.60	986.76	932.63

Emission Unit Unit 8 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	1639.10	1816.30	1437.60	1394.60	1076.40
CO	2399.45	2066.49	1235.34	2365.44	1890.58
VOM	15.64	7.74	16.68	15.02	12.85
SOx[2]	6975.10	7543.30	5787.20	5787.20	4816.00
PM10	657.54	720.18	554.47	656.30	529.74
PM2.5	302.03	388.33	285.79	371.75	299.93
FPM	747.33	873.31	473.73	748.79	604.95

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 2R
Baseline Actual Emissions (BAE) - Existing Units

Emission Unit: Coal Handling — Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	33.52	39.65	34.48	33.55	25.53
PM2.5	27.45	32.60	26.97	28.42	17.38
FPM	41.01	48.33	43.63	39.92	35.13

Emission Unit: Ash Handling — Per annual air emissions report submittal[2]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	39.86	42.31	39.44	43.89	38.79
PM2.5	39.86	42.31	39.44	43.89	38.79
FPM	39.86	42.31	39.44	43.89	38.79

Emission Unit: Unpaved Roads — Per annual air emissions report submittal[3]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	15.93	11.48	11.59	11.23	2.63
PM2.5	1.59	1.15	1.16	1.12	0.24
FPM	55.87	40.28	40.66	39.39	10.92

Sum of Emission Units

	2010	2011	2012	2013	2014	Average for 2010 & 2011 Baseline Actual Emissions (BAE)
Emissions (tons)						
NOx	6008.70	6311.80	3348.40	3780.90	3329.60	6160.3
CO	5477.15	5232.41	4030.12	4551.52	4647.88	5354.8
VOM	66.08	74.46	56.82	69.86	20.77	70.3
SOx	17086.40	17032.70	13359.40	15012.50	12799.90	17059.6
PM10	1984.77	2060.51	1696.48	1929.83	1718.01	2022.6
PM2.5	917.24	1180.51	954.33	1086.23	987.46	1048.9
FPM	2379.19	2500.77	1855.13	2386.47	2046.98	2440.0

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 2R
Baseline Actual Emissions (BAE) - Existing Units

Notes:

1 Baseline actual emissions are not equal to values reported in the AER for the following:

Unit 6, CO	Emission factor from US EPA Information Collection Request Testing (2010) used to determine baseline emissions 0.1313 lb CO/MMBtu
Unit 7, CO	Emission factor from Unit 7 stack test (Dec. 2014) used to determine baseline emissions 0.134 lb CO/MMBtu
Unit 8, CO	Emission factor from Unit 8 stack test (Jan. 2015) used to determine baseline emissions 0.153 lb CO/MMBtu
Unit 6, VOM	Emission factor from AP-42 used to determine baseline emissions 0.11 lb VOM/ton coal
Unit 7, VOM	Emission factor from Unit 7 stack test (Dec. 2014) used to determine baseline emissions 0.001 lbVOM/MMBtu
Unit 8, VOM	Emission factor from Unit 8 stack test (Jan. 2015) used to determine baseline emissions 0.0004 lb VOM/MMBtu
Units 6, 7, 8	FPM, FPM10, FPM2.5 as reported in AER. PM10 and PM2.5 include condensable fraction (CPM).
PM10 and PM2.5	CPM calculated using AP-42 Table 1.1-5. CPM = 0.01 lb/MMBtu for all units, all years (S<0.4)

2 NOx and SO2 emissions as monitored by certified CEMs.

Emissions based on maximum annual averaged emissions from consecutive 24 month period in the last 5 years [40CFR52.21(b)(48)(i)]
For convenience, baseline emissions were selected based on calendar year summaries. The baseline period is CY 2010-2011.

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 2R
Baseline Actual Emissions (BAE) - Existing Units

Calculation Methods:
Combustion source emissions of CO, VOM, PM10, PM2.5, and FPM:

tons = (Coal HI)*(EF)*(1 ton/2000 lb) + (Gas HI)*(EF)*(1 ton/2000 lb)

where Coal HI = heat input from coal combustion, mmBtu/year
= (tons coal)*(2000 lb/ton)*(heat value, Btu/lb)*(mmBtu/1,000,000 Btu)

Gas HI = heat input from natural gas combustion, mmBtu/year
= (mcf gas)*(heat value, Btu/cf)*(1000 cf/mcf)*(mmBtu/1,000,000 Btu)

EF = pollutant specific emission factor, lb/mmBtu

	Factor (lb/mmBtu)	Factor Source
Unit 6		
CO	0.1313	June 2010 Stack Test
VOM	0.00027	Oct 1998 Stack Test
FPM	0.067	Dec 2004 Stack Test
FPM10	0.046	AP-42 Table 1.1-8; 68% of FPM
FPM2.5	0.024	AP-42 Table 1.1-8; 36% of FPM
CPM	0.01	AP-42 Table 1.1-5
Unit 7		
CO	0.134	Dec 2014 Stack Test
VOM	0.0004	Dec 2014 Stack Test
FPM	0.065	Oct 2005 Stack Test
FPM10	0.044	AP-42 Table 1.1-6; 67% of FPM
FPM2.5	0.019	AP-42 Table 1.1-6, 29% of FPM
CPM	0.01	AP-42 Table 1.1-5
Unit 8		
CO	0.153	Jan 2015 Stack Test
VOM	0.001	Jan 2015 Stack Test
FPM	0.049	Feb 2005 Stack Test
FPM10	0.033	AP-42 Table 1.1-6, 67% of FPM
FPM2.5	0.014	AP-42 Table 1.1-6, 29% of FPM
CPM	0.01	AP-42 Table 1.1-5

Combustion source emissions of NOx and SO2 are reported as measured by certified CEMS.

Coal handling, Ash Handling, and Paved and Unpaved Roadway emissions calculated using procedures in AP-42
Section 11.9 Bulldozing Emissions
Section 13.2.1 Paved Roads
Section 13.2.4 Material Transfers
Section 13.2.5 Wind Erosion

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 3R
Projected Actual Emissions (PAE) for the Existing Units

Inputs / Assumptions

Natural Gas-Firing Emission Factors*:	Unit 6	Unit 7	Unit 8
NOx (lb/MMBtu)	0.135	0.110	0.110
CO (lb/MMBtu)	0.185	0.080	0.080
VOM (lb/MMBtu)	0.0055	0.0055	0.0055
SOx (lb/MMBtu)	0.0006	0.0006	0.0006
PM10 (lb/10^6 scf)	7.600	7.600	7.600
PM2.5 (lb/10^6 scf)	7.600	7.600	7.600
FPM (lb/10^6 scf)	1.900	1.900	1.900

Natural Gas HHV (Btu/scf)	1000

Pollutant	Unit 6 PTE (lb/hr)	Unit 7 PTE (lb/hr)	Unit 8 PTE (lb/hr)	Potential Emissions (ton/yr)	Request Emission Limit (ton/yr)
NOx	478.305	663.24	702.46	4039.5	NA
CO	653.455	482.72	510.88	3611.4	NA
VOM	19.4865	33.187	35.123	192.3	94.9
SOx	2.1258	3.6204	3.8316	21.0	NA
PM10	26.9268	45.8584	48.5336	265.7	NA
PM2.5	26.9268	45.8584	48.5336	265.7	NA
FPM	6.7317	11.4646	12.1334	66.4	NA

*NOx and CO emission factors are from Manufacturer's estimates. SO2 emission factor is per 40 CFR 75.
All other emission factors are from AP-42 Section 1.4.

The requested emission limit for VOM for existing units, combined with potential emissions for the new units, will make the facility a minor source of VOM.

Calculation Method:

For NOx, CO, VOM, SOx lb/hr = (lb/MMBtu)*(MMBtu/hr)

For PM10, PM2.5, FPM lb/hr = (lb/MMBtu)*(MMBtu/hr)/(MMBtu/MMscf)

For All Pollutants Potential ton/yr = (lb/MMBtu)*(MMBtu/hr)*(%utilization/100)*(ton/2000 lb)

	Capacity (MMBtu/hr)
Unit 6 (0009)	3543
Unit 7 (0031)	6634
Unit 8 (0033)	6386

R007563

Midwest Generation, LLC
Joliet Generating Station

Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4R
Potential Emissions for the New Units
(Auxiliary Boiler and Natural Gas Line Heaters)

Inputs / Assumptions

Aux Boiler Natural Gas-Firing	
Emission Factors*:	
NOx (lb/MMBtu)	0.036
CO (lb/MMBtu)	0.037
VOM (lb/MMBtu)	0.0042
SOx (lb/MMBtu)	0.0006
PM10 (lb/10^6 scf)	7.6
PM2.5 (lb/10^6 scf)	7.6
FPM (lb/10^6 scf)	1.9
Natural Gas Pipeline Heaters	
Emission Factors*:	
NOx (lb/MMBtu)	0.101
CO (lb/MMBtu)	0.05
VOM (lb/MMBtu)	0.002
SOx (lb/MMBtu)	0.0006
PM10 (lb/10^6 scf)	7.6
PM2.5 (lb/10^6 scf)	7.6
FPM (lb/10^6 scf)	1.9
Unit Ratings:	
Joliet Aux Boiler (MMBtu/hr)	286
Pipeline Heaters (3, MMBtu/hr each)	11
Pipeline Heaters (3, MMBtu/hr each)	3
Natural Gas HHV (Btu/scf)	1000
Maximum Potential Operation	8760
Aux Boiler Utilization (%, per unit)	55
Pipeline Heater Utilization (%, per unit)	50

*NOx, CO, and VOM emission factors are from Manufacturer's estimates.
SO2 emission factor is per 40 CFR 75.

All other emission factors are from AP-42 Section 1.4.

Midwest Generation, LLC
Joliet Generating Station

Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4R
Potential Emissions for the New Units
(Auxiliary Boilers and Natural Gas Line Heaters)

Summary - All New Units		Projected
Pollutant	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	63.7	34.1
CO	54.6	29.6
VOM	5.6	3.1
SOx	0.9	0.5
PM10	10.9	5.9
PM2.5	10.9	5.9
FPM	2.7	1.5

Joliet Aux Boiler (286 MMBtu/hr)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	10.3	45.1	24.8
CO	10.5	45.8	25.2
VOM	1.2	5.2	2.9
SOx	0.17	0.8	0.4
PM10	2.2	9.5	5.2
PM2.5	2.2	9.5	5.2
FPM	0.54	2.4	1.3

Gas Pipeline Heaters, 11 MMBtu/hr (each)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	1.1	4.9	2.4
CO	0.5	2.3	1.2
VOM	2.20E-02	9.64E-02	4.82E-02
SOx	6.60E-03	2.89E-02	1.45E-02
PM10	8.36E-02	3.66E-01	1.83E-01
PM2.5	8.36E-02	3.66E-01	1.83E-01
FPM	2.09E-02	9.15E-02	4.58E-02

Gas Pipeline Heaters, 3 MMBtu/hr (each)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	3.03E-01	1.33E+00	6.64E-01
CO	1.44E-01	6.32E-01	3.16E-01
VOM	6.00E-03	2.63E-02	1.31E-02
SOx	1.80E-03	7.88E-03	3.94E-03
PM10	2.28E-02	9.99E-02	4.99E-02
PM2.5	2.28E-02	9.99E-02	4.99E-02
FPM	5.70E-03	2.50E-02	1.25E-02

Midwest Generation, LLC
Joliet Generating Station

Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4R
Potential Emissions for the New Units
(Auxiliary Boilers and Natural Gas Line Heaters)

Calculation Method:

For NOx, CO, VOM, SOx	lb/hr =	(lb/MMBtu)*(MMBtu/hr)
For PM10, PM2.5, FPM	lb/hr =	(lb/MMBtu)*(MMBtu/hr)/(MMBtu/MMscf)
For All Pollutants	PTE ton/yr =	(lb/MMBtu)*(MMBtu/hr)*(8760 hr/yr)*(ton/2000 lb)
	Projected ton/yr =	(lb/MMBtu)*(MMBtu/hr)*(8760 hr/yr)*(ton/2000 lb)*(%utilization/100)

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 5R
Requested Emission Limits for New Emission Units

Pollutant	Joliet Aux Boiler (tons/year)	Natural Gas Pipeline Heaters (combined) (tons/year)	Total (tons/year)
NOx	24.8	9.3	34.1
VOM	2.9	0.2	3.1
PM2.5	5.2	0.7	5.9

New Unit potential emissions exceed the significance thresholds for NOx, VOM, and PM2.5. Potential emissions will be limited to the above listed amounts upon approval of the Agency.

Requested emission limits are based on operation of the auxiliary boilers at annual utilization rates of 55% (each) and the gas pipeline heaters at capacity factors of 50% (each)

See Table 4R for emission factors and calculation methods

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Joliet, IL 60436

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Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

Auxiliary Boiler
HAP Emissions

Midwest Generation, LLC
Joliet Generating Station

Natural Gas Conversion Project
Potential to Emit Calculations - Auxiliary Boiler - HAPs
Table 10

Inputs / Assumptions

Natural Gas-Firing

Emission Factors	(lb/10^6 scf)
2-Methylnaphthalene	2.40E-05
3-Methylchloranthrene	1.80E-06
7,12-Dimethylbenz(a)anthracene(b	1.60E-05
Acenaphthene	1.80E-06
Acenaphthylene	1.80E-06
Anthracene	2.40E-06
Arsenic (a)	2.00E-04
Benz(a)anthracene	1.80E-06
Benzene (b)	1.70E-03
Benzo(a)pyrene	1.20E-06
Benzo(b)fluoranthene	1.80E-06
Benzo(g,h,i)perylene	1.20E-06
Benzo(k)fluoranthene	1.80E-06
Beryllium (a)	1.20E-05
Cadmium (a)	1.10E-03
Chromium (a)	1.40E-03
Chrysene	1.80E-06
Cobalt (a)	8.40E-05
Dibenzo(a,h)anthracene	1.20E-06
Dichlorobenzene (a)	1.20E-03
Fluoranthene	3.00E-06
Fluorene	2.80E-06
Formaldehyde (a)	7.50E-02
Hexane (a)	1.80E+00
Indeno(1,2,3-cd)pyrene	1.80E-06
Manganese (a)	3.80E-04
Mercury (a)	2.60E-04
Naphthalene (b)	3.00E-04
Nickel (a)	2.10E-03
Phenanthrene	1.70E-05
Pyrene	5.00E-06
Selenium (a)	2.40E-05
Toluene (b)	3.40E-03

Natural Gas HHV (Btu/scf)	1000
Operating time (hours per year)	4818
Aux Boiler Rating (MMBtu/hr)	286

Emission Factors from AP-42 Table 1.4-2, 1.4-3, or 1.4-4

Pollutant	PTE (tons per year)	Projected Emissions (tons per year)
2-Methylnaphthalene	3.01E-05	1.65E-05
3-Methylchloranthrene	2.25E-06	1.24E-06
7,12-Dimethylbenz(a)anthracene	2.00E-05	1.10E-05
Acenaphthene	2.25E-06	1.24E-06
Acenaphthylene	2.25E-06	1.24E-06
Anthracene	3.01E-06	1.65E-06
Arsenic (a)	2.51E-04	1.38E-04
Benz(a)anthracene	2.25E-06	1.24E-06
Benzene	2.13E-03	1.17E-03
Benzo(a)pyrene	1.50E-06	8.27E-07
Benzo(b)fluoranthene	2.25E-06	1.24E-06
Benzo(g,h,i)perylene	1.50E-06	8.27E-07
Benzo(k)fluoranthene	2.25E-06	1.24E-06
Beryllium	1.50E-05	8.27E-06
Cadmium	1.38E-03	7.58E-04
Chromium	1.75E-03	9.65E-04
Chrysene	2.25E-06	1.24E-06
Cobalt	1.05E-04	5.79E-05
Dibenzo(a,h)anthracene	1.50E-06	8.27E-07
Dichlorobenzene	1.50E-03	8.27E-04
Fluoranthene	3.76E-06	2.07E-06
Fluorene	3.51E-06	1.93E-06
Formaldehyde	9.40E-02	5.17E-02
Hexane	2.25	1.24
Indeno(1,2,3-cd)pyrene	2.25E-06	1.24E-06
Manganese	4.76E-04	2.62E-04
Mercury	3.26E-04	1.79E-04
Naphthalene	3.76E-04	2.07E-04
Nickel	2.63E-03	1.45E-03
Phenanthrene	2.13E-05	1.17E-05
Pyrene	6.26E-06	3.44E-06
Selenium (a)	3.01E-05	1.65E-05
Toluene (b)	4.26E-03	2.34E-03
Sum of HAP (max)	2.36	1.30

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

July 7, 2015

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VIA ELECTRONIC AND OVERNIGHT MAIL

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Acting Section Manager
1021 N. Grand Avenue East
Springfield, IL 62794-9506

IEPA-DIVISION OF RECORDS MANAGEMENT
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AUG 05 2015
REVIEWER: JKS

Re: ***Joliet Generating Station (ID No. 197809AAO)***
Natural Gas Conversion Project Construction Permit Application Supplement

Dear Mr. Pilapil:

Please find enclosed an application supplement for the Joliet Generating Station ("Joliet") Natural Gas Conversion Project ("the Project") Construction Permit Application. The Project proposes to add full load natural gas firing capability to Joliet Units 6, 7, and 8 (collectively, "the Units"). The application supplement (in duplicate) is comprised of the following sections, and is intended to address your request for additional information dated June 29, 2015.

New Source Review Applicability Analysis

Tables 1 through 4 give the baseline actual emissions for the existing units, the projected actual emissions for the existing units, and the new source potential emissions with requested emission limits for the new units to limit the potential emissions. These tables demonstrate that neither Prevention of Significant Deterioration ("PSD") nor Non-Attainment New Source Review ("NNSR") permitting is triggered by the Project.

New Unit Utilization and Requested Emission Limits

As shown in Table 4, the proposed new auxiliary boilers and natural gas pipeline heaters have potential emissions ("PTE") that exceed the significance thresholds for NOx, VOM, and PM2.5. To ensure that the emissions from the new units do not exceed significance thresholds, Midwest Generation, LLC ("MWG") is proposing to limit operation of the new units such that the combined PTE from the new units is less than significance thresholds. Table 5 gives a summary of the requested emission limits for the individual auxiliary boilers and the collection of natural gas heaters.

NSPS Applicability Demonstration for the Existing Units

The Project does not result in any hourly emissions increases for any pollutant for which an emission standard exists in the NSPS for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978 - 40 CFR 60 Subpart Da. Table 6 presents a summary of maximum achieved hourly NOx emission rates for each existing unit, demonstrating that hourly NOx

emissions during natural gas firing are expected to be less than those during coal firing at each of the existing units. The new auxiliary boilers are NSPS affected as presented in the original application.

Applicable Regulations for the Existing and New Boilers

Tables 7 through 9 summarize the applicable emission standards and recordkeeping, reporting, and monitoring requirements for the existing boilers (Boilers 5, 71, 72, 81, and 82) and the new auxiliary boilers. These tables supplement information in forms 240-CAAPP for the sources.

The existing Units are Combined Pollutant Standards ("CPS") units as designated in Title 35 of the Illinois Administrative Code ("35 IAC") section Part 225 Appendix A. As such, requirements of this section still apply to Boilers 5, 71, 72, 81, and 82. In regard to Particulate Matter ("PM") standards, Title 35 IAC Section 212.201 exempts gas-fired units from particulate matter standards. The sulfur dioxide standards of 35 IAC Part 214 only apply to solid or liquid-fired fuel units.

The new auxiliary boilers are subject to opacity, NOx and CO standards under 35 IAC and NOx standards under 40 CFR 60 Subpart Db. The auxiliary boilers are also subject to the requirements of 40 CFR 63 Subpart DDDDD, which does not impose any emission limits but instead requires natural gas-fired units to perform work practice standards to demonstrate compliance.

Midwest Generation, LLC is looking forward to a favorable and expeditious review of this application. If you have any questions or require further information, please contact me at (724) 255-3220 or Keith Schmidt at (724) 597-8193.

Sincerely,

Sharene Shealey
Environmental Manager

Attachments

Cc: Robert Smet, IEPA

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Rd.
Joliet, IL 60436

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REVIEWER: JKS

Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Construction Permit Application
Supplement

Midwest Generation, LLC

July 7, 2015

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Midwest Generation, LLC ("MWG")
Joliet Generating Station – Units Nos. 6, 7, and 8 – Joliet, Illinois
Regulatory Analysis for the Natural Gas Conversion Project – Revision No. 0

1.0 Introduction

1.1 Executive Summary

The following is a regulatory analysis for the Natural Gas Conversion Project (the "Project") at Joliet Generating Station ("Joliet"). Completion of the proposed Project will allow for full load natural gas firing capability at Joliet Units 6 (Boiler 5), 7 (Boilers 71 and 72) and 8 (Boilers 81 and 82). In addition to converting the Units to natural gas-firing, the Project will add two new natural gas-fired auxiliary boilers and six new natural gas-fired pipeline heaters. Results of the regulatory analysis are as follows:

New Source Performance Standards ("NSPS"): NSPS are not triggered for the electric generating boilers by the Project. There are no increases in a pollutant to which a standard applies in 40 CFR 60 Subpart Da. The Project will add two auxiliary boilers for startup support and plant heating. The auxiliary boilers will be subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units at 40 CFR 60 Subpart Db.

New Source Review ("NSR"): NSR permitting is not triggered by the Project. There are no Prevention of Significant Deterioration ("PSD") or Nonattainment New Source Review ("NNSR") pollutant increases that are above the NSR significance level.

National Emissions Standards for Hazardous Air Pollutants ("NESHAP"): The existing boilers are currently subject to NESHAP Subpart UUUUU for coal and oil-fired electric utility steam generating units. Completion of the Project would provide the opportunity for the Joliet boilers to avoid being subject to Subpart UUUUU. If the boilers avoid being subject to Subpart UUUUU, the boilers would potentially be subject to Subpart DDDDD for Industrial, Commercial and Institutional Boilers. The United States Environmental Protection Agency ("US EPA" or "EPA") is currently reconsidering aspects of Subpart DDDDD that affect the applicability to natural gas-fired electric generating units. Please reference Appendix D of this document, an August 5, 2013 letter from US EPA to the Council of Industrial Boiler Owners that states US EPA's intention to reconsider applicability of Subpart DDDDD to natural gas-fired electric utility steam generating units. The new auxiliary boilers will be subject to the NESHAP for Industrial-Commercial-Institutional Boilers promulgated at 40 CFR 63 Subpart DDDDD.

1.2 Project RMRR Analysis

An analysis was conducted to determine if the Project can be considered to be a Routine Maintenance, Repair and Replacement ("RMRR") activity, and thus be exempt from NSPS applicability and NSR permitting requirements. The analysis for Project routineness was conducted by considering the following five factors (reference the US EPA NSR Applicability Analysis for the Detroit Edison Dense Pack project, May 2000):

1.2.1 Nature

- Whether major components of a facility are being modified or replaced; specifically, whether the units are of considerable size, function or importance to the operation of the facility, considering the type of industry involved
  - Inconclusive
- Whether the change requires pre-approval of a state commission, in the case of utilities
  - No
- Whether the source itself has characterized the change as non-routine in any of its own documents
  - Possibly
- Whether the change could be performed during full functioning of the facility or while it was in full working order
  - No
- Whether the materials, equipment and resources necessary to carry out the planned activity are already on site
  - No

In consideration of the aforementioned criteria and the information presented in the Project Description, the nature of the Project is such that it is considered to be a non-routine activity.

1.2.2 Extent

- Whether an entire emissions unit will be replaced
  - No
- Whether the change will take significant time to perform
  - No (Boiler work only)
- Whether the collection of activities, taken as a whole, constitutes a non-routine effort, notwithstanding that individual elements could be routine
  - Possibly
- Whether the change requires the addition of parts to existing equipment
  - Yes

In consideration of the aforementioned criteria and information presented in the Project Description, the extent of the Project is such that it is considered to be a non- routine activity.

1.2.3 Purpose

- Whether the purpose of the effort is to extend the useful life of the unit; similarly, whether the source proposes to replace a unit at the end of its useful life
  - No (Fundamental operating equipment is not being replaced)
- Whether the modification will keep the unit operating in its present condition, or whether it will allow enhanced operation (e.g., will it permit increased capacity, operating rate, utilization or fuel adaptability)
  - Yes (Fuel adaptability only)

In consideration of the aforementioned criteria and information presented in the Project Description, the purpose of the Project is such that it is considered to be a non -routine activity.

1.2.4 Frequency

- Whether the change is performed frequently in a typical unit's life
  - No

In consideration of the aforementioned criterion and information presented in the Project Description, the purpose of the Project is such that it is considered to be a non -routine activity.

1.2.5 Cost

- Whether the change will be costly, both in absolute terms and relative to the cost of replacing the unit
  - No
- Whether a significant amount of the cost of the change is included in the source's capital expenses, or whether the change can be paid for out of the operating budget (i.e., whether the costs are reasonably reflective of the costs originally projected during the source's or unit's design phase as necessary to maintain the day-to-day operation of the source)
  - Yes (Project costs will be mainly capitalized)

In consideration of the aforementioned criteria and information presented in the Project Description, the purpose of the Project is such that it could be considered to be a routine activity.

1.2.6 Results of the RMRR Analysis

US EPA guidance notes that none of the five factors presented above – "standing alone – conclusively determines a project to be routine or not." Rather, one needs to "account of how each of these factors might apply in a particular circumstance to arrive at a conclusion

considering the project as a whole" (reference the US EPA NSR Applicability Analysis for the Detroit Edison Dense Pack project, May 2000). In consideration of the analysis presented above, NRG concludes that the Project should not be considered to be a routine activity. To substantiate that the Project is not subject to NSPS and / or NSR air permitting requirements, Midwest Generation, LLC has prepared NSPS and NSR applicability and emissions analyses as presented in Sections 2 and 3, respectively.

2.0 NSPS Applicability Analysis

Under 40 CFR 60.2 and 40 CFR 60.14 (h), a "modification" for NSPS applicability purposes is defined as follows:

40 CFR 60.2

Modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

NSPS regulations also provide the following exemption:

40 CFR 60.14(h)

No physical change, or change in the method of operation, at an existing electric utility steam generating unit shall be treated as a modification for the purposes of this section provided that such change does not increase the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at that unit during the 5 years prior to the change.

40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978 - promulgates emission standards for particulate matter ("PM"), sulfur dioxide ("SO_2") and nitrogen oxides ("NOx"). A projection of the expected maximum hourly emission rate following completion of the Project for each NSPS pollutant is presented in the following sections.

2.1 Projected Maximum Hourly PM Emissions Change Following Completion of the Project

No increase in the maximum hourly PM emissions rate is expected following completion of the Project because emissions of filterable PM are expected to be lower during natural gas-firing operations as compared with coal-firing operations. US EPA AP-42, Table 1.4-2 presents a filterable PM emission factor = 1.9 lb / MMscf (~ 0.002 lb / MMBtu) for natural gas-fired external combustion boilers whereas the most recent stack testing at the Units show filterable PM emissions of 0.067 lb/mmBtu for Unit 6 (December 2004), 0.065 lb/mmBtu for Unit 7 (October 2005) and 0.049 lb/MMBtu for Unit 8 for coal firing operations (February 2005).

Consequently, maximum hourly filterable PM emissions are expected to be lower during natural gas-firing operations as compared with coal-firing operations.

2.2 Projected Maximum Hourly SO_2 Emissions Change Following Completion of the Project

No increase in the maximum hourly SO_2 emissions rate is expected following completion of the Project because emissions of SO_2 are expected to be lower during natural gas-firing operations as compared with coal-firing operations. The EGU boilers are Acid Rain Program and CAIR-affected units, and as such, SO_2 emissions are quantified using certified continuous emissions monitors ("CEMS") as required under 40 CFR 75. CEMS data submitted to the US EPA Clean Air Markets Division ("CAMD") shows SO_2 emissions of 0.40 lb/mmBtu for Unit 6, 0.38 lb/mmBtu for Unit 7 of and 0.39 lb/mmBtu for Unit 8 for calendar year 2014. Pursuant to 40 CFR 75, SO_2 emissions from pipeline natural gas-fired boilers can be quantified using an emission factor = 0.0006 lb/MMBtu. Consequently, maximum hourly SO_2 emissions are expected to be much lower during natural gas-firing operations as compared with coal-firing operations.

2.3 Projected Maximum Hourly NOx Emissions Change Following Completion of the Project

No increase in the maximum hourly NOx emissions rate is expected following completion of the Project because emissions of NOx are expected to be lower during natural gas-firing operations as compared with coal-firing operations. As noted above, the EGU boilers are Acid Rain Program and CAIR-affected units, and as such, NOx emissions are quantified using certified CEMs as required under 40 CFR 75. CEM data submitted to the US EPA CAMD shows hourly NOx emissions during coal firing greater than the hourly potential-to-emit emission rate for each unit during gas firing. The table below shows the maximum hourly value of NOx emissions for each unit from valid CEMs data during the period January 2010 through December 2014 compared to gas-firing potential to emit:

	Gas-firing Potential to Emit (lb/hr)	Coal-firing Maximum Actual Hourly NOx Rate (lb/hr)	Date and Hour Max NOx Rate Achieved	Unit Load at Max NOx Rate Achieved (MW)
Unit 6	478.3	2103.3	06/25/2011, 19	320
Unit 7	663.7	4136.2	07/01/2014, 01	225
Unit 8	702.5	1251.5	03/03/2010, 13	513

Consequently, maximum hourly NOx emissions are expected to be lower during natural gas-firing operations as compared with coal-firing operations.

As presented above, no increases in the maximum hourly emissions for PM, SO2, or NOx above historically-achievable hourly emissions are expected subsequent to completion of the Project.

Therefore the Project is not subject to air permitting requirements and emissions standards promulgated under 40 CFR 60 – Subpart Da – Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978.

3.0 New Source Review (NSR) Applicability Analysis

3.1 NSR Applicability Review

The Joliet Generating Station is located in Joliet Township, Will County, IL. According to the current National Ambient Air Quality Standards ("NAAQS") attainment designations for the location, (40 CFR 81.314), the area is designated as moderate "non-attainment" for ozone, and as such, NOx and volatile organic matter ("VOM"), which are the precursor pollutants for ozone, are considered to be non-attainment NSR pollutants. The area is designated as unclassifiable or attainment for all other criteria pollutants.

3.2 Attainment Pollutants

The NSR permitting program requirements for the attainment pollutants are promulgated under 40 CFR 52.21 – Prevention of Significant Deterioration (PSD) or Air Quality, which is incorporated by reference in 35 IAC Parts 201 through 291 per Section 9.1(a) of the Illinois Environmental Protection Act. Per 40 CFR 52.21(a)(2)(i), the PSD regulations are applicable to "an existing major stationary source in an area designated as attainment or unclassifiable."

3.3 Non-Attainment Pollutants

The NSR permitting program requirements for the non-attainment pollutants are promulgated under 35 IAC Part 203 – Major Stationary Sources Construction and Modification. Per 35 IAC 203.201, these regulations are applicable to

- a new major stationary source or major modification that is major for the pollutant for which the area (Will County) is designated a nonattainment area; and
- in areas designated nonattainment for ozone (Will County), new major stationary sources or major modifications of sources that emit volatile organic materials or nitrogen oxides.

For the purposes of 35 IAC Part 203 applicability, the Joliet Generating Station is a "major stationary source" pursuant to 35 IAC 203.206(b)(3)(A) – please see below:

b) The following constitute a major stationary source:
   3) For an area designated as nonattainment for ozone, a major stationary source is a stationary source which emits or has the potential to emit nitrogen oxides in an amount equal to or greater than the following, unless United States Environmental Protection Agency (USEPA) has made a finding under Sections 110 and 182(f) of the Clean Air Act that controlling of emissions of nitrogen oxides from such source shall not be required:
      A) 100 tons per year in an area classified as marginal or moderate nonattainment for ozone

However, for the purposes of applicability to 35 IAC Part 203, the Project of interest is not a "major modification," and as such, is not subject to the aforementioned regulations – please see below:

35 IAC 203.207 – Major Modification of a Source

a) Except as provided in subsection (c), (d), (e) or (f) below, a physical change, or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant for which the area is designated a nonattainment area, shall constitute a major modification of a source.

b) Any net emissions increase that is significant for volatile organic material or nitrogen oxides shall be considered significant for ozone.

35 IAC 203.209 – Significant Emissions Determination

a) A net emission increase in the pollutant emitted is significant if the rate of emission is equal to or in excess of the following:

   2) Nitrogen oxides: 40 tpy for a nonattainment area for nitrogen dioxide and 40 tpy for an ozone nonattainment area, except as provided in subsection (b) of this Section

   5) Ozone: 40 tpy of volatile organic material, except as provided in subsection (b) of this Section

As shown in Table 1 of Appendix A, the Project

- has PTE emissions for NOx of 36.0 ton/year from new units and no increase in NOx from existing units and
- has PTE emissions for VOM of 4.3 ton/year from new units and an increase in VOM of 31.1 ton/year from existing units.

Consequently, the potential emissions increase associated with the project is 36.0 tons/year for NOx and 35.4 tons/year for VOM. To ensure that potential emissions increases are below significant net emissions increase thresholds, MWG is requesting annual emission limits for the new sources to limit potential emissions of NOx, VOM, and PM2.5; see Table 5 in Appendix A. With these limits and because these potential emission increases are less than the significant net emissions increase thresholds, the criteria for major modification applicability are not satisfied.

3.4 Results of the NSR Applicability Analysis

MWG conducted an NSR emission analysis to determine if the Project would result in an increase in applicable pollutants that would require an NSR permit. The emissions analysis was conducted in accordance with a template designed to satisfy the requirements 40 CFR 52.21 - Prevention of Significant Deterioration for the attainment pollutants and 35 IAC Part 203 (Major Stationary Sources Construction and Modification) for the nonattainment pollutants.

For each NSR attainment pollutant (all except NO_x and VOM at Joliet), if the (i) Project Projected Emissions Increase and (ii) Net Emissions Increase Due to the Project are both greater than or equal to the NSR significance level, then the Project would be subject to PSD permitting requirements. The analysis shows that no PSD permitting requirements are applicable to the Project for the NSR attainment pollutants.

For each NSR nonattainment pollutant (NO_x and VOM at Joliet), if the (i) Project Projected Emissions Increase and (ii) Net Emissions Increase Due to the Project are both greater than or equal to the NSR significance level, then the Project would be subject to nonattainment NSR permitting requirements promulgated under 35 IAC Part 203. This analysis shows that no nonattainment NSR permitting requirements are applicable to the Project.

Tables 1 through 4 in Appendix A provide the emissions calculation results for the NSR Applicability Analysis.

4.0 CAM Applicability Analysis

The applicability of Compliance Assurance Monitoring ("CAM") is given at 40 CFR 64.2:

§64.2 Applicability.

(a) *General applicability.* Except for backup utility units that are exempt under paragraph (b)(2) of this section, the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, "potential pre-control device emissions" shall have the same meaning as "potential to emit," as defined in §64.1, except

that emission reductions achieved by the applicable control device shall not be taken into account.

(b) Exemptions—(1) Exempt emission limitations or standards. The requirements of this part shall not apply to any of the following emission limitations or standards:

(i) Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.

(ii) Stratospheric ozone protection requirements under title VI of the Act.

(iii) Acid Rain Program requirements pursuant to sections 404, 405, 406, 407(a), 407(b), or 410 of the Act.

(iv) Emission limitations or standards or other applicable requirements that apply solely under an emissions trading program approved or promulgated by the Administrator under the Act that allows for trading emissions within a source or between sources.

(v) An emissions cap that meets the requirements specified in §70.4(b)(12) or §71.6(a)(13)(iii) of this chapter.

(vi) Emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in §64.1. The exemption provided in this paragraph (b)(1)(vi) shall not apply if the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (such as a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).

Upon completion of the conversion of the Units to natural gas-firing, the Units will not

- be subject to an emission limit for PM, PM10, PM2.5, SO2 or VOM or
- use control devices to reduce emissions of any of the above listed pollutants or to achieve compliance with any emission limitations or standards.

Therefore, the Units are not subject to CAM for PM, PM10, PM2.5, SO2 or VOM. The Units will be subject to emission limits for NOx, but will not use a control device to achieve compliance with the emission limit. Additionally, NOx emissions will be monitored via continuous emissions monitors ("CEMs") in accordance with 40 CFR 75 and therefore NOx emissions are not subject to CAM, per 40 CFR 64.2(b)(1)(vi).

5.0 NESHAPS Applicability Analysis

5.1 40 CFR 63 Subpart UUUUU

On February 16, 2012 the US EPA issued the National Emission Standards for Hazardous Air Pollutants ("NESHAP") from Coal- and Oil-fired Electric Utility Generating Units, also known as the Mercury and Air Toxics Standards ("MATS") rule. Coal-fired units cannot comply with the emissions standards without installation of costly flue gas emissions control systems such as wet or dry flue gas desulfurization ("FGD") and possibly sorbent injection and/or catalysts for mercury oxidation such as selective catalytic reduction ("SCR") units.

Upon completion of the Project, the Joliet Units can be categorized as "natural gas-fired electric utility steam generating units" under the MATS rule as defined in 40 CFR § 63.10042:

> *Natural gas-fired electric utility steam generating unit* means an electric utility steam generating unit meeting the definition of "fossil fuel-fired" that is not a coal-fired, oil-fired, or IGCC electric utility steam generating unit and that burns natural gas for more than 10.0 percent of the average annual heat input during any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year.

While the definition given above references a 3-year look back period, EPA clarified their intent to allow for fuel switching as a mechanism of exemption from the MATS standards in the preamble to the rule ("National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial- Institutional, and Small Industrial- Commercial-Institutional Steam Generating Units; Final Rule," 77 FR 32 (February 16, 2012), p. 9377 – emphasis added):

> *We are also including a revision to the definition so that the fossil fuel combustion thresholds of 10 percent over 3 consecutive years and 15 percent in one year are evaluated **after the applicable compliance date** of the final rule on a rolling basis. **Commenters correctly noted that some existing coal and oil-fired EGUs will convert their units to alternative fuels (e.g., natural gas or biomass) and if the definition were finalized as proposed such units could be improperly subjected to the final standards.** The new definition is set out in 40 CFR 63.10042.*

This clarification is also stated in "EPA's Responses to Public Comments on EPA's *National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units* December 2011 Volume 1 of 2", p.286 (emphasis added):

> Partly based on comments, the EPA has revised several definitions, including the definition of "fossil fuel-fired," in the final rule to make clear that units must only look at the present capability and utilization of the unit to determine if it is an affected source ***on the compliance date***. Sources will have to evaluate ongoing applicability of the standards based on their utilization of fossil fuels over annual and tri-annual periods. For example, ***an EGU that on the first substantive compliance date meets the definition of fossil fuel-***

fired will no longer be subject to the NESHAP if in subsequent years its utilization of coal or oil falls below the threshold levels to satisfy the definition of fossil fuel-fired.

§ 63.10042 What definitions apply to this subpart? (Emphasis added.)

Coal-fired electric utility steam generating unit means an electric utility steam generating unit meeting the definition of "fossil fuel-fired" that burns coal for more than 10.0 percent of the average annual heat input during any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year.

Fossil fuel means natural gas, oil, coal, and any form of solid, liquid, or gaseous fuel derived from such material.

Fossil fuel-fired means an electric utility steam generating unit (EGU) that is capable of combusting more than 25 MW of fossil fuels. To be "capable of combusting" fossil fuels, an EGU would need to have these fuels allowed in its operating permit and have the appropriate fuel handling facilities on-site or otherwise available (e.g., coal handling equipment, including coal storage area, belts and conveyers, pulverizers, etc.; oil storage facilities). **In addition, fossil fuel-fired means any EGU that fired fossil fuels for more than 10.0 percent of the average annual heat input during any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year after the applicable compliance date.**

Natural gas-fired units are not subject to the rule as specified below:

§ 63.9983 Are any EGUs not subject to this subpart?

(b) Any electric utility steam generating unit that is not a coal- or oil-fired EGU and combusts natural gas for more than 10.0 percent of the average annual heat input during any 3 calendar years or for more than 15.0 percent of the annual heat input during any calendar year.

(c) Any electric utility steam generating unit that has the capability of combusting more than 25 MW of coal or oil but did not fire coal or oil for more than 10.0 percent of the average annual heat input during any 3 calendar years or for more than 15.0 percent of the annual heat input during any calendar year. Heat input means heat derived from combustion of fuel in an EGU and does not include the heat derived from preheated combustion air, recirculated flue gases or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and industrial boilers).

The existing boilers are currently subject to NESHAPS Subpart UUUUU because they are operated as coal-fired electric utility steam generating units. Completion of the Project would provide the opportunity for the Joliet boilers to avoid being subject to Subpart UUUUU because MWG intends to operate the units such that they meet the definition of natural gas-fired electric utility steam generating units. The Project will enable the units to meet that definition.

5.2 40 CFR 63 Subpart DDDDD

If the boilers are not subject to Subpart UUUUU, the boilers would potentially be subject to Subpart DDDDD to Part 63 - National Emissions Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (the ICI Boiler MACT).

> ***63.7485 Am I subject to this subpart?***
>
> *You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in § 63.7575 that is located at, or is part of, a major Source of HAP, except as specified in§ 63.7491. For purposes of this subpart, a major source of HAP is as defined in§ 63.2, except that for oil and natural gas production facilities, a major source of HAP is as defined in § 63.7575.*

> ***§ 63.7491 Are any boilers or process heaters not subject to this subpart?***
>
> *The types of boilers and process heaters listed in paragraphs (a) through (n) of this section are not subject to this subpart.*
>
> (a) *An electric utility steam generating unit (EGU) covered by subpart UUUUU of this part*

The Joliet Generating Station is a major source of HAPs as defined in 40 CFR § 63.2. Joliet Boilers 5, 71, 72, 81, and 82 meet the definition of "industrial boiler" and the Project may potentially lead to the units meeting the definition of "unit designed to burn gas 1 subcategory." These definitions are given at 40 CFR § 63.7575.

> ***§ 63.7575 What definitions apply to this subpart?***
>
> ***Industrial boiler*** *means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity.*
>
> ***Unit designed to burn gas 1 subcategory*** *includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels. Gaseous fuel boilers and process heaters that burn liquid fuel for periodic testing of liquid fuel, maintenance, or operator training, not to exceed a combined total of 48 hours during any calendar year, are included in this definition. Gaseous fuel boilers and process heaters that burn liquid fuel during periods of gas curtailment or gas supply interruptions of any duration are also included in this definition.*

The Boilers at Joliet are electric utility steam generating units that may meet the applicability requirements of this subpart once the Project is complete. If subject, the units would be "existing" units under this subpart and the compliance date would be upon Project completion.

If affected, compliance must be demonstrated within 180 days of becoming an affected source. Importantly, these requirements are self-effectuating requiring only recognition of the new or revised requirements in the operating permit. No permit review or approval is necessary or being requested in this construction permit application to affect the change in NESHAPs subpart.

§ 63.7490 What is the affected source of this subpart?

(a) This subpart applies to new, reconstructed, and existing affected sources as described in paragraphs (a)(1) and (2) of this section.

(1) The affected source of this subpart is the collection at a major source of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory as defined in § 63.7575.

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in § 63.7575, located at a major source.

(b) A boiler or process heater is new if you commence construction of the boiler or process heater after June 4, 2010, and you meet the applicability criteria at the time you commence construction.

(c) A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in § 63.2, you commence reconstruction after June 4, 2010, and you meet the applicability criteria at the time you commence reconstruction.

(d) A boiler or process heater is existing if it is not new or reconstructed.

(e) An existing electric utility steam generating unit (EGU) that meets the applicability requirements of this subpart after the effective date of this final rule due to a change (e.g., fuel switch) is considered to be an existing source under this subpart.

63.7495 When do I have to comply with this subpart?

(a) If you have a new or reconstructed boiler or process heater, you must comply with this subpart by January 31, 2013, or upon startup of your boiler or process heater, whichever is later.

(b) If you have an existing boiler or process heater, you must comply with this subpart no later than January 31, 2016, except as provided in § 63.6(i).

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, paragraphs (c)(1) and (2) of this section apply to you.

(1) Any new or reconstructed boiler or process heater at the existing source must be in compliance with this subpart upon startup.

(2) Any existing boiler or process heater at the existing source must be in compliance with this subpart within 3 years after the source becomes a major source.

(d) You must meet the notification requirements in § 63.7545 according to the schedule in § 63.7545 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limits and work practice standards in this subpart.

(e) If you own or operate an industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for the exemption in § 63.7491(l) for commercial and industrial solid waste incineration units covered by part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, you must be in compliance with this subpart on the effective date of the switch from waste to fuel.

(f) If you own or operate an existing EGU that becomes subject to this subpart after January 31, 2013, you must be in compliance with the applicable existing source provisions of this subpart on the effective date such unit becomes subject to this subpart.

(g) If you own or operate an existing industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for a exemption in § 63.7491(i) that becomes subject to this subpart after January 31, 2013, you must be in compliance with the applicable existing source provisions of this subpart within 3 years after such unit becomes subject to this subpart.

§ 63.7510 What are my initial compliance requirements and by what date must I conduct them?

(i) For an existing EGU that becomes subject after January 31, 2013, you must demonstrate compliance within 180 days after becoming an affected source.

§ 63.7500 What emission limitations, work practice standards, and operating limits must I meet?

(a) You must meet the requirements in paragraphs (a)(1) through (3) of this section, except as provided in paragraphs (b), through (e) of this section. You must meet these requirements at all times the affected unit is operating, except as provided in paragraph (f) of this section.

(1) You must meet each emission limit and work practice standard in Tables 1 through 3, and 11 through 13 to this subpart that applies to your boiler or process heater, for each boiler or process heater at your source, except as provided under § 63.7522. The output-based emission limits, in units of pounds per million Btu of steam output, in Tables 1 or 2 to this subpart are an alternative applicable only to boilers and process heaters that generate steam. The output-based emission limits, in units of pounds per megawatt-hour, in Tables 1 or 2 to this subpart are an alternative applicable only to boilers that generate electricity. If you operate a new boiler or process heater, you can choose to comply with alternative limits as discussed in paragraphs (a)(1)(i) through (a)(1)(iii) of this section, but on or after January 31, 2016, you must comply with the emission limits in Table 1 to this subpart.

(i) If your boiler or process heater commenced construction or reconstruction after June 4, 2010 and before May 20, 2011, you may comply with the emission limits in Table 1 or 11 to this subpart until January 31, 2016.

(ii) If your boiler or process heater commenced construction or reconstruction after May 20, 2011 and before December 23, 2011, you may comply with the emission limits in Table 1 or 12 to this subpart until January 31, 2016.

(iii) If your boiler or process heater commenced construction or reconstruction after December 23, 2011 and before January 31, 2013, you may comply with the emission limits in Table 1 or 13 to this subpart until January 31, 2016.

(2) You must meet each operating limit in Table 4 to this subpart that applies to your boiler or process heater. If you use a control device or combination of control devices not covered in Table 4 to this subpart, or you wish to establish and monitor an alternative operating limit or an alternative monitoring parameter, you must apply to the EPA Administrator for approval of alternative monitoring under § 63.8(f).

(3) At all times, you must operate and maintain any affected source (as defined in § 63.7490), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. ...

(e) Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity of less than or equal to 5 million Btu per hour must complete a tune-up every 5 years as specified in § 63.7540. Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity greater than 5 million Btu per hour and less than 10 million Btu per hour must complete a tune-up every 2 years as specified in § 63.7540. Boilers and process heaters in the units

designed to burn gas 1 fuels subcategory are not subject to the emission limits in Tables 1 and 2 or 11 through 13 to this subpart, or the operating limits in Table 4 to this subpart.

(j) These standards apply at all times the affected unit is operating, except during periods of startup and shutdown during which time you must comply only with Table 3 to this subpart.[76 FR 15664, Mar. 21, 2011, as amended at 78 FR 7163, Jan. 31, 2013]

After the Project is completed and operated as planned, the Joliet units will be considered existing units designed to burn gas 1. Per § 63.7500(e), units in this subcategory have no applicable emission limitations under subpart DDDDD. The units would though, be subject to work practice standards given in Table 3 in subpart DDDDD.

TABLE 3 TO SUBPART DDDDD OF PART 63—WORK PRACTICE STANDARDS

As stated in § 63.7500, you must comply with the following applicable work practice standards:

If your unit is . . .	You must meet the following . . .
1. A new or existing boiler or process heater with a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 million Btu per hour in any of the following subcategories: unit designed to burn gas 1; unit designed to burn gas 2 (other); or unit designed to burn light liquid, or a limited use boiler or process heater	Conduct a tune-up of the boiler or process heater every 5 years as specified in § 63.7540.
2. ...	...
3. ...	...
4. An existing boiler or process heater located at a major source facility, not including limited use units	Must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table, satisfies the energy assessment requirement. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items a. to e. appropriate for the on-site technical hours listed in § 63.7575:
	a. A visual inspection of the boiler or process heater system.

	b. An evaluation of operating characteristics of the boiler or process heater systems, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints.
	c. An inventory of major energy use systems consuming energy from affected boilers and process heaters and which are under the control of the boiler/process heater owner/operator.
	d. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage.
	e. A review of the facility's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices, if identified.
	f. A list of cost-effective energy conservation measures that are within the facility's control.
	g. A list of the energy savings potential of the energy conservation measures identified.
	h. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.
5. ...	....
6. ...	....

[78 FR 7198, Jan. 31, 2013]

The Joliet Units operate continuous oxygen trim systems. If subject to the ICI Boiler MACT, a boiler tune up will be required once every 5 years. Additionally, Joliet must have a one-time energy assessment performed by a qualified energy assessor.

The above analysis considers the ICI Boiler MACT as published on January 31, 2013. On August 5, 2013, EPA announced its intent to reconsider portions of the rule and specifically stated that EPA will, "... (1) clarify issues related to the applicability of the major source boiler rule to natural gas-fired electric utility steam generating units (EGUs); ..." A letter announcing EPA's intent is included as Appendix C. If MWG becomes aware that this clarification is issued and changes the applicability of subpart DDDDD to the Joliet Units during Agency review of this construction permit application, MWG will update the application accordingly.

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Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

Appendix A

NSR Applicability Calculations

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis
Table 1
Project Emissions Comparison Summary

Pollutant	Pollutant Type (PSD or NNSR)	Existing Units BAE (tons/year) (1)	Existing Units PAE (tons/year) (2)	Existing Units Emissions Increase (tons/year) (= 0 if PAE < BAE)	New Units PTE (tons/year) (3)	Project Projected Emissions Increase (tons/year) (4)	NSR Significance Level (tons/year) (5)	Significant Emissions Increase?	Non-NSR Summary Project Emissions Increase (Decrease) (tons/year) (6)
NOx	NNSR	6160.3	4039.5	0.0	36.0	36.0	40	No	(2,084.8)
CO	PSD	5354.8	3611.4	0.0	32.6	32.6	100	No	(1,710.7)
VOM	NNSR	161.2	192.3	31.1	4.3	35.4	40	No	35.4
SOx	PSD	17059.6	21.0	0.0	0.5	0.5	40	No	(17,038.1)
PM10	PSD	2022.6	265.7	0.0	6.3	6.3	15	No	(1,750.6)
PM2.5	PSD	1048.9	265.7	0.0	6.3	6.3	10	No	(776.9)
FPM	PSD	2440.0	66.4	0.0	0.2	0.2	25	No	(2,373.4)

Notes.

NOx and VOC are considered non-attainment pollutants based on the non-attainment designation for the Chicago-Naperville, IL-N-WI area for the 2008 8-Hour Ozone NAAQS (40 CFR §81.314).
NOx and VOM are thus subject to IL NNSR applicability determination per 35 IAC 203.

1 Emissions based on maximum annual-averaged emissions from consecutive 24 month period in the last 5 years [40CFR52.21(b)(48)(i) and 35 IAC 203.104]
For convenience, baseline emissions were selected based on calendar year summaries. The baseline period is CY 2010-2011.
Per 35 IAC 203.104(a), MWG submits that the CY 2010-2011 period is more representative of the historic (previous 10 years) normal source operation as compared with the most-recent two-y
Please see the CAMD Data worksheet, which shows that source operations / utilization were generally the lowest during the most-recent two-year period.

2 Projected Actual Emissions from the Existing Emissions Units [40 CFR 52.21(b)(41)(ii)(d) and 35 IAC 203.104e)
the PAEs are the potential-to-emit emissions per 40 CFR 52.21(b)(4) and 35 IAC 203.128

3 New units emissions shown as the sum of the new unit requested emission limits. The new units are two auxiliary boilers, rated at 140 MMBtu/hr and 168 MMBtu/hr and six pipeline heaters, three rated
Aux Boilers: NOx = 0.036 lb/mmBtu; CO = 0.038 lb/mmBtu; VOM = 0.005 lb/mmBtu; SOx = 0.0006 lb/mmBtu; PM = 1.9 lb/mmscf; PM10 = PM2.5 = 7.6 lb/mmscf
Pipeline Heaters: NOx = 0.101 lb/mmBtu; CO = 0.0481 lb/mmBtu, VOM = 0.002 lb/mmBtu; SOx = 0.0006 lb/mmBtu; PM = PM10 = PM2.5 = 0.05 lb/mmscf

4 The "Project Projected Emissions Increase" = Existing Units Emissions Increase + New Units PTE

5 Significance Level for PSD [40 CFR 52.23(i)] or NNSR [35 IAC 203.209]

6 Calculated as Existing Units PAE + New Units PTE - Existing Units BAE.
For VOM, the calculated value represents the maximum potential emissions increase. For all other pollutants, the calculated value represents the mimimum potential emissions decrease.

R007592

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 2
Baseline Actual Emissions (BAE) - Existing Units

Emission Unit Unit 6 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	2530.70	2806.60	683.80	959.90	802.90
CO	1087.82	1059.21	1015.80	1142.23	833.23
VOM	45.04	60.76	37.15	49.22	1.79
SOx[2]	3161.50	4069.90	2210.40	3059.10	2553.90
PM10	412.17	510.50	331.06	445.85	352.23
PM2.5	201.40	308.23	211.67	276.98	216.38
FPM	484.29	632.11	373.08	527.73	424.56

Emission Unit Unit 7 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	1838.90	1688.90	1227.00	1426.40	1450.30
CO	1989.88	2106.71	1778.99	1043.85	1924.07
VOM	57.99	49.18	48.53	49.25	6.13
SOx[2]	6949.80	5419.50	5361.80	6166.20	5430.00
PM10	825.75	736.39	725.44	739.03	769.09
PM2.5	344.90	407.90	389.30	364.06	414.75
FPM	1010.83	864.43	884.60	986.76	932.63

Emission Unit Unit 8 Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx[2]	1639.10	1816.30	1437.60	1394.60	1076.40
CO	2399.45	2066.49	1235.34	2365.44	1890.58
VOM	48.28	61.07	48.33	55.20	12.85
SOx[2]	6975.10	7543.30	5787.20	5787.20	4816.00
PM10	657.54	720.18	554.47	656.30	529.74
PM2.5	302.03	388.33	285.79	371.75	299.93
FPM	747.33	873.31	473.73	748.79	604.95

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Table 2
Baseline Actual Emissions (BAE) - Existing Units

Emission Unit: Coal Handling — Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	33.52	39.65	34.48	33.55	25.53
PM2.5	27.45	32.60	26.97	28.42	17.38
FPM	41.01	48.33	43.63	39.92	35.13

Emission Unit: Ash Handling — Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	39.86	42.31	39.44	43.89	38.79
PM2.5	39.86	42.31	39.44	43.89	38.79
FPM	39.86	42.31	39.44	43.89	38.79

Emission Unit: Unpaved Roads — Per annual air emissions report submittal[1]

	2010	2011	2012	2013	2014
Emissions (tons)					
NOx	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00
VOM	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00
PM10	15.93	11.48	11.59	11.23	2.63
PM2.5	1.59	1.15	1.16	1.12	0.24
FPM	55.87	40.28	40.66	39.39	10.92

Sum of Emission Units

	2010	2011	2012	2013	2014	Average for 2010 & 2011 Baseline Actual Emissions (BAE)
Emissions (tons)						
NOx	6008.70	6311.80	3348.40	3780.90	3329.60	6160.3
CO	5477.15	5232.41	4030.12	4551.52	4647.88	5354.8
VOM	151.31	171.01	134.00	153.67	20.77	161.2
SOx	17086.40	17032.70	13359.40	15012.50	12799.90	17059.6
PM10	1984.77	2060.51	1696.48	1929.83	1718.01	2022.6
PM2.5	917.24	1180.51	954.13	1086.23	987.46	1048.9
FPM	2379.19	2500.77	1855.13	2386.47	2046.98	2440.0

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Table 2
Baseline Actual Emissions (BAE) - Existing Units

Notes:

1 Baseline actual emissions are not equal to values reported in the AER for the following:

Unit 6, CO	Emission factor from US EPA Information Collection Request Testing (2010) used to determine baseline emissions 0.1313 lb CO/MMBtu
Unit 7, CO	Emission factor from Unit 7 stack test (Dec. 2014) used to determine baseline emissions 0.134 lb CO/MMBtu
Unit 8, CO	Emission factor from Unit 8 stack test (Jan. 2015) used to determine baseline emissions 0.153 lb CO/MMBtu
Units 6, 7, 8	FPM, FPM10, FPM2.5 as reported in AER. PM10 and PM2.5 include condensable fraction (CPM).
PM10 and PM2.5	CPM calculated using AP-42 Table 1.1-5. CPM = 0.01 lb/MMBtu for all units, all years (S<0.4)

2 NOx and SO2 emissions as monitored by certified CEMs

Emissions based on maximum-annual averaged emissions from consecutive 24 month period in the last 5 years [40CFR52.21(b)(48)(i)]
For convenience, baseline emissions were selected based on calendar year summaries. The baseline period is CY 2010-2011.

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Table 2
Baseline Actual Emissions (BAE) - Existing Units

Calculation Methods:
Combustion source emissions of CO, VOM, PM10, PM2.5, and FPM:

tons = (Coal HI)*(EF)*(1 ton/2000 lb) + (Gas HI)*(EF)*(1 ton/2000 lb)

where Coal HI = heat input from coal combustion, mmBtu/year
= (tons coal)*(2000 lb/ton)*(heat value, Btu/lb)*(mmBtu/1,000,000 Btu)

Gas HI = heat input from natural gas combustion, mmBtu/year
= (mcf gas)*(heat value, Btu/cf)*(1000 cf/mcf)*(mmBtu/1,000,000 Btu)

EF = pollutant specific emission factor, lb/mmBtu

	Factor (lb/mmBtu)	Factor Source
Unit 6		
CO	0.1313	June 2010 Stack Test
VOM	0.00027	Oct 1998 Stack Test
FPM	0.067	Dec 2004 Stack Test
FPM10	0.046	AP-42 Table 1.1-8, 68% of FPM
FPM2.5	0.024	AP-42 Table 1.1-8; 36% of FPM
CPM	0.01	AP-42 Table 1.1-5
Unit 7		
CO	0.134	Dec 2014 Stack Test
VOM	0.0004	Dec 2014 Stack Test
FPM	0.065	Oct 2005 Stack Test
FPM10	0.044	AP-42 Table 1.1-6, 67% of FPM
FPM2.5	0.019	AP-42 Table 1.1-6; 29% of FPM
CPM	0.01	AP-42 Table 1.1-5
Unit 8		
CO	0.153	Jan 2015 Stack Test
VOM	0.001	Jan 2015 Stack Test
FPM	0.049	Feb 2005 Stack Test
FPM10	0.033	AP-42 Table 1.1-6; 67% of FPM
FPM2.5	0.014	AP-42 Table 1.1-6; 29% of FPM
CPM	0.01	AP-42 Table 1.1-5

Combustion source emissions of NOx and SO2 are reported as measured by certified CEMS.

Coal handling, Ash Handling, and Paved and Unpaved Roadway emissions calculated using procedures in AP-42
Section 11.9 Bulldozing Emissions
Section 13.2.1 Paved Roads
Section 13.2.4 Material Transfers
Section 13.2.5 Wind Erosion

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 3
Projected Actual Emissions (PAE) for the Existing Units

Inputs / Assumptions

Natural Gas-Firing Emission Factors*	Unit 6	Unit 7	Unit 8
NOx (lb/MMBtu)	0.135	0.110	0.110
CO (lb/MMBtu)	0.185	0.080	0.080
VOM (lb/MMBtu)	0.0055	0.0055	0.0055
SOx (lb/MMBtu)	0.0006	0.0006	0.0006
PM10 (lb/10^6 scf)	7.600	7.600	7.600
PM2.5 (lb/10^6 scf)	7.600	7.600	7.600
FPM (lb/10^6 scf)	1.900	1.900	1.900

Natural Gas HHV (Btu/scf)	1000

*NOx and CO emission factors are from Manufacturer's estimates. SO2 emission factor is per 40 CFR 75.
All other emission factors are from AP-42 Section 1.4.

Pollutant	Unit 6 PTE (lb/hr)	Unit 7 PTE (lb/hr)	Unit 8 PTE (lb/hr)	Potential Emissions (ton/yr)
NOx	478.305	663.74	702.46	4039.5
CO	655.455	482.72	510.88	3611.4
VOM	19.4865	33.187	35.123	192.3
SOx	2.1258	3.6204	3.8316	21.0
PM10	26.9268	45.8584	48.5336	265.7
PM2.5	26.9268	45.8584	48.5336	265.7
FPM	6.7317	11.4646	12.1334	66.4

Calculation Method:

For NOx, CO, VOM, SOx lb/hr = (lb/MMBtu)*(MMBtu/hr)

For PM10, PM2.5, FPM lb/hr = (lb/MMBtu)*(MMBtu/hr)/(MMBtu/MMscf)

For All Pollutants Potential ton/yr = (lb/MMBtu)*(MMBtu/hr)*(%utilization/100)*(ton/2000 lb)

Utilization (%, per unit) 50

	Capacity (MMBtu/hr)
Unit 6 (0009)	3543
Unit 7 (0031)	6034
Unit 8 (0033)	6386

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Midwest Generation, LLC
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Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4
Potential Emissions for the New Units
(Auxiliary Boilers and Natural Gas Line Heaters)

Inputs / Assumptions

Aux Boilers Natural Gas-Firing

Emission Factors*:	
NOx (lb/MMBtu)	0.036
CO (lb/MMBtu)	0.04
VOM (lb/MMBtu)	0.0055
SOx (lb/MMBtu)	0.0006
PM10 (lb/10^6 scf)	7.6
PM2.5 (lb/10^6 scf)	7.6
FPM (lb/10^6 scf)	0.0005

Natural Gas Pipeline Heaters

Emission Factors*:	
NOx (lb/MMBtu)	0.101
CO (lb/MMBtu)	0.05
VOM (lb/MMBtu)	0.002
SOx (lb/MMBtu)	0.0006
PM10 (lb/10^6 scf)	7.6
PM2.5 (lb/10^6 scf)	7.6
FPM (lb/10^6 scf)	1.9

Unit Ratings:	
Joliet 9 Aux Boiler (MMBtu/hr)	140
Joliet 29 Aux Boiler (MMBtu/hr)	168
Pipeline Heaters (3, MMBtu/hr each)	11
Pipeline Heaters (3, MMBtu/hr each)	3
Natural Gas HHV (Btu/scf)	1000
Maximum Potential Operation	8760
Aux Boiler Utilization (%, per unit)	55
Pipeline Heater Utilization (%, per unit)	50

*NOx and CO emission factors are from Manufacturer's estimates.
SO2 emission factor is per 40 CFR 75.

All other emission factors are from AP-42 Section 1.4.

Midwest Generation, LLC
Joliet Generating Station

Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4
Potential Emissions for the New Units
(Auxiliary Boilers and Natural Gas Line Heaters)

Summary - All New Units		Projected
Pollutant	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	67.1	36.0
CO	60.1	32.6
VOM	7.8	4.3
SOx	0.9	0.5
PM10	11.7	6.3
PM2.5	11.7	6.3
FPM	0.4	0.2

Joliet 9 Aux Boiler (140 MMBtu/hr)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	5.0	22.1	12.1
CO	5.3	23.3	12.8
VOM	0.8	3.4	1.9
SOx	0.08	0.4	0.2
PM10	1.1	4.7	2.6
PM2.5	1.1	4.7	2.6
FPM	7.00E-05	3.07E-04	1.69E-04

Joliet 29 Aux Boiler (168 MMBtu/hr)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	6.0	26.5	14.6
CO	6.4	28.0	15.4
VOM	0.9	4.0	2.2
SOx	0.10	0.4	0.2
PM10	1.3	5.6	3.1
PM2.5	1.3	5.6	3.1
FPM	8.40E-05	3.68E-04	2.02E-04

Gas Pipeline Heaters, 11 MMBtu/hr (each)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	1.1	4.9	2.4
CO	0.5	2.3	1.2
VOM	2.20E-02	9.64E-02	4.82E-02
SOx	6.60E-03	2.89E-02	1.45E-02
PM10	8.36E-02	3.66E-01	1.83E-01
PM2.5	8.36E-02	3.66E-01	1.83E-01
FPM	2.09E-02	9.15E-02	4.58E-02

Gas Pipeline Heaters, 3 MMBtu/hr (each)			Projected
Pollutant	(PTE) (lb/hr)	(PTE) (ton/yr)	Emissions (tons/yr)
NOx	3.03E-01	1.33E+00	6.64E-01
CO	1.44E-01	6.32E-01	3.16E-01
VOM	6.00E-03	2.63E-02	1.31E-02
SOx	1.80E-03	7.88E-03	3.94E-03
PM10	2.28E-02	9.99E-02	4.99E-02
PM2.5	2.28E-02	9.99E-02	4.99E-02
FPM	5.70E-03	2.50E-02	1.25E-02

Midwest Generation, LLC
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Natural Gas Conversion Analysis
New Source Review Applicability Analysis

Table 4
Potential Emissions for the New Units
(Auxiliary Boilers and Natural Gas Line Heaters)

Calculation Method:		
For NOx, CO, VOM, SOx	lb/hr =	(lb/MMBtu)*(MMBtu/hr)
For PM10, PM2.5, FPM	lb/hr =	(lb/MMBtu)*(MMBtu/hr)/(MMBtu/MMscf)
For All Pollutants	PTE ton/yr =	(lb/MMBtu)*(MMBtu/hr)*(8760 hr/yr)*(ton/2000 lb)
	Projected ton/yr =	(lb/MMBtu)*(MMBtu/hr)*(8760 hr/yr)*(ton/2000 lb)*(%utilization/100)

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Natural Gas Conversion Project

Table 5
Requested Emission Limits for New Emission Units

Pollutant	Joliet 9 Aux Boiler (tons/year)	Joliet 29 Aux Boiler (tons/year)	Natural Gas Pipeline Heaters (combined) (tons/year)	Total (tons/year)
NOx	12.1	14.6	9.3	36.0
VOM	1.9	2.2	0.2	4.3
PM2.5	2.6	3.1	0.7	6.3

New Unit potential emissions exceed the significance thresholds for NOx, VOM, and PM2.5. Potential emissions will be limited to the above listed amounts upon approval of the Agency.

Requested emission limits are based on operation of the auxiliary boilers at annual utilization rates of 55% (each) and the gas pipeline heaters at capacity factors of 50% (each).

See Table 4 for emission factors and calculation methods.

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Natural Gas Conversion Analysis

Table 6
New Source Performance Standard (NSPS) Applicability Analysis

	Gas-firing Potential to Emit[1] (lb/hr)	Coal-firing Maximum Actual Hourly NOx Rate[2] (lb/hr)	Date and Hour Max NOx Rate Achieved[3]	Unit Load at Max NOx Rate Achieved (MW)
Unit 6	478.3	2103.3	06/25/2011, 19	320
Unit 7	663.7	4136.2	07/01/2014, 01	225
Unit 8	702.5	1251.5	03/03/2010, 13	513

The conversion of the Units to gas-firing will not cause an increase in hourly NOx rate.

[1] See Table 3 for PTE calculation method

[2] Valid CEMs data, as reported

[3] Lookback period is calendar years 2010 through 2014

CAMD Data Worksheet (http://ampd.epa.gov/ampd/QueryToolBe.html)

State	Facility Name	Facility ID (ORISPM)	Unit ID	Associated Stacks	Year	Program(s)	SO2 (tons)	Avg. NOx Rate (lb/MMBtu)	NOx (tons)	Heat Input (MMBtu)	HI Rank	Operating Time	# of Months Reported	Gross Load (MW-h)
IL	Joliet 29	384	71	CS7172	2005	ARP	3838.603	0.1197	909.355	1.58E+07	5	8615.25	12	1.33E+06
IL	Joliet 29	384	71	CS7172	2006	ARP	3696.707	0.1172	937.812	1.63E+07	2	7815.5	12	1.40E+06
IL	Joliet 29	384	71	CS7172	2007	ARP	4249.237	0.1095	864.873	1.63E+07	1	7499.25	12	1.54E+06
IL	Joliet 29	384	71	CS7172	2008	ARP	3196.367	0.1139	716.358	1.29E+07	10	6601	12	1.38E+06
IL	Joliet 29	384	71	CS7172	2009	ARP	3484.898	0.1296	998.668	1.86E+07	4	7546.75	12	1.59E+06
IL	Joliet 29	384	71	CS7172	2010	ARP	3608.848	0.1171	947.51	1.61E+07	3	7938	12	1.73E+06
IL	Joliet 29	384	71	CS7172	2011	ARP	2835.099	0.1261	835.149	1.32E+07	9	6764.9	12	1.39E+06
IL	Joliet 29	384	71	CS7172	2012	ARP	2686.853	0.0915	605.958	1.35E+07	6	7291.75	12	1.34E+06
IL	Joliet 29	384	71	CS7172	2013	ARP	3075.737	0.0889	713.058	1.52E+07	6	7780.75	12	1.48E+06
IL	Joliet 29	384	71	CS7172	2014	ARP	2580.196	0.1043	687.737	1.37E+07	7	6913.25	12	1.38E+06
IL	Joliet 29	384	72	CS7172	2005	ARP	3702.105	0.1183	858.284	1.47E+07	7	8248.75	12	1.39E+06
IL	Joliet 29	384	72	CS7172	2006	ARP	3423.473	0.1153	860.738	1.51E+07	5	7153.5	12	1.32E+06
IL	Joliet 29	384	72	CS7172	2007	ARP	4233.276	0.1086	857.031	1.62E+07	1	7313	12	1.55E+06
IL	Joliet 29	384	72	CS7172	2008	ARP	2884.029	0.1124	654.09	1.19E+07	10	6350.25	12	1.27E+06
IL	Joliet 29	384	72	CS7172	2009	ARP	3639.503	0.1308	1058.42	1.63E+07	2	7935	12	1.62E+06
IL	Joliet 29	384	72	CS7172	2010	ARP	3343.011	0.1192	891.427	1.56E+07	6	7699.25	12	1.63E+06
IL	Joliet 29	384	72	CS7172	2011	ARP	2724.389	0.1286	853.734	1.38E+07	9	6797.25	12	1.43E+06
IL	Joliet 29	384	72	CS7172	2012	ARP	2784.889	0.0919	623.003	1.37E+07	8	7194	12	1.37E+06
IL	Joliet 29	384	72	CS7172	2013	ARP	3090.498	0.0987	713.298	1.52E+07	3	7878.5	12	1.49E+06
IL	Joliet 29	384	72	CS7172	2014	ARP	2845.696	0.1027	762.68	1.51E+07	4	7367.5	12	1.51E+06
IL	Joliet 29	384	81	CS8182	2005	ARP	3903.985	0.1223	940.636	1.66E+07	4	8288.75	12	1.53E+06
IL	Joliet 29	384	81	CS8182	2006	ARP	3592.735	0.1133	840.692	1.52E+07	5	7865	12	1.53E+06
IL	Joliet 29	384	81	CS8182	2007	ARP	3503.872	0.1083	739.288	1.37E+07	9	6807	12	1.49E+06
IL	Joliet 29	384	81	CS8182	2008	ARP	3886.271	0.1223	1009.044	1.66E+07	2	8041.75	12	1.69E+06
IL	Joliet 29	384	81	CS8182	2009	ARP	3628.234	0.113	890.584	1.61E+07	3	7685	12	1.61E+06
IL	Joliet 29	384	81	CS8182	2010	ARP	3535.14	0.1077	826.733	1.55E+07	6	7066.5	12	1.46E+06
IL	Joliet 29	384	81	CS8182	2011	ARP	3683.748	0.1027	882.936	1.76E+07	1	8009.75	12	1.65E+06
IL	Joliet 29	384	81	CS8182	2012	ARP	2876.787	0.1062	734.343	1.44E+07	7	7888.75	12	1.35E+06
IL	Joliet 29	384	81	CS8182	2013	ARP	2986.045	0.0947	652.601	1.43E+07	8	8021.25	12	1.39E+06
IL	Joliet 29	384	81	CS8182	2014	ARP	2263.642	0.0937	509.849	1.17E+07	10	6653.75	12	1.14E+06
IL	Joliet 29	384	82	CS8182	2005	ARP	3842.16	0.1223	938.623	1.58E+07	6	7078.75	12	1.52E+06
IL	Joliet 29	384	82	CS8182	2006	ARP	3646.933	0.1122	846.315	1.59E+07	5	7893.25	12	1.58E+06
IL	Joliet 29	384	82	CS8182	2007	ARP	3808.958	0.1091	824.639	1.57E+07	10	5781.75	12	1.51E+06
IL	Joliet 29	384	82	CS8182	2008	ARP	3778.651	0.1226	983.978	1.61E+07	4	7908.75	12	1.66E+06
IL	Joliet 29	384	82	CS8182	2009	ARP	3792	0.1143	948.216	1.68E+07	2	7856	12	1.70E+06
IL	Joliet 29	384	82	CS8182	2010	ARP	3440.076	0.1081	834.447	1.52E+07	7	6900.75	12	1.44E+06
IL	Joliet 29	384	82	CS8182	2011	ARP	3861.537	0.1039	933.428	1.82E+07	1	7996.75	12	1.75E+06
IL	Joliet 29	384	82	CS8182	2012	ARP	2910.337	0.1072	729.397	1.45E+07	8	7353.5	12	1.38E+06
IL	Joliet 29	384	82	CS8182	2013	ARP	3331.059	0.0943	742.013	1.63E+07	3	8236.25	12	1.60E+06
IL	Joliet 29	384	82	CS8182	2014	ARP	3552.341	0.0899	967.377	1.32E+07	9	6360.25	12	1.30E+06
IL	Joliet 8	874	5		2005	ARP	4854.358	0.4877	5438.558	2.07E+07	1	7692.75	12	1.91E+06
IL	Joliet 8	874	5		2006	ARP	4045.393	0.3727	3366.761	1.70E+07	5	6834.5	12	1.62E+06
IL	Joliet 8	874	5		2007	ARP	5076.85	0.3752	4102.958	2.02E+07	3	7569.75	12	1.94E+06
IL	Joliet 8	874	5		2008	ARP	4638.37	0.3815	4150.308	2.05E+07	2	7747.5	12	2.00E+06
IL	Joliet 8	874	5		2009	ARP	3441.098	0.3156	2663.836	3.52E+07	7	6784.5	12	1.53E+06
IL	Joliet 8	874	5		2010	ARP	3861.543	0.3216	2580.765	3.45E+07	8	5932.5	12	1.46E+06
IL	Joliet 8	874	5		2011	ARP	4089.998	0.2764	2806.884	3.89E+07	4	7897.75	12	1.94E+06
IL	Joliet 8	874	5		2012	ARP	3280.477	0.122	683.824	1.31E+07	10	6595.25	12	1.30E+06
IL	Joliet 8	874	5		2013	ARP	3059.084	0.1188	959.902	1.58E+07	8	7915.25	12	1.55E+06
IL	Joliet 8	874	5		2014	ARP	3553.895	0.1228	802.809	1.37E+07	9	5722.5	12	1.30E+06

R007603

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Rd.
Joliet, IL 60436

Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

Appendix B

Regulatory Applicability Tables

Midwest Generation, LLC
Joliet Generating Station
Clean Air Section 95, 9 Section 39.5 & 39.7 and 9 Section 21 & 22: Electric Generating Units
Planned Gas Conversion Project

Table 1
Regulatory Applicability for Unit 6

Project Name: Unit 6 CAA Applicability - Gas Firing

This table verifies the requirements of Sub-Chapter 39A 27, 28, 29, 30, 31, 32, 33, & 34

Regulation	Pollutant	Emission Standards		Source Allocation Rule		Exemption Rule		Monitoring Rule		Reporting Rule		Recordkeeping		Comments		Other Requirements		Applicable to Coal Fired?	Applicable to Gas Fired?
		Citation	Requirement (Averaging Period)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Comply as Gas Fired?	Testing Requirement	Monitoring Requirement			
35 IAC 212	Opacity	IAC 201.102(a) and IAC 212.123(a)	Y = 60% (6-minute average); may exceed for 8 minutes in any 60 minutes period (not to exceed 60% on more than three times per 24 hours					IAC 212.123	Visual Observance			IAC 212.108(a), (b), and (d)	Start-up, Malfunction, Breakdown, Fuel Usage	Yes	Continuous Opacity Monitoring System (COMS) and/or Method 9 Observations			Yes	Yes
												IAC 201.102(a); 40 CFR 70.6(a)	Continuous Opacity standard not applicable for gas-fired units	Yes	CEMS use for natural gas within exemption of a petition to the Administrator to define the units as "gas-fired units" under 40 CFR 72.2 or other Title Units 1 operation as gas-fired units.			No	Yes
28 IAC 218	Particulate Matter	IAC 218.301	$E = 0.18 H^{-0.16}$									IAC 218.281	Gas-fired units exempt from IAC 218.301 applicability	Yes	N/A			Yes	No
28 IAC 218	Particulate Matter	IAC 218.301	$E = 0.18 H^{-0.16}$										Gas-fired units exempt from IAC 218.301 applicability	Yes	N/A			Yes except during subject to IAC 218.303	No
28 IAC 218	Particulate Matter	IAC 218.303	Visibly non-emissions based on fuel types.										This rule only applies when simultaneously firing more than one fuel type	Yes	N/A			No	No
28 IAC 214	Sulfur Dioxide	IAC 214.141	$E = 8.0 H^{0.41}$										The rule only applies for solid fuel firing	Yes	N/A			Yes	No
28 IAC 216	Carbon Monoxide	IAC 216.121	200 ppm (100% across 4hr)											Yes	CO Stack Test	Good Combustion Practices Periodic CO Stack Tests		Yes	Yes
28 IAC 217	Nitrogen Oxides	IAC 217.141(a)(1), IAC 217.151(c)	$E = 0.3 lb/MMBtu$ (applies to liquid fuel fired units) (3-hour average)									IAC 217.155(b)	Good firing practices to IAC 217.141(a) or the emission limit is a system-wide limit	Yes				No exemption under IAC 217.141(a)	Yes
28 IAC 217 Subpart V	Nitrogen Oxides	IAC 217.386(b)	$E = 0.38 lb/MMBtu$ (average over ozone season for entire ozone season period)	IAC 217.312(a)	Allowance records recorded by 40 CFR 75 for NO_x emissions during ozone season for 5 yrs	IAC 217.312(e)	Sources report emissions; compliance by Nov 30 of each year as specified in 35 IAC 217.706.	IAC 217.312(a)	NO_x limits per 40 CFR 75, Subpart B					Yes	NO_x Continuous Emission Monitoring System (CEMS), and heat input during Annual Compliance Report; RESCR Allowing, Averaging Plan			Yes	Yes

R007605

REGULATIONS AND REQUIREMENTS FOR UNIT 4

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 8), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 7
Regulatory Applicability for Unit 6

Process Name: Unit 6 (B81,B82) - Gas Firing

Pollutant	Subpart	Emission Limitation		Monitoring Method		Averaging Time		Monitoring Frequency		Reporting		Recordkeeping		Comments		Applicable to Gas Firing?	Applicable to Gas Startup?
		Citation	Requirement (Averaging Period)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Initial Demonstration	Ongoing Demonstration		
35 IAC 218	Volatile Organic Material	IAC 218.301, 302	Exempt									IAC 218.304	The provisions of IAC 218.301 and 302 do not apply to fuel combustion sources	Yes	N/A	No	No
35 IAC 217	Particulate Matter	IAC 217.386(a)	15 lb/hr (Max 1 - Sept 30) 29lb/Hr max)	IAC 217.386(c)	Maximum capacity of associated components at ACE	IAC 217.386(c)	Subtract associated components of ACE by Emission #1					IAC 217.386(c)	Exempt from all provisions of the Emission program because a Nonattainment area contributes less than 15 tons VOM per calendar year.	Yes	Maintain records of VOM emissions during the ozone control period.	Yes	Yes
40 CFR 60 (NSPS)	Particulate Matter, Nitrogen Oxides, Sulfur Dioxide	Clean Fuel	Exempt										Exempt from GAAP for 15 pollutants for pollutant specific emission increase	Yes	N/A	Yes	No
40 CFR 72 - 78 (Acid Rain)	Sulfur Dioxide	40 CFR 72.9 and 73. As a New Source per Part 72	Must surrender SO_2 allowances (annual)	40 CFR 75 Subpart F	Records of SO_2, NO_x, CO_2, opacity, and operating parameters as required by 40 CFR 75.57 Additionally, record data required pursuant to §75.59 for monitor availability, certification and quality assurance records required by §75.59, for opacity monitor, report quarterly reports per §75.64 and Appendix B of Part 75 for quality assurance plan required per Appendix B, Section 1.1 of Part 75 and the opacity	40 CFR 75.64	Submit quarterly electronic reports - Opacity, SO_2, NO_x, CO_2, operating hours, & heat input	40 CFR 75 Subpart B	Install, operate, and maintain equipment to continuously monitor SO_2, NO_x, CO_2, opacity, and heat input					Yes	Accuracy tests in accordance with Acid Rain Permit, percent removal calculated as required -Opacity, SO_2, NO_x, CO_2, abnormal output, and heat input monitoring conducted as required -Recordkeeping and reporting provisions are followed and complete Recordkeeping complete -Annual SO_2 allowance reconciliation	Yes	Yes
	Nitrogen Oxides	40 CFR 76.5, Acid Rain Permit per 76.9	0.86 lb/MMBtu (annual average)											Yes		Yes	Yes
	Opacity					40 CFR 75.65	Excess Opacity Reports									Yes	Yes

Midwest Generation, LLC - Joliet Generating Station
Page 1 of 8

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Holtwood Generation, LLC
Initial Commenting Session
Units 4 (Section 31, 3 Stations 79 & 99) and 6 (Stations 80 & 82) - Electric Commenting Matrix
Holtwood Gas Conversion Project

Table 7
Regulatory Approvability for Unit 6

Process Name: Unit 6 (80,82) - Gas Firing

Regulatory Area	Regulation	Emissions Standards		Recordkeeping Rules		Reporting Rules		Work Practice Rules		Monitoring Rules		Exemptions		Comments	Issues Identified		Approvable as Proposed?	Approvable as Clean Station?
		Citation	Requirement (Averaging Period)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Exemption	Clean Station Comments	Facility Comments	Proposing Commentator		
25 PA C. 135 (subpart B (Utilization and Conservation) [PDF]	Boilers	40 C.F.R. 60.43b(h)(1) and (2)	Particulate matter (PM) emissions limit of 0.030 lb/MMBtu heat input and opacity limit of 10% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity	40 C.F.R. 60.49b(d)(1)	Records of the amount of each fuel combusted during each day	40 C.F.R. 60.49b(g)	Submit semi-annual reports of excess emissions for PM and opacity	40 C.F.R. 60.48b(b) and 60.44b(a)(1)	Initial performance test for PM and opacity	40 C.F.R. 60.48b(f)(1)	Conduct initial performance test for PM and opacity	40 C.F.R. 60.49b(d)(2) and 60.49b(g)	Units that have an annual capacity factor less than 10% (0.10) for distillate oil are exempt from the PM and opacity limits				Yes	Yes	Yes
		40 C.F.R. 60.43b(h)(2)	Sulfur dioxide (SO2) emissions limit of 0.5 lb/MMBtu heat input and 20% opacity, except for one 6-minute period per hour of not more than 27% opacity	40 C.F.R. 60.49b(d)(1) and (2)	Records of the amount of each fuel combusted during each day and calculate the annual capacity factor individually for each fuel combusted during each calendar month	40 C.F.R. 60.49b(r)	Submit reports of excess emissions for SO2 based on the number of operating hours in each 6-month period	40 C.F.R. 60.48b(a)	Initial performance test for SO2	40 C.F.R. 60.48b(f)(2) and 60.49b(r)	Monitor SO2 emissions using CEMS	40 C.F.R. 60.49b(d)(2)	Units that have an annual capacity factor less than 10% (0.10) for distillate oil are exempt from the SO2 emissions limit				Yes	Yes	Yes
	Natural Gas	40 C.F.R. 60.42b(k)(2)	Sulfur dioxide (SO2) emissions limit of 0.5 lb/MMBtu heat input	40 C.F.R. 60.49b(d)(1)	Records per 60.49b(d)(1) and (2)	40 C.F.R. 60.49b(r)	Submit reports per 60.49b(r)	40 C.F.R. 60.48b(a)	Initial performance test for SO2								Yes	Yes
						40 C.F.R. 60.49b(d)(2)	If the amount of SO2 is monitored											
	Sulfur Dioxide	40 C.F.R. 60.42b(k)(3)	SO2 emissions limit of 0.060 lb/MMBtu heat input or 90% reduction of SO2 emissions (based on 30-day rolling average)	40 C.F.R. 60.49b(d)(1)	Records per 60.49b(d)(1)	40 C.F.R. 60.49b(r)	Submit reports per 60.49b(r)	40 C.F.R. 60.48b(b)	Initial performance test for SO2								Yes	Yes
	Monitors, Manages Studies, Sulfur Dioxide					40 C.F.R. 60.49b(d)(2)	Submit monthly CEMS report (owned by Mike T., filed by Aug 31)										Yes	Yes
						40 C.F.R. 60.49b(r)(1)	Submit quarterly excess emissions report by March 1st and November 30th (semiannual reporting compliance with 90% and 50% CEMS limits)											
						40 C.F.R. 60.49b(r)(2)	Submit annual compliance certification by May 1											
						40 C.F.R. 60.49b(r)	Report deviations within 30 days											

R007607

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 6), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 7
Regulatory Applicability for Unit 6

Process Name: Unit 6 (BLRS) - Gas Firing

Description	Pollutant	Preliminary Applicability		Reasonable Control Rate		Recordkeeping Rate		Reporting Rate		Testing Rate				Compliance		Comments		Applicable to Gas Firing?	Applicable to Gas Firing?
		Citation	Requirement (& Impacting Pollutant)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Exemption	Cite Activity as Compliance?	Initial Demonstrations	Ongoing Demonstrations			
35 IAC 212 CAIR*	Sulfur Dioxide	IAC 225.150(d) (c & d)(3)	Beginning in 2010, limit annual SO_2 allowances (annual)	IAC 225.530(b)(1), 40 CFR 96.106 & 96.126	Measure the emissions of representatives, documents and demonstrate the basis of the certification of representatives, annual/semi monitoring, authorization as required by 40 CFR 96, Subparts HH, BBBB, and BBBBB; CO_2 and NO_x emissions, original of all CAIR submissions, documents used to demonstrate compliance under CAIR, documents used to complete the CAIR permit application, and records of gross electrical output	40 CFR 96.174(d), 274(d), and 374(d)	Submit electronic quarterly reports of SO_2 and NO_x mass emissions, heat input data, and applicable information required by 40 CFR 75, Subparts F - G	40 CFR 96, Subpart HHH, 40 CFR 75.11	Install, operate, and maintain a NO_x CEMS and heat input monitoring					Yes	"CAIR Permit application submitted. Permit incorporated and will be followed after permit is issued. -SO_2, NO_x, electrical output, and heat input monitoring, recordkeeping as required -Reasonable recording and reporting requirements are followed and accurate documentation maintained -Annual emission reconciliation		Yes	Yes
	Nitrogen Oxides	IAC 225.410(d)(1) & (d)(2), IAC 225.510(d), (j) & (d)(3)	Limit ozone NO_x allowances (annual and ozone season)					40 CFR 96, Subparts BBB & BBBBB; 40 CFR 75, Subpart H	Install, operate, and maintain a NO_x CEMS and heat input monitoring									Yes	Yes
						IAC 225.430(b) & 250(d)	Quarterly gross electrical output reports	IAC 225.430(b) & 250(c)	Continuously monitoring gross electrical output									Yes	Yes

R007608

Highroad Connection, LLC
Safari Leisure Bag Station
Units 9 (Shelter 9), 17 (Shelter 17) & 221 and 8 (Shelter 81 & 82) - Seasonal Concession Units
Waterfront Redevelopment Project

Table 9
Regulatory Applicability for Unit 9

Process Name: Unit 9 (81,825) - Gift Plating

This task satisfies the requirements of 29 CFR 1910.

Participation	Level of Training	Method of Knowledge Assessment	Frequency	Method of Error Prevention	Responsible Person	Control Person
Mon.	Refresher	CBMS	Hourly	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
8072	Refresher	CBMS	Hourly	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
Pilot Responsible	Refresher	Shop Test	Every 12 months, 24 months, or 36 months as determined by the control history of the previous test, Calendar quarter after firing > 20% of alternative tests if in process that the highest sensor has.	Spark Test Report	EH&S Specialist	EH&S Specialist
CO	Refresher	Shop Test	In conjunction with Pilot app	Spark Test Report	EH&S Specialist	EH&S Specialist
Operator	No	CBMS	Every 3 seconds, Continuous, Hourly	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
Operator	No	Observed & Documented	As needed	Observation Logs	EH&S Specialist	EH&S Specialist
Volunteer Fire	Buddy Box	Continuous Fire Monitor	Hourly	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
Pilot	Chief Magistrate	Regional Maps	Hourly	Production Database	EH&S Specialist	EH&S Specialist
Automotive Fuel Burned	gallons	Meter or Scale	Daily	Warehouse Database	EH&S Specialist	EH&S Specialist
Work Hours	Hours	Operations Log	Quarterly	Production Database	EH&S Specialist	EH&S Specialist
Fuel Purchased	Cal. gal. etc	Invoice	Quarterly	Production Database	EH&S Specialist	EH&S Specialist
Gross Electrical Output	Kilowatts	Calculation Validator	Continuous	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
As provided for in the applicable permit, emissions may not exceed the limits established in the applicable permit. Units are determined to be in violation of the applicable permit.						EH&S

Plan table satisfies the requirements of 29 CFR 1910.

Emissions Reduction	Pollutants	Quantity	Equipment Will Exceeding Control	Sponsored for Emissions Reduction?	Operation at All Times Accompanied Exclusive Use/Control Explanation & Documentation
PM10 & PM2.5	NOx Condensables	5000	Yes	Yes	
Plant Emission	Fuel Gas Propulsion Plan	Stack	Yes	Yes	

R007609

Midwest Generation, LLC
Rules Concerning Emissions
Units 6 (Boiler 9), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Emissions Program

Table 8
Regulatory Applicability for Units 7 and 8

Process Name: Unit 9 - Gas Piping
Unit 8 - Gas Piping

Title 35 applies the requirements of 40 CFR 60, 61, 63, 64, 68, 81, 82, 83, & 96

Regulation	Pollutant	Applicability Determination		Reporting Requirements		Recordkeeping Requirements		Monitoring Requirements		Testing Requirements		Work Practice Requirements		Compliance Status		Applicable as Current Strategy?	Applicable as Clean Strategy?
		Citation	Requirement (Emissions Threshold)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Currently in Compliance?	Method: Demonstration / Ongoing Compliance		
35 IAC 201	Opacity	IAC 212.123(a) and IAC 212.123(b)	> 30% Opacity except for 1 minute in any 60-minute period that is exempt per 35 Illinois					IAC 212.123	Visual Observations			IAC 212.123(a), (b), and (d)	Recordkeeping, Reporting, Recordkeeping, Water Vapor	Yes	Continuous Opacity Monitoring System (COMS) applied pursuant to Consent Decree	Yes	Yes
												IAC 212.123(a) and 40 CFR 71.6(a)	Compliance Opacity Assessment not required for gas-fired units	Yes	COMS can be required upon either acceptance of a petition to use Alternative as defined per units as "gas-fired units" under 40 CFR 75.2 or after 720 hours of operation as gas-fired units.	No	Yes
214 IAC 216	Particulate Matter	IAC 216.201	Exempt										Gas-fired units exempt from IAC 216.201 applicability	Yes	N/A	Yes	No
215 IAC 216	Particulate Matter	IAC 216.201	Exempt										Other solid fossil fuels which simultaneously firing more than one fuel type	Yes	N/A	Yes	No
216 IAC 216	Sulfur Dioxide	IAC 216.121	Exempt										This rule only applies for solid fuel firing units	Yes	N/A	Yes	No
219 IAC 216	Carbon Monoxide	IAC 216.121	200 ppm @3% oxygen on a											Yes	CEMS Stack Test	Closed Combustion Process / Negative CEMS Stack Tests	Yes	Yes
30 IAC 217 Subpart C	Nitrogen Oxides	IAC 217.141	< or = to applicable standard of boiler heat input (1 hour average)											Yes	NOx Continuous Emissions Monitoring System (CEMS); Boiler load monitoring	Yes	Yes
30 IAC 217 Subpart Y	Nitrogen Dioxide	IAC 217.186(a)	4 lb/MMBtu applicable to coverage over entire fleet for ozone season, averaged	IAC 217.186(e)	Maximum records required by 40 CFR 75 for NO_x emissions during ozone season for 5 yrs	IAC 217.186(e)	Submit report demonstrating compliance by May 1st of each year as specified in 35 IAC 217.186(e)	IAC 217.186(a)	NO_x CEMS per 40 CFR 75, Subpart B					Yes	NOx Continuous Emissions Monitoring System (CEMS); Boiler load monitoring, Annual Compliance Report, RESCOM following Averaging Plan	Yes	Yes
35 IAC 218	Volatile Organic Material	IAC 218.301, 302	Exempt									IAC 218.302	The provisions of IAC 218.301 and 302 do not apply to fuel combustion sources	Yes	N/A	No	No
35 IAC 225	Volatile Organic Material	IAC 225.233(a)	15 ppm (dry) @ 3% O_2 for lean burn engines	IAC 201.286(a)	Owner/operator of component assessment at AEGB	IAC 225.286(a)	Submit annual assessment of AEGB by October 31					IAC 225.233(a)	Exempt from all provisions of the RACT program (sometimes a facility-wide exemption cap of 15 tons VOM per season applies.	Yes	Maximum amount of VOM emissions during the ozone season period.	Yes	Yes

Midwest Generation, LLC - Rules Concerning Emissions
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Midtown Cogeneration, LLC
Avon Lake Energy Center
Units 8 (Boiler No. 7 Elsewhere 7) & 9 (Boilers 23 & 24) - Electric Generating Units
Waste Gas Conversion Project

Table 8
Regulatory Applicability for Units 7 and 8

Process Names: Unit 7 - Gas Mixing
Unit 8 - Gas Mixing

Regulation	Pollutant	Emissions Standards		Monitoring Requirements		Recordkeeping Requirements		Reporting Requirements		Testing Requirements			Exemptions	Currently in Compliance?	Comments		Applicable to Unit 7?	Applicable to Unit 8?
		Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Method				Explanation		
40 CFR 64 (CAM)	Particulate Matter, Nitrogen Oxides, Sulfur Oxides	CAM Plan	Exempt										Exempt from CAM for pollutant specific control devices	Yes	N/A		Yes	Yes
40 CFR 72 - Section 408(b)	Sulfur Dioxide	40 CFR 73 Phase II, Acid Rain Permit per Part 72	Hold allowances SO_2 emission assigned	40 CFR 75 Subpart F	Records of SO_2, NO_x, CO_2, opacity, and operating parameters as required by 40 CFR 75.57 Additionally, record data required pursuant to §75.53 for specific situations, certification and quality assurance records required by §75.59, for specific monitoring systems, except plan required per §75.53 and appendix B of Part 75, the quality control plan required per Appendix B, Section 1 of Part 75, and the annual monitoring plan	40 CFR 75.64	Submit quarterly emissions reports, Opacity, SO_2, NO_x, CO_2, electronic format, Rev. 0 see report	40 CFR 75 Subpart G	Report, operate, and maintain monitors to continuously monitor SO_2, NO_x, CO_2, opacity, and flow rates				40 CFR 60 Subpart Da	Yes	Comply with provisions of Part 75 as per permit requirements Operate SO_2, NO_x, CO_2, diluent oxygen monitors as required Record keeping and reporting requirements set forth in Part 75 Maintain SO_2 allowance requirements	Yes	Yes
	Nitrogen Dioxide	40 CFR 76.7 Acid Rain Permit per 76.8	0.46 lb/MMBtu Limited emissions											Yes			Yes	Yes
	Opacity							40 CFR 75.63	Excess Emissions Reports								Yes	Yes

R007611

Walnut Creek Energy, LLC
Joliet Generating Station
Units 6 (Boiler ID: 2 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 8
Regulatory Applicability for Units 7 and 8

Process Name: Unit 7 - Gas Firing
Unit 8 - Gas Firing

Regulation	Pollutant	Emissions Limitations		Performance Testing		Monitoring		Recordkeeping		Reporting		Submittals		Compliance		Comments	Applicable to Unit 7?	Applicable to Unit 8?
		Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Exemptions	Currently in Compliance?	Initial Demonstration	Ongoing Demonstration		
35 IAC 225 Subpart B (Emission Reduction Market Trading Program)	Mercury	35 IAC 225.295(a) and (d)	0.0080 lb/GWh or 90% removal (12-mo rolling avg, beginning Jan 1, 2015 - Dec 31, 2018)	225.295(a)(1)	Relative accuracy of quality assurance of monitor	225.295(a)(1), 225.295(b), 4 and 5	Submit conditional data to Agency and keep for each calendar year during which the exemption is in effect	225.295(a), 225.295(b), 7	Comply with the monitoring requirements under Section 225.295(b) not later than December 31, 2012	225.295(b), 4 and 5	Install and operate a CEMS to measure emissions discharged to the atmosphere or install and operate a sorbent trap system in accordance				Yes	(ACI systems or installed and operating. •All other necessary new thermal applications submitted. Permit requirements will be followed after permit is issued. •Operate under NSR Permit (Construction Permit No. 07050060) per §225.295(b). •NPDES limited chromium discharge to be replaced by applicable compliance items. •Training, recordkeeping, and reporting processes are followed and include discrepancies compliance.	Yes	Yes
	Nitrogen Oxides	35 IAC 225.295(b)	0.075 group-wide 7-day average of 0.03 lb/MMBtu beginning in 2015 - rolling and annual	225.295(c)	Supports per 225.810 and 3.115	225.295(b)(1)	Submit reports per 225.810 and 850	225.295(b)(1)	Maintain per 225.410 and 3.115								Yes	Yes
						225.295(b)(2)	File a report of SNCR as modified											
	Sulfur Dioxide	35 IAC 225.295(a)	CPS group-wide 90% basin beginning in 2012 for annual basis, 1.0 lb/MMBtu and annual	35 IAC 225.295(c)	Maintain per 225.810	35 IAC 225.295(a)	Submit reports per 225.295	35 IAC 225.295(a)	Maintain per 225.210								Yes	Yes
		35 IAC 225.295(a)(2)	Annual 2.0 lb/MMBtu															
	Mercury, Nitrogen Oxides, Sulfur Dioxide					35 IAC 225.295(a)(2)	Submit annual CPS group compliance report (revised by 90 at 1. Base by Aug 31)										Yes	Yes
						35 IAC 225.295(a)(2)	Submit compliance reports by March 1st and November 30th (commencing overall annual rate, NOx and SO2 CPS family (once Step Down are on basis until 2012))											
						35 IAC 225.295(a)(3)	Submit annual compliance plan by May 1											
						35 IAC 225.295(a)(4)	Report compliance within 30 days											

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Rosemar Cogeneration, LLC
Added Generating Station
Units 6 (Boiler 5), 7 (Boilers 31 & 32), and 8 (Boilers 33 & 34) - Electric Generating Units
Rosemar Gas Cogeneration Project

Table 2
Regulatory Applicability for Units 7 and 8

Process Number: Unit 7 - Gas Firing
Unit 8 - Gas Firing

Regulation	Pollutant	Emissions Limitation		Monitoring Requirements		Recordkeeping Requirements		Reporting Requirements		Compliance Demonstration		Compliance Status		Comments		Applicable to Unit 7?	Applicable to Unit 8?
		Citation	Requirement (averaging period)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Currently in Compliance?	Future Compliance?	Needed Demonstrations	Ongoing Demonstrations		
35 IAC 201 (CAIR)*	Particulate Emissions	35 IAC 225.210(a)(1) & (d)(1)	Beginning in 2010, limit nitrogen SO_2 allowances (annual)	35 IAC 225.1,230(c)(1), (d)(1)(A), & 240(c)(1)	Maintain the combustion of combustible fuel such that the concentration of pollutants in the exhaust gas does not exceed the applicable emission standard as required by 40 CFR 96, Subparts AAA, BBB, and EEEE for NO_x annual, ozone season NO_x, and SO_2 emissions, respectively, as of 2,625 calendar days after the date on which the CAIR designated representative of the source submits the monitoring certification required under 40 CFR 96.170(b), 174(b), and 184(b)	40 CFR 96.170(d), 174(d), and 184(d)	Submit electronic quarterly reports of SO_2 and NO_x mass emissions, heat input data, and applicable information required by 40 CFR 75, Subparts F - H	40 CFR 96, Subparts AAA, BBB, and EEEE; 40 CFR 75.1+	Record, operate, and maintain a NO_x CEMS and heat input monitoring					Yes	Yes	CAIR Permit application submitted. Permit requirements will be followed after permit is issued. - SO_2, NO_x, electronic output, and flow meter monitoring established as required - Recordkeeping and reporting procedures are followed and account documentation completed - Annual allowance reconciliation	Yes	Yes
	Nitrogen Oxides	35 IAC 225.410(a)(1) & (5)(A); 35 IAC 225.240(d)(1) & (d)(2)	Limit allowable NO_x allowances (annual and ozone season)					40 CFR 96, Subparts AAA, BBB, and EEEE; 40 CFR 75, Subpart H	Record, operate, and maintain a NO_x CEMS and flow monitoring							Yes	Yes
		35 IAC 225.210 & 240(d) & 230(d)	Quarterly gross electrical output reports	35 IAC 225.430(b) & 450(b)	Continuously operating gross electrical output											Yes	Yes

*Rosemar Cogeneration, LLC - Added Generating Station
Page 6 of 7

R007613

REGULATIONS AND COMPLIANCE FOR UNIT 1 AND UNIT 2

Midwest Generation, LLC
Joliet Generating Station
Boiler Number 91, Turbines 71 & 721 and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 2
Regulatory Applicability for Units 7 and 8

Process Heater: Unit 7 - Gas Firing
Unit 8 - Gas Firing

This table satisfies the requirements of 35IAC-CAAPP 039

Pollutant	Unit of Measurement	Method of Measurement	Frequency	Method of Recordkeeping	Responsible Person	Contact Person
NOx	lbs/mmBtu	CEMS	Hourly	Data Acquisition and Handling System	ENMS Specialist	Env. Specialist
PM (Filterable)	lbs/mmBtu	Stack Test	As required	Stack Test Report	ENMS Specialist	Env. Specialist
CO	lbs/mmBtu	Stack Test	As required	Stack Test Report	ENMS Specialist	Env. Specialist
Opacity	%	COMS	Every 6 minutes, Continuous, Hourly	Data Acquisition and Recording System	ENMS Specialist	Env. Specialist
Opacity	%	Method 9 Observation	As required	Observation Logs	ENMS Specialist	Env. Specialist
Visible Emissions	odour limit	Continuous Plant Personnel	Hourly	Data Acquisition and Recording System	ENMS Specialist	Env. Specialist
Leaks	Unitless	Inspection Walk-through	Weekly	Preventative Maintenance	ENMS Specialist	Env. Specialist
Alternative Fuels Startup	gal/hour	Meter or Scale	Daily	Production Database	ENMS Specialist	Env. Specialist
Fuel Operation	Hours	Operations Log	Quarterly	Production Database	ENMS Specialist	Env. Specialist
Fuel consumption	cf, gal, lbs,	Meters	Quarterly	Production Database	ENMS Specialist	Env. Specialist
Gross Calorific	Btu/lb	Continuous Monitor	Continuous	Data Acquisition and Handling System	ENMS Specialist	Env. Specialist
Coal Rig	ton/h	As required by 35 IAC 225.Subpart B	Hourly (Daily during testing)	Production Database	ENMS Specialist	Env. Specialist
Is compliance with applicable requirements met for sources at this emission unit (e.g. OK)?						Yes
Is the emission unit in compliance with all applicable requirements? If not, describe in detail how the sources are not in compliance						Yes

This table satisfies the requirements of 35IAC-CAAPP 039 and Sub-CAAPP 039

Pollutant Monitored	Parameter	Location	Equipment Data Recording System?	Reviewed for Accuracy Quarterly?	Operation of All These Associated Pollution Control Equipment is Operational?
CEMS	Capacity	Stack	Yes	Yes	No. Out of service for maintenance, quality assurance exercise, testing, and calibration checks.
NOx CEMS	NOx Concentration	Stack	Yes	Yes	
Flow Monitor	Exit Gas Velocity	Stack	Yes	Yes	

R007614

Midwest Cogeneration, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 9
Regulatory Applicability for Auxiliary Boilers

Process Name: 39 Aux Boiler
319 Aux Boiler

This table outlines the requirements of 326 CAAPP 406, 27, 28, 29, 30, 31, 32,33, & 34

		Emissions Limitations		Performance Tests		Monitoring		Recordkeeping		Reporting		Exemptions		Compliance		
Regulation	Pollutant	Citation	Requirement (Averaging Period)	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Requirement	Citation	Exemption	Currently in Compliance?	Applied Demonstration	Ongoing Demonstration
35 IAC 216	Opacity	IAC 212.123(a) and IAC 212.123(b)	< 30% (6-minute average), may exceed for 8 minutes in any 60-minute period (not to exceed 90%), on more than three times per 24 hours					IAC 217.139	Visual Observations			IAC 212.124(b), (c), and (d)	Start-up, Malfunction, Breakdown, Water Vapor	Yes	Method 9 Observations	
35 IAC 216	Carbon Monoxide	IAC 216.121	200 ppm (30% excess air)											Yes	CO Stack Test	Good Combustion Practices
35 IAC 217	Nitrogen Oxides	IAC 217.154	< = 0.08 lb/MMBtu (1-hour average)	IAC 217.156		IAC 217.154								Yes	NOx Continuous Emission Monitoring System (CEMS)	
40 CFR 60 (NSPS)	Nitrogen Oxides	40 CFR 60.44b(a)	< = 0.10 lb/MMBtu (30-day average)	40 CFR 60.46b(d) and 60.49b	Maintain records of fuel throughput and NO_x emissions	40 CFR 60.7(a) and 60.49b	Excess emissions reports	40 CFR 60.48b	NO_x CEMS per 40 CFR 75, Subpart B					Yes	NOx Continuous Emission Monitoring System (CEMS)	
40 CFR 63 (MESHAP)	NA	None	NA	40 CFR 63.7533	Maintain records of fuel throughput and more info	40 CFR 63.7540	Notification of Compliance Status or frequency of tune up							Yes	Conduct a tune-up one year after annual installation & use does not have an oxygen trim system	Conduct a tune-up annually if unit does not have an oxygen trim system
40 CFR 64 (CAM)	Particulate Matter, Nitrogen Oxides, Sulfur Oxides	CAM Plan	Exempt										Emerge Boss CAM for all pollutants (no pollutant specific control devices)	Yes	NA	

R007615

Midwest Generation, LLC
Joliet Generating Station
Units 6 (Boiler 5), 7 (Boilers 71 & 72) and 8 (Boilers 81 & 82) - Electric Generating Units
Natural Gas Conversion Project

Table 9
Regulatory Applicability for Auxiliary Boilers

Project Name: 29 Aux Boiler
32 Aux Boiler

This table satisfies the requirements of 40 CFR 60

Parameter	Unit of Measure	Method of Measurement	Frequency	Method of Recordkeeping	Responsible Person	Contact Person
NOx	lb/MMBtu	CEMS	Hourly	Data Acquisition and Handling System	EH&S Specialist	EH&S Specialist
CO	lb/MMBtu	Stack Test	As needed	Stack Test Report	EH&S Specialist	EH&S Specialist
Opacity	%	Method 9 Observations	As needed	Observation Log	EH&S Specialist	EH&S Specialist
Unit Operation	Hours	Operations Log	Quarterly	Production Database	EH&S Specialist	EH&S Specialist
Fuel Burned	mcf, gal, etc.	Meter	Quarterly	Production Database	EH&S Specialist	EH&S Specialist
Is compliance of the emissions and monitor demonstrated by means of the records?						Yes
Are all records readily available for inspection, reports as required by the specific applicable regulation?						Yes

This table satisfies the requirements of 40 CFR 63

Emissions Monitor	Parameter	Location	Equipped With Recording Device?	Monitored for Accuracy Quarterly?	Operation of All Times Associated Emission Unit/Control Equipment is Operational?
NOx CEMS	NOx Concentration	Stack	Yes	Yes	
Flow Meter	Fuel Gas Volumetric Flow	Stack	Yes	Yes	

R007616

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Rd.
Joliet, IL 60436

Midwest Generation, LLC
Joliet Generating Station
Natural Gas Conversion Project
Regulatory Applicability Analysis

Appendix C

USEPA Boiler MACT Correspondence

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG - 5 2013

OFFICE OF
AIR AND RADIATION

Mr. Robert D. Bessette
Council of Industrial Boiler Owners
6801 Kennedy Road, Suite 102
Warrenton, Virginia 20187

Dear Mr. Bessette:

On January 31, 2013, the U.S. Environmental Protection Agency published the final rule titled "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters" in the *Federal Register*. 78 Fed. Reg. 7138. This final rule made certain revisions to the final rule published on March 11, 2011, which established emissions standards for major source boilers and process heaters under section 112 of the Clean Air Act. *See* 76 Fed. Reg. 15608. The EPA received petitions for administrative reconsideration of the January 31, 2013, rule pursuant to section 307(d)(7)(B) of the Clean Air Act. This letter is to inform you that the EPA is granting the petitions for reconsideration on the following issues:

- Definitions of startup and shutdown periods and the work practices that apply during such periods;
- Revised carbon monoxide (CO) limits based on a minimum CO level of 130 ppm; and
- The use of continuous parameter monitoring systems (CPMS), including the consequences of exceeding the operating parameter.

The reconsideration petitions stated that the public lacked sufficient opportunity to comment on these provisions. Although these provisions were established after consideration of public comments received on the proposed rule, the EPA is granting reconsideration in order to allow an additional opportunity for comment. The EPA will issue a *Federal Register* notice that will provide a more detailed description of the issues on which public comment will be solicited, as well as specific information about the process to be followed. We are continuing to evaluate the other issues raised in the petitions.

Additionally, the EPA intends to make certain clarifying changes and corrections to the final rule, some of which were also raised in the petitions for reconsideration. Specifically, the EPA intends to: (1) clarify issues related to the applicability of the major source boiler rule to natural gas-fired electric utility steam generating units (EGUs); (2) clarify the compliance date for coal- or oil-fired EGUs that become subject to the major source boiler rule; (3) correct the conversion error in the MACT floor calculation for existing hybrid suspension grate boilers; (4) clarify certain recordkeeping requirements, including, for example, those related to records for periods of startup and shutdown for boilers and process heaters in the Gas 1 subcategory. The EPA also intends to clarify and correct certain inadvertent inconsistencies in the final rule regulatory text, such as removal of unnecessary references to statistical equations, inclusion of averaging time for operating load limits in Table 6 to the final rule, and correction of the compliance date for existing sources to reflect the effective date of the final rule.

If you have any questions regarding the reconsideration process, please contact Jim Eddinger of my staff at (919) 541-5426. We thank you for your continuing interest in this rule and look forward to hearing from you during the reconsideration process.

Sincerely,

Janet G. McCabe
Acting Assistant Administrator

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation LLC	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	10/16/2015	
Keyword:	CORR	*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
DEC 04 2015
REVIEWER EAV

File Copy

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

CERTIFIED MAIL
7004 2510 0001 8586 2708

REQUEST FOR ADDITIONAL INFORMATION

June 29, 2015

Midwest Generation, LLC
Attn: Sharene Shealey
529 East 135th Street
Romeoville, Illinois 60466

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
DEC 04 2015
REVIEWER EAV

Application No.: 15030051
I.D. No.: 197809AAO
Applicant's Designation: Natural Gas
Received: March 31, 2015
Construction of: Natural Gas Conversion
Location: Joliet Generating Station, 1800 Channahon Road, Joliet, Will County

The application for construction permit referenced above lacks information showing that this proposed project will comply with applicable air pollution control regulations, including the federal rules for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and Illinois' rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203. The application cannot be processed until the following information is supplied:

1. A demonstration that PSD and MSSCAM will not be triggered by this project with supporting information, including information for the baseline emissions of various regulated New Source Review pollutants from the existing boilers, with supporting data and calculations, and information for the future emissions of these pollutants following conversion to natural gas, with supporting data.

2. A demonstration for the existing coal-fired boilers that a standard for emissions of nitrogen oxides (NOx) under the federal New Source Performance Standards (NSPS), 40 CFR Part 60, will not become applicable as a consequence of conversion to natural gas, with information on the historical hourly NOx emission rates of these existing boilers.

3. A discussion of changes to the applicability of emission standards and other emission control requirements that currently apply to the existing coal-fired boilers as a result of conversion to natural gas, listing each such standard and requirement that would no longer apply, to these boilers or would otherwise be affected, with explanation.

4. Any reductions in the levels of operation and emissions at which Midwest Generation seeks to have the proposed new auxiliary boilers and fuel heaters permitted. The submitted application requests that these units be permitted for continuous operation which appears inappropriate given the duration of cold weather in Illinois and the potential maximum annual operation of the existing boilers following conversion to natural gas.

Failure to supply this information will require the Illinois EPA to deny this permit application. Two copies of this information are required and will serve as a supplement to the submitted application. Please reference the application number assigned above on the submission of this additional information and any correspondence concerning this matter.

In addition to submittal of information as described above, please submit a complete copy of the updated application in electronic format on a compact disk.

If you have any questions concerning this letter, please contact Bob Smet at 217/785-9250.

Raymond E. Pilapil

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: June 29, 2015

REP:RPS:psj

cc: Illinois EPA, FOS, Region 1

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Midwest Generation LLC	
ID No.:	197809AAO	
Application No.:	15030051	
Category:	03M Air Permit - Construction	
Item Date:	10/16/2015	
Keyword:	APP	*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

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REVIEWER EAV

Application for draft Permit
Except p. 1-12
remits data & information

R007624

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

March 31, 2015

IEPA-DIVISION OF RECORDS MANAGEMENT
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AUG 05 2015
REVIEWER: JKS

VIA HAND DELIVERY AND OVERNIGHT MAIL

Illinois EPA - Permit Section
Illinois Environmental Protection Agency
Bureau of Air, Permit Section (MC 11)
Attn: Raymond E. Pilapil, Acting Section Manager
1021 N. Grand Avenue East
Springfield, IL 62794-9506

RECEIVED
STATE OF ILLINOIS
APR 01 2015
Environmental Protection Agency
BUREAU OF AIR

Re: ***Joliet Generating Station (ID No. 197809AAO)***
Natural Gas Project Plan Approval Application

Dear Mr. Pilapil:

Representatives of the Illinois Environmental Protection Agency ("IEPA" or "the Agency") and Midwest Generation, LLC ("Midwest Generation") met at IEPA's Springfield Office on several occasions to introduce the planned Joliet Generating Station ("Joliet") Gas Conversion Project (the "Project"). Other telephone conferences have been conducted to advance our mutual understanding of the Project permitting path and applicable requirements. Midwest Generation wishes to express its appreciation of the Agency's staffs' efforts to arrange the discussions and the helpful guidance and productive feedback provided by IEPA.

Joliet is an electrical generating station consisting primarily of five coal-fired boilers serving three generating units: Boiler 5 serves Unit 6, Boilers 71 and 72 serve Unit 7, and Boilers 81 and 82 serve Unit 8 (collectively, "the Units"). Boilers 71 and 72 ("Unit 7") exhaust to a common stack, Point 0031 in the Annual Emissions Report ("AER"), and Boilers 81 and 82 ("Unit 8") exhaust to a separate common stack, Point 0033 in the AER. Unit 6 exhausts through Point 0009. The Project proposes to add full load natural gas firing capability to the Units. On February 18, 2015, IEPA transmitted draft regulation changes to Title 35 Parts 214, 217 and 225 that would require Midwest Generation to cease burning coal (DRAFT Section 225.296 b): *"On and after December 31, 2016, Joliet 6, 7, and 8 must not combust coal"*). This application is for a permit that would authorize the installation of equipment to combust gas allowing the continued operation of the generating units while still complying with the aforementioned draft regulation changes.

In a letter dated March 18, 2015 the Illinois Environmental Protection Agency ("IEPA" or "the Agency") granted an extension of compliance with the provisions related to non-mercury metals or particulate matter ("PM") surrogate of the United States Environmental Protection Agency's ("USEPA") Mercury and Air Toxics Standards ("MATS") promulgated under 40 CFR 63 subpart UUUUU for the Joliet Units. This request was submitted consistent with the plan to add natural gas-firing capability to the Units so that compliance with MATS will be established via a clean fuel exemption from the MATS regulations.

As a result of the permitting discussions and the MATS compliance extension, Midwest Generation presents the enclosed application for a construction permit for addition of natural gas-burners to the Units.

The application (in duplicate) is comprised of the following sections:

- Project Description
- Construction Permit Application Forms for Combustion Units and Supporting Documents
- Construction Permit Fee

Regulatory Applicability Analysis (NSPS, NSR, BAT and NESHAP)

The Project does not trigger Prevention of Significant Deterioration ("PSD") permitting or Non-Attainment New Source Review ("NNSR") permitting under USEPA or IEPA regulations for the Units. The addition of auxiliary boilers ("aux boilers") at the facility does trigger both New Source Performance Standards ("NSPS") and National Emission Standards for Hazardous Air Pollutants ("NESHAP") for industrial boilers – NSPS subpart Db and NESHAP subpart DDDDD are applicable to the auxiliary boilers

The Regulatory Applicability Analysis also includes emission calculations demonstrating that New Source Review ("NSR") permitting is not required because the Project will not result in a significant emissions increase. The baseline actual emissions in the calculations are from annual air emission reports submitted to the Agency, stack test derived emission factors, or generally available emission factors (e.g., AP-42). After an examination and investigation of these emissions, Midwest Generation believes that the emission factor used to report carbon monoxide ("CO") emissions from the Units are not representative of actual CO emissions. Historically, Joliet has reported CO emissions in the AER using the emission factor found in USEPA AP-42 Table 1.1-3 (0.5 lb CO/ton coal burn ~ 0.028 lb/MMBtu).

CO was measured at Joliet Unit 6 as required by USEPA's Information Collection Request ("ICR") for EGUs in June 2010. These results show CO emissions from Unit 6 equal to 0.1313 lb/mmBtu. To establish CO emission factors for Units 7 and 8, Midwest Generation performed CO emission testing at each of the Units. CO stack testing at Unit 7 was performed in December 2014 and at Unit 8 in January 2015. The test results show that at full load, CO emissions are 0.134 lb/MMBtu from Unit 7 and 0.153 lb/MMBtu from Unit 8. The test reports were submitted to IEPA on January 30, 2015 for Unit 7 and February 25, 2015 for Unit 8. Emission calculations for the Project baseline use the stack test-developed CO emission factors.

Request for Public Hearing

The natural gas project at Joliet Generating Station will greatly reduce both actual and potential emissions at the facility. Midwest Generation is committed to providing safe, reliable energy while minimizing environmental impacts.

While this application does not necessarily require a public hearing, Midwest Generation is requesting the Agency schedule and hold a public hearing on the issuance of the requested permit in accordance with the procedures of 35 IAC Part 252. The hearing fee is included with this application, and Midwest Generation is requesting that the hearing be held as soon as possible in a location appropriate for the Joliet, IL community.

Request for Expedited Permitting

To meet the Project schedule, Midwest Generation is hereby requesting expedited permit review for this application and requests that the Agency provide information on terms and fee for expedited review.

Midwest Generation, LLC is looking forward to a favorable and expeditious review of this application. If you have any questions or require further information, please contact Sharene Shealey at (724) 255-3220 or Keith Schmidt at (724) 597-8193.

Sincerely,

William Naglosky

William Naglosky
Station Director – Joliet Generating Station

Attachments

Illinois Environmental Protection Agency
Division Of Air Pollution Control -- Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

Construction Permit Application for a Proposed Project at a CAAPP Source

For Illinois EPA use only	
ID No.:	197809AAO
Appl. No.:	15030051
Date Rec'd:	4-1-15
Chk No./Amt:	01001364

$36,077.

This form is to be used to supply general information to obtain a construction permit for a proposed project involving a Clean Air Act Permit Program (CAAPP) source, including construction of a new CAAPP source. Detailed information about the project must also be included in a construction permit application, as addressed in the "General Instructions For Permit Applications." Form APC-201.

Proposed Project

1. Working Name of Proposed Project:
Joliet Generating Station Gas Conversion

2. Is the project occurring at a source that already has a permit from the Bureau of Air (BOA)?
☐ No ☒ Yes If Yes, provide BOA ID Number: 197809AAO

3. Does this application request a revision to an existing construction permit issued by the BOA?
☒ No ☐ Yes If Yes, provide Permit Number:

4. Brief Description of Proposed Project:
Conversion of coal fired Joliet Boilers 5, 71, 72, 81, and 82 to natural gas fired boilers. The proposed project also includes the addition of two auxiliary boilers and six natural gas pipeline heaters to the facility.

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STATE OF ILLINOIS

Source Information

APR 01 2015
Environmental Protection Agency
BUREAU OF AIR

1. Source name:* Joliet Generating Station
2. Source street address:* 1800 Channahon Road
3. City: Joliet
4. County: Will
5. Zip code:* 60436

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

6. Is the source located within city limits? ☐ Yes ☒ No
If no, provide Township Name: Joliet

7. Description of source and product(s) produced:
Electric power generation

8. Primary Classification Code of source:
SIC: 4911 or NAICS:

9. Latitude (DD:MM:SS.SSSS):

10. Longitude (DD:MM:SS.SSSS):

* Is information different than previous information? ☐ Yes ☒ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Identification of Permit Applicant

1. Who is the applicant?
☐ Owner ☒ Operator

2. All correspondence to: (check one)
☐ Source ☐ Owner ☒ Operator

3. Applicant's FEIN:
33-0861760

4. Attention name and/or title for written correspondence:
Sharene Shealey/Environmental Manager

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Owner Information*

1. Name: Midwest Generation, LLC (address below for correspondence related to this application)
2. Address: 211 Carnegie Center
3. City: Princeton
4. State: NJ
5. Zip code: 08540

* Is this information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Operator Information (if different from owner)*

1. Name
2. Address:
3. City:
4. State:
5. Zip code:

* Is this information different than previous information? ☐ Yes ☐ No
If yes, then complete Form CAAPP 273 to apply for an Administrative Change to the CAAPP Permit for the source.

Technical Contacts for Application

1. Preferred technical contact: (check one) ☒ Applicant's contact ☐ Consultant
2. Applicant's technical contact person for application: Sharene Shealey
3. Contact person's telephone number(s): 724-255-3220
4. Contact person's e-mail address: sharene.shealey@nrg.com
5. Consultant for application: Not applicable
6. Consultant's telephone number(s):
7. Consultant's e-mail address:

Other Addresses for the Permit Applicant

ONLY COMPLETE THE FOLLOWING FOR A SOURCE WITHOUT AN ID NUMBER.

1. Address for billing Site Fees for the source: ☒ Source ☐ Other (provide below):
2. Contact person for Site Fees: Peter O'Day
3. Contact person's telephone number: 815-207-5489
4. Address for Annual Emission Report for the source: ☒ Source ☐ Other (provide below):
5. Contact person for Annual Emission Report: Peter O'Day
6. Contact person's telephone number: 815-207-5489

Review Of Contents of the Application

NOTE: ANSWERING "NO" TO THESE ITEMS MAY RESULT IN THE APPLICATION BEING DEEMED INCOMPLETE

1. Does the application include a narrative description of the proposed project?	☐ Yes ☐ No
2. Does the application clearly identify the emission units and air pollution control equipment that are part of the project?	☒ Yes ☐ No
3. Does the application include process flow diagram(s) for the project showing new and modified emission units and control equipment, along with associated existing equipment and their relationships?	☐ Yes ☒ No
4. Does the application include a general description of the source, a plot plan for the source and a site map for its location?	☐ Yes ☒ No ☐ N/A* * Material previously provided
5. Does the application include relevant technical information for the proposed project as requested on CAAPP application forms (or otherwise contain all relevant technical information)?	☒ Yes ☐ No
6. Does the application include relevant supporting data and information for the proposed project as provided on CAAPP forms?	☒ Yes ☐ No
7. Does the application identify and address all applicable emission standards for the proposed project, including: State emission standards (35 IAC Chapter I, Subtitle B); Federal New Source Performance Standards (40 CFR Part 60)?	☒ Yes ☐ No
8. Does the application address whether the project would be a major project for Prevention of Significant Deterioration, 40 CFR 52.21?	☒ Yes ☐ No ☐ N/A
9. Does the application address whether the project would be a major project for "Nonattainment New Source Review," 35 IAC Part 203?	☒ Yes ☐ No ☐ N/A
10. Does the application address whether the proposed project would potentially be subject to federal regulations for Hazardous Air Pollutants (40 CFR Part 63) and address any emissions standards for hazardous air pollutants that would be applicable?	☒ Yes ☐ No ☐ N/A* * Source not major ☐ Project not major ☐
11. Does the application include a summary of annual emission data for different pollutants for the proposed project (tons/year), including: 1) The requested permitted emissions for individual new, modified and affected existing units*, 2) The past actual emissions and change in emissions for individual modified units* and affected existing units*, and 3) Total emissions consequences of the proposed project? (* Or groups of related units)	☒ Yes ☐ No ☐ N/A * The project does not involve an increase in emissions from new or modified emission units.
12. Does the application include a summary of the current and requested potential emissions of the source (tons/year)?	☒ Yes ☐ No ☐ N/A* * Applicability of PSD, NA NSR or 40 CFR 63 to the project is not related to the source's emissions.
13. Does the application address the relationships and implications of the proposed project on the CAAPP Permit for the source?	☐ Yes ☐ No ☒ N/A* * CAAPP Permit not issued
14. If the application contains information that is considered a TRADE SECRET, has it been properly marked and claimed and all requirements to properly support the claim pursuant to 35 IAC Part 130 been met? Note: "Claimed" information will not be legally protected from disclosure to the public if it is not properly claimed or does not qualify as trade secret information.	☐ Yes ☐ No ☒ N/A* * No information in the application is claimed to be a TRADE SECRET
15. Are the correct number of copies of the application provided? (See Instructions for Permit Applications, Form 201)	☒ Yes ☐ No
16. Does the application include a completed "FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION," Form 197-FEE, a check in the amount indicated on this form, and any supporting material needed to explain how the fee was determined?	☒ Yes ☐ No

Signature Block

Authorized Signature:

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete and that I am a responsible official for the source, as defined by Section 39.5(1) of the Environmental Protection Act.

BY: William Naglosky
AUTHORIZED SIGNATURE

Station Director
TITLE OF SIGNATORY

William Naglosky
TYPED OR PRINTED NAME OF SIGNATORY

3 31 15
DATE

Illinois Environmental Protection Agency

Bureau of Air • 1021 North Grand Avenue East • P.O. Box 19506 • Springfield • Illinois • 62794-9506

FEE DETERMINATION FOR CONSTRUCTION PERMIT APPLICATION

FOR AGENCY USE ONLY

ID Number: 197809AAO Permit #: 15030051

☒ Complete ☐ Incomplete Date Complete: 3-31-15

Check Number: 01001364 Account Name: MIDWEST GENERATION

Rec'd. $26,000.

This form is to be used to supply fee information that must accompany all construction permit applications. This application must include payment in full to be deemed complete. Make check or money order payable to the Illinois Environmental Protection Agency, Division of Air Pollution Control - Permit Section at the above address. Do NOT send cash. Refer to instructions (197-INST) for assistance.

Source Information

1. Source Name: Joliet Generating Station
2. Project Name: Joliet Generating Station Gas Conversion
3. Source ID #: (if applicable) 197809AAO
4. Contact Name: Sharene Shealey
5. Contact Phone #: 724-255-3220

Fee Determination

6. The boxes below are automatically calculated.

Section 1 Subtotal: $0.00 + Section 2, 3 or 4 Subtotal: $26,000.00 = $26,000.00 Grand Total

Section 1: Status of Source/Purpose of Submittal

7. Your application will fall under only one of the following five categories described below. Check the box that applies. Proceed to applicable sections. For purposes of this form:

- **Major Source** is a source that is required to obtain a CAAPP permit.
- **Synthetic Minor Source** is a source that has taken limits on potential to emit in a permit to avoid CAAPP permit requirements (e.g.,FESOP).
- **Non-Major Source** is a source that is not a major or synthetic minor source.

☑ Existing source without status change or with status change from synthetic minor to major source or vice versa. Proceed to Section 2.

☐ Existing non-major source that will become synthetic minor to major source. Proceed to Section 4.

☐ New major or synthetic minor source. Proceed to Section 4.

☐ New non-major source. Proceed to Section 3.

☐ AGENCY ERROR. If this is a timely request to correct an issued permit that involves only an agency error and if the request is received within the deadline for a permit appeal to the Pollution Control Board. Skip Sections 2, 3 and 4. Proceed directly to Section 5.

RECEIVED
STATE OF ILLINOIS
APR 01 2015
Environmental Protection Agency
BUREAU OF AIR
$0.00
Section 1 Subtotal

This agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 ET SEQ. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Section 2: Special Case Filing Fee

8. **Filing Fee.** If the application only addresses one or more of the following, check the appropriate boxes, skip Sections 3 and 4 and proceed directly to Section 5. Otherwise, proceed to Section 3 or 4 as appropriate.

Addition or replacement of control devices on permitted units.

Pilot projects/trial burns by a permitted unit

Land remediation projects

Revisions related to methodology or timing for emission testing

Minor administrative-type change to a permit

Section 3: Fees for Current or Projected Non-Major Sources

9.	This application consists of a single new emission unit or no more than two modified emission units. ($500 fee)	9.
10.	This application consists of more than one new emission unit or more than two modified units. ($1,000 fee)	10.
11.	This application consists of a new source or emission unit subject to Section 39.2 of the Act (i.e., Local Siting Review); a commercial incinerator or a municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or an emission unit designated as a complex source by agency rulemaking. ($15,000 fee)	11.
12.	A public hearing is held (see instructions). ($10,000 fee)	12.
13.	Section 3 subtotal. (lines 9 through 12 - entered on page 1)	13. $0.00

Section 4: Fees for Current or Projected Major or Synthetic Minor Sources

Application contains modified emission units only	14. For the first modified emission unit, enter $2,000.	
	15. Number of additional modified emission units = x $1,000.	15. $0.00
	16. Line 14 plus line 15, or $5,000, whichever is less.	16. $0.00
Application contains new and/or modified emission units	17. For the first new emission unit, enter $4,000.	17. $4,000.00
	18. Number of additional new and/or modified emission units = 7 x $1,000.	18. $7,000.00
	19. Line 17 plus line 18, or $10,000, whichever is less.	19. $10,000.00
Application contains netting exercise	20. Number of individual pollutants that rely on a netting exercise or contemporaneous emissions decrease to avoid application of PSD or nonattainment area NSR = 2 x $3,000.	20. $6,000.00
Additional Supplemental Fees	21. If the new source or emission unit is subject to Section 39.2 of the Act (i.e. siting); a commercial incinerator or other municipal waste, hazardous waste, or waste tire incinerator; a commercial power generator; or one or more other emission units designated as a complex source by Agency rulemaking, enter $25,000.	21.
	22. If the source is a new major source subject to PSD, enter $12,000.	22.
	23. If the project is a major modification subject to PSD, enter $6,000.	23.
	24. If this is a new major source subject to nonattainment area (NAA) NSR, enter $20,000.	24.
	25. If this is a major modification subject to NAA NSR, enter $12,000.	25.
	26. If the application involves a determination of MACT for a pollutant and the project is not subject to BACT or LAER for the related pollutant under PSD or NSR (e.g., VOM for organic HAP), enter $5,000 per unit for which a determination is requested or otherwise required. x $5,000.	26. $0.00
	27. If a public hearing is held (see instructions), enter $10,000.	27. $10,000.00
28. Section 4 subtotal (line 16 and lines 19 through 28) to be entered on page1		28. $26,000.00

Section 5: Certification

NOTE: Applications without a signed certification will be deemed incomplete.

29. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the information contained in this fee application form is true, accurate and complete.

by: William Naglosky — Station Director - Joliet

Signature — Title of Signatory

William Naglosky — 3/31/15

Typed or Printed Name of Signatory — Date

Midwest Generation, LLC

REFERENCE NUMBER	DATE	VOUCHER	GROSS AMOUNT	DISCOUNT	NET AMOUNT
CHECK REQ JOL	03/26/2015	1700004677	$26,000.00	0.00	$26,000.00

CHECK NUMBER	DATE	VENDOR NUMBER	VENDOR NAME	TOTAL AMOUNT
01001364	03/26/15	0000128173	ILLINOIS ENVIRONMENTAL PROTECTION	$26,000.00

Refer to above check number and voucher number when inquiring about your payment 0270

CITIBANK N.A.
New Castle, DE 19720

62-20
311

Date: 03/26/2015
Check Number: 01001364
Vendor Number: 0000128173

Midwest Generation, LLC
211 Carnegie Center,
Princeton, NJ 08540

PAY *Twenty six thousand and 00/100 Dollars*

Pay Exactly
***$26,000.00

TO THE
ORDER OF

ILLINOIS ENVIRONMENTAL PROTECTION
PO BOX 19276
SPRINGFIELD IL 62794-9276

AUTHORIZED SIGNATURE

VOID WITHOUT SIGNATURE
VOID AFTER NINETY DAYS

⑈01001364⑈ ⑆031100209⑆ 38660098⑈

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/785-1705

CONSTRUCTION PERMIT -- REVISED[1]

PERMITTEE

Midwest Generation, LLC
Attn: Sharene Shealey
529 East 135th Street
Romeoville, Illinois 60466

Application No.: 15030051 I.D. No.: 197809AAO
Applicant's Designation: Natural Gas Date Received: July 7, 2020
Subject: Natural Gas Conversion Project
Date Issued: July 9, 2020
Location: Joliet Generating Station, 1800 Channahon Road, Joliet, Will County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and air pollution control equipment consisting of a natural gas conversion project as described in the above-referenced application. This Permit is subject to standard conditions attached hereto (as Attachment 2) and the following special conditions.

If you have any questions on this permit, please call Bob Smet at 217/785-9250.

Raymond E. Pilapil
Manager, Permit Section
Bureau of Air

REP:RPS:tan

cc: USEPA Region V (Lotus Notes)

[1] This permit has been revised at the request of the Permittee to revise the emission testing requirements for Boiler 5 to no longer require periodic testing in three years. This is because this boiler is now being operated much less than originally expected. Emission testing would still be required to be conducted for this boiler pursuant to a specific request from the Illinois EPA.

PART 1: PROJECT-WIDE CONDITIONS

1.1 Introduction

a. This permit addresses a natural gas conversion project for the Joliet Generation Station. In this project, the five boilers at this station that serve electrical generating units, as listed below, will be converted from burning coal to burning natural gas with installation of new natural gas-fired burners. As part of this project, a new natural gas-fired auxiliary boiler and new natural gas-fired fuel heaters would also be constructed to support the operation of the existing boilers (the main boilers) on natural gas. This project will greatly reduce the emissions of most pollutants from the station, including emissions of sulfur dioxide (SO_2), nitrogen oxides (NOx) and particulate ($PM/PM_{10}/PM_{2.5}$).

Main Boiler(s)	Electrical Generating Unit
Boiler 5	Unit 6
Boilers 71 and 72	Unit 7
Boilers 81 and 82	Unit 8

b. This permit was revised on June 8, 2016 to address provisions of 35 IAC Part 201 Subpart I for startup and malfunction/ breakdown of each affected boiler as related to the applicable state standard for NOx, 35 IAC 217.141(a).

c. For Boiler 5, this revised permit provides additional time to conduct the emission testing required by Condition 2.1.7(b)(i) until September 30, 2018, to enable this testing to be conducted while this boiler is operating at its maximum load range.

1.2 Termination of Coal-Firing Capability

a. Upon initial startup of a main boiler following conversion to natural gas, as provided for by this permit, that boiler shall cease to fire coal.

b. On such date that a main boiler initially starts up following conversion to natural gas, the existing air pollution control operating permits that address burning of coal in the boilers shall terminate and be replaced by this construction permit:

Unit 6	Permit 73030837
Unit 7	Permit 73030838
Unit 8	Permit 73030839

1.3 Non-Applicability of New Source Review (MSSCAM and PSD)

a. This permit is issued based on this project not being a major project for purposes of Illinois' rules for Major Stationary Sources Construction And Modification (MSSCAM), 35 IAC Part 203. For NOx, this is because this project will reduce NOx

emissions from the main boilers and the NOx emissions of the new emission units will not be significant. For volatile organic material (VOM), this is because the source will continue to not be a major source for VOM emissions. (See also Attachment 1.)

b. This permit is issued based on this project not being a major project for purposes of the federal rules for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This is because this project will reduce emissions of regulated PSD pollutants from the main boilers and the emissions of regulated PSD pollutants from the new emission units will not be significant. (See also Attachment 1.)

1.4 Applicability of 40 CFR 63 Subpart DDDDD

a. For purposes of applicability of 40 CFR 63, this permit is issued based on this plant being a major source of hazardous air pollutants (HAPs) on January 31, 2016, the compliance date of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Source: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD. As a consequence, the new auxiliary boiler, the fuel heaters and potentially the main boilers following conversion to natural gas will be subject to the applicable provisions of 40 CFR 63 Subpart DDDDD, which NESHAP addresses major sources of HAPs, notwithstanding the reductions in the HAP emissions of the plant that will result from this project.

1.5 Compliance with Emission Limits

a. The emission limits set by this permit address all emissions from affected emission units, including emissions during startup, shutdown and malfunction or breakdown.

b. When emission testing is conducted, hourly emission rates shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.

c. i. Except as provided below or unless otherwise specified in a particular provision, compliance with annual limits established by this permit shall be determined from a rolling total of 12 months of data, i.e., from the sum of the data for the current month and data for the preceding 11 months (12 month total), and shall consider all emissions, including emissions during startup, shutdown, and malfunction or breakdown.

ii. For the main boilers, for the first year (12 months) of operation following conversion of a main boiler or boilers to natural gas, compliance shall be determined from a cumulative total of monthly data for the main boiler or boilers that have been converted, i.e., from the sum of the data for the current month and data for

all preceding months for such boilers beginning on the date or dates that boiler or boilers first resumed operation following conversion on natural gas.

iii. For the new auxiliary boiler and fuel heaters, for the first year of operation, compliance shall be determined from a cumulative total of monthly data, i.e., from the sum of the data for the current month and data for all preceding months.

1.6 Retention and Availability of Records

a. Unless otherwise provided for by a Clean Air Act Permit Program (CAAPP) permit for the source, the Permittee shall retain all records and logs required by this permit for at least five years from the date of entry (unless a longer retention period is specified by a particular provision), keep the records at a location at the plant that is readily accessible to the Illinois EPA or USEPA, and make records available for inspection and copying by the Illinois EPA or USEPA upon reasonable request.

1.7 Submittals to the Illinois EPA

a. All reports and notifications required by this permit shall be sent to the Illinois EPA, Bureau of Air Compliance Section in Springfield.

b. A copy of all required reports and notifications concerning performance testing and emissions monitoring shall also be sent directly to the Source Monitoring Unit in the Illinois EPA, Bureau of Air, Compliance Section.

1.8 Authorization for Operation

The plant may be operated in accordance with this construction permit pursuant to this permit until a Clean Air Act Permit Program (CAAPP) permit is issued for the source that addresses this project, provided that the initial performance testing required by this permit for the main boilers by Condition 2.1.7 is completed in a timely manner and a complete application for a CAAPP permit for this source is submitted that addresses this project within one year of initial operation of a main boiler on natural gas or initial operation of a new unit, whichever occurs first, as provided by Section 39.5(5)(x) of the Act. This condition supersedes Standard Condition 6.

1.9 Standard Permit Conditions

Standard conditions for issuance of construction permits, attached hereto, shall apply to this project, unless superseded by other conditions in the permit. (Refer to Attachment 2.)

PART 2: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

Subpart 2.1: Unit-Specific Conditions for the Main Boilers

2.1.1 Description

The affected boilers for the purpose of these unit-specific conditions are the five existing generating unit boilers or "main boilers" at the plant following conversion to natural gas as described below. These boilers are served by three stacks, with two pairs of boilers having common stacks. When this conversion is completed for a boiler with installation of new natural gas burners, certain emission standards that are applicable to fuel combustion emission units that fire coal will no longer be applicable for the boiler. In addition, certain existing emission control equipment and systems that were used when burning coal, i.e., the electrostatic precipitators for particulate, the selective non-catalytic reduction systems for NOx and the sorbent injection system for mercury, will no longer be needed. Continuous emissions monitoring will no longer be required for emissions of sulfur dioxide (SO_2) or mercury. It is also expected that continuous opacity monitoring will no longer be required.

Boiler/ Generating Unit	Description	Emission Control Equipment
Boiler 5 (BLR5)/ Unit 6	Babcock and Wilcox Boiler Nominal 3,543 mmBtu/hour	Over fired Air, and Gas Reburn
Boilers 71 & 72 (BLR71 & 72)/ Unit 7	Combustion Engineering Boilers Nominal 6,034 mmBtu/hour, combined	Low NOx Burners and Over-fired Air
Boilers 81 & 82 (BLP81 & 82)/ Unit 8	Combustion Engineering Boilers Nominal 6,386 mmBtu/hour, combined	Low NOx Burners, and Over-fired Air

2.1.2 New Applicable Emission Standards and Requirements

a. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD (the Boiler NESHAP), the affected boilers will become subject to the Boiler NESHAP when they cease to be subject to the provisions of the NESHAP for Coal and Oil-fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU (commonly referred to as the Mercury and Air Toxics Standards or MATS). On such date, for each affected boiler, the Permittee must comply with applicable requirements of 40 CFR 63 Subpart DDDDD for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-

ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

iii. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, by the applicable compliance date for the first main boilers to comply with this NESHAP, the Permittee shall have one-time energy assessment performed for the plant by a qualified energy assessor, which assessment meets the relevant requirements of Table 3 and the definition of "energy assessment" in 40 CFR 63.7575.

b. i. Pursuant to 35 IAC 217.141, the NOx emissions of Boiler 5 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: Boiler 5 was not previously subject to a NOx limit pursuant to 35 IAC 217.141 because 35 IAC 217.141(d) excluded cyclone fired boilers burning solid fuel from this rule.

ii. Subject to the following terms and conditions, the Permittee is authorized to operate each affected boiler in violation of 35 IAC 217.141(a) during startup, pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. The Permittee shall conduct startup of each affected boiler in accordance with written procedures maintained by the Permittee which serve to minimize excess emissions from startups and that include, at a minimum, the following measures:

1. Review of the operational condition of the boiler prior to initiating startup; and

2. Management of the operational parameters of the boiler during each startup as necessary to make appropriate adjustments to the startup to reduce or eliminate excess emissions.

B. The Permittee shall fulfill the recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(A) and (d), and 2.1.10(b)(iii) with respect to startups.

C. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions.

iii. Subject to the following terms and conditions, the Permittee is authorized to continue operation of each affected boiler in violation of 35 IAC 217.141(a) in the event of a malfunction or breakdown of each affected boiler. This authorization is made pursuant to 35 IAC 201.149, 201.261, and 201.262. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

A. This authorization only allows such continued operation as necessary to provide essential service or to prevent injury to personnel or severe damage to equipment, provided however, that operation shall not continue solely for the economic benefit of the owner or operator of the plant.

B. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable take action(s) so that excess emissions cease.

C. The Permittee shall fulfill recordkeeping and reporting requirements of Conditions 2.1.9(c)(i)(C) and (d) and 2.1.10(b)(iii) and (c) with respect to malfunctions and breakdowns.

D. Following reporting of an incident to the Illinois EPA of a malfunction or breakdown that resulted in excess NOx emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

2.1.3 Changes to Emission Standards and Requirements

a. The affected boilers are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75.

Note: Condition 2.1.4(c) addresses the possibility that opacity monitoring will no longer be required for the affected boilers under the Acid Rain Program.

b. The affected boilers are not subject to the following standards in 35 IAC Part 212 Subpart E for emissions of particulate matter from existing fuel combustion emission units burning solid fuel:

Boiler 5: 35 IAC 212.201 and 212.203
Boilers 71, 72, 81 and 82: 35 IAC 212.201

c. The affected boilers are not subject to the standard in 35 IAC 214.141 for SO_2 emissions from existing fuel combustion emission units burning solid fuel that are located in the Chicago major Metropolitan Area.

d. Pursuant to 35 IAC 217.141, the NOx emissions of affected Boilers 71 and 72 and Boilers 81 and 82 shall not exceed 0.30 lbs/mmBtu of actual heat input, as provided by 35 IAC 217.141(a) for large existing fuel combustion emission units in the Chicago Major Metropolitan Area firing gaseous or liquid fossil fuel.

Note: This limit takes the place of the limit in 35 IAC 217.141(b), which limits the NOx emissions of such boilers firing solid fuel to 0.90 lbs/mmBtu of actual heat input.

2.1.4 Non-Applicability Provisions

a. This permit is issued based on the affected boilers not becoming subject to the New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60 Subpart Da, as a result of this project. This is because these boilers will not undergo modifications as addressed by 40 CFR 60.14, i.e., there will not be increases in the hourly rate of emissions of any pollutant for which this NSPS has standards from any of the boilers. This project will also not constitute reconstruction as addressed by 40 CFR 60.15. This is because the capital cost of the changes made to each affected boiler will not exceed 50 percent of the capital cost of a replacement boiler.

b. Pursuant to 40 CFR 63.10000(f), this permit is issued based on affected EGUs not being subject to the NESHAP for Coal and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63

Subpart UUUUU, or MATS, beginning six months after coal is last combusted in the EGU unless the Permittee elects to remain subject to the provisions of MATS. This is because, pursuant to 40 CFR 63.9981, MATS only applies to a "coal-fired EGU or oil-fired EGU," as defined by 40 CFR 63.10042. In addition, 40 CFR 63.10000(f) only requires that an EGU that is subject to MATS continue to be subject to its provisions for six months following the last date that the EGU met the definition of an EGU subject to MATS.

c. This permit is issued based on the Permittee potentially no longer being required to conduct continuous monitoring for opacity for the affected boilers:

i. For purposes of 35 IAC Part 201 Subpart L, Continuous Monitoring, this is because natural gas is the only fuel burned in the EGU and the EGUs are excluded from such opacity monitoring pursuant to 35 IAC 201.401(a)(1)(A)(i).

ii. For purposes of the Acid Rain Program, this is because, pursuant to 40 CFR 75.14(c), the affected boilers or EGUs will qualify as "gas-fired units," as defined by 40 CFR 72.2, for purposes of 40 CFR Part 75, Continuous Emission Monitoring, if the designated representative for the source submits to USEPA either:

A. A minimum of 720 hours of unit operating data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its heat input is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil, and a statement that this changed pattern of fuel usage is considered permanent and is projected to continue for the foreseeable future; or

B. Three calendar years of data following the change in the boiler's fuel usage, showing that no less than 90.0 percent of its average annual heat input during the previous three calendar years, and no less than 85.0 percent of its annual heat input during any one of the previous three calendar years, is from the combustion of gaseous fuels and the remaining heat input is from the combustion of fuel oil.

2.1.5 Operational Requirements

a. Before beginning operation of each affected boiler on natural gas pursuant to this permit, the Permittee shall clean the interior of the boilers to remove accumulated ash.

2.1.6 Operational and Emission Limits

a. i. The combined heat input to the affected boilers shall not exceed 12.0 million mmBtu/month and 69.9 million mmBtu/year.

ii. The heat input to Boiler 5 shall not exceed 2.6 million mmBtu/month and 15.52 million mmBtu/year.

b. i. The NOx emissions of the affected boilers shall not exceed the following limits. Compliance with the limits below in lbs/mmBtu shall be determined on a 30-boiler operating day rolling average basis, in accordance with the provisions of 40 CFR 60.48Da(d). Compliance with the limits in lbs/mmBtu and tons/year shall consider all emissions, including emissions during periods of startup or malfunction/breakdown. Compliance with the limits in lbs/hour, which are set to address non-applicability of the NSPS, 40 CFR 60 Subpart Da, shall only consider normal operation.

	Limits		
Boiler(s)	Lbs/mmBtu	Lbs/Hour	Tons/Year
Boiler 5	0.135	2103	1047.6
Boiler 71/72	0.110	4136	---
Boiler 81/82	0.110	1251	---
Total	---	---	4040

ii. The VOM emissions of the affected boilers shall not exceed the following limits:

A. 0.0027 lb/mmBtu, and

B. 94.9 tons/year.

c. Notwithstanding Conditions 2.1.6(a)(i) and (b)(ii)(A), until results of emission testing conducted pursuant to Condition 2.1.7 have been submitted to the Illinois EPA showing that the VOM emissions of the affected boilers do not exceed 0.0027 lb/mmBtu, the combined heat input to the affected boilers shall not exceed 34.5 million mmBtu/year (rather than 69.9 million mmBtu/year) and the VOM emissions of the affected boilers shall not exceed 0.0055 lb/mmBtu (rather than 0.0027 lb/mmBtu).

Note: The limits in Condition 2.1.6 address the operation and emissions of Boilers 5, 71/72 and 81/82 following their conversion to natural gas.

2.1.7 Emission Testing

a. The Permittee shall have emissions testing conducted for the affected boiler(s) for CO and VOM as follows:

b. The timing of this testing shall be as follows:

i. Within one year (365 days) after initially operating Boilers 71/72 and Boilers 81/82, following conversion to natural gas and for Boiler 5, by September 30, 2018, the Permittee shall have initial emission tests conducted for such boiler(s) while the boiler(s) are operating at maximum rates and other representative operating conditions.

ii. Until a CAAPP permit is issued that addresses the affected boilers, for Boilers 71/72 and Boilers 81/82, emissions testing shall be repeated within three years of the previous testing.

iii. Upon written request by the Illinois EPA, for Boilers 71/72, Boilers 81/82 and/or Boiler 5, as specified by the Illinois EPA in the request, with such emission testing conducted within 90 days of the written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

c. i. The following methods and procedures shall be used for this testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

ii. In conjunction with the initial emission tests, the Permittee shall also conduct measurements for opacity. These measurements shall be conducted using the continuous opacity monitors (COMS) on the boiler(s) or by Method 9, if the COMS are no longer in service.

d. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.1. In addition to other required information, if test runs that are longer than one-hour in duration are planned, the expected duration of the runs and the reason for extended runs shall be explained in the test plans and in the test reports.

e. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler(s) during testing, including:

A. Firing rate (mmBtu/hour).

B. Significant operating parameters of the affected boiler(s).

C. Opacity of the exhaust from the affected boiler(s), 6-minute averages.

D. Turbine Generator output (MWe gross).

2.1.8-1 Continuous Emissions Monitoring for NOx

a. For the affected boilers or EGUs, the Permittee shall continue to calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the NOx emissions in accordance with the applicable monitoring requirements of the federal Acid Rain Program, 40 CFR Part 75, and the Cross State Air Pollution Rule, 40 CFR 96 Subpart HHH unless it obtains approval from USEPA to transition to the alternative monitoring protocol for a natural gas-fired peaking unit for such boilers or EGUs.

b. For the affected boilers or EGUs, this monitoring for NOx emissions conducted above shall also be used to determine compliance with the limits for NOx emissions in Condition 2.1.6(b)(i), except that the provisions for substitution of missing data need not be used.

2.1.8-2 Changes in Monitoring for Emissions of SO_2 and Mercury and for Opacity

a. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of SO_2 CEMS on the affected boilers or EGUs and beginning monitoring of SO_2 emissions on such units using the Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units, Appendix D to 40 CFR Part 75, as provided for by 40 CFR 75.11(d)(2). With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA for this change in monitoring methodology for SO_2 emissions; and 2) If the EGU is still subject to MATS, a showing that the EGU now qualifies as a low emitting EGU for SO_2 emissions under the MATS, as addressed by 40 CFR 63.10005(h)(1), or that an SO_2 CEMS is no longer otherwise required by MATS.

b. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of mercury CEMS on the affected boilers or EGUs. With this notification, if the EGU is still subject to MATS, the Permittee shall provide a demonstration that the EGU now qualifies as a low emitting EGU for mercury emissions under the MATS, as addressed by 40 CFR 63.10005(h)(2), or that a mercury CEMS is no longer otherwise required by MATS. Unless 35 IAC Part 225 Subpart B has been amended to provide that its requirements related to mercury emissions no longer apply when an EGU permanently ceases combustion of coal, this notification shall also include a demonstration that such EGU is eligible to use the low mass emission excepted monitoring methodology, as provided for by 35 IAC 225.240(a)(4), and will continue to comply with a mercury emission standard in 35 IAC 225.294(c)(i) (0.0080 lbs

mercury/GWh gross electrical output) for the remainder of the calendar year.

c. The Permittee shall notify the Illinois EPA at least 30 days in advance of discontinuing use of COMS on affected boilers or EGUs. With this notification, the Permittee shall provide: 1) A copy of the notification submitted to the USEPA pursuant to 40 CFR 75.14(c)(c) showing that the EGU now qualifies as a "gas-fired unit" for purposes of monitoring under 40 CFR Part 75; 2) Confirmation that continued use of COMS is not required by 35 IAC 201.401(a)(1), 3) The average and maximum values of opacity, 6-minute average, monitored for the EGU during the previous 720 hours of operation, not including any time after conversion to natural gas when the ESPs on the EGU were still being operated, and 4) If the ESPs are operated for any time after conversion to natural gas, the average and maximum value of opacity for such periods when the ESPs were operated.

2.1.9 Recordkeeping

a. For the affected boilers, unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, the Permittee shall maintain the records required by this NESHAP, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain the records of the following information for Boiler 5, Boilers 71/72 and Boilers 81/82, on a monthly and annual basis:

i. Fuel consumption, in million scf.

ii. Heat input, in mmBtu.

iii. Total operating hours of the generating unit.

iv. Total number of boiler startups.

c. The Permittee shall maintain the following records for the operation and maintenance of each affected boiler:

i. An operating log for the boiler that, at a minimum, shall address:

A. Each startup of the boiler, including the date, time when burning of natural gas began, time startup was completed and description.

B. Each shutdown of the boiler, including the date and time, and description.

C. Any upset of the boiler that significantly impaired emission performance, including a description of the

event, corrective actions taken, and preventative actions taken to address similar events.

ii. Inspection, maintenance and repair log(s) for the boiler and associated control system that, at a minimum, shall identify dates and nature of activities performed related to components that may affect emissions; the reason for such activities, i.e., whether planned or initiated due to a specific event or condition; and any failure to carry out the established maintenance procedures, with explanation.

d. The Permittee shall record the information specified by Condition 3.3 for any period during which the affected boiler deviated from an applicable emission limit or other requirement.

e. For the affected boilers, the Permittee shall maintain the following records related to NOx emissions:

i. The following records for Boiler 5, Boilers 71/72 and Boilers 81/82, with supporting data and calculations:

A. NOx emissions, recorded hourly in units of lbs/hour and lbs/mmBtu, which shall be determined from monitoring in accordance with Condition 2.1.8-1.

B. NOx emissions, in lbs/mmBtu, on a 30 boiler-operating-day rolling average basis.

C. NOx emissions (tons/month and tons/year).

ii. Records for the combined NOx emissions of the affected boilers (tons/month and tons/year).

f. For the affected boilers, the Permittee shall maintain the following records related to VOM emissions:

i. A file containing a determination of the maximum hourly VOM emission rates of Boiler 5, Boilers 71/72 and Boilers 81/82, (lbs/mmBtu and lbs/hour), with supporting documentation and calculations.

ii. Records of combined actual VOM emissions of the boilers (tons/month and tons/year), with supporting calculations.

2.1.10 Notification and Reporting

a. For the affected boilers, the Permittee shall notify the Illinois EPA within 30 days of the following events:

i. The date that each affected boiler or EGU last fires coal. With this notification, the Permittee shall notify the Illinois EPA if it intends to voluntarily continue to

comply with MATS for longer than six months from this date.

ii. The date that each affected boiler or EGU initially fires natural gas following conversion pursuant to this permit.

b. The Permittee shall notify the Illinois EPA of deviations of affected boiler(s) from applicable requirements of this permit as follows. These notifications shall include the information specified by Condition 3.4.

i. Unless the USEPA revises 40 CFR Part 63 to provide that gas-fired utility boilers are not subject to the Boiler NESHAP, deviations from requirements of the Boiler NESHAP shall be reported in the reports required by the Boiler NESHAP or otherwise in accordance with Condition 2.1.10(b)(iv).

ii. Deviations from the limits for NOx emissions in lbs/mmBtu in Condition 2.1.6(b)(i) shall be reported in the semi-annual monitoring reports for the NOx CEMS.

iii. Deviations from the NOx limits shall be reported within 30 days.

iv. Other deviations from applicable requirements, including deviations that occurred during startup or malfunction/breakdown, shall be reported in a quarterly report.

c. Pursuant to 35 IAC 201.263, the Permittee shall submit a report to the Illinois EPA for any incident when operation of each affected boiler continued for more than two hours with NOx emissions in excess of 35 IAC 217.141(a) during malfunction/ breakdown, as addressed by Condition 2.1.2(b)(iii). This requirement does not apply for excess emissions, if any that occur during startup or shutdown of the affected boiler. These reports shall be expeditiously provided by telephone, facsimile or electronic mail to the Illinois EPA, Air Compliance Section and Air Regional Office. These reports shall include a description of the incident and, if excess emissions are still continuing, a description of the corrective actions that are being taken or are planned and the expected duration of the incident.

d. Beginning with the Annual Emissions Report for 2020 required by 35 IAC Part 254, accompanying this report the Permittee shall also report the number of days that Boiler 5 was operated in each month of the calendar year addressed by the report.

Subpart 2.2: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILERS

2.2.1 Description

The affected boiler for the purpose of these unit-specific conditions is the new natural gas-fired auxiliary boiler, as described below that will be installed to support the operation of the plant on natural gas. The auxiliary boiler will supply steam for heating and to assist in the startup of the electrical generating units. The steam from this boiler will not be sent to the existing steam turbine generators to produce electricity that goes to the grid.

Emission Unit	Nominal Heat Input Capacity	Control Measures
Auxiliary Boiler	286 mmBtu/hour	Low-NOx Combustion Technology

2.2.2 Applicable Federal Emission Standards

a. The affected boiler is an affected facility under the federal NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Db. For the affected boiler, the Permittee shall comply with applicable requirements of this NSPS and applicable requirements of 40 CFR 60 Subpart A, General Provisions, including the following:

i. The NOx emissions of the affected boiler shall not exceed 43 ng/J (0.10 lb/million Btu) on a 30-day rolling average, pursuant to 40 CFR 60.44b(a), on and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first.

ii. The Permittee shall at all times, maintain and operate the affected boiler in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

b. The affected boiler is subject to 40 CFR 63 Subpart DDDDD (the Boiler NESHAP). For the affected boiler, the Permittee must comply with applicable requirements of this NESHAP for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of the affected boiler as specified in 40 CFR 63.7540(a)(10), (12) and/or (13).

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected boiler, must operate and maintain the boiler, including associated air pollution control equipment and monitoring equipment, in

a manner consistent with safety and good air pollution control practices for minimizing emissions.

2.2.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.122(a), the opacity of the exhaust from the affected boiler shall not exceed 20 percent, except as provided by 35 IAC 212.122(b).

b. Pursuant to 35 IAC 216.121, the CO emissions from the affected boiler shall not exceed 200 ppm, corrected to 50 percent excess air.

c. Pursuant to 35 IAC 217.164, the NOx emissions of the affected boiler on an ozone season basis (May 1 through September 30) and an annual basis shall not exceed 0.08 lbs/mmBtu, as applicable for a boiler that fires natural gas.

d. Pursuant to 35 IAC 217.150(e), the Permittee shall operate the affected boiler in a manner consistent with good air pollution control practices to minimize NOx emissions.

2.2.4 Non-Applicability Provisions

a. This permit is issued based on certain provisions of the NSPS, 40 CFR 60 Subpart Do, as follows, not being applicable to the affected boiler:

i. The standard for PM and opacity, because this boiler only burns natural gas. [40 CFR 60.43b(f) and (h)(1)]

ii. The SO_2 standards, because this boiler only fires fuel with a potential SO_2 emission rate of 0.32 lb/mmBtu heat input or less. [40 CFR 60.42b(k)(2), 60.47b(f) and 60.49b(r)]

iii. The opacity monitoring requirements of this NSPS, 40 CFR 60.48b, because this boiler only burns gaseous fuels, without post-combustion technology to reduce SO2 or PM emissions. [40 CFR 60.48b(j)(2)]

b. The affected boiler is not subject to the federal Acid Rain Program pursuant to Title IV of the federal Clean Air Act since it does not qualify as a utility unit or an electrical generating unit for the purpose of this program.

2.2.5 Operational Requirements, Work Practices and Production Limits

a. Natural gas shall be the only fuel fired in the affected boiler.

b. The nominal rated heat input capacity of the affected boiler shall not exceed 286 mmBtu/hour.

c. The usage of fuel in the affected boiler shall not exceed 260,000 mmBtu/month and 1,380,000 mmBtu/year.

d. The steam from the affected boiler shall not be used to produce electricity for commercial sale to the grid.

e. The Permittee shall maintain and operate the affected boiler in a manner consistent with good air pollution control practices to minimize emissions.

2.2.6 Emission Limits

a. The NOx emissions from the affected boiler shall not exceed 0.036 lb/mmBtu, 30-day average, determined in accordance with the methodology of the NSPS.

b. i. The emissions of the affected boiler shall not exceed the following limits.

Pollutant	Short-Term Emissions (lbs/mmBtu)	Annual Emissions (tons/year)
NOx	*	24.8
CO	0.037	25.2
VOM	0.0042	2.9
PM	0.0019	1.31
$PM_{10}/PM_{2.5}$	0.0076	5.24

* See Condition 2.2.6(a)

ii. This permit is issued based on minimal emissions of SO_2 from the affected boiler, i.e., emissions of no more than 0.4 tons/year.

2.2.7 Emission Testing Requirements

a. i. For the affected boiler, for NOx emissions, the Permittee shall fulfill applicable performance testing requirements of the NSPS, including 40 CFR 60.8(a), (c) and (d) and 60.46b(e).

ii. For each performance evaluation conducted to demonstrate compliance with the NSPS, in addition to submitting a test report to the Illinois EPA, the Permittee shall electronically submit the test data to USEPA if required by the NSPS.

b. The Permittee shall have emissions testing conducted for the affected boiler as follows, at its expense by a qualified testing service under representative operating conditions, for emissions of VOM and CO.

i. The timing of testing shall be as follows:

A. Testing shall initially be conducted for the affected boiler within 365 days after initial startup of the boiler.

B. In addition, the Permittee shall have testing performed as requested by the Illinois EPA for an affected boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

ii. Appropriate USEPA test methods, including the following methods, shall be used for testing, unless other methods adopted by or being developed by USEPA or other alternative test methods are approved by the Illinois EPA.

Carbon Monoxide	Method 10
Volatile Organic Material	Method 18 or 25A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 3.1.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the affected boiler during testing, including:

A. Fuel consumption (scf);

B. Firing rate (mmBtu/hour) and other significant operating parameters of the affected boiler;

C. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9, if visible emissions are normally present, as determined by Method 22.

2.2.8-1 Monitoring Requirements for NOx Emissions

a. Pursuant to 40 CFR 60.48b, for the affected boiler, the Permittee shall install, calibrate, operate and maintain a CEMS for NOx emissions discharged from the affected boiler and the concentration of CO_2 or O_2 in the exhaust.

i. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of these CEMS. This CEMS shall be operated during all periods of operation of the affected boiler except for CEMS breakdowns and repairs. This CEMS shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive units operating days as specified and pursuant to 40 CFR 60.48b(f). Data is to be obtained in the scheduling and course of performing

calibration checks, and zero and span adjustments as specified in the NSPS.*

* Fulfillment of the above criteria for availability of emission data from the CEMS does not shield the Permittee from potential enforcement for failure to properly maintain and operate the CEMS.

ii. The 1-hour average NOx emission rates measured by the CEMS shall be expressed in lbs/mmBtu heat input and shall be used to calculate average emission rates pursuant to the NSPS. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(h)(2), except as allowed under 60.48b(b)(2).

iii. This CEMS shall also be used to determine compliance with the NOx limits in Conditions 2.2.3(c) and 2.2.6.

b. The Permittee shall fulfill applicable requirements of the NSPS for this continuous monitoring system, including the following, unless alternative requirements are approved by USEPA pursuant to 40 CFR 60.13(i). For this purpose, pursuant to 40 CFR 60.13(b), the continuous monitoring system shall be installed and operational prior to conducting the initial performance test for NOx under 40 CFR 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the monitoring devices.

i. Applicable notification requirements, including 40 CFR 60.7(a)(5), 60.8(d) and 60.49b(b).

ii. Applicable operational requirements, including 40 CFR 60.13(e) and 60.48b(c), which provide that a continuous monitoring system shall be operated during all periods of operation of an affected facility except for continuous monitoring system breakdowns and repairs. Data is to be recorded during calibration checks, and zero and span adjustment.

iii. Applicable recordkeeping requirements, including 40 CFR 60.49b(g).

iv. Applicable reporting requirements, including 40 CFR 60.7(c), (d) and/or (e) and 60.49b(h).

c. The Permittee shall also fulfill applicable requirements of 35 IAC Part 217 Subpart D for this monitoring system, including the following:

i. Applicable notification requirements of 35 IAC 217.155.

ii. Applicable recordkeeping requirements of 35 IAC 217.156(b)(9) and (b)(10).

iii. Applicable operational requirements of 35 IAC 217.157(a)(1).

iv. Applicable reporting requirements of 35 IAC 217.156(j).

2.2.8-2 Instrumentation Requirements

a. The Permittee shall install, calibrate, operate and maintain instrumentation for the affected boiler for fuel usage, scf.

2.2.8-3 Opacity Observations

a. The Permittee shall perform opacity observations for the affected boiler in accordance with Method 9 on at least an annual basis if visible emissions are normally present when the boiler is operating, as determined by Method 22.

2.2.9 Recordkeeping Requirements

a. For the affected boiler, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)(vi) and 63.7555(a)(1), (i) and (j).

b. The Permittee shall maintain a file or other record containing the following information for the affected boiler:

i. If the maximum design heat input capacity is not stated on the nameplate attached to the affected boiler, the maximum design heat input capacity of the affected boiler, mmBtu/hour, with supporting documentation.

ii. The Permittee's established operating and maintenance procedures for the affected boiler.

c. An operating log or other records for the affected boiler that, at a minimum, shall include the information specified in Condition 3.2 and the following information:

i. Information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

ii. Information for any incident in which the operation of the affected boiler continued during malfunction or breakdown, including: date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken, as addressed by 40 CFR 60.7(b).

d. The Permittee shall maintain the following operating records for the affected boiler:

i. Daily records of fuel use, which records shall be prepared and maintained following the procedures of 40 CFR 60.49b(d);

ii. Amount of fuel consumed, (million scf/month and million scf/year) and the annual capacity factor, determined on a 12-month rolling basis with a new annual capacity factor calculated for each month pursuant to 40 CFR 60.49b(d).

iii. For the affected boiler, pursuant to 40 CFR 60.49b(r), the fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as that term is defined in 40 CFR 60.41b, and the applicable sulfur limit.

iv. Pursuant to 35 IAC Part 217 Subparts D and E, the following operating records for the affected boiler:

A. Usage of natural gas, in million scf per month and million scf per year.

B. The actual heat input in mmBtu per ozone season and mmBtu per year with supporting documentation for the heat content of the fuel.

C. The applicable NOx emission limitation in lbs/mmBtu for each ozone season and each calendar year, calculated in accordance with 35 IAC 217.165.

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected boiler that contains the information specified in Condition 3.2(b).

f. The Permittee shall maintain records of the following information for the NOx emissions of the affected boiler for each operating day, pursuant to 40 CFR 60.49b(g) unless alternative recordkeeping requirements are approved for the boiler in conjunction with USEPA approval of alternative monitoring procedures under the NSPS:

i. Calendar date.

ii. The measured average hourly emission rates (expressed in lbs/mmBtu heat input).

iii. The 30-day average emission rate (lbs/mmBtu heat input and lbs/hour) calculated at the end of each operating day from the measured hourly emission rates for the preceding 30 unit operating days.

iv. Identification of the operating days when the calculated 30-day average emission rates are in excess of an applicable standard or limit, with the reasons for such excess emissions as well as a description of corrective actions taken.

v. Identification of the operating days for which emission data have not been obtained, including a description of corrective actions taken.

vi. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

vii. If continuous emissions monitoring is conducted, the information specified by 40 CFR 60.49b(g)(5), (6), (7), (8) and (9).

g. Pursuant to 35 IAC Part 217 Subpart D and E, the Permittee shall maintain the following records related to the NOx emissions of the affected boiler:

i. The average hourly NOx emission data as determined by the CEMS.

ii. The ozone season and annual NOx emissions (pounds).

iii. The ozone season average and annual average NOx emission rates (lbs/mmBtu heat input), calculated within 30 days of the end of the averaging periods (i.e., calculated by October 30 for ozone season averaging period and by January 30 of the following year for annual averaging period).

h. The Permittee shall keep the following records related to the emissions of NOx, CO, VOM, PM and $PM_{10}/PM_{2.5}$ from the affected boiler:

i. For NOx, the emissions of NOx from the affected boiler based on continuous emissions monitoring data (tons/month and tons/year).

ii. For pollutants other than NOx:

A. A file containing the emission factors that are used to calculate emissions, with supporting documentation; and

B. The emissions of the affected boiler based on operating data and applicable emission factors, in tons/month and tons/year, with supporting calculations.

2.2.10 Notification and Reporting Requirements

a. For the affected boiler, the Permittee shall fulfill applicable notification and reporting requirements of the NSPS, 40 CFR 60.7 and 60.49b, by sending required notifications and reports to the Illinois EPA, including the following reports:

i. Written notification of commencement of construction, no later than 30 days after such date. [40 CFR 60.7(a)(1)]

ii. Written notification of the actual date of initial startup, within 15 days after such date. [40 CFR 60.7(a)(3)]

iii. Reports containing the information recorded under 40 CFR 60.49b(a), (b), (g) and (j).

iv. Periodic reports for excess emissions, as further addressed by Condition 2.2.10(d)(i).

v. With the periodic compliance reports, reports certifying that only natural gas that is known to contain insignificant amounts of sulfur were combusted in the affected boilers during the reporting period, pursuant to 40 CFR 60.49b(r).

b. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

c. For the affected boiler, the Permittee shall fulfill the applicable notification and reporting requirements of 35 IAC Part 217 Subpart D, including 35 IAC 217.155(b) and 217.156((g) and (j).

d. For the affected boiler, the Permittee shall submit periodic compliance reports to the Illinois EPA for the affected boilers, which reports shall include the following information related to excess NOx emissions and deviations from other permit requirements. These reports shall be submitted on a semi-annual basis, with each report submitted no later than 30 days following the end of the reporting period.

i. As related to the NSPS standard for NOx (Condition 2.2.2(a)(i)), the state emission standard for NOx (Conditions 2.2.3(c)) and the limits for NOx emissions set by this permit (Conditions 2.2.6(a) and (b)), the information required for reporting of exceedances under 40 CFR 60.7(c) or (d) and 60.49b(h) and (j) and the information specified by Condition 3.4. If there are no such exceedances during the reporting period, the report shall state that no exceedances occurred during the reporting period.

ii. Information for other deviations during the reporting period, if any, which shall include the information specified by Condition 3.4.

iii. When no excess emissions or deviations have occurred or the CEMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Subpart 2.3: UNIT-SPECIFIC CONDITIONS FOR THE HEATERS

2.3.1 Description

The affected units for the purpose of these unit-specific conditions are natural gas-fired pipeline heaters. These heaters are used to indirectly heat natural gas to counteract the cooling that occurs when the pressure of natural gas is lowered when transitioning between pipelines. The conversion project may need up to six fuel heaters with nominal rated heat input capacities of up to 11.0 mmBtu/hour each to heat the natural gas supply to the main boilers.

2.3.2 Applicable Federal Emission Standards

a. The affected units are subject to the Boiler NESHAP, 40 CFR 63 Subpart DDDDD. For each affected unit, the Permittee must comply with applicable requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, for the "units designed to burn gas 1 fuel" category, and related requirements of 40 CFR 63 Subpart A, General Provisions, including the following:

i. Pursuant to 40 CFR 63.7500 and Table 3 of 40 CFR 63 Subpart DDDDD, the Permittee shall conduct periodic tune-ups of each affected unit as specified in 40 CFR 63.7540(a)(10), (11), (12) or (13), as applicable. (See also Condition 2.3.4(d).)

ii. Pursuant to 40 CFR 63.7500(a)(3), the Permittee, as the owner or operator of the affected units, must operate and maintain each unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.

b. i. Each affected unit with a heat input capacity of 10 mmBtu/hour or greater is an affected facility under the federal New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc. As an affected facility, the Permittee must comply with applicable requirements of the NSPS, 40 CFR 60 Subpart Dc, and related requirements of 40 CFR 60 Subpart A, General Provisions, for the heater.

ii. Pursuant to the NSPS, 40 CFR 60.11(d), at all times the Permittee shall, to the extent practicable, maintain and operate each affected unit with a heat input capacity of 10 mmBtu/hour or greater in a manner consistent with good air pollution control practices for minimizing emissions.

2.3.3 Applicable State Emission Standards

a. Pursuant to 35 IAC 212.123(a), the opacity of the exhaust from each affected unit shall not exceed 30 percent, except as provided by 35 IAC 212.123(b).

b. Pursuant to 35 IAC 216.121, for each affected unit with actual heat input greater than 10 mmBtu/hour, the CO emissions from the affected unit shall not exceed 200 ppm, corrected to 50 percent excess air.

2.3.3 Non-applicability Provisions

a. This permit is based on the affected units not being subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ, because the source is a major source of HAP.

2.3.4 Operational Limits and Work Practice Requirements

a. Natural gas shall be the only fuel fired in the affected units.

b. The rated heat input capacity of each affected unit shall not exceed 11.0 million Btu/hour.

c. The combined usage of fuel in the affected units shall not exceed 31,000 mmBtu/month and 184,000 mmBtu/year.

d. Pursuant to 40 CFR 63.7500 and Table 3 of the Boiler NESHAP, the Permittee shall conduct periodic tune-ups of the affected units as specified in 40 CFR 63.7540 as follows. These tune-ups shall also serve as work practices for the emissions of CO and VOM of the affected units.

i. For each affected unit without a continuous oxygen trim system and with a heat input capacity of 10 mmBtu per hour or greater: Annually.

ii. For each affected unit without a continuous oxygen trim system and with a heat input capacity of less than 10 mmBtu per hour but greater than 5 mmBtu per hour: Biennially.

iii. For each affected unit with a continuous oxygen trim system that maintains an optimum air to fuel ratio or with a heat input capacity of less than or equal to 5 mmBtu per hour: At least every five years.

2.3.5 Emissions

a. Total emissions from the affected units, combined, shall not exceed the following limits. Compliance with these limits shall be determined from a running total of monthly data.

Pollutant	Limits	
	lb/mmBtu, HHV	Tons/Year
NOx	0.101	9.3
CO	0.050	4.4
VOM	0.002	0.2

b. This permit is issued based on minimal emissions of PM, $PM_{10}/PM_{2.5}$ and SO_2 from the affected units, i.e., total emissions of each pollutant that are no more than 0.7 tons/year.

2.3.6 Recordkeeping Requirements

a. For the affected units, the Permittee shall maintain the records required by the NESHAP, 40 CFR 63 Subpart DDDDD, including the records required by 40 CFR 63.7540(a)(10)((vi) and 63.7555(a)(1), (i) and (j).

b. For the affected units, the Permittee shall maintain a file containing the following information for each affected unit: model name, serial number, maximum design heat input capacity (mmBtu/hour), the date installed, the date the unit last operated and the date removed from service.

c. The Permittee shall maintain the following records for the amount of fuel combusted in the affected units (scf/month and scf/year).

d. For the affected units, the Permittee shall maintain an operating log or other records for the affected units that, at a minimum, shall include the following information:

i. An inspection, maintenance, and repair log or other records with dates and the nature of such activities for the affected units.

ii. A. For the affected units with a heat input capacity of 10 mmBtu/hour or greater, information for each startup and shutdown, including date, time and duration, as required by 40 CFR 60.7(b).

B. Information for any incident in which the operation of the affected unit continued during malfunction or breakdown, as required by 40 CFR 60.7(b). These records shall include date, time, and duration; a description of the incident; whether emissions exceeded or may have exceeded any applicable standard; a description of the corrective actions

taken to reduce emissions and the duration of the incident; and a description of the preventative actions taken.

e. The Permittee shall keep the following records related to emissions of NO_2, CO and VOM of the affected units, with supporting calculations:

i. A file containing a determination of the maximum emission rates of each pollutant in lbs/mmBtu, with supporting documentation.

ii. Records of actual emissions of each pollutant (tons/month and tons/year), with supporting calculations.

iii. Records of the actual emissions of each pollutant from all affected units, combined (tons/month and tons/year), with supporting calculations.

2.3.7 Notification and Reporting Requirements

a. For the affected units, the Permittee shall fulfill the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart DDDDD, including the notifications and reports required by 40 CFR 63.7545(a) and 63.7550(c)(1).

b. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to commencement of construction and operation of the affected units:

i. The date construction of the affected unit commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1) and 40 CFR 60.48c(a).

ii. The actual date of initial startup of the affected units, postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3) and 60.48c(a), which shall be accompanied by the following information:

A. The design heat input capacity of the units and identification of the fuels to be combusted in the affected units, pursuant to 40 CFR 60.48c(a)(1).

B. The annual capacity factor at which the Permittee anticipates operating the units based on fuel fired, pursuant to 40 CFR 60.48c(a)(3).

c. For the affected units, the Permittee shall notify the Illinois EPA of deviations from the permit requirements within 30 days of an occurrence. Reports shall include the information specified in Condition 3.4.

PART 3: GENERAL CONDITIONS

3.1 General Requirements for Emission Testing

a. At least 60 days prior to the actual date of initial emission testing required by this permit, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing and shall include at a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.

iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations.

iv. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of testing. Notwithstanding applicable rules, the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.

c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date of testing. At a minimum, the Final Report for testing shall contain the following. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

i. A tabular summary of results which includes:

- Process rates (e.g., fuel usage rate or firing rate)

- Measured emission rates for different pollutants tested

- Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu

- Compliance demonstrated - Yes/No.

ii. Description of test method(s) and procedures, including a description of sampling points, sampling train, analysis equipment, and test schedule.

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g., the usage and type of fuel or raw material and the firing or operating rate.)

- Control equipment information (i.e., monitored data and other relevant operating parameters during testing).

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

3.2 General Requirements for "Logs" or Similar Records

a. Operating logs or other similar records required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Information identifying periods when an emission unit or group of related emission units was not in service.

ii. For periods when a unit or group of related units is in service and operating normally, relevant process and control system information to generally confirm normal operation.

iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s), the potential consequences for additional emissions from the unit(s), the potential of any excess emissions from the affected unit(s), the actions taken to restore normal operation, and any actions taken to prevent similar events in the future.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is operated in accordance with good air pollution control practices.

b. Inspection, maintenance and repair logs or other similar information required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:

i. Identification of equipment, with date, time, responsible employee and type of activity.

ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.

iii. For maintenance and repair activity, a description of actions taken, reason for action (e.g., preventative measure or corrective action as a result of inspection), probable cause for requiring maintenance or repair if not routine or preventative, and the condition of equipment following completion of the activity.

iv. Other information as may be appropriate to show that the emission unit or group of related emission units is maintained in accordance with good air pollution control practices, including prompt repair of defects that interfere with effective control of emissions.

c. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be available for inspection and copying by the Illinois EPA upon request. Any record retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of an on-site inspection. The logs required by this permit may be part of a larger database maintained by the Permittee provided that the information that is required to be kept is readily accessible.

3.3 General Requirements for Records for Deviations

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

3.4 General Requirements for Reporting of Deviations

a. The Permittee shall include the following information in records and reports for deviations:

i. Identity of the deviation, with date, time, duration and description.

ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.

iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.

b. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a calendar quarter, a report shall be submitted no later than 45 days after the end of the quarter. This report shall also provide a listing of all deviations for which earlier reporting was required but need not include copies of the previously submitted information.

c. For the purpose of determining whether a deviation must be reported prior to a periodic compliance report, a deviation shall be considered to continue even if operation of an emission unit is interrupted if the deviation is still present when operation of the unit is resumed.

ATTACHMENT 1: SUMMARY OF PROJECT EMISSIONS

Summary of Project Emissions[a] (Tons/Year)

Emission Unit(s)	NOx	CO	SO_2	PM	PM_{10}[b]	$PM_{2.5}$[b]
Existing Units (Main Boilers)						
Baseline Actual Emissions	6160	5355	17060	2440	2023	1049
Future Emissions	4040	3611	21	66	266	266
Change	-2120	-1744	-17039	-2374	-1757	-783
New Units						
Auxiliary Boilers	24.8	25.2	0.41	1.31	5.24	5.24
Fuel Heaters	9.3	4.4	0.7	0.7	0.7	0.7
Subtotal	34.1	29.6	1.11	2.01	5.94	5.94
Total	-2086	-1714	-17038	-2372	-1751	-777
Total w/o decreases	34.1	29.6	1.11	2.0	5.9	5.94
Significant Emission Rate	40	100	40	25	15	10
Greater Than Significant?	No	No	No	No	No	No

Notes:

a. For VOM emissions, the Joliet Station will continue to be a non-major source, permitted for annual future VOM emission less than 100 tons.

Emission Unit(s)	Permitted VOM Emissions (Tons/Year)
Main Boilers	94.9
Auxiliary Boilers	2.9
Fuel Heaters	0.2
Total	98.0

b. PM_{10} and $PM_{2.5}$ include filterable particulate and condensable particulate.

ATTACHMENT 2: STANDARD PERMIT CONDITIONS

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits, which it issues.

The following couditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. To obtain and remove samples of any discharge or emissions of pollutants, and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. Does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. Does not take into consideration or attest to the structural stability of any units or parts of the project; and

   e. In no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Illinois EPA before the equipment covered by this permit is placed into operation.

   b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Illinois EPA may file a complaint with the Board for modification, suspension or revocation of a permit.

   a. Upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed, or

   b. Upon finding that any standard or special conditions have been violated, or

   c. Upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

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b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

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In United States law, a ministerial act is a government action "performed according to legal authority, established procedures or instructions from a superior, without exercising any individual judgment." It can be any act a functionary or bureaucrat performs in a prescribed manner, without exercising any individual judgment or discretion. Under law, this would be classified under the rubric of public policy.

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R007674

siteID	seas	yr	NH4	NO3	totalN	Cl	SO4	as S
IL46	Annual	1999	2.145	9.62	3.84	0.761	13.418	4.47
IL46	Annual	2000	3.168	13.212	5.446	1.157	15.201	5.07
IL46	Annual	2001	2.277	8.721	3.739	1.097	10.859	3.62
IL46	Annual	2002	3.222	10.307	4.832	1.206	14.517	4.84
IL46	Annual	2003	3.47	11.165	5.218	0.851	14.521	4.84
IL46	Annual	2004	3.645	10.944	5.304	1.475	15.263	5.09
IL46	Annual	2005	2.973	9.719	4.505	1.037	15.576	5.19
IL46	Annual	2006	2.793	8.307	4.047	0.929	10.845	3.62
IL46	Annual	2007	2.535	7.074	3.567	0.696	10.173	3.39
IL46	Annual	2008	4.746	13.047	6.635	1.833	20.659	6.89
IL46	Annual	2009	4.025	9.896	5.363	1.218	13.934	4.64
IL46	Annual	2010	3.123	8.918	4.441	0.979	11.787	3.93
IL46	Annual	2011	5.631	12.516	7.203	1.575	14.079	4.69
IL46	Annual	2012	3.7	8.629	4.825	0.965	9.298	3.10
IL46	Annual	2013	3.473	7.83	4.467	1.023	8.64	2.88
IL46	Annual	2014	3.863	8.601	4.945	1.029	9.564	3.19
IL46	Annual	2015	4.309	7.148	4.963	1.356	7.895	2.63
IL46	Annual	2016	3.949	8.04	4.885	0.904	6.873	2.29
IL46	Annual	2017	4.074	8.049	4.984	1.049	7.144	2.38
IL46	Annual	2018	3.99	6.725	4.619	0.858	5.697	1.90
IL46	Annual	2019	4.673	9.119	5.691	0.966	7.826	2.61

Average N kg/ha	Average S kg/ha
4.83	2.19

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: SRAY

QUICKLOOK CRITERIA PARAMETERS

Report Request ID: 2054593

Report Code: AMP450

Oct. 26, 2022

R007675

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	17	163	0010								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
QUICK LOOK	42101		

SELECTED OPTIONS

Option Type	Option Value
EVENTS PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES
AGENCY ROLE	PQAO
WORKFILE DELIMITER	,

SORT ORDER

Order	Column
1	PARAMETER_CODE
2	STATE_CODE
3	COUNTY_CODE
4	SITE_ID
5	POC
6	DATES
7	EDT_ID

DATE CRITERIA

Start Date	End Date
2016	2021

APPLICABLE STANDARDS

Standard Description
CO 1-hour 1971
CO 8-hour 1971

AIR QUALITY SYSTEM
QUICK LOOK REPORT (AMP450)

Oct. 26, 2022

R007676

EXCEPTIONAL DATA TYPES

EDT	DESCRIPTION
0	NO EVENTS
1	EVENTS EXCLUDED
2	EVENTS INCLUDED
5	EVENTS WITH CONCURRENCE EXCLUDED

Note: The * indicates that the mean does
not satisfy summary criteria.

Oct. 26, 2022

Carbon monoxide (42101) — Illinois — Parts per million (007)

R007677

SITE ID	POC	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	# OBS	1ST MAX 1-HR	2ND MAX 1-HR	OBS >1HR STD	1ST MAX 8-HR	2ND MAX 8-HR	OBS >8HR STD	CERT and EVAL	EDT
17-163-0010	1	0513	East Saint Louis	Saint Clair	13TH & TUDOR	2016	054	7974	1.3	1.3	0	1.1	1.0	0	Y	0
17-163-0010	1	0513	East Saint Louis	Saint Clair	13TH & TUDOR	2017	054	8350	2.2	2.0	0	1.7	1.2	0	Y	0
17-163-0010	1	0513	East Saint Louis	Saint Clair	13TH & TUDOR	2018	054	8343	2.1	2.1	0	1.8	1.4	0	Y	0
17-163-0010	1	0513	East Saint Louis	Saint Clair	13TH & TUDOR	2019	054	5777	2.3	1.8	0	1.1	1.0	0	Y	0

Note: The * indicates that the mean does not satisfy summary criteria.

AIR QUALITY SYSTEM

QUICK LOOK REPORT (AMP450)

Lead (TSP) LC

Oct. 26, 2022

R007678

Note: These reported values do not reflect the combination of 14129 and 85129 and validation substitution tests utilized for Design Value Calculations

AIR QUALITY SYSTEM
QUICK LOOK REPORT (AMP450 END)

Oct. 26, 2022

R007679

METHODS USED IN THIS REPORT

PARAMETER	METHOD CODE	COLLECTION METHOD	ANALYSIS METHOD
42101	054	INSTRUMENTAL	NONDISPERSIVE INFRARED

Note: The * indicates that the mean does not satisfy summary criteria.

AIR QUALITY SYSTEM
QUICK LOOK REPORT (AMP450 END)

Oct. 26, 2022

R007680

PQAOS USED IN THIS REPORT

PQAO	AGENCY DESCRIPTION
0513	Illinois Environmental Protection Agency

Note: The * indicates that the mean does
not satisfy summary criteria.

R007681

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR §8.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Note: The * indicates that the mean does
not satisfy summary criteria.

R007683

RTP NAAQS 8-HR EVALUATION

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
2nd HIGH	1856.67702	16032208	748434.90	4287032.80	127.16	127.16	
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
2nd HIGH	1941.2243	17121624	748434.90	4287032.80	127.16	127.16	
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
2nd HIGH	1726.88521	18092424	748470.10	4287000.40	126.94	126.94	
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
2nd HIGH	2045.17009	19110908	748434.90	4287032.80	127.16	127.16	
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
2nd HIGH	1966.71667	20092408	748434.90	4287032.80	127.16	127.16	

RTP SIL

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
1hr							
1st HIGH	1094.34776	16121910	750800.00	4288100.00	127.44	127.44	
8hr							
1st HIGH	645.99335	16110108	748434.90	4287032.80	127.16	127.16	
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
1-hr							
1st HIGH	982.07813	17051502	748434.90	4287032.80	127.16	127.16	
8 hr							
1st HIGH	651.09728	17090416	750472.00	4287090.50	125.70	125.70	
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
1-hr							
1st HIGH	1036.46317	18112209	745200.00	4287400.00	129.90	134.11	
8-hr							
1st HIGH	669.20777	18111224	748481.60	4286378.20	126.67	126.67	DC
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
1-hr							
1st HIGH	1157.32754	19020109	746400.00	4286400.00	128.82	132.25	DC
8-hr							
1st HIGH	691.67751	19041908	748481.60	4286378.20	126.67	126.67	DC
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill	
1-hr							
1st HIGH	997.15732	20010610	746700.00	4287100.00	126.89	126.89	DC
8-hr							
1st HIGH	618.48656	20041108	748434.90	4287032.80	127.16	127.16	DC

IEPA NAAQS 8-HR

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1859.2701	16032208	748434.90	4287032.80	128.10	128.10
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1964.27323	17121624	748434.90	4287032.80	128.10	128.10
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1743.8751	18092424	748470.10	4287000.40	127.98	127.98
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	2047.00418	19110908	748434.90	4287032.80	128.10	128.10
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1968.80913	20092408	748434.90	4287032.80	128.10	128.10

IEPA SIL

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1095.30468	16121910	750700.00	4288000.00	128.05	128.05
8-hr						
ALL	650.82038	16110108	748434.90	4287032.80	128.10	128.10
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	992.81756	17051502	748434.90	4287032.80	128.10	128.10
8-hr						
ALL	648.00737	17090416	750472.00	4287090.50	126.26	126.26
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1078.75334	18091908	751400.00	4287200.00	121.74	125.18
8-hr						
ALL	655.5254	18111224	748481.60	4286378.20	126.50	126.50
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1158.37078	19020109	746400.00	4286400.00	127.06	127.06
8-hr						
ALL	694.08062	19041908	748481.60	4286378.20	126.50	126.50
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	997.72794	20010610	746700.00	4287100.00	126.37	126.37
8-hr						
ALL	618.48866	20041108	748434.90	4287032.80	128.10	128.10

IEPA NAAQS URBAN 8-HR

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1777.15428	16032208	748869.90	4286536.40	126.50	126.50
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1812.31993	17121624	748434.90	4287032.80	128.10	128.10
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1676.27897	18082424	748434.90	4287000.40	127.98	127.98
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1758.62678	19011924	748528.80	4286380.50	126.50	126.50
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
2nd HIGH	1672.24895	20051424	748434.90	4287032.80	128.10	128.10

IEPA SIL URBAN

	2016 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1095.30468	16121910	750700.00	4288000.00	128.05	128.05
8-hr						
ALL	594.61688	16092816	748481.60	4287032.80	126.50	126.50
	2017 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1273.04198	17060206	746200.00	4285500.00	126.68	126.68
8-hr						
ALL	648.00737	17090416	750472.00	4287090.50	126.26	126.26
	2018 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1078.17228	18091107	751100.00	4287600.00	126.34	126.34
8-hr						
ALL	676.92028	18111224	748481.60	4286378.20	126.50	126.50
	2019 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1315.65983	19020109	746400.00	4286400.00	127.06	127.06
8-hr						
ALL	710.46747	19041908	748481.60	4286378.20	126.50	126.50
	2020 Conc/Dep	Time	East (X)	North (Y)	Elev	Hill
1-hr						
ALL	1282.18416	20061606	751200.00	4287500.00	126.34	126.34
8-hr						
ALL	587.74818	20090316	750438.00	4287055.70	126.34	126.34

CO Hourly Emissions Inventory

Radius: 50 km

Centering UTM: Zone 16

Converted From: Zone 15

2007684

Strip ID	Pollutant	Facility ID	Facility Name	Stack ID	Stack Description	Distance from Centering UTM (km)	Actual UTM Zone
1	CO	163010AAH	Empire Comfort Systems	201652	Stack	25.75	16
4	CO	163010AEU	Lakeview Memorial Gardens	135983	Crematory	19.62	16
5	CO	163025AAD	Breckenridge of IL	136012	Natural gas combustion	12.29	15
7	CO	163060AAF	Village of Freeburg	136129	Engine #6	36.13	16
8	CO	163060AAF	Village of Freeburg	136130	Engine #4	36.13	16
9	CO	163060AAF	Village of Freeburg	136131	Engine #7	36.13	16
11	CO	163060AAF	Village of Freeburg	179671	Engine #1	36.13	16
12	CO	163060AAF	Village of Freeburg	179672	Engine #2	36.13	16
13	CO	163060AAF	Village of Freeburg	179673	Engine #3a	36.13	16
14	CO	163060AAF	Village of Freeburg	230350	Engine #10	36.13	16
15	CO	163060AAF	Village of Freeburg	231259	Engine #11	36.13	16
16	CO	163060AAF	Village of Freeburg	231260	Engine #12	36.13	16
19	CO	163110AAV	Asphalt Sales & Products Inc.	136187	Drum mix asphalt plant	27.19	16
21	CO	163110AAV	Asphalt Sales & Products Inc.	218995	Asphalt silos and truck loadout	27.19	16
23	CO	163802AAA	Christ Bros Products, LLC	136547	Drum mix asphalt plant	17.07	15
25	CO	163802AAD	Solvay Fluorides, LLC	213854	Boiler	10.93	15
26	CO	119040AAT	American Colloid Co.	220266	Sand drying	1.35	15
27	CO	119040AAT	American Colloid Co.	220267	Space Heaters	1.35	15
28	CO	119040ADI	Center Point Terminals Co.	242126	Tank Heater	2.83	15
29	CO	119040ADM	Precoat Metals	132324	Afterburner AB1 and AB2	5.85	15
30	CO	119040ADM	Precoat Metals	155304	Boiler B1	5.85	15
32	CO	119050AAA	Premcor Refining Group, Inc.	224901	Thermal oxidizer	16.24	15
33	CO	119050AAA	Premcor Refining Group, Inc.	251286	Vapor Combustion Unit	16.24	15
34	CO	119050AAD	Omega Partners Hartford, LLC	246761	Truck Rail Marine racks loadout and VCUs	14.61	15
35	CO	119050AAD	Omega Partners Hartford, LLC	246762	Boiler 1 and 2	14.46	15
36	CO	119010AAE	Alton Steel Inc.	131841	Electric arc furnaces	21	15
37	CO	119010AAE	Alton Steel Inc.	131845	14 inch rolling mill reheat furnace	20.86	15
39	CO	119010AAE	Alton Steel Inc.	155302	Ladle Furnace	21	15
44	CO	119090AAE	Airgas USA, LLC	132599	Liquified carbon dioxide plant	17.67	15
45	CO	119801AAE	National Maintenance and Repair	132739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15
46	CO	119801AAE	National Maintenance and Repair	236930	Cleaver Brooks boiler (Stack 2 of 2)	14.33	15
49	CO	163121AAC	Solutia Inc.	226612	Santoflex process: Thermal oxidizer 2770934	11.17	15
50	CO	163121AAC	Solutia Inc.	238199	An in-situ soil vapor extraction system	11.17	15
59	CO	119020AAG	Olin Winchester, LLC	226352	Hammermill 1 2 and 3 (HM-1 HM-2 and HM-3)	21.58	15
60	CO	119020AAG	Olin Winchester, LLC	248262	New Rotary retort process (RDR-2)	21.58	15
61	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132833	Blast furnaces: Blast furnace A - stoves	1.66	15
62	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132836	Blast furnaces: Blast furnace casthouse baghouse	1.46	15
63	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132837	Blast furnaces: Flare 1	1.62	15
64	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132838	Blast furnaces: Blast furnace B - stoves	1.51	15
65	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132842	Hot strip mill: Slab reheat furnaces #1	0.43	15
66	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132849	Finishing operations: Galvanizing line #8 - fume scrubber	0.81	15

67	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132855	Basic oxygen furnaces: BOF #1 and #2	0.3	15
68	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132861	Boilers: Boiles 1-7	1.59	15
69	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132862	Boilers: Boilers 8-10	1.53	15
70	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132867	Boilers: Boiler 11	1.71	15
71	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132872	Boilers: Boiler 12	1.73	15
72	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132876	Coke production: Battery A - pushing	1.9	15
73	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132877	Coke production: Battery A - soaking	1.93	15
74	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132878	Coke production: Battery A - doors	1.89	15
75	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132879	Coke production: Battery A - lids and standpipes	1.9	15
76	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132889	Coke production: Battery B - pushing	1.97	15
77	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132890	Coke production: Battery B - soaking	1.94	15
78	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132891	Coke production: Battery B - doors	1.94	15
79	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132892	Coke production: Battery B - lids and standpipes	1.96	15
80	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132895	By-products plant: Flare	1.81	15
81	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132910	Finishing operations: Galvanizing line #7A - natural gas furnace	0.31	15
82	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132926	Basic oxygen furnaces: Ladle drying/preheating	0.39	15
83	CO	119813AAI	Granite City Works of Unites States Steel Corp.	132927	Blast furnaces: Iron spout baghouse	1.68	15
84	CO	119813AAI	Granite City Works of Unites States Steel Corp.	160868	Coke production: Battery A - underfiring	1.88	15
85	CO	119813AAI	Granite City Works of Unites States Steel Corp.	160869	Coke production: Battery B - underfiring	1.96	15
86	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172512	Hot strip mill: Slab reheat furnace #3	0.47	15
87	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172514	Hot strip mill: Slab reheat furnace #4	0.47	15
88	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172516	Coke production: Battery A - pushing	1.91	15
89	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172518	Coke production: Battery B - pushing	1.94	15
90	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172532	Hot strip mill: Slab reheat furnace #2	0.45	15
91	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172555	Finishing operations: Galvanizing line #8 - natural gas furnace	0.31	15
92	CO	119813AAI	Granite City Works of Unites States Steel Corp.	172556	Finishing operations: Galvanizing line #7A - miscellaneous heaters	0.31	15
93	CO	119813AAI	Granite City Works of Unites States Steel Corp.	226696	Internal combustion: #4 coke oven gas booster pump	0.15	15
94	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229337	Finishing operations: Galvanizing line #8 - space heaters	0.31	15
95	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229338	Finishing operations: Galvanizing line #8 - drying oven and storage area heaters	0.31	15
96	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229339	Finishing operations: Galvanizing line #8 - miscellaneous heaters	0.31	15
97	CO	119813AAI	Granite City Works of Unites States Steel Corp.	229601	Internal combustion: Emergency Generator (3500 HP)	1.48	15
98	CO	119813AAI	Granite City Works of Unites States Steel Corp.	235979	Emergency portable Boiler #1	0.15	15
99	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236039	Emergency portable Boiler #2	0.15	15
100	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236040	Emergency portable Boiler #3	0.15	15
101	CO	119813AAI	Granite City Works of Unites States Steel Corp.	236041	Emergency portable Boiler #4	0.15	15
102	CO	119813AAI	Granite City Works of Unites States Steel Corp.	238459	New Cogeneration Boiler	1.64	15
103	CO	119813AAI	Granite City Works of Unites States Steel Corp.	240479	Blast furnaces: Flare 2	1.71	15
104	CO	119813AAI	Granite City Works of Unites States Steel Corp.	241099	Desulfurization unit	2.17	15
105	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242880	Coke production: Battery A - decarbonizing	0.15	15
106	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242881	Coke production: Battery B - decarbonizing	0.15	15
107	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242882	Coke production: Battery A - soaking	0.15	15
108	CO	119813AAI	Granite City Works of Unites States Steel Corp.	242883	Coke production: Battery B - soaking	0.15	15
109	CO	163045AFW	Southwestern Illinois Correctional Center	155437	2 Boilers	9.93	15
111	CO	119050AAN	ConocoPhillips Co.	181173	Loading rack	13.78	15
112	CO	163100AAD	Darling Ingredients, Inc.	136169	Continuous rendering process	5.45	15
113	CO	163100AAD	Darling Ingredients, Inc.	160742	Kewanee boiler	5.45	15
114	CO	163100AAD	Darling Ingredients, Inc.	213834	Johnson boiler	5.45	15

R007685

R07086

115	CO	119055AAD	Highland Electric Light Plant	132424	Engine IC-5	40.49	15
116	CO	119055AAD	Highland Electric Light Plant	132425	Engine IC-7	40.49	15
117	CO	119055AAD	Highland Electric Light Plant	179611	Engine IC-1	40.49	15
118	CO	119055AAD	Highland Electric Light Plant	237182	Engine IC-6	40.49	15
119	CO	119055AAD	Highland Electric Light Plant	237183	Engine IC-8	40.49	15
120	CO	119055AAD	Highland Electric Light Plant	249480	Engine IC-2	40.49	15
121	CO	119055AAD	Highland Electric Light Plant	249481	Engine IC-3	40.49	15
122	CO	119055AAD	Highland Electric Light Plant	249482	Engine IC-9	40.49	15
123	CO	119055AAD	Highland Electric Light Plant	249483	Engine IC-10	40.49	15
125	CO	119010ADF	City of Alton	149873	Incinerator	24.19	15
126	CO	119090AAF	Roxana Landfill, Inc.	232785	Enclosed flare	18.22	15
127	CO	119090AAF	Roxana Landfill, Inc.	249499	Zink ultra-Low emissions (Zule) Flare	18.22	15
128	CO	119090AAF	Roxana Landfill, Inc.	255341	New open flare	18.22	15
129	CO	119025AAW	Kienstra-Illinois, LLC	211274	Natural gas combustion	19.28	16
130	CO	119040AED	Totall Metal Recycling, Inc.	227432	Safety certification unit	2.28	15
132	CO	119801AAK	Chain of Rocks Recycling & Disposal	212692	Open flare	6.55	15
133	CO	119801AAK	Chain of Rocks Recycling & Disposal	251754	Passive flare #1	6.55	15
134	CO	119801AAK	Chain of Rocks Recycling & Disposal	254175	Passive flare #2	6.55	15
135	CO	119801AAK	Chain of Rocks Recycling & Disposal	254176	Passive flare #3	6.55	15
136	CO	119801AAK	Chain of Rocks Recycling & Disposal	254177	Passive flare #4	6.55	15
137	CO	119801AAK	Chain of Rocks Recycling & Disposal	254178	Passive flare #5	6.55	15
138	CO	119801AAK	Chain of Rocks Recycling & Disposal	254179	Passive flare #6	6.55	15
139	CO	119428ABI	Collinsville Wastewater Treatment Plant	227400	Emergency diesel generator (2922 HP/2180 kW)	10.53	15
143	CO	119821AAE	Charles E. Mahoney	149908	Drum mix asphalt plant	23.09	15
144	CO	119821AAE	Charles E. Mahoney	237340	Asphalt silo filling	23.09	15
145	CO	119821AAE	Charles E. Mahoney	237341	Truck loadout	23.09	15
146	CO	119821AAE	Charles E. Mahoney	237362	Asphalt heaters and boilers	23.09	15
148	CO	163121AAY	Contract Services, LLC	190090	3 Boilers	11.17	15
149	CO	163121AAY	Contract Services, LLC	218569	Boiler #4	11.17	15
150	CO	119818AAA	Enable Mississippi River Transmission, LLC	132928	Engine SN-02	34.43	16
152	CO	119818AAA	Enable Mississippi River Transmission, LLC	166491	Turbine SN-03	34.43	16
154	CO	163020AAB	Phillips 66 Pipeline, LLC	217756	Truck loading racks	13.09	15
155	CO	163020AAB	Phillips 66 Pipeline, LLC	253300	Engines (insignificant activities)	13.09	15
156	CO	163050AAD	Milam Recycling and Disposal Facility	136125	Open flare	4.63	15
157	CO	163050AAD	Milam Recycling and Disposal Facility	154190	Engine #1	4.65	15
158	CO	163050AAD	Milam Recycling and Disposal Facility	154191	Engine #2	4.65	15
159	CO	163050AAD	Milam Recycling and Disposal Facility	154192	Engine #3	4.65	15
160	CO	163050AAD	Milam Recycling and Disposal Facility	204833	3 Passive solar flares	4.93	15
161	CO	163050AAD	Milam Recycling and Disposal Facility	226013	325 HP Tub grinder	4.93	15
162	CO	163050AAD	Milam Recycling and Disposal Facility	226014	Enclosed flare	4.64	15
163	CO	163050AAD	Milam Recycling and Disposal Facility	226015	760 HP Tub grinder	4.93	15
164	CO	163050AAD	Milam Recycling and Disposal Facility	245839	Landfill gas conversion plant	4.68	15
165	CO	163050AAD	Milam Recycling and Disposal Facility	253738	2000 scfm Utility Flare	4.93	15
166	CO	163065AAI	Christ Bros Products, LLC	198552	Drum mix asphalt plant	32.3	16
171	CO	119050AAO	Messer, LLC	169226	2 Boilers	14.97	15
174	CO	163121AAB	Afton Chemical Corp.	159942	Unit 266: Flare 36-0011/36-0610	10.59	15
175	CO	163121AAB	Afton Chemical Corp.	159965	Flare 36-0219	10.67	15

178	CO	163121AAB	Afton Chemical Corp.	160898	Boiler 500-15-0110	10.46	15
179	CO	163121AAB	Afton Chemical Corp.	230300	Flare 36-0090	10.68	15
180	CO	163121AAB	Afton Chemical Corp.	240359	Boiler 500-15-0210	10.46	15
181	CO	163121AAB	Afton Chemical Corp.	240360	Boiler 500-15-0310	10.46	15
182	CO	119115AAY	Kinder Morgan Liquids Terminals, LLC	132701	New Truck loading rack	17.42	15
183	CO	119040ASW	Kraft Heinz Co.	155307	Boiler B	2.74	15
184	CO	119040ASW	Kraft Heinz Co.	236927	Boiler C	2.74	15
185	CO	119040ASW	Kraft Heinz Co.	236928	Boiler D	2.74	15
186	CO	119040ASW	Kraft Heinz Co.	236929	Boiler E	2.74	15
187	CO	119040ASW	Kraft Heinz Co.	248060	Boiler F	2.74	15
188	CO	119050AAF	Marathon Ashland Pipe Line, LLC	257535	Marine vapor combustion unit	16.12	15
190	CO	119090AAA	ConocoPhillips Co.	132496	Catalytic reformer #1 (STK12-4)	17.15	15
191	CO	119090AAA	ConocoPhillips Co.	132510	Distilling unit: HTR-DU1-F301 (STK5-2)	17.37	15
192	CO	119090AAA	ConocoPhillips Co.	132511	Distilling unit: HTR-DU1-F302 (STK5-1)	17.39	15
193	CO	119090AAA	ConocoPhillips Co.	132512	Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)	17.27	15
194	CO	119090AAA	ConocoPhillips Co.	132516	Rectified absorption unit: Reboiler heater (HTR-RAU-DEBUT - STK5-5)	17.3	15
196	CO	119090AAA	ConocoPhillips Co.	132519	Cracked absorption unit (HTR-CAU-ROSTILL - STK5-4)	17.32	15
198	CO	119090AAA	ConocoPhillips Co.	132535	Catalytic cracking unit #2 (STK6-3)	17.4	15
202	CO	119090AAA	ConocoPhillips Co.	132551	Alkylation unit: HTR-ALKY-HM2 (STK6-6)	17.56	15
203	CO	119090AAA	ConocoPhillips Co.	132556	Utility boiler #15 (STK12-15)	17.29	15
204	CO	119090AAA	ConocoPhillips Co.	132557	Utility boiler #16 (STK12-16)	17.3	15
205	CO	119090AAA	ConocoPhillips Co.	132558	Utility boiler 17 (STK12-17)	17.31	15
206	CO	119090AAA	ConocoPhillips Co.	132559	Utility boiler 18 (STK6-9)	17.34	15
207	CO	119090AAA	ConocoPhillips Co.	132561	Hydrodesulfurization unit #1: Charge heater (HTR-HDU-1 - STK13-1)	17.26	15
208	CO	119090AAA	ConocoPhillips Co.	132564	Hydrodesulfurization unit #2: Charge heater (HTR-HDU-2 - STK12-14)	17.13	15
209	CO	119090AAA	ConocoPhillips Co.	132565	Cat reformer #3: Stabilizer reboiler (HTR-CR3-H2 - STK12-9)	17.17	15
211	CO	119090AAA	ConocoPhillips Co.	132567	Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	17.16	15
212	CO	119090AAA	ConocoPhillips Co.	132568	Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	17.14	15
213	CO	119090AAA	ConocoPhillips Co.	132569	Cat reformer #3: Second interreactor heater (HTR-CR3-H6 - STK12-12)	17.15	15
216	CO	119090AAA	ConocoPhillips Co.	132594	Sulfuric acid tank	17.44	15
217	CO	119090AAA	ConocoPhillips Co.	132598	CCU-2 Startup heater B-1	17.4	15
218	CO	119090AAA	ConocoPhillips Co.	145809	Crude heaters (STK5-3)	17.35	15
220	CO	119090AAA	ConocoPhillips Co.	145826	Supplemental air compressor engine CCU-1	17.4	15
221	CO	119090AAA	ConocoPhillips Co.	145850	Flare for major effluent treatment project	17.4	15
226	CO	119090AAA	ConocoPhillips Co.	218530	North property ground flare (FLR1-2)	17.66	15
227	CO	119090AAA	ConocoPhillips Co.	218687	Gas plant sour water stripper	17.4	15
232	CO	119090AAA	ConocoPhillips Co.	148354	Catalytic cracking unit #1 (STK6-2)	17.4	15
233	CO	119090AAA	ConocoPhillips Co.	220849	Alkylation unit flare (FLR6-1)	17.64	15
234	CO	119090AAA	ConocoPhillips Co.	225832	Startup/malfunction/breakdown	17.4	15
237	CO	119090AAA	ConocoPhillips Co.	227030	#4 Crude unit heater H-24 (STK9-5)	16.32	15
239	CO	119090AAA	ConocoPhillips Co.	227032	Hydrogen plant #1 flare (FLR12-2)	17.44	15
241	CO	119090AAA	ConocoPhillips Co.	227035	Process heater HP-1 (STK12-6)	17.44	15
242	CO	119090AAA	ConocoPhillips Co.	227038	SZU Charge heater H-3	17.33	15
243	CO	119090AAA	ConocoPhillips Co.	228294	Distilling west refinery flare (FLR10-1)	16.64	15
244	CO	119090AAA	ConocoPhillips Co.	228295	SZU Regenerator vent	17.38	15
245	CO	119090AAA	ConocoPhillips Co.	232739	Benzene extraction unit #3 (STK6-4)	17.46	15
247	CO	119090AAA	ConocoPhillips Co.	238942	Rental Boiler #3	17.4	15

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248	CO	119090AAA	ConocoPhillips Co.	241300	VOC Flare (West - FLR4-1)	17.07	15
249	CO	119090AAA	ConocoPhillips Co.	241301	VOC Flare (East - FLR4-2)	17.07	15
261	CO	119090AAA	ConocoPhillips Co.	250892	Lift station pump (21028)	17.4	15
262	CO	119090AAA	ConocoPhillips Co.	250893	Lift station pump (21029)	17.4	15
263	CO	119090AAA	ConocoPhillips Co.	250894	Non-emergency air compressor #1	17.4	15
264	CO	119090AAA	ConocoPhillips Co.	250895	Non-emergency air compressor #2	17.4	15
265	CO	119090AAA	ConocoPhillips Co.	250896	Non-emergency air compressor #3	17.4	15
266	CO	119090AAA	ConocoPhillips Co.	250897	Non-emergency air compressor #4	17.4	15
267	CO	119090AAA	ConocoPhillips Co.	250898	Non-emergency air compressor #5	17.4	15
268	CO	119090AAA	ConocoPhillips Co.	250899	Non-emergency air compressor #6	17.4	15
269	CO	119090AAA	ConocoPhillips Co.	251735	Diesel engine (605 HP)	17.4	15
274	CO	163815AAA	US Air Force/Scott Air Force Base	156624	Boilers and Heaters	30.67	16
276	CO	163815AAA	US Air Force/Scott Air Force Base	189069	Diesel generators	30.67	16
277	CO	119105AAA	Union Electric Co.	166479	Turbine CT02A	4.13	15
278	CO	119105AAA	Union Electric Co.	223796	Turbine CT03	4.6	15
279	CO	119105AAA	Union Electric Co.	223797	Turbine CT04	4.57	15
280	CO	119105AAA	Union Electric Co.	223798	Turbine CT05	4.15	15
281	CO	119105AAA	Union Electric Co.	227679	Diesel generator	4.4	15
282	CO	119105AAA	Union Electric Co.	237099	Turbine CT02B	4.14	15
283	CO	119040ATC	Midwest Metal Coatings, LLC	192953	Chemical coater/infrared oven (CC/ IRO)	3.56	15
284	CO	119040ATC	Midwest Metal Coatings, LLC	192964	Afterburner	3.56	15
285	CO	119040ATC	Midwest Metal Coatings, LLC	192967	Boiler (B1)	3.56	15
286	CO	163030AAF	Touchette Regional Hospital	136014	2 Boilers	14.32	15
287	CO	117802AAA	Star Memorial Pet Crematory	131772	Crematory	37.67	15
289	CO	119040AAQ	Gateway Regional Medical Center	132225	Boiler #3	0.74	15
290	CO	119040AAQ	Gateway Regional Medical Center	132226	Boilers #1 and 2	0.75	15
291	CO	119040ABJ	Mayco Mfg, LLC	147845	Britt kettles combustion stack	0.98	15
292	CO	119040ABJ	Mayco Mfg, LLC	147846	Mixed metals A-II dross baghouse discharge stack	0.98	15
293	CO	119040ABJ	Mayco Mfg, LLC	250343	Natural gas combustion	0.98	15
294	CO	119040ABJ	Mayco Mfg, LLC	255816	Expansion: Natural gas combustion	0.98	15
296	CO	119105AAH	Magnesium Elektron North America	142809	Combustion units	2.04	15
297	CO	119105AAH	Magnesium Elektron North America	255527	Natural gas combustion	2.04	15
299	CO	119821AAI	Koch Fertilizer, LLC	212881	Ammonia heater	18.57	15
301	CO	119040ATI	Center Point Terminal Co.	208343	Asphalt and polymer modified blend tank (T-9)	3	15
302	CO	119040ATI	Center Point Terminal Co.	211772	Incinerator/waste heat boiler	3	15
304	CO	083025AAS	Illinois Department of Transportation	213573	R and K model 367-1 incinerator	48.11	15
306	CO	119040ADR	Granite City Pickling & Warehousing	155305	Boiler	1.18	15
308	CO	119090AAM	Concrete Supply, LLC	209238	Natural gas combustion	18.18	15
309	CO	119040ABI	Prairie Farms Dairy, Inc.	132247	Boiler #1	0.96	15
310	CO	119040ABI	Prairie Farms Dairy, Inc.	132248	Boiler #2	0.96	15
312	CO	119806AAO	Elias Kallal & Schaaf Funeral Home & Crematory	132777	Crematorium	26.09	15
316	CO	163121AAP	Veolia ES Technical Solutions, LLC	183733	Hazardous waste incinerator #4 (rotary kiln)	11.21	15
318	CO	163121AAP	Veolia ES Technical Solutions, LLC	253769	2 Emergency generators	11.21	15
320	CO	163020AAK	Gulfstream Aerospace Services Corp.	235261	Make-up air unit 19-3	13.29	15
323	CO	163045AGB	Brady McCasland, Inc.	160741	Compaction plant	9.86	15
328	CO	163121AAM	Cerro Flow Products, LLC.	136486	Piercing Mill Furnace #2	11.73	15
334	CO	163121AAM	Cerro Flow Products, LLC.	253166	Generators	11.73	15

335	CO	163814ABS	BFI Waste Systems of North America, Inc.	165120	Flare	24.93	15
336	CO	119802AAH	Madison County Sand, LLC	215315	Drum mix asphalt plant	10.98	15
339	CO	163121ABE	Center Ethanol Co.	228260	West boiler	11.41	15
340	CO	163121ABE	Center Ethanol Co.	228262	East boiler	11.41	15
341	CO	163121ABE	Center Ethanol Co.	228263	RTO	11.41	15
342	CO	163121ABE	Center Ethanol Co.	237899	Emergency generator	11.41	15
343	CO	163121ABE	Center Ethanol Co.	237903	Ethanol loadout Rack	11.41	15
345	CO	163052AAG	Interurban ILAWC	224167	Emergency generator	14.08	15
346	CO	163110AAZ	Schildknecht Funeral Home, Inc.	226783	Crematory	23.62	16
347	CO	119813AAA	Christ Bros Products, LLC	132781	Baghouse	7	15
348	CO	119813AAA	Christ Bros Products, LLC	229921	8 Heaters and boilers	7	15
349	CO	119813AAA	Christ Bros Products, LLC	229922	Silo filling	7	15
350	CO	119813AAA	Christ Bros Products, LLC	229923	Truck loading	7	15
351	CO	119040ATN	Gateway Energy & Coke Co., LLC	233395	Charging - Stack 1 of 6	1.49	15
352	CO	119040ATN	Gateway Energy & Coke Co., LLC	233397	Waste heat stack 1	1.04	15
353	CO	119040ATN	Gateway Energy & Coke Co., LLC	233398	Pushing - Stack 1 of 6	1.49	15
354	CO	119040ATN	Gateway Energy & Coke Co., LLC	233402	Waste heat stack 2	1.12	15
355	CO	119040ATN	Gateway Energy & Coke Co., LLC	233403	Waste heat stack 3	1.2	15
356	CO	119040ATN	Gateway Energy & Coke Co., LLC	233404	Waste heat stack 4	1.28	15
357	CO	119040ATN	Gateway Energy & Coke Co., LLC	233405	Waste heat stack 5	1.41	15
358	CO	119040ATN	Gateway Energy & Coke Co., LLC	233406	Waste heat stack 6	1.49	15
359	CO	119040ATN	Gateway Energy & Coke Co., LLC	240022	Pushing - Stack 2 of 6	1.41	15
360	CO	119040ATN	Gateway Energy & Coke Co., LLC	240023	Pushing - Stack 3 of 6	1.28	15
361	CO	119040ATN	Gateway Energy & Coke Co., LLC	240024	Pushing - Stack 4 of 6	1.2	15
362	CO	119040ATN	Gateway Energy & Coke Co., LLC	240025	Pushing - Stack 5 of 6	1.12	15
363	CO	119040ATN	Gateway Energy & Coke Co., LLC	240026	Pushing - Stack 6 of 6	1.04	15
364	CO	119040ATN	Gateway Energy & Coke Co., LLC	240528	Coking (New Main Stack)	1.13	15
365	CO	119040ATN	Gateway Energy & Coke Co., LLC	241023	Charging - Stack 2 of 6	1.41	15
366	CO	119040ATN	Gateway Energy & Coke Co., LLC	241024	Charging - Stack 3 of 6	1.28	15
367	CO	119040ATN	Gateway Energy & Coke Co., LLC	241025	Charging - Stack 4 of 6	1.2	15
368	CO	119040ATN	Gateway Energy & Coke Co., LLC	241026	Charging - Stack 5 of 6	1.12	15
369	CO	119040ATN	Gateway Energy & Coke Co., LLC	241027	Charging - Stack 6 of 6	1.05	15
370	CO	119040ATN	Gateway Energy & Coke Co., LLC	242560	Malfunctions	1.05	15
372	CO	119025ABA	Asphalt Sales & Products Inc.	220618	Drum mix asphalt plant	16.09	15
373	CO	119025ABA	Asphalt Sales & Products Inc.	222134	Asphalt silo loading	16.09	15
375	CO	119025ABA	Asphalt Sales & Products Inc.	230355	Truck loadout	16.09	15
377	CO	119050AAS	Apex Oil Co., Inc.	222988	Thermal oxidizers	16.41	15
378	CO	119465AAG	Green Plains Madison, LLC	237659	Boiler #1	3.2	15
379	CO	119465AAG	Green Plains Madison, LLC	237660	Fire Pump back-up Engine (460 HP)	3.29	15
380	CO	119465AAG	Green Plains Madison, LLC	237661	Electrical system backup Engine (1495 HP)	3.28	15
381	CO	119465AAG	Green Plains Madison, LLC	237679	Indirect dryer #1	3.27	15
382	CO	119465AAG	Green Plains Madison, LLC	253367	Boiler #2	3.2	15
383	CO	119465AAG	Green Plains Madison, LLC	253368	Boiler #3	3.2	15
384	CO	119465AAG	Green Plains Madison, LLC	253369	Boiler #4	3.19	15
385	CO	119465AAG	Green Plains Madison, LLC	253370	Indirect dryer #2	3.31	15
386	CO	163045AFM	Allnex USA, Inc.	253107	Natural gas combustion	10.48	15
387	CO	119465AAE	Enable Mississippi River Transmission, LLC	224838	Compressor engine SN-01	2.36	15

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388	CO	119465AAE	Enable Mississippi River Transmission, LLC	224839	Compressor engine SN-02	2.37	15
389	CO	119465AAE	Enable Mississippi River Transmission, LLC	224840	Compressor engine SN-03	2.38	15
390	CO	119465AAE	Enable Mississippi River Transmission, LLC	224841	Compressor engine SN-04	2.38	15
391	CO	163010AFO	Belleville Landfill, Inc.	224416	Flare	25.88	15
392	CO	119097AAB	Christ Bros Products, LLC	224592	Drum mix asphalt plant	15.01	15
393	CO	119097AAB	Christ Bros Products, LLC	224593	Asphalt silo loading and truck loadout	15.02	15
394	CO	119097AAB	Christ Bros Products, LLC	224594	Asphalt tank heaters and boilers	15.03	15
395	CO	133030AAO	Waterloo City Light Plant	133625	Engine #1	40.08	15
396	CO	133030AAO	Waterloo City Light Plant	133627	Engine #9	40.08	15
397	CO	133030AAO	Waterloo City Light Plant	133628	Engine #10	40.08	15
398	CO	133030AAO	Waterloo City Light Plant	143317	Engine #11	40.08	15
399	CO	133030AAO	Waterloo City Light Plant	143319	Engine #7	40.08	15
400	CO	133030AAO	Waterloo City Light Plant	143320	Engine #8	40.08	15
401	CO	133030AAO	Waterloo City Light Plant	222033	Dual fuel-fired Turbine GT1	40.08	15
402	CO	133030AAO	Waterloo City Light Plant	225960	Engine #4	40.08	15
403	CO	133030AAO	Waterloo City Light Plant	227333	Engine SG5	37.52	15
407	CO	133030AAO	Waterloo City Light Plant	238839	Turbine Generator (GT2)	40.08	15
408	CO	163121ABH	Gateway Terminals, LLC.	233294	Marine vapor combustion unit (MVCU)	12.27	15
409	CO	163121ABH	Gateway Terminals, LLC.	233295	Truck/Rail vapor destruction unit (TRCU)	12.27	15
410	CO	163121ABH	Gateway Terminals, LLC.	248799	600 HP Boiler	12.27	15
411	CO	119040AAO	Velocity Services, LLC.	132193	North American Boiler	1.01	15
412	CO	119040AAO	Velocity Services, LLC.	132194	Cleaver Brooks boiler	1.01	15
415	CO	119813AAY	Metro Crematory	225166	Crematory	7.15	15
422	CO	119040AAC	Amsted Rail Co., Inc.	132148	Electric Arc Furnace #1 (EF-1)	1.3	15
423	CO	119040AAC	Amsted Rail Co., Inc.	132149	Electric Arc Furnace #2 (EF-2)	1.28	15
424	CO	119040AAC	Amsted Rail Co., Inc.	167787	Ladle Preheater (LDP-1)	1.36	15
425	CO	119040AAC	Amsted Rail Co., Inc.	237866	Curing oven	1.47	15
426	CO	119040AAC	Amsted Rail Co., Inc.	251099	Annealing Furnace 18	1.37	15
427	CO	163005AAH	City of O'Fallon	225843	400 kW (591 HP) Diesel generator	28.13	16
428	CO	163005AAH	City of O'Fallon	225844	900 kW (1 322 HP) Diesel generator	28.13	16
429	CO	119465AAH	Westwood Lands, inc.	240053	Process heater DFH-1	1.36	15
430	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226184	huller (MM-3) Low profile turbine (LF-1) and Induction form stations 1 and 2 (IF-1	19.52	15
432	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226204	Strip anneal #4 (SA-4)	21.64	15
433	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226256	Strip Anneal #3 (SA-3)	21.61	15
434	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	226257	#7 Strip Anneal (SA-7)	21.6	15
435	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235939	Strip anneal #5 (SA-5)	21.63	15
436	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	235940	Strip anneal #6 (SA-6)	21.65	15
439	CO	119020ABG	GBC Metals, LLC (d/b/a Olin Brass)	253386	Engines (insignificant activities)	21.63	15
440	CO	133005AAP	Crown Textile Services	219420	Boiler	27.74	15
441	CO	119040ATQ	Illinois Electric Works	227590	3 Burn off ovens	1.31	15
442	CO	119040ATS	Amsted Rail Co., Inc.	239395	Sand dryer	1.37	15
443	CO	119040ATS	Amsted Rail Co., Inc.	239396	Thermal sand reclaimer	1.37	15
444	CO	119040ATS	Amsted Rail Co., Inc.	253361	Sand regeneration process (combustion)	1.37	15
445	CO	163110ABA	St. Clair Crematory	228119	Human crematory	27.52	16
446	CO	163010AFQ	Kurrus Funeral Home	231291	2 Crematories	19.04	15
447	CO	163010AFR	City of Belleville	236359	2 Emergency generators (1500 kW each)	26.24	16
448	CO	163010AFS	Stookey Township WWTP	246759	2000 kW Emergency generator	18.71	15

449	CO	163045AGR	Bunge-SF Grain, LLC.	236260	Grain Dryer	6.13	15
453	CO	163813AAA	Moore Recycling Concrete & Asphalt, LLC.	255953	Drum mix asphalt plant	42.56	15
455	CO	119025ABD	Procter & Gamble Distributing	241405	Emergency diesel generator #1	11.97	15
456	CO	119025ABD	Procter & Gamble Distributing	241449	Emergency diesel generator #2	12.19	15
457	CO	119025ABD	Procter & Gamble Distributing	245579	Emergency diesel generator #3	11.75	15
458	CO	119025ABD	Procter & Gamble Distributing	245580	Emergency diesel generator #4	11.97	15
459	CO	163110ACV	HSHS St. Elizabeth's Hospital	254699	2 Emergency generators	22.4	16
461	CO	163010AMW	City of Belleville	253167	Emergency diesel generator (1500 kW)	25	16
462	CO	163045AMD	PBT Acquisition, LLC	256624	ASR Dryer	6.04	15

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226332 m E 4287677 m N 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
748156 m E 4286841 m N

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Zone 16		Zone 15		Height	Temperature	Exit Velocity	Diameter	Emissions	Emissions	Emissions
X UTM (m)	Y UTM (m)	X UTM (m)	Y UTM (m)	(m)	(K)	(m/s)	(m)	(lb/hr)	(g/s)	(t/y)
240325	4266066	763529	4266192	7.62	699.8	4.37	0.3	2.69	0.34	11.7822
240195	4273793	762896	4273894	4.88	752.6	8.13	0.79	8.4	1.06	36.792
234027	4278093	756461	4277782	11.58	444.8	7.86	0.82	3.9375	0.5	17.24625
245574	4257092	769352	4257578	7.32	672	7.39	0.55	3.92997	0.5	17.213269
245574	4257092	769352	4257578	7.62	560.9	26.79	0.4	9.6	1.21	42.048
245574	4257092	769352	4257578	6.71	755.4	5.77	0.82	45.01	5.67	197.1438
245574	4257092	769352	4257578	9.14	533.2	12.29	0.3	8.55	1.08	37.449
245574	4257092	769352	4257578	9.14	533.2	12.29	0.3	8.55	1.08	37.449
245574	4257092	769352	4257578	7.62	533.2	16.82	0.3	5.92	0.75	25.9296
245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
245574	4257092	769352	4257578	8.53	772	26.73	0.46	12.8	1.61	56.064
250353	4274928	772959	4275690	10.06	435.9	14.37	1.37	64.93	8.18	284.3934
250353	4274928	772959	4275690	9.75	303.2	25.87	0.46	1.26	0.16	5.5188
224226	4270740	747162	4269805	10.97	430.4	26.4	1.07	13.361	1.68	58.52118
227715	4276836	750245	4276115	9.14	455.9	2.23	0.84	1.44	0.18	6.3072
225066	4288159	746862	4287239	21.95	528.2	8.77	1.01	1.29	0.16	5.6502
225066	4288159	746862	4287239	10.67	365.4	6.55	0.43	0.23	0.03	1.0074
224681	4289977	746359	4289027	14.94	439.3	9.8	0.75	1.03	0.13	4.5114
228015	4293277	749469	4292538	10.36	810.9	19.67	1.22	3.2256	0.41	14.128128
228015	4293277	749469	4292538	7.32	644.3	6.32	0.49	0.88	0.11	3.8544
231962	4302915	752775	4302414	6.1	445.4	15.08	0.24	0.74	0.09	3.2412
231962	4302915	752775	4302414	16.15	415.9	7.57	0.88	10	1.26	43.8
231318	4301407	752232	4300866	10.06	294	0.1	0.1	6.6	0.83	28.908
231348	4301236	752273	4300698	17.68	497.6	8.43	1.04	3.83	0.48	16.7754
227306	4308653	747753	4307832	30.48	394.3	9.46	7.38	225.32	28.39	986.9016
227190	4308520	747645	4307692	32.31	366.5	0.73	4.88	24	3.02	105.12
227306	4308653	747753	4307832	22.56	408.2	26.59	0.91	22.4	2.82	98.112
235500	4302778	756314	4302509	9.14	294.3	24.26	0.06	0.41	0.05	1.7958
230007	4301531	750915	4300904	10.36	505.4	7.11	0.61	1.9	0.24	8.322
230011	4301530	750920	4300904	10.36	505.4	7.11	0.61	1.9	0.24	8.322
223783	4276799	746325	4275822	34.14	735.9	5.12	3.84	15	1.89	65.7
223783	4276799	746325	4275822	4.57	294.3	22.38	0.05	0.4	0.05	1.752
230072	4308926	750495	4308287	6.4	344.3	5.99	0.55	8.03	1.01	35.1714
230072	4308926	750495	4308287	4.88	322	8.12	0.51	9.62	1.21	42.1356
227986	4287537	749816	4286810	66.14	533.2	26.8	2.13	74.524	9.39	326.41512
227782	4287473	749617	4286733	19.2	338.7	19.47	3.35	35.5	4.47	155.49
227950	4287571	749778	4286841	45.42	518.7	11.94	1.83	67.32	8.48	294.8616
227830	4287458	749666	4286721	68.58	533.2	15.56	3	103.75	13.07	454.425
225901	4287627	747730	4286763	17.37	616.5	4.64	4.19	10.655	1.34	46.6689
227080	4287983	748883	4287195	24.38	299.8	12.7	0.91	0.3	0.04	1.314

201652 Empire Comfort Systems - Stack
135983 Lakeview Memorial Gardens - Crematory
136012 Breckenridge of IL - Natural gas combustion
136129 Village of Freeburg - Engine #6
136130 Village of Freeburg - Engine #4
136131 Village of Freeburg - Engine #7
179671 Village of Freeburg - Engine #1
179672 Village of Freeburg - Engine #2
179673 Village of Freeburg - Engine #3a
230350 Village of Freeburg - Engine #10
231259 Village of Freeburg - Engine #11
231260 Village of Freeburg - Engine #12
136187 Asphalt Sales & Products Inc. - Drum mix asphalt plant
218995 Asphalt Sales & Products Inc. - Asphalt silos and truck loa
136547 Christ Bros Products, LLC - Drum mix asphalt plant
213854 Solvay Fluorides, LLC - Boiler
220266 American Colloid Co. - Sand drying
220267 American Colloid Co. - Space Heaters
242126 Center Point Terminals Co. - Tank Heater
132324 Precoat Metals - Afterburner AB1 and AB2
155304 Precoat Metals - Boiler B1
224901 Premcor Refining Group, Inc. - Thermal oxidizer
251286 Premcor Refining Group, Inc. - Vapor Combustion Unit
246761 Omega Partners Hartford, LLC - Truck Rail Marine racks
246762 Omega Partners Hartford, LLC - Boiler 1 and 2
131841 Alton Steel Inc. - Electric arc furnaces
131845 Alton Steel Inc. - 14 inch rolling mill reheat furnace
155302 Alton Steel Inc. - Ladle Furnace
132599 Airgas USA, LLC - Liquified carbon dioxide plant
132739 National Maintenance and Repair - Cleaver Brooks boiler
236930 National Maintenance and Repair - Cleaver Brooks boiler
226612 Solutia Inc. - Santoflex process: Thermal oxidizer 277093
238199 Solutia Inc. - An in-situ soil vapor extraction system
226352 Olin Winchester, LLC - Hammermill 1 2 and 3 (HM-1 HM
248262 Olin Winchester, LLC - New Rotary retort process (RDR-2)
132833 Granite City Works of Unites States Steel Corp. - Blast fur
132836 Granite City Works of Unites States Steel Corp. - Blast fur
132837 Granite City Works of Unites States Steel Corp. - Blast fur
132838 Granite City Works of Unites States Steel Corp. - Blast fur
132842 Granite City Works of Unites States Steel Corp. - Hot strip
132849 Granite City Works of Unites States Steel Corp. - Finishing

226580	4287501	748415	4286681	49.07	560.9	15.97	5.49	3685.32	464.35	16141.7016
227913	4287563	749741	4286831	68.58	460.9	4.51	4.27	15.997	2.02	70.06686
227859	4287527	749690	4286791	60.96	460.9	3.13	3.35	6.86	0.86	30.0468
228041	4287609	749866	4286885	45.72	441.5	9.1	2.44	176.175	22.2	771.6465
228057	4287612	749882	4286889	45.72	441.5	8.14	2.44	73.015	9.2	319.8057
228228	4287688	750048	4286977	5.49	326.5	25.97	1.22	2.0614	0.26	9.028932
228264	4287699	750082	4286989	76.2	529.3	5.01	2.74	24.459	3.08	107.13042
228217	4287683	750037	4286971	9.14	359.8	4.87	2.65	0.64	0.08	2.8032
228229	4287706	750048	4286994	9.14	355.4	4.42	1.58	0.06244	0.01	0.273487
228297	4287724	750114	4287016	5.49	326.5	25.97	1.22	2.41746	0.3	10.588475
228274	4287704	750092	4286995	76.2	529.3	4.97	2.74	25.499	3.21	111.68562
228276	4287732	750093	4287023	9.14	359.8	4.87	2.65	0.62963	0.08	2.757779
228293	4287740	750109	4287032	9.14	355.4	4.42	1.58	0.06244	0.01	0.273487
228146	4287706	749965	4286988	30.48	408.7	26.68	0.61	48.93	6.17	214.3134
226586	4287857	748398	4287038	16.46	505.4	5.63	0.61	2.52	0.32	11.0376
226645	4287439	748484	4286625	60.96	455.4	10.51	1.34	8.149	1.03	35.69262
228003	4287545	749832	4286819	13.11	327	10.82	2.39	3.43	0.43	15.0234
228214	4287693	750033	4286980	10.06	359.8	4.87	2.65	0.13514	0.02	0.591913
228296	4287733	750112	4287025	10.06	359.8	4.87	2.65	0.13572	0.02	0.594454
225870	4287597	747701	4286731	17.37	616.5	4.64	4.19	13.185	1.66	57.7503
225869	4287581	747701	4286715	44.5	644.3	9.81	3.83	10.185	1.28	44.6103
228246	4287697	750065	4286986	53.04	376.5	6.76	2.1	0.1386	0.02	0.607068
228275	4287707	750093	4286998	53.04	376.5	6.76	2.1	0.16254	0.02	0.711925
225886	4287613	747716	4286748	17.37	616.5	4.64	4.19	9.925	1.25	43.4715
226586	4287857	748398	4287038	16.15	421.5	10.3	0.91	1.92	0.24	8.4096
226586	4287857	748398	4287038	13.11	414.3	5.79	0.7	2.1	0.26	9.198
226235	4287568	748067	4286726	14.33	321.5	9.06	0.63	35.83	4.51	156.9354
226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.339	0.04	1.48482
226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.195	0.02	0.8541
226586	4287857	748398	4287038	11.89	413.2	7.06	0.62	0.44	0.06	1.9272
227814	4287601	749641	4286863	11.28	500.9	10	0.58	21.11	2.66	92.4618
226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	1.9	0.24	8.322
227964	4287804	749777	4287075	41.76	500.9	18.95	1.83	77.463	9.76	339.28794
228043	4287645	749866	4286921	45.72	533.2	26.77	1.83	67.32	8.48	294.8616
228493	4287892	750299	4287197	44.2	922	26.65	1.52	16.2	2.04	70.956
226235	4287568	748067	4286726	22.25	645.4	7.54	1.75	0.27325	0.03	1.196835
226235	4287568	748067	4286726	17.68	400.9	10.93	1.07	0.28692	0.04	1.25671
226235	4287568	748067	4286726	26.52	590.9	14.23	1.03	0.06831	0.01	0.299198
226235	4287568	748067	4286726	26.52	590.9	14.23	1.03	0.072	0.01	0.31536
230808	4278813	753202	4278290	9.75	505.4	4.66	0.46	0.7056	0.09	3.090528
231321	4300525	752292	4299987	12.19	1255.4	26.68	0.61	1.53	0.19	6.7014
225295	4282330	747472	4281438	13.41	297	25.87	1.22	6.67	0.84	29.2146
225295	4282330	747472	4281438	10.67	505.4	16.6	0.79	1.95575	0.25	8.566185
225295	4282330	747472	4281438	10.06	505.4	14.31	0.85	1.95575	0.25	8.566185

132855 Granite City Works of Unites States Steel Corp. - Basic ox
132861 Granite City Works of Unites States Steel Corp. - Boilers:
132862 Granite City Works of Unites States Steel Corp. - Boilers:
132867 Granite City Works of Unites States Steel Corp. - Boilers:
132872 Granite City Works of Unites States Steel Corp. - Boilers:
132876 Granite City Works of Unites States Steel Corp. - Coke pro
132877 Granite City Works of Unites States Steel Corp. - Coke pro
132878 Granite City Works of Unites States Steel Corp. - Coke pro
132879 Granite City Works of Unites States Steel Corp. - Coke pro
132889 Granite City Works of Unites States Steel Corp. - Coke pro
132890 Granite City Works of Unites States Steel Corp. - Coke pro
132891 Granite City Works of Unites States Steel Corp. - Coke pro
132892 Granite City Works of Unites States Steel Corp. - Coke pro
132895 Granite City Works of Unites States Steel Corp. - By-produ
132910 Granite City Works of Unites States Steel Corp. - Finishing
132926 Granite City Works of Unites States Steel Corp. - Basic ox
132927 Granite City Works of Unites States Steel Corp. - Blast fur
160868 Granite City Works of Unites States Steel Corp. - Coke pro
160869 Granite City Works of Unites States Steel Corp. - Coke pro
172512 Granite City Works of Unites States Steel Corp. - Hot strip
172514 Granite City Works of Unites States Steel Corp. - Hot strip
172516 Granite City Works of Unites States Steel Corp. - Coke pro
172518 Granite City Works of Unites States Steel Corp. - Coke pro
172532 Granite City Works of Unites States Steel Corp. - Hot strip
172555 Granite City Works of Unites States Steel Corp. - Finishing
172556 Granite City Works of Unites States Steel Corp. - Finishing
226696 Granite City Works of Unites States Steel Corp. - Internal
229337 Granite City Works of Unites States Steel Corp. - Finishing
229338 Granite City Works of Unites States Steel Corp. - Finishing
229339 Granite City Works of Unites States Steel Corp. - Finishing
229601 Granite City Works of Unites States Steel Corp. - Internal
235979 Granite City Works of Unites States Steel Corp. - Emerger
236039 Granite City Works of Unites States Steel Corp. - Emerger
236040 Granite City Works of Unites States Steel Corp. - Emerger
236041 Granite City Works of Unites States Steel Corp. - Emerger
238459 Granite City Works of Unites States Steel Corp. - New Coo
240479 Granite City Works of Unites States Steel Corp. - Blast fur
241099 Granite City Works of Unites States Steel Corp. - Desulfur
242880 Granite City Works of Unites States Steel Corp. - Coke pro
242881 Granite City Works of Unites States Steel Corp. - Coke pro
242882 Granite City Works of Unites States Steel Corp. - Coke pro
242883 Granite City Works of Unites States Steel Corp. - Coke pro
155437 Southwestern Illinois Correctional Center - 2 Boilers
181173 ConocoPhillips Co. - Loading rack
136169 Darling Ingredients, Inc. - Continuous rendering process
160742 Darling Ingredients, Inc. - Kewanee boiler
213834 Darling Ingredients, Inc. - Johnson boiler

266638	4291524	266638	4291524	8.53	595.4	25.87	0.61	20.66	2.6	90.4908
266638	4291524	266638	4291524	17.37	663.2	1.91	3.49	25.07	3.16	109.8066
266638	4291524	266638	4291524	3.66	619.8	26.5	0.37	14.43	1.82	63.2034
266638	4291524	266638	4291524	8.53	595.4	25.87	0.61	13.24	1.67	57.9912
266638	4291524	266638	4291524	17.37	663.2	18.83	3.49	25.65	3.23	112.347
266638	4291524	266638	4291524	17.37	663.2	18.83	3.49	14.4	1.81	63.072
266638	4291524	266638	4291524	17.37	663.2	18.83	3.49	12.5	1.58	54.75
266638	4291524	266638	4291524	17.37	663.2	18.83	3.49	15	1.89	65.7
266638	4291524	266638	4291524	17.37	663.2	18.83	3.49	15	1.89	65.7
229213	4311692	749456	4310990	7.62	1033.2	16.17	0.3	1.4	0.18	6.132
238258	4301453	759153	4301368	10.67	1144.3	6.1	3.66	23.1	2.91	101.178
238258	4301453	759153	4301368	18.29	1255.4	14.28	3.96	12.5	1.58	54.75
238258	4301453	759153	4301368	13.72	1255.4	18.73	0.41	37.7	4.75	165.126
243356	4296722	764550	4296982	6.1	444.8	7.86	0.82	0.768	0.1	3.36384
226355	4289960	748030	4289120	1.83	581.5	2.46	0.37	0.1	0.01	0.438
225544	4294176	746945	4293274	6.1	1033.2	14.41	0.2	6.923	0.87	30.32274
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
225543	4294176	746944	4293274	3.05	722.6	1.45	0.15	0.4945	0.06	2.16591
236256	4284160	758289	4283982	10.97	639.8	20.54	0.62	17.2	2.17	75.336
229202	4310592	749517	4309892	7.62	419.3	20.21	1.22	57.39	7.23	251.3682
229202	4310592	749517	4309892	7.62	296.5	0.08	0.12	0.53	0.07	2.3214
229202	4310592	749517	4309892	8.23	330.9	12.82	0.59	0.6	0.08	2.628
229202	4310592	749517	4309892	3.05	449.8	21.34	0.3	1.18	0.15	5.1684
224220	4276704	746767	4275755	12.19	427.6	15.36	1.27	8.53	1.07	37.3614
224220	4276704	746767	4275755	12.19	427.6	14.95	1.14	12.99	1.64	56.8962
260558	4283924	782556	4285336	9.14	810.9	2.87	0.79	13.55	1.71	59.349
260558	4283924	782556	4285336	9.14	672	26.48	0.77	9.56	1.2	41.8728
222287	4275223	744935	4274152	6.1	294.3	3.23	0.61	11	1.39	48.18
222287	4275223	744935	4274152	7.92	527.6	18.54	0.43	0.923	0.12	4.04274
228341	4283507	750434	4282812	12.8	1255.4	3.07	0.3	18.3	2.31	80.154
228454	4283541	750544	4282853	7.92	710.9	26.29	0.25	6.93	0.87	30.3534
228447	4283540	750538	4282852	7.92	710.9	26.29	0.25	6.93	0.87	30.3534
228458	4283543	750548	4282855	7.92	710.9	26.29	0.25	7.14	0.9	31.2732
228439	4283225	750550	4282537	6.1	1255.4	17.42	0.21	4.23	0.53	18.5274
228439	4283225	750550	4282537	2.13	603.7	22.57	0.1	2.2	0.28	9.636
228384	4283517	750476	4282825	16.76	1033.2	0.2	3.66	24	3.02	105.12
228439	4283225	750550	4282537	2.44	603.7	21.61	0.2	5.1	0.64	22.338
228578	4283575	750666	4282895	16.76	294.3	0	1.37	3.8	0.48	16.644
228439	4283225	750550	4282537	10.97	728.7	5.66	1.39	18.3	2.31	80.154
256126	4275206	778702	4276345	10.67	420.4	18.98	1.16	29.52	3.72	129.2976
231419	4301754	752309	4301220	4.57	699.8	0.16	0.43	2.52	0.32	11.0376
224145	4277311	746653	4276356	30.48	644.3	18.1	0.2	8.55	1.08	37.449
224003	4277269	746513	4276305	44.5	810.9	13.06	0.12	3.84	0.48	16.8192

R007694

132424 Highland Electric Light Plant - Engine IC-5
132425 Highland Electric Light Plant - Engine IC-7
179611 Highland Electric Light Plant - Engine IC-1
237182 Highland Electric Light Plant - Engine IC-6
237183 Highland Electric Light Plant - Engine IC-8
249480 Highland Electric Light Plant - Engine IC-2
249481 Highland Electric Light Plant - Engine IC-3
249482 Highland Electric Light Plant - Engine IC-9
249483 Highland Electric Light Plant - Engine IC-10
149873 City of Alton - Incinerator
232785 Roxana Landfill, Inc. - Enclosed flare
249499 Roxana Landfill, Inc. - Zink ultra-Low emissions (Zule) Flar
255341 Roxana Landfill, Inc. - New open flare
211274 Kienstra-Illinois, LLC - Natural gas combustion
227432 Totall Metal Recycling, Inc. - Safety certification unit
212692 Chain of Rocks Recycling & Disposal - Open flare
251754 Chain of Rocks Recycling & Disposal - Passive flare #1
254175 Chain of Rocks Recycling & Disposal - Passive flare #2
254176 Chain of Rocks Recycling & Disposal - Passive flare #3
254177 Chain of Rocks Recycling & Disposal - Passive flare #4
254178 Chain of Rocks Recycling & Disposal - Passive flare #5
254179 Chain of Rocks Recycling & Disposal - Passive flare #6
227400 Collinsville Wastewater Treatment Plant - Emergency die
149908 Charles E. Mahoney - Drum mix asphalt plant
237340 Charles E. Mahoney - Asphalt silo filling
237341 Charles E. Mahoney - Truck loadout
237362 Charles E. Mahoney - Asphalt heaters and boilers
190090 Contract Services, LLC - 3 Boilers
218569 Contract Services, LLC - Boiler #4
132928 Enable Mississippi River Transmission, LLC - Engine SN-02
166491 Enable Mississippi River Transmission, LLC - Turbine SN-0
217756 Phillips 66 Pipeline, LLC - Truck loading racks
253300 Phillips 66 Pipeline, LLC - Engines (insignificant activities)
136125 Milam Recycling and Disposal Facility - Open flare
154190 Milam Recycling and Disposal Facility - Engine #1
154191 Milam Recycling and Disposal Facility - Engine #2
154192 Milam Recycling and Disposal Facility - Engine #3
204833 Milam Recycling and Disposal Facility - 3 Passive solar flar
226013 Milam Recycling and Disposal Facility - 325 HP Tub grinde
226014 Milam Recycling and Disposal Facility - Enclosed flare
226015 Milam Recycling and Disposal Facility - 760 HP Tub grinde
245839 Milam Recycling and Disposal Facility - Landfill gas conver
253738 Milam Recycling and Disposal Facility - 2000 scfm Utility f
198552 Christ Bros Products, LLC - Drum mix asphalt plant
169226 Messer, LLC - 2 Boilers
159942 Afton Chemical Corp. - Unit 266: Flare 36-0011/36-0610
159965 Afton Chemical Corp. - Flare 36-0219

224154	4277444	746653	4276489	13.72	449.8	5.28	2.13	4.891771	0.62	21.425957
223967	4277260	746478	4276293	13.72	1144.3	0.2	2.44	2.2	0.28	9.636
224162	4277442	746660	4276488	13.72	449.8	5.28	2.13	4.891771	0.62	21.425957
224175	4277438	746674	4276485	13.72	449.8	5.28	2.13	4.906461	0.62	21.490299
232261	4304062	752998	4303578	6.1	294.3	0.08	0.68	4.87	0.61	21.3306
226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
226460	4290414	748105	4289580	12.19	466.5	21.02	0.61	1.436	0.18	6.28968
226460	4290414	748105	4289580	7.92	466.5	10.49	0.61	1.436	0.18	6.28968
230445	4303265	751239	4302663	15.54	705.4	8.46	2.26	27.1	3.41	118.698
234066	4302988	754869	4302625	106.68	588.7	17.32	4.57	62.784	7.91	274.99392
233554	4303475	754327	4303077	56.39	432.6	6.67	2.44	12.09	1.52	52.9542
233555	4303498	754326	4303100	45.72	338.7	3.56	2.59	15.67	1.97	68.6346
234078	4303113	754873	4302750	60.96	672	11.17	3.66	47.53	5.99	208.1814
233688	4303332	754470	4302943	22.86	727.6	10.5	1.52	7.14	0.9	31.2732
233687	4303353	754468	4302963	25.91	699.8	6.76	2.19	6.715	0.85	29.4117
234063	4303260	754848	4302895	60.96	352.6	15.23	3.35	47.2408	5.95	206.914704
234154	4303402	754930	4303043	46.02	519.3	3.78	1.75	4.32	0.54	18.9216
234066	4303140	754859	4302776	40.23	491.5	13.16	2.13	26.51	3.34	116.1138
234081	4303141	754875	4302778	40.23	491.5	13.16	2.13	27.7935	3.5	121.73553
234109	4303145	754902	4302784	45.72	431.5	15.92	3.05	35.99	4.53	157.6362
234128	4303169	754919	4302809	30.48	435.9	4.41	1.89	30.01	3.78	131.4438
234410	4302929	755217	4302588	45.72	694.3	9.8	1.52	5.6	0.71	24.528
234212	4302884	755022	4302530	45.72	755.4	9.58	1.77	4.9	0.62	21.462
234207	4302935	755014	4302580	45.72	783.2	2.14	2.38	4.7865	0.6	20.96487
234211	4302925	755019	4302571	45.72	699.8	8.77	2.38	17.4815	2.2	76.56897
234210	4302902	755019	4302548	45.72	672	8.21	2.38	21.0824	2.66	92.340912
234211	4302913	755019	4302559	45.72	672	4.27	2.38	5.55	0.7	24.309
234324	4303176	755114	4302829	12.19	358.7	8.01	0.61	1.775	0.22	7.7745
233472	4303548	754240	4303144	4.88	538.2	10.05	0.98	0.44	0.06	1.9272
233639	4303409	754415	4303016	95.1	549.8	26.82	4.27	78.05	9.83	341.859
233472	4303548	754240	4303144	4.57	320.4	6.21	0.46	0.71	0.09	3.1098
233472	4303548	754240	4303144	9.14	298.7	4.27	2.8	4.51	0.57	19.7538
233729	4303709	754486	4303322	59.44	1255.4	0.73	0.91	14.13	1.78	61.8894
233472	4303548	754240	4303144	4.57	327	3.47	0.88	1.06	0.13	4.6428
234079	4303259	754864	4302895	60.96	352.6	15.23	3.35	23.23	2.93	101.7474
234261	4303433	755035	4303081	60.96	1255.4	0.62	0.76	18.49	2.33	80.9862
233472	4303548	754240	4303144	31.39	602	6.61	1.41	28.6	3.6	125.268
232238	4302896	753051	4302413	54.86	560.9	7.99	2.59	22.68	2.86	99.3384
234401	4303135	755194	4302793	39.62	1255.4	2.43	0.51	16.24	2.05	71.1312
234401	4303135	755194	4302793	38.71	455.4	8.26	2.29	6.97	0.88	30.5286
234418	4303008	755219	4302667	45.72	570.4	7.78	1.53	5.75	0.72	25.185
232841	4302990	753647	4302546	60.05	1255.4	2.02	0.91	25.07	3.16	109.8066
234411	4303061	755209	4302720	13.41	330.4	9.86	0.61	1.775	0.22	7.7745
234139	4303289	754923	4302930	56.39	516.5	4.92	2.96	12.2	1.54	53.436
233472	4303548	754240	4303144	6.1	560.9	14.15	1.22	1.65	0.21	7.227

160898 Afton Chemical Corp. - Boiler 500-15-0110
230300 Afton Chemical Corp. - Flare 36-0090
240359 Afton Chemical Corp. - Boiler 500-15-0210
240360 Afton Chemical Corp. - Boiler 500-15-0310
132701 Kinder Morgan Liquids Terminals, LLC - New Truck loadin
155307 Kraft Heinz Co. - Boiler B
236927 Kraft Heinz Co. - Boiler C
236928 Kraft Heinz Co. - Boiler D
236929 Kraft Heinz Co. - Boiler E
248060 Kraft Heinz Co. - Boiler F
257535 Marathon Ashland Pipe Line, LLC - Marine vapor combust
132496 ConocoPhillips Co. - Catalytic reformer #1 (STK12-4)
132510 ConocoPhillips Co. - Distilling unit: HTR-DU1-F301 (STK5-
132511 ConocoPhillips Co. - Distilling unit: HTR-DU1-F302 (STK5-
132512 ConocoPhillips Co. - Steam methane reformer: SMR Heat
132516 ConocoPhillips Co. - Rectified absorption unit: Reboiler h
132519 ConocoPhillips Co. - Cracked absorption unit (HTR-CAU-R
132535 ConocoPhillips Co. - Catalytic cracking unit #2 (STK6-3)
132551 ConocoPhillips Co. - Alkylation unit: HTR-ALKY-HM2 (STK
132556 ConocoPhillips Co. - Utility boiler #15 (STK12-15)
132557 ConocoPhillips Co. - Utility boiler #16 (STK12-16)
132558 ConocoPhillips Co. - Utility boiler 17 (STK12-17)
132559 ConocoPhillips Co. - Utility boiler 18 (STK6-9)
132561 ConocoPhillips Co. - Hydrodesulfurization unit #1: Charge
132564 ConocoPhillips Co. - Hydrodesulfurization unit #2: Charge
132565 ConocoPhillips Co. - Cat reformer #3: Stabilizer reboiler (
132567 ConocoPhillips Co. - Catalytic reformer unit #3: Charge he
132568 ConocoPhillips Co. - Catalytic reformer unit #3: First inter
132569 ConocoPhillips Co. - Cat reformer #3: Second interreactor
132594 ConocoPhillips Co. - Sulfuric acid tank
132598 ConocoPhillips Co. - CCU-2 Startup heater B-1
145809 ConocoPhillips Co. - Crude heaters (STK5-3)
145826 ConocoPhillips Co. - Supplemental air compressor engine
145850 ConocoPhillips Co. - Flare for major effluent treatment pr
218530 ConocoPhillips Co. - North property ground flare (FLR1-2)
218687 ConocoPhillips Co. - Gas plant sour water stripper
148354 ConocoPhillips Co. - Catalytic cracking unit #1 (STK6-2)
220849 ConocoPhillips Co. - Alkylation unit flare (FLR6-1)
225832 ConocoPhillips Co. - Startup/malfunction/breakdown
227030 ConocoPhillips Co. - #4 Crude unit heater H-24 (STK9-5)
227032 ConocoPhillips Co. - Hydrogen plant #1 flare (FLR12-2)
227035 ConocoPhillips Co. - Process heater HP-1 (STK12-6)
227038 ConocoPhillips Co. - SZU Charge heater H-3
228294 ConocoPhillips Co. - Distilling west refinery flare (FLR10-1
228295 ConocoPhillips Co. - SZU Regenerator vent
232739 ConocoPhillips Co. - Benzene extraction unit #3 (STK6-4)
238942 ConocoPhillips Co. - Rental Boiler #3

232657	4303531	753428	4303073	9.14	1255.4	7.98	0.2	1.43	0.18	6.2634
232670	4303530	753441	4303073	9.14	1255.4	7.98	0.2	1.43	0.18	6.2634
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	1.4	0.18	6.132
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	1.3	0.16	5.694
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	5.976	0.75	26.17488
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	6.012	0.76	26.33256
233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	5.976	0.75	26.17488
233472	4303548	754240	4303144	4.57	294	0.1	0.1	3.5	0.44	15.33
251413	4270021	774337	4270862	9.14	439.3	7.1	0.67	4.81	0.61	21.0678
251413	4270021	774337	4270862	11.28	478.7	8.96	0.4	58.33	7.35	255.4854
223543	4284632	745573	4283620	9.14	727.6	5.75	3.49	77.3	9.74	338.574
223659	4283932	745735	4282930	11.58	590.4	22.85	1.04	49	6.17	214.62
223701	4283946	745776	4282947	11.58	590.4	22.85	1.04	49	6.17	214.62
223507	4284634	745538	4283620	11.58	590.4	22.85	1.04	69	8.69	302.22
223466	4284342	745516	4283326	7.92	527.6	18.54	0.43	1.3	0.16	5.694
223542	4284625	745573	4283613	9.14	727.6	5.75	3.49	77.37	9.75	338.8806
226689	4291215	748281	4290395	10.36	316.5	5.77	0.91	0.29	0.04	1.2702
226689	4291215	748281	4290395	10.36	755.4	7.25	1.52	0.3276	0.04	1.434888
226689	4291215	748281	4290395	10.36	477.6	20.53	0.46	2.12	0.27	9.2856
229154	4273633	751890	4273014	11.89	699.8	2	1.13	2.255	0.28	9.8769
229890	4325175	749244	4324486	4.88	699.8	8.41	0.3	2.7	0.34	11.826
226801	4288254	748587	4287448	14.63	588.7	12.54	1.37	1.532133	0.19	6.710743
226807	4288258	748592	4287452	14.63	588.7	11.88	1.37	3.068866	0.39	13.441633
225374	4287869	747189	4286970	10.36	394.3	0.72	0.34	0.2	0.03	0.876
225374	4287869	747189	4286970	9.14	308.2	16.04	1.52	0.577	0.07	2.52726
225374	4287869	747189	4286970	11.89	413.2	7.06	0.62	1.74	0.22	7.6212
225374	4287869	747189	4286970	11.89	413.2	7.06	0.62	1.94	0.24	8.4972
224558	4286673	746452	4285724	18.29	505.4	9.31	0.61	10.24	1.29	44.8512
224558	4286673	746452	4285724	11.89	413.2	7.06	0.62	0.42	0.05	1.8396
229393	4305994	750008	4305316	7.62	394.3	12.94	0.3	2.43	0.31	10.6434
224697	4290189	746361	4289240	10.06	358.2	0.29	0.46	0.1	0.01	0.438
224697	4290189	746361	4289240	5.49	616.5	2.43	0.61	0.183	0.02	0.80154
213294	4333987	732106	4332182	4.57	664.3	9.41	0.85	2.88	0.36	12.6144
225154	4287803	746973	4286890	15.24	439.3	4.71	0.82	0.7056	0.09	3.090528
236935	4302444	757768	4302270	6.1	444.8	7.86	0.82	0.969	0.12	4.24422
225728	4288427	747505	4287550	22.86	463.7	9.17	0.76	0.13	0.02	0.5694
225728	4288427	747505	4287550	7.62	463.7	19.82	0.76	0.24	0.03	1.0512
221950	4313394	742098	4312210	9.14	1033.2	5.6	0.52	3	0.38	13.14
223000	4276971	745532	4275942	17.37	617	9.93	0.85	3.17	0.4	13.8846
223000	4276971	745532	4275942	7.92	527.6	18.54	0.43	0.741	0.09	3.24558
224937	4274457	747629	4273560	12.8	575.9	8.95	0.76	1.625	0.2	7.1175
226048	4277818	748518	4276987	5.18	1100.4	19.96	0.55	0.52	0.07	2.2776
223650	4276256	746228	4275272	7.62	422	11.86	0.61	0.8652	0.11	3.789576
223650	4276256	746228	4275272	7.92	527.6	18.54	0.43	0.923	0.12	4.04274

241300 ConocoPhillips Co. - VOC Flare (West - FLR4-1)
241301 ConocoPhillips Co. - VOC Flare (East - FLR4-2)
250892 ConocoPhillips Co. - Lift station pump (21028)
250893 ConocoPhillips Co. - Lift station pump (21029)
250894 ConocoPhillips Co. - Non-emergency air compressor #1
250895 ConocoPhillips Co. - Non-emergency air compressor #2
250896 ConocoPhillips Co. - Non-emergency air compressor #3
250897 ConocoPhillips Co. - Non-emergency air compressor #4
250898 ConocoPhillips Co. - Non-emergency air compressor #5
250899 ConocoPhillips Co. - Non-emergency air compressor #6
251735 ConocoPhillips Co. - Diesel engine (605 HP)
156624 US Air Force/Scott Air Force Base - Boilers and Heaters
189069 US Air Force/Scott Air Force Base - Diesel generators
166479 Union Electric Co. - Turbine CT02A
223796 Union Electric Co. - Turbine CT03
223797 Union Electric Co. - Turbine CT04
223798 Union Electric Co. - Turbine CT05
227679 Union Electric Co. - Diesel generator
237099 Union Electric Co. - Turbine CT02B
192953 Midwest Metal Coatings, LLC - Chemical coater/infrared c
192964 Midwest Metal Coatings, LLC - Afterburner
192967 Midwest Metal Coatings, LLC - Boiler (B1)
136014 Touchette Regional Hospital - 2 Boilers
131772 Star Memorial Pet Crematory - Crematory
132225 Gateway Regional Medical Center - Boiler #3
132226 Gateway Regional Medical Center - Boilers #1 and 2
147845 Mayco Mfg, LLC - Britt kettles combustion stack
147846 Mayco Mfg, LLC - Mixed metals A-II dross baghouse disch
250343 Mayco Mfg, LLC - Natural gas combustion
255816 Mayco Mfg, LLC - Expansion: Natural gas combustion
142809 Magnesium Elektron North America - Combustion units
255527 Magnesium Elektron North America - Natural gas combus
212881 Koch Fertilizer, LLC - Ammonia heater
208343 Center Point Terminal Co. - Asphalt and polymer modifie
211772 Center Point Terminal Co. - Incinerator/waste heat boiler
213573 Illinois Department of Transportation - R and K model 36
155305 Granite City Pickling & Warehousing - Boiler
209238 Concrete Supply, LLC - Natural gas combustion
132247 Prairie Farms Dairy, Inc. - Boiler #1
132248 Prairie Farms Dairy, Inc. - Boiler #2
132777 Elias Kallal & Schaaf Funeral Home & Crematory - Cremat
183733 Veolia ES Technical Solutions, LLC - Hazardous waste inci
253769 Veolia ES Technical Solutions, LLC - 2 Emergency generat
235261 Gulfstream Aerospace Services Corp. - Make-up air unit 1
160741 Brady McCasland, Inc. - Compaction plant
136486 Cerro Flow Products, LLC. - Piercing Mill Furnace #2
253166 Cerro Flow Products, LLC. - Generators

R097696

235565	4264517	758882	4264336	10.67	1144.3	7.16	0.24	6.8	0.86	29.784
237217	4289153	758921	4289026	9.75	391.5	19.65	1.25	16.25	2.05	71.175
223337	4276668	745888	4275662	22.86	493.2	13.25	0.91	3.23	0.41	14.1474
223337	4276668	745888	4275662	22.86	493.2	13.85	0.91	3.23	0.41	14.1474
223337	4276668	745888	4275662	15.24	427.6	21.55	1.68	6.85	0.86	30.003
223337	4276668	745888	4275662	8.53	603.7	22.49	0.38	3.3	0.42	14.454
223337	4276668	745888	4275662	5.79	310.4	2.38	0.21	0.886	0.11	3.88068
234720	4276371	757265	4276109	8.84	744.3	15.69	0.4	11.04	1.39	48.3552
246443	4275290	769033	4275796	5.18	944.8	4.15	0.51	1.2	0.15	5.256
232088	4283693	754160	4283243	9.75	388.7	25.52	1.19	55.63	7.01	243.6594
232088	4283693	754160	4283243	11.28	477.6	6.3	0.56	1.18	0.15	5.1684
232088	4283693	754160	4283243	7.62	296.5	0.08	0.12	0.51	0.06	2.2338
232088	4283693	754160	4283243	8.84	330.4	14.65	0.62	0.58	0.07	2.5404
227814	4287847	749624	4287108	7.92	422	20.76	1.37	0.0668	0.01	0.292584
227370	4287577	749199	4286809	25.91	1366.5	22.76	2.74	0.7304	0.09	3.199152
227810	4287853	749620	4287113	6.1	477.6	21.22	1.52	1.3114	0.17	5.743932
227448	4287625	749274	4286862	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
227531	4287677	749353	4286919	25.91	1366.5	22.76	2.74	0.7304	0.09	3.199152
227610	4287725	749429	4286973	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
227732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
227810	4287848	749620	4287109	25.91	1366.5	22.76	2.74	0.7348	0.09	3.218424
227732	4287804	749545	4287060	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
227610	4287729	749429	4286977	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
227531	4287680	749352	4286923	6.1	477.6	21.22	1.52	1.3114	0.17	5.743932
227449	4287629	749274	4286866	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
227369	4287580	749198	4286813	6.1	477.6	21.22	1.52	1.3193	0.17	5.778534
227461	4287746	749279	4286984	60.96	418.2	14.71	3.96	26.2	3.3	114.756
227736	4287799	749549	4287055	7.92	422	20.76	1.37	0.0668	0.01	0.292584
227615	4287724	749433	4286972	7.92	422	20.76	1.37	0.0664	0.01	0.290832
227535	4287675	749357	4286918	7.92	422	20.76	1.37	0.0668	0.01	0.292584
227452	4287624	749278	4286861	7.92	422	20.76	1.37	0.0668	0.01	0.292584
227373	4287575	749202	4286808	7.92	422	20.76	1.37	0.0664	0.01	0.290832
227373	4287575	749202	4286808	34.44	347.6	2.96	1.33	4.36	0.55	19.0968
236572	4300093	757560	4299901	9.75	410.9	20.83	1.3	76.12	9.59	333.4056
236572	4300093	757560	4299901	7.92	323.7	1.52	0.52	0.7	0.09	3.066
236572	4300093	757560	4299901	8.53	330.4	13.17	0.58	0.79	0.1	3.4602
231675	4303188	752471	4302667	5.49	710.9	13.41	0.71	2.98	0.38	13.0524
223349	4286506	745256	4285477	21.64	413.2	7	1.01	1.29	0.16	5.6502
223279	4286442	745191	4285409	3.96	603.7	26.29	0.25	0.48	0.06	2.1024
223241	4286572	745144	4285537	8.53	603.7	22.49	0.38	3.54	0.45	15.5052
223283	4286500	745191	4285468	21.64	470.4	3.7	1.4	7.97	1	34.9086
223352	4286514	745258	4285486	21.64	413.2	7	1.01	1.29	0.16	5.6502
223353	4286520	745260	4285491	21.64	413.2	7	1.01	1.29	0.16	5.6502
223356	4286528	745262	4285500	21.64	413.2	7	1.01	1.29	0.16	5.6502
223254	4286465	745164	4285430	24.69	470.4	2.57	1.68	7.97	1	34.9086
227192	4277233	749698	4276478	17.68	497.6	8.43	1.04	3.2592	0.41	14.275296
228118	4286141	750039	4285426	6.71	880.4	20.26	0.34	5.67	0.71	24.8346

165120 BFI Waste Systems of North America, Inc. - Flare
215315 Madison County Sand, LLC - Drum mix asphalt plant
228260 Center Ethanol Co. - West boiler
228262 Center Ethanol Co. - East boiler
228263 Center Ethanol Co. - RTO
237899 Center Ethanol Co. - Emergency generator
237903 Center Ethanol Co. - Ethanol loadout Rack
224167 Interurban ILAWC - Emergency generator
226783 Schildknecht Funeral Home, Inc. - Crematory
132781 Christ Bros Products, LLC - Baghouse
229921 Christ Bros Products, LLC - 8 Heaters and boilers
229922 Christ Bros Products, LLC - Silo filling
229923 Christ Bros Products, LLC - Truck loading
233395 Gateway Energy & Coke Co., LLC - Charging - Stack 1 of 6
233397 Gateway Energy & Coke Co., LLC - Waste heat stack 1
233398 Gateway Energy & Coke Co., LLC - Pushing - Stack 1 of 6
233402 Gateway Energy & Coke Co., LLC - Waste heat stack 2
233403 Gateway Energy & Coke Co., LLC - Waste heat stack 3
233404 Gateway Energy & Coke Co., LLC - Waste heat stack 4
233405 Gateway Energy & Coke Co., LLC - Waste heat stack 5
233406 Gateway Energy & Coke Co., LLC - Waste heat stack 6
240022 Gateway Energy & Coke Co., LLC - Pushing - Stack 2 of 6
240023 Gateway Energy & Coke Co., LLC - Pushing - Stack 3 of 6
240024 Gateway Energy & Coke Co., LLC - Pushing - Stack 4 of 6
240025 Gateway Energy & Coke Co., LLC - Pushing - Stack 5 of 6
240026 Gateway Energy & Coke Co., LLC - Pushing - Stack 6 of 6
240528 Gateway Energy & Coke Co., LLC - Coking (New Main Stac
241023 Gateway Energy & Coke Co., LLC - Charging - Stack 2 of 6
241024 Gateway Energy & Coke Co., LLC - Charging - Stack 3 of 6
241025 Gateway Energy & Coke Co., LLC - Charging - Stack 4 of 6
241026 Gateway Energy & Coke Co., LLC - Charging - Stack 5 of 6
241027 Gateway Energy & Coke Co., LLC - Charging - Stack 6 of 6
242560 Gateway Energy & Coke Co., LLC - Malfunctions
220618 Asphalt Sales & Products Inc. - Drum mix asphalt plant
222134 Asphalt Sales & Products Inc. - Asphalt silo loading
230355 Asphalt Sales & Products Inc. - Truck loadout
222988 Apex Oil Co., Inc. - Thermal oxidizers
237659 Green Plains Madison, LLC - Boiler #1
237660 Green Plains Madison, LLC - Fire Pump back-up Engine (4
237661 Green Plains Madison, LLC - Electrical system backup Eng
237679 Green Plains Madison, LLC - Indirect dryer #1
253367 Green Plains Madison, LLC - Boiler #2
253368 Green Plains Madison, LLC - Boiler #3
253369 Green Plains Madison, LLC - Boiler #4
253370 Green Plains Madison, LLC - Indirect dryer #2
253107 Allnex USA, Inc. - Natural gas combustion
224838 Enable Mississippi River Transmission, LLC - Compressor

228123	4286131	750044	4285416	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
228127	4286121	750049	4285406	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
228131	4286112	750054	4285397	6.71	880.4	20.26	0.34	5.67	0.71	24.8346
237063	4264123	760402	4264040	10.67	1144.3	2.64	0.24	12.2	1.54	53.436
234696	4300139	755685	4299823	9.75	394.8	16.35	1.25	30.9	3.89	135.342
234717	4300141	755706	4299827	9.75	319.3	2.44	0.46	0.603	0.08	2.64114
234713	4300156	755701	4299841	3.05	486.5	12.94	0.3	1.18	0.15	5.1684
223888	4247672	748326	4246769	8.84	672	4.14	0.71	39.95	5.03	174.981
223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
223888	4247672	748326	4246769	5.18	775.4	25.87	0.3	15	1.89	65.7
223888	4247672	748326	4246769	10.06	672	25.87	0.61	34.08	4.29	149.2704
223888	4247672	748326	4246769	8.23	633.2	25.68	0.7	18.72	2.36	81.9936
223888	4247672	748326	4246769	11.89	595.4	12.68	1.47	17.69	2.23	77.4822
223888	4247672	748326	4246769	11.28	633.2	26.8	0.76	33.22	4.19	145.5036
226364	4250158	750635	4249410	2.44	768.7	18.65	0.2	1.4	0.18	6.132
223888	4247672	748326	4246769	11.89	792	26.81	1.47	17.8	2.24	77.964
222021	4276184	744607	4275093	22.56	540.9	7.67	1	16.91	2.13	74.0658
222021	4276184	744607	4275093	22.56	540.9	7.67	1	8.39	1.06	36.7482
222021	4276184	744607	4275093	7.92	499.8	12.06	0.66	2.11	0.27	9.2418
227059	4286978	748928	4286192	8.23	505.4	7.41	0.7	2.36	0.3	10.3368
227059	4286978	748928	4286192	8.84	499.8	12.07	0.61	2.36	0.3	10.3368
232541	4291222	754120	4290785	5.49	664.3	25.87	0.3	1.5	0.19	6.57
225352	4288526	747122	4287625	16.76	394.3	16.49	1.89	38.4	4.84	168.192
225377	4288526	747147	4287625	13.41	394.3	12.94	2.13	38.4	4.84	168.192
225267	4288519	747039	4287611	24.99	535.9	9.6	1.86	6.5	0.82	28.47
225143	4288540	746913	4287625	11.89	398.7	8.53	0.59	0.252	0.03	1.10376
225303	4288575	747071	4287670	11.89	413.2	7.06	0.62	1.1172	0.14	4.893336
252106	4276406	774612	4277280	3.96	533.2	26.4	0.21	3.37	0.42	14.7606
252106	4276406	774612	4277280	5.18	533.2	26.4	0.21	7.55	0.95	33.069
226962	4286476	748864	4285684	11.89	413.2	7.06	0.62	0.83	0.1	3.6354
229520	4306930	750075	4306259	12.5	372	11	0.64	2	0.25	8.76
229735	4309049	750150	4308388	27.43	449.8	12.63	0.49	93.25	11.75	408.435
230019	4308971	750439	4308328	30.48	449.8	19.13	0.4	98.34	12.39	430.7292
229803	4308992	750222	4308335	27.13	727.6	11.79	0.46	118.4	14.92	518.592
229735	4309035	750151	4308373	27.43	505.4	16.49	0.43	107.27	13.52	469.8426
229792	4309048	750207	4308390	33.53	577.6	19.14	0.4	107.27	13.52	469.8426
230005	4308996	750423	4308352	7.92	527.6	18.54	0.43	0.923	0.12	4.04274
220677	4260524	744287	4259382	7.32	505.4	10.74	0.52	1.03	0.13	4.5114
226132	4288976	747872	4288124	14.02	394.3	12.57	0.72	1.17	0.15	5.1246
225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	1.235	0.16	5.4093
225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.37	0.05	1.6206
225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.28	0.04	1.2264
250682	4274860	773291	4275644	5.18	944.8	4.15	0.51	1.2	0.15	5.256
236199	4271388	759066	4271234	5.49	692.6	4.02	0.34	2.7	0.34	11.826
240301	4265470	763544	4265595	8.53	603.7	22.49	0.38	25.68	3.24	112.4784
233309	4270316	756253	4269975	8.53	603.7	22.49	0.38	15.4	1.94	67.452

224839 Enable Mississippi River Transmission, LLC - Compressor
224840 Enable Mississippi River Transmission, LLC - Compressor
224841 Enable Mississippi River Transmission, LLC - Compressor
224416 Belleville Landfill, Inc. - Flare
224592 Christ Bros Products, LLC - Drum mix asphalt plant
224593 Christ Bros Products, LLC - Asphalt silo loading and truck
224594 Christ Bros Products, LLC - Asphalt tank heaters and boile
133625 Waterloo City Light Plant - Engine #1
133627 Waterloo City Light Plant - Engine #9
133628 Waterloo City Light Plant - Engine #10
143317 Waterloo City Light Plant - Engine #11
143319 Waterloo City Light Plant - Engine #7
143320 Waterloo City Light Plant - Engine #8
222033 Waterloo City Light Plant - Dual fuel-fired Turbine GT1
225960 Waterloo City Light Plant - Engine #4
227333 Waterloo City Light Plant - Engine SG5
238839 Waterloo City Light Plant - Turbine Generator (GT2)
233294 Gateway Terminals, LLC. - Marine vapor combustion unit
233295 Gateway Terminals, LLC. - Truck/Rail vapor destruction u
248799 Gateway Terminals, LLC. - 600 HP Boiler
132193 Velocity Services, LLC. - North American Boiler
132194 Velocity Services, LLC. - Cleaver Brooks boiler
225166 Metro Crematory - Crematory
132148 Amsted Rail Co., Inc. - Electric Arc Furnace #1 (EF-1)
132149 Amsted Rail Co., Inc. - Electric Arc Furnace #2 (EF-2)
167787 Amsted Rail Co., Inc. - Ladle Preheater (LDP-1)
237866 Amsted Rail Co., Inc. - Curing oven
251099 Amsted Rail Co., Inc. - Annealing Furnace 18
225843 City of O'Fallon - 400 kW (591 HP) Diesel generator
225844 City of O'Fallon - 900 kW (1 322 HP) Diesel generator
240053 Westwood Lands, Inc. - Process heater DFH-1
226184 GBC Metals, LLC (d/b/a Olin Brass) - 1F Mix muller (MM-
226204 GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #4 (SA-4
226256 GBC Metals, LLC (d/b/a Olin Brass) - Strip Anneal #3 (SA-3
226257 GBC Metals, LLC (d/b/a Olin Brass) - #7 Strip Anneal (SA-7
235939 GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #5 (SA-5
235940 GBC Metals, LLC (d/b/a Olin Brass) - Strip anneal #6 (SA-6
253386 GBC Metals, LLC (d/b/a Olin Brass) - Engines (insignificant
219420 Crown Textile Services - Boiler
227590 Illinois Electric Works - 3 Burn off ovens
239395 Amsted Rail Co., Inc. - Sand dryer
239396 Amsted Rail Co., Inc. - Thermal sand reclaimer
253361 Amsted Rail Co., Inc. - Sand regeneration process (combu
228119 St. Clair Crematory - Human crematory
231291 Kurrus Funeral Home - 2 Crematories
236359 City of Belleville - 2 Emergency generators (1500 kW eacl
246759 Stookey Township WWTP - 2000 kW Emergency generat

223958	4282023	746158	4281045	29.26	313.7	26.8	2.51	5.06	0.64	22.1628
237704	4246664	762178	4246660	10.67	394.8	17.35	1.21	13.24	1.67	57.9912
235225	4295693	756504	4295421	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
235235	4296007	756494	4295735	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
234918	4295701	756198	4295409	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
234923	4296012	756182	4295721	7.92	527.6	18.54	0.43	16.8175	2.12	73.66065
244606	4274724	767237	4275111	8.53	603.7	22.49	0.38	19.3	2.43	84.534
239277	4266294	762469	4266351	7.92	527.6	18.54	0.43	11.6	1.46	50.808
226485	4281641	748704	4280830	9.75	424.8	5.94	0.45	2.53	0.32	11.0814

8258.714522

236260 Bunge-SF Grain, LLC. - Grain Dryer
255953 Moore Recycling Concrete & Asphalt, LLC. - Drum mix asp
241405 Procter & Gamble Distributing - Emergency diesel genera
241449 Procter & Gamble Distributing - Emergency diesel genera
245579 Procter & Gamble Distributing - Emergency diesel genera
245580 Procter & Gamble Distributing - Emergency diesel genera
254699 HSHS St. Elizabeth's Hospital - 2 Emergency generators
253167 City of Belleville - Emergency diesel generator (1500 kW)
256624 PBT Acquisition, LLC - ASR Dryer

R0076698

Reg1700

Height	Temperature	Exit Velocity	Diameter	CO	present in SO2 inventory?
ft	F	fps	ft	lb/hr	
24.9936	799.97	14.3336	0.984	2.69	#N/A
16.0064	895.01	26.6664	2.5912	8.4	#N/A
37.9824	340.97	25.7808	2.6896	3.9375	#N/A
24.0096	749.93	24.2392	1.804	3.92997	#N/A
24.9936	549.95	87.8712	1.312	9.6	#N/A
22.0088	900.05	18.9256	2.6896	45.01	#N/A
29.9792	500.09	40.3112	0.984	8.55	#N/A
29.9792	500.09	40.3112	0.984	8.55	#N/A
24.9936	500.09	55.1696	0.984	5.92	#N/A
27.9784	929.93	87.6744	1.5088	12.8	#N/A
27.9784	929.93	87.6744	1.5088	12.8	#N/A
27.9784	929.93	87.6744	1.5088	12.8	#N/A
32.9968	324.95	47.1336	4.4936	64.93	Drum mix asphalt plant
31.98	86.09	84.8536	1.5088	1.26	#N/A
35.9816	315.05	86.592	3.5096	13.361	Drum mix asphalt plant
29.9792	360.95	7.3144	2.7552	1.44	#N/A
71.996	491.09	28.7656	3.3128	1.29	#N/A
34.9976	198.05	21.484	1.4104	0.23	#N/A
49.0032	331.07	32.144	2.46	1.03	#N/A
33.9808	999.95	64.5176	4.0016	3.2256	#N/A
24.0096	700.07	20.7296	1.6072	0.88	#N/A
20.008	342.05	49.4624	0.7872	0.74	#N/A
52.972	288.95	24.8296	2.8864	10	#N/A
32.9968	69.53	0.328	0.328	6.6	#N/A
57.9904	436.01	27.6504	3.4112	3.83	#N/A
99.9744	250.07	31.0288	24.2064	225.32	Electric arc furnaces
105.9768	200.03	2.3944	16.0064	24	#N/A
73.9968	275.09	87.2152	2.9848	22.4	Ladle Furnace
29.9792	70.07	79.5728	0.1968	0.41	#N/A
33.9808	450.05	23.3208	2.0008	1.9	Cleaver Brooks boiler (Stack 1 of 2)
33.9808	450.05	23.3208	2.0008	1.9	Cleaver Brooks boiler (Stack 2 of 2)
111.9792	864.95	16.7936	12.5952	15	#N/A
14.9896	70.07	73.4064	0.164	0.4	#N/A
20.992	160.07	19.6472	1.804	8.03	#N/A
16.0064	119.93	26.6336	1.6728	9.62	#N/A
216.9392	500.09	87.904	6.9864	74.524	Blast furnaces: Blast furnace A - stoves
62.976	149.99	63.8616	10.988	35.5	Blast furnaces: Blast furnace casthouse baghouse
148.9776	473.99	39.1632	6.0024	67.32	Blast furnaces: Flare 1
224.9424	500.09	51.0368	9.84	103.75	Blast furnaces: Blast furnace B - stoves
56.9736	650.03	15.2192	13.7432	10.655	Hot strip mill: Slab reheat furnaces #1
79.9664	79.97	41.656	2.9848	0.3	Finishing operations: Galvanizing line #8 - fume scrubber

160.9496	549.95	52.3816	18.0072	3685.32	#N/A
274.9424	369.95	14.7928	14.0056	15.997	Boilers: Boiles 1-7
199.9488	369.95	10.2664	10.988	6.86	Boilers: Boilers 8-10
149.9616	335.03	29.848	8.0032	176.175	Boilers: Boiler 11
149.9616	335.03	26.6992	8.0032	73.015	Boilers: Boiler 12
18.0072	128.03	85.1816	4.0016	2.0614	Coke production: Battery A - pushing
249.936	493.07	16.4328	8.9872	24.459	Coke production: Battery A - soaking
29.9792	187.97	15.9736	8.692	0.64	#N/A
29.9792	180.05	14.4976	5.1824	0.06244	#N/A
18.0072	128.03	85.1816	4.0016	2.41746	Coke production: Battery B - pushing
249.936	493.07	16.3016	8.9872	25.499	Coke production: Battery B - soaking
29.9792	187.97	15.9736	8.692	0.62963	#N/A
29.9792	180.05	14.4976	5.1824	0.06244	#N/A
99.9744	275.99	87.5104	2.0008	48.93	By-products plant: Flare
53.9888	450.05	18.4664	2.0008	2.52	#N/A
199.9488	360.05	34.4728	4.3952	8.149	Basic oxygen furnaces: Ladle drying/preheating
43.0008	128.93	35.4896	7.8392	3.43	Blast furnaces: Iron spout baghouse
32.9968	187.97	15.9736	8.692	0.13514	#N/A
32.9968	187.97	15.9736	8.692	0.13572	#N/A
56.9736	650.03	15.2192	13.7432	13.185	Hot strip mill: Slab reheat furnace #3
145.96	700.07	32.1768	12.5624	10.185	Hot strip mill: Slab reheat furnace #4
173.9712	218.03	22.1728	6.888	0.1386	Coke production: Battery A - pushing
173.9712	218.03	22.1728	6.888	0.16254	Coke production: Battery B - pushing
56.9736	650.03	15.2192	13.7432	9.925	Hot strip mill: Slab reheat furnace #2
52.972	299.03	33.784	2.9848	1.92	#N/A
43.0008	286.07	18.9912	2.296	2.1	#N/A
47.0024	119.03	29.7168	2.0664	35.83	#N/A
38.9992	284.09	23.1568	2.0336	0.339	#N/A
38.9992	284.09	23.1568	2.0336	0.195	#N/A
38.9992	284.09	23.1568	2.0336	0.44	#N/A
36.9984	441.95	32.8	1.9024	21.11	Internal combustion: Emergency Generator (3500 HP)
57.9904	436.01	27.6504	3.4112	1.9	Emergency portable Boiler #1
57.9904	436.01	27.6504	3.4112	1.9	Emergency portable Boiler #2
57.9904	436.01	27.6504	3.4112	1.9	Emergency portable Boiler #3
57.9904	436.01	27.6504	3.4112	1.9	Emergency portable Boiler #4
136.9728	441.95	62.156	6.0024	77.463	New Cogeneration Boiler
149.9616	500.09	87.8056	6.0024	67.32	Blast furnaces: Flare 2
144.976	1199.93	87.412	4.9856	16.2	Desulfurization unit
72.98	702.05	24.7312	5.74	0.27325	#N/A
57.9904	261.95	35.8504	3.5096	0.28692	#N/A
86.9856	603.95	46.6744	3.3784	0.06831	Coke production: Battery A - soaking
86.9856	603.95	46.6744	3.3784	0.072	Coke production: Battery B - soaking
31.98	450.05	15.2848	1.5088	0.7056	#N/A
39.9832	1800.05	87.5104	2.0008	1.53	#N/A
43.9848	74.93	84.8536	4.0016	6.67	Continuous rendering process
34.9976	450.05	54.448	2.5912	1.95575	Kewanee boiler
32.9968	450.05	46.9368	2.788	1.95575	Johnson boiler

R0077202

27.9784	612.05	84.8536	2.0008	20.66	#N/A
56.9736	734.09	6.2648	11.4472	25.07	#N/A
12.0048	655.97	86.92	1.2136	14.43	#N/A
27.9784	612.05	84.8536	2.0008	13.24	#N/A
56.9736	734.09	61.7624	11.4472	25.65	#N/A
56.9736	734.09	61.7624	11.4472	14.4	#N/A
56.9736	734.09	61.7624	11.4472	12.5	#N/A
56.9736	734.09	61.7624	11.4472	15	#N/A
56.9736	734.09	61.7624	11.4472	15	#N/A
24.9936	1400.09	53.0376	0.984	1.4	#N/A
34.9976	1600.07	20.008	12.0048	23.1	Enclosed flare
59.9912	1800.05	46.8384	12.9888	12.5	Zink ultra-Low emissions (Zule) Flare
45.0016	1800.05	61.4344	1.3448	37.7	New open flare
20.008	340.97	25.7808	2.6896	0.768	#N/A
6.0024	587.03	8.0688	1.2136	0.1	#N/A
20.008	1400.09	47.2648	0.656	6.923	Open flare
10.004	841.01	4.756	0.492	0.4945	#N/A
10.004	841.01	4.756	0.492	0.4945	#N/A
10.004	841.01	4.756	0.492	0.4945	#N/A
10.004	841.01	4.756	0.492	0.4945	#N/A
10.004	841.01	4.756	0.492	0.4945	#N/A
10.004	841.01	4.756	0.492	0.4945	#N/A
35.9816	691.97	67.3712	2.0336	17.2	#N/A
24.9936	295.07	66.2888	4.0016	57.39	Drum mix asphalt plant
24.9936	74.03	0.2624	0.3936	0.53	#N/A
26.9944	135.95	42.0496	1.9352	0.6	#N/A
10.004	349.97	69.9952	0.984	1.18	Asphalt heaters and boilers
39.9832	310.01	50.3808	4.1656	8.53	3 Boilers
39.9832	310.01	49.036	3.7392	12.99	Boiler #4
29.9792	999.95	9.4136	2.5912	13.55	#N/A
29.9792	749.93	86.8544	2.5256	9.56	#N/A
20.008	70.07	10.5944	2.0008	11	#N/A
25.9776	490.01	60.8112	1.4104	0.923	#N/A
41.984	1800.05	10.0696	0.984	18.3	Open flare
25.9776	819.95	86.2312	0.82	6.93	Engine #1
25.9776	819.95	86.2312	0.82	6.93	Engine #2
25.9776	819.95	86.2312	0.82	7.14	Engine #3
20.008	1800.05	57.1376	0.6888	4.23	3 Passive solar flares
6.9864	626.99	74.0296	0.328	2.2	325 HP Tub grinder
54.9728	1400.09	0.656	12.0048	24	Enclosed flare
8.0032	626.99	70.8808	0.656	5.1	760 HP Tub grinder
54.9728	70.07	0	4.4936	3.8	Landfill gas conversion plant
35.9816	851.99	18.5648	4.5592	18.3	2000 scfm Utility Flare
34.9976	297.05	62.2544	3.8048	29.52	Drum mix asphalt plant
14.9896	799.97	0.5248	1.4104	2.52	#N/A
99.9744	700.07	59.368	0.656	8.55	Unit 266: Flare 36-0011/36-0610
145.96	999.95	42.8368	0.3936	3.84	Flare 36-0219

45.0016	349.97	17.3184	6.9864	4.891771	#N/A
45.0016	1600.07	0.656	8.0032	2.2	#N/A
45.0016	349.97	17.3184	6.9864	4.891771	#N/A
45.0016	349.97	17.3184	6.9864	4.906461	#N/A
20.008	70.07	0.2624	2.2304	4.87	#N/A
39.9832	380.03	68.9456	2.0008	1.436	#N/A
39.9832	380.03	68.9456	2.0008	1.436	#N/A
39.9832	380.03	68.9456	2.0008	1.436	#N/A
39.9832	380.03	68.9456	2.0008	1.436	#N/A
25.9776	380.03	34.4072	2.0008	1.436	#N/A
50.9712	810.05	27.7488	7.4128	27.1	#N/A
349.9104	599.99	56.8096	14.9896	62.784	Catalytic reformer #1 (STK12-4)
184.9592	319.01	21.8776	8.0032	12.09	#N/A
149.9616	149.99	11.6768	8.4952	15.67	Distilling unit: HTR-DU1-F302 (STK5-1)
199.9488	749.93	36.6376	12.0048	47.53	Steam methane reformer: SMR Heater (HTR-SMR - STK12-8)
74.9808	850.01	34.44	4.9856	7.14	#N/A
84.9848	799.97	22.1728	7.1832	6.715	#N/A
199.9488	175.01	49.9544	10.988	47.2408	Catalytic cracking unit #2 (STK6-3)
150.9456	475.07	12.3984	5.74	4.32	#N/A
131.9544	425.03	43.1648	6.9864	26.51	Utility boiler #15 (STK12-15)
131.9544	425.03	43.1648	6.9864	27.7935	Utility boiler #16 (STK12-16)
149.9616	317.03	52.2176	10.004	35.99	Utility boiler 17 (STK12-17)
99.9744	324.95	14.4648	6.1992	30.01	Utility boiler 18 (STK6-9)
149.9616	790.07	32.144	4.9856	5.6	#N/A
149.9616	900.05	31.4224	5.8056	4.9	#N/A
149.9616	950.09	7.0192	7.8064	4.7865	#N/A
149.9616	799.97	28.7656	7.8064	17.4815	Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)
149.9616	749.93	26.9288	7.8064	21.0824	Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)
149.9616	749.93	14.0056	7.8064	5.55	#N/A
39.9832	185.99	26.2728	2.0008	1.775	Sulfuric acid tank
16.0064	509.09	32.964	3.2144	0.44	#N/A
311.928	529.97	87.9696	14.0056	78.05	Crude heaters (STK5-3)
14.9896	117.05	20.3688	1.5088	0.71	Supplemental air compressor engine CCU-1
29.9792	77.99	14.0056	9.184	4.51	#N/A
194.9632	1800.05	2.3944	2.9848	14.13	#N/A
14.9896	128.93	11.3816	2.8864	1.06	#N/A
199.9488	175.01	49.9544	10.988	23.23	Catalytic cracking unit #1 (STK6-2)
199.9488	1800.05	2.0336	2.4928	18.49	#N/A
102.9592	623.93	21.6808	4.6248	28.6	Startup/malfunction/breakdown
179.9408	549.95	26.2072	8.4952	22.68	#N/A
129.9536	1800.05	7.9704	1.6728	16.24	#N/A
126.9688	360.05	27.0928	7.5112	6.97	#N/A
149.9616	567.05	25.5184	5.0184	5.75	#N/A
196.964	1800.05	6.6256	2.9848	25.07	#N/A
43.9848	135.05	32.3408	2.0008	1.775	SZU Regenerator vent
184.9592	470.03	16.1376	9.7088	12.2	#N/A
20.008	549.95	46.412	4.0016	1.65	#N/A

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29.9792	1800.05	26.1744	0.656	1.43	#N/A
29.9792	1800.05	26.1744	0.656	1.43	#N/A
25.9776	490.01	60.8112	1.4104	1.4	#N/A
25.9776	490.01	60.8112	1.4104	1.3	#N/A
25.9776	490.01	60.8112	1.4104	6.012	Non-emergency air compressor #1
25.9776	490.01	60.8112	1.4104	6.012	Non-emergency air compressor #2
25.9776	490.01	60.8112	1.4104	5.976	Non-emergency air compressor #3
25.9776	490.01	60.8112	1.4104	6.012	Non-emergency air compressor #4
25.9776	490.01	60.8112	1.4104	6.012	Non-emergency air compressor #5
25.9776	490.01	60.8112	1.4104	5.976	Non-emergency air compressor #6
14.9896	69.53	0.328	0.328	3.5	#N/A
29.9792	331.07	23.288	2.1976	4.81	#N/A
36.9984	401.99	29.3888	1.312	58.33	#N/A
29.9792	850.01	18.86	11.4472	77.3	Turbine CT02A
37.9824	603.05	74.948	3.4112	49	Turbine CT03
37.9824	603.05	74.948	3.4112	49	Turbine CT04
37.9824	603.05	74.948	3.4112	69	Turbine CT05
25.9776	490.01	60.8112	1.4104	1.3	Diesel generator
29.9792	850.01	18.86	11.4472	77.37	Turbine CT02B
33.9808	110.03	18.9256	2.9848	0.29	#N/A
33.9808	900.05	23.78	4.9856	0.3276	#N/A
33.9808	400.01	67.3384	1.5088	2.12	#N/A
38.9992	799.97	6.56	3.7064	2.255	#N/A
16.0064	799.97	27.5848	0.984	2.7	#N/A
47.9864	599.99	41.1312	4.4936	1.532133	Boiler #3
47.9864	599.99	38.9664	4.4936	3.068866	Boilers #1 and 2
33.9808	250.07	2.3616	1.1152	0.2	#N/A
29.9792	95.09	52.6112	4.9856	0.577	#N/A
38.9992	284.09	23.1568	2.0336	1.74	#N/A
38.9992	284.09	23.1568	2.0336	1.94	#N/A
59.9912	450.05	30.5368	2.0008	10.24	Combustion units
38.9992	284.09	23.1568	2.0336	0.42	#N/A
24.9936	250.07	42.4432	0.984	2.43	Ammonia heater
32.9968	185.09	0.9512	1.5088	0.1	#N/A
18.0072	650.03	7.9704	2.0008	0.183	Incinerator/waste heat boiler
14.9896	736.07	30.8648	2.788	2.88	#N/A
49.9872	331.07	15.4488	2.6896	0.7056	#N/A
20.008	340.97	25.7808	2.6896	0.969	#N/A
74.9808	374.99	30.0776	2.4928	0.13	#N/A
24.9936	374.99	65.0096	2.4928	0.24	Boiler #2
29.9792	1400.09	18.368	1.7056	3	#N/A
56.9736	650.93	32.5704	2.788	3.17	Hazardous waste incinerator #4 (rotary kiln)
25.9776	490.01	60.8112	1.4104	0.741	#N/A
41.984	576.95	29.356	2.4928	1.625	#N/A
16.9904	1521.05	65.4688	1.804	0.52	#N/A
24.9936	299.93	38.9008	2.0008	0.8652	#N/A
25.9776	490.01	60.8112	1.4104	0.923	#N/A

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24.9976	1600.07	23.4848	0.7872	6.8	#N/A
31.98	245.03	64.452	4.1	16.25	#N/A
74.9808	428.09	43.46	2.9848	3.23	#N/A
74.9808	428.09	45.428	2.9848	3.23	#N/A
49.9872	310.01	70.684	5.5104	6.85	#N/A
27.9784	626.99	73.7672	1.2464	3.3	#N/A
18.9912	99.05	7.8064	0.6888	0.886	#N/A
28.9952	880.07	51.4632	1.312	11.04	#N/A
16.9904	1240.97	13.612	1.6728	1.2	#N/A
31.98	239.99	83.7056	3.9032	55.63	Baghouse
36.9984	400.01	20.664	1.8368	1.18	8 Heaters and boilers
24.9936	74.03	0.2624	0.3936	0.51	#N/A
28.9952	135.05	48.052	2.0336	0.58	#N/A
25.9776	299.93	68.0928	4.4936	0.0668	#N/A
84.9848	2000.03	74.6528	8.9872	0.7304	Waste heat stack 1
20.008	400.01	69.6016	4.9856	1.3114	Pushing - Stack 1 of 6
84.9848	2000.03	74.6528	8.9872	0.7348	Waste heat stack 2
84.9848	2000.03	74.6528	8.9872	0.7304	Waste heat stack 3
84.9848	2000.03	74.6528	8.9872	0.7348	Waste heat stack 4
84.9848	2000.03	74.6528	8.9872	0.7348	Waste heat stack 5
84.9848	2000.03	74.6528	8.9872	0.7348	Waste heat stack 6
20.008	400.01	69.6016	4.9856	1.3193	Pushing - Stack 2 of 6
20.008	400.01	69.6016	4.9856	1.3193	Pushing - Stack 3 of 6
20.008	400.01	69.6016	4.9856	1.3114	Pushing - Stack 4 of 6
20.008	400.01	69.6016	4.9856	1.3193	Pushing - Stack 5 of 6
20.008	400.01	69.6016	4.9856	1.3193	Pushing - Stack 6 of 6
199.9488	293.09	48.2488	12.9888	26.2	Coking (New Main Stack)
25.9776	299.93	68.0928	4.4936	0.0668	#N/A
25.9776	299.93	68.0928	4.4936	0.0664	#N/A
25.9776	299.93	68.0928	4.4936	0.0668	#N/A
25.9776	299.93	68.0928	4.4936	0.0668	#N/A
25.9776	299.93	68.0928	4.4936	0.0664	#N/A
112.9632	166.01	9.7088	4.3624	4.36	Malfunctions
31.98	279.95	68.3224	4.264	76.12	Drum mix asphalt plant
25.9776	122.99	4.9856	1.7056	0.7	#N/A
27.9784	135.05	43.1976	1.9024	0.79	#N/A
18.0072	819.95	43.9848	2.3288	2.98	#N/A
70.9792	284.09	22.96	3.3128	1.29	Boiler #1
12.9888	626.99	86.2312	0.82	0.48	Fire Pump back-up Engine (460 HP)
27.9784	626.99	73.7672	1.2464	3.54	Electrical system backup Engine (1495 HP)
70.9792	387.05	12.136	4.592	7.97	Indirect dryer #1
70.9792	284.09	22.96	3.3128	1.29	Boiler #2
70.9792	284.09	22.96	3.3128	1.29	Boiler #3
70.9792	284.09	22.96	3.3128	1.29	Boiler #4
80.9832	387.05	8.4296	5.5104	7.97	Indirect dryer #2
57.9904	436.01	27.6504	3.4112	3.2592	#N/A
22.0088	1125.05	66.4528	1.1152	5.67	#N/A

22.0088	1125.05	66.4528	1.1152	5.67	#N/A
22.0088	1125.05	66.4528	1.1152	5.67	#N/A
22.0088	1125.05	66.4528	1.1152	5.67	#N/A
54.9976	1600.07	8.6592	0.7872	12.2	#N/A
31.98	250.97	53.628	4.1	30.9	Drum mix asphalt plant
31.98	115.07	8.0032	1.5088	0.603	#N/A
10.004	416.03	42.4432	0.984	1.18	Asphalt tank heaters and boilers
28.9952	749.93	13.5792	2.3288	39.95	#N/A
16.9904	936.05	84.8536	0.984	15	#N/A
16.9904	936.05	84.8536	0.984	15	#N/A
16.9904	936.05	84.8536	0.984	15	#N/A
32.9968	749.93	84.8536	2.0008	34.08	#N/A
26.9944	680.09	84.2304	2.296	18.72	#N/A
38.9992	612.05	41.5904	4.8216	17.69	#N/A
36.9984	680.09	87.904	2.4928	33.22	#N/A
8.0032	923.99	61.172	0.656	1.4	#N/A
38.9992	965.93	87.9368	4.8216	17.8	#N/A
73.9968	513.95	25.1576	3.28	16.91	#N/A
73.9968	513.95	25.1576	3.28	8.39	#N/A
25.9776	439.97	39.5568	2.1648	2.11	#N/A
26.9944	450.05	24.3048	2.296	2.36	#N/A
28.9952	439.97	39.5896	2.0008	2.36	#N/A
18.0072	736.07	84.8536	0.984	1.5	#N/A
54.9728	250.07	54.0872	6.1992	38.4	Electric Arc Furnace #1 (EF-1)
43.9848	250.07	42.4432	6.9864	38.4	Electric Arc Furnace #2 (EF-2)
81.9672	504.95	31.488	6.1008	6.5	Ladle Preheater (LDP-1)
38.9992	257.99	27.9784	1.9352	0.252	#N/A
38.9992	284.09	23.1568	2.0336	1.1172	Annealing Furnace 18
12.9888	500.09	86.592	0.6888	3.37	#N/A
16.9904	500.09	86.592	0.6888	7.55	#N/A
38.9992	284.09	23.1568	2.0336	0.83	#N/A
41	209.93	36.08	2.0992	2	#N/A
89.9704	349.97	41.4264	1.6072	93.25	#N/A
99.9744	349.97	62.7464	1.312	98.34	#N/A
88.9864	850.01	38.6712	1.5088	118.4	#N/A
89.9704	450.05	54.0872	1.4104	107.27	#N/A
109.9784	580.01	62.7792	1.312	107.27	#N/A
25.9776	490.01	60.8112	1.4104	0.923	#N/A
24.0096	450.05	35.2272	1.7056	1.03	#N/A
45.9856	250.07	41.2296	2.3616	1.17	3 Burn off ovens
38.9992	284.09	23.1568	2.0336	1.235	#N/A
38.9992	284.09	23.1568	2.0336	0.37	#N/A
38.9992	284.09	23.1568	2.0336	0.28	Sand regeneration process (combustion)
16.9904	1240.97	13.612	1.6728	1.2	#N/A
18.0072	787.01	13.1856	1.1152	2.7	#N/A
27.9784	626.99	73.7672	1.2464	25.68	#N/A
27.9784	626.99	73.7672	1.2464	15.4	#N/A

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25.9728	104.99	87.904	8.2328	5.06	Grain Dryer
24.9976	250.97	56.908	3.9688	13.24	#N/A
25.9776	490.01	60.8112	1.4104	16.8175	#N/A
25.9776	490.01	60.8112	1.4104	16.8175	#N/A
25.9776	490.01	60.8112	1.4104	16.8175	#N/A
25.9776	490.01	60.8112	1.4104	16.8175	#N/A
27.9784	626.99	73.7672	1.2464	19.3	#N/A
25.9776	490.01	60.8112	1.4104	11.6	#N/A
31.98	304.97	19.4832	1.476	2.53	#N/A

R007708

Station Name	Latitude	Longitude	UTM_X	UTM_Y	Zone	Urban	Rural	Classification
Bondville	40.05278	-88.37251	382931.17	4434517.7	16 T	0.12%	99.88%	Rural
Com Ed	41.7514	-87.71349	440681.01	4622421	16 T	77.94%	22.06%	Urban
Schiller Park	41.965193	-87.87626	427390	4646282.95	16 T	68.94%	31.06%	Urban
Cicero	41.855243	-87.75247	437541.01	4633977.9	16 T	91.43%	8.57%	Urban
Lansing Kingery	41.578603	-87.55739	453534.73	4603140.69	16 T	32.43%	67.57%	Rural
Chicago Kennedy	41.920681	-87.67443	444076.27	4641189.49	16 T	93.74%	6.26%	Urban
Lemont	41.66812	-87.99057	417537.97	4613402.96	16 T	17.48%	82.52%	Rural
Northbrook	42.139996	-87.79923	433954.99	4665629.1	16 T	16.28%	83.72%	Rural
Oglesby	41.293015	89.04942	328401	4573311	16 T	5.75%	94.25%	Rural
Decatur	39.866834	-88.92559	335307.4	4414751.61	16 S	51.97%	48.03%	Urban
ADM	39.880404	-88.89449	337999.99	4416200.99	16 S	25.36%	74.64%	Rural
Tate & Lyle NW	39.850712	-88.93364	334580.94	4412976.94	16 S	47.42%	52.58%	Rural
Tate & Lyle SE	39.846856	-88.92332	335453.96	4412529.89	16 S	39.03%	60.97%	Rural
Nilwood	39.396075	-89.80974	258043	4364497.96	16 S	0.36%	99.64%	Rural
Wood River	38.860669	-90.10585	751123.14	4305296.41	15 S	32.01%	67.99%	Rural
East St. Louis	38.612034	-90.16048	747239	4277550	15 S	43.67%	56.33%	Rural
Pekin	40.55646	-89.65403	275290.04	4492907.05	16 T	20.81%	79.19%	Rural
Washington HS	41.687165	-87.53932	455117	4615183.95	16 T	47.89%	52.11%	Rural
Perez	41.855917	-87.65842	445348.33	4633988.59	16 T	93.70%	6.30%	Urban
Granite City	38.694438	-90.15395	747523	4286713.97	15 S	39.30%	60.70%	Rural
Lyons Township	41.80118	-87.83235	430852.4	4628036.65	16 T	50.54%	49.46%	Urban

surprising results because of "developed low intensity and developed open space" categories not overwhelmingly rural or urban

Bondville Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	23	0.07%	0.12%
24	Developed, High Intensity	I1/I2/C1		15	0.05%	
11	Open Water	A5			0.00%	
21	Developed, Open Space	A1/R4		1,048	3.27%	
22	Developed, Low Intensity	R1		454	1.42%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4			0.00%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	99.88%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		14	0.04%	
81	Pasture/Hay	A3		131	0.41%	
82	Cultivated Crops	A2		30,316	94.73%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area			*Total*	*32,001*	*100.00%*	*100.00%*

Com Ed Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	17,648	55.32%	77.94%
24	Developed, High Intensity	I1/I2/C1		7,214	22.61%	
11	Open Water	A5		138	0.43%	
21	Developed, Open Space	A1/R4		1,685	5.28%	
22	Developed, Low Intensity	R1		5,215	16.35%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4			0.00%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	22.06%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*31,900*	*100.00%*	*100.00%*

Schiller Park Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	9,114	28.59%	68.94%
24	Developed, High Intensity	I1/I2/C1		12,864	40.35%	
11	Open Water	A5		155	0.49%	
21	Developed, Open Space	A1/R4		1,636	5.13%	
22	Developed, Low Intensity	R1		4,140	12.99%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	

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41	Deciduous Forest	A4		537	1.68%	
42	Evergreen Forest	A4		41	0.13%	
43	Mixed Forest	A4	**Rural**	27	0.08%	**31.06%**
52	Shrub/Scrub	A4		111	0.35%	
71	Grassland/Herbaceous	A3		75	0.24%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4		3,129	9.81%	
95	Emergent Herbaceous Wetlands	A3		51	0.16%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,880***	***100.00%***	***100.00%***

Cicero Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	17,238	54.05%	**91.43%**
24	Developed, High Intensity	I1/I2/C1		11,922	37.38%	
11	Open Water	A5		13	0.04%	
21	Developed, Open Space	A1/R4		416	1.30%	
22	Developed, Low Intensity	R1		2,305	7.23%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4			0.00%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**8.57%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,894***	***100.00%***	***100.00%***

Lansing Kingery Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	6,979	21.87%	**32.43%**
24	Developed, High Intensity	I1/I2/C1		3,372	10.57%	
11	Open Water	A5		261	0.82%	
21	Developed, Open Space	A1/R4		3,064	9.60%	
22	Developed, Low Intensity	R1		14,515	45.48%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		1,028	3.22%	
42	Evergreen Forest	A4		73	0.23%	
43	Mixed Forest	A4	**Rural**	187	0.59%	**67.57%**
52	Shrub/Scrub	A4		150	0.47%	
71	Grassland/Herbaceous	A3		247	0.77%	
81	Pasture/Hay	A3		393	1.23%	
82	Cultivated Crops	A2		242	0.76%	
90	Wood Wetlands	A4		1,405	4.40%	
95	Emergent Herbaceous Wetlands	A3			0.00%	

R007710

Analysis based on 30 meter by 30 meter raster cells extracted for each area	*Total*	*31,916*	*100.00%*	*100.00%*

Chicago Kennedy Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	16,287	51.08%	**93.74%**
24	Developed, High Intensity	I1/I2/C1		13,603	42.66%	
11	Open Water	A5		293	0.92%	
21	Developed, Open Space	A1/R4		288	0.90%	
22	Developed, Low Intensity	R1		1,411	4.43%	
31	Barren Land (Rock/Sand/Clay)	A3		5	0.02%	
41	Deciduous Forest	A4			0.00%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**6.26%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area			*Total*	*31,887*	*100.00%*	*100.00%*

Lemont Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	3,989	12.50%	**17.48%**
24	Developed, High Intensity	I1/I2/C1		1,588	4.98%	
11	Open Water	A5		1,766	5.54%	
21	Developed, Open Space	A1/R4		7,170	22.47%	
22	Developed, Low Intensity	R1		9,716	30.45%	
31	Barren Land (Rock/Sand/Clay)	A3		39	0.12%	
41	Deciduous Forest	A4		2,854	8.95%	
42	Evergreen Forest	A4		119	0.37%	
43	Mixed Forest	A4	**Rural**	825	2.59%	**82.52%**
52	Shrub/Scrub	A4		36	0.11%	
71	Grassland/Herbaceous	A3		285	0.89%	
81	Pasture/Hay	A3		88	0.28%	
82	Cultivated Crops	A2		56	0.18%	
90	Wood Wetlands	A4		2,982	9.35%	
95	Emergent Herbaceous Wetlands	A3		390	1.22%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*31,903*	*100.00%*	*100.00%*

Northbrook Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	3,556	11.16%	**16.28%**
24	Developed, High Intensity	I1/I2/C1		1,632	5.12%	
11	Open Water	A5		1,023	3.21%	

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21	Developed, Open Space	A1/R4		6,261	19.65%	
22	Developed, Low Intensity	R1		14,161	44.44%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		2,205	6.92%	
42	Evergreen Forest	A4		12	0.04%	
43	Mixed Forest	A4	**Rural**	59	0.19%	**83.72%**
52	Shrub/Scrub	A4		115	0.36%	
71	Grassland/Herbaceous	A3		352	1.10%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2		152	0.48%	
90	Wood Wetlands	A4		2,336	7.33%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,864***	***100.00%***	***100.00%***

Oglesby Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	1,639	5.14%	**5.75%**
24	Developed, High Intensity	I1/I2/C1		196	0.61%	
11	Open Water	A5		966	3.03%	
21	Developed, Open Space	A1/R4		1,764	5.53%	
22	Developed, Low Intensity	R1		4,329	13.56%	
31	Barren Land (Rock/Sand/Clay)	A3		938	2.94%	
41	Deciduous Forest	A4		9,440	29.58%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**94.25%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		2,378	7.45%	
81	Pasture/Hay	A3		1,971	6.18%	
82	Cultivated Crops	A2		7,768	24.34%	
90	Wood Wetlands	A4		528	1.65%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,917***	***100.00%***	***100.00%***

Decatur Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	7,631	23.85%	**51.97%**
24	Developed, High Intensity	I1/I2/C1		8,999	28.12%	
11	Open Water	A5		306	0.96%	
21	Developed, Open Space	A1/R4		3,323	10.38%	
22	Developed, Low Intensity	R1		9,887	30.89%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		253	0.79%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**48.03%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		183	0.57%	
81	Pasture/Hay	A3		74	0.23%	

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82	Cultivated Crops	A2		1,346	4.21%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*32,002*	*100.00%*	*100.00%*

ADM Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	3,551	11.10%	**25.36%**
24	Developed, High Intensity	I1/I2/C1		4,565	14.27%	
11	Open Water	A5		2,869	8.97%	
21	Developed, Open Space	A1/R4		4,177	13.05%	
22	Developed, Low Intensity	R1		5,778	18.06%	
31	Barren Land (Rock/Sand/Clay)	A3		18	0.06%	
41	Deciduous Forest	A4		3,018	9.43%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**74.64%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		211	0.66%	
81	Pasture/Hay	A3		632	1.97%	
82	Cultivated Crops	A2		7,148	22.34%	
90	Wood Wetlands	A4		34	0.11%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*32,001*	*100.00%*	*100.00%*

Tate & Lyle NW Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	7,996	24.99%	**47.42%**
24	Developed, High Intensity	I1/I2/C1		7,179	22.43%	
11	Open Water	A5		2,148	6.71%	
21	Developed, Open Space	A1/R4		2,448	7.65%	
22	Developed, Low Intensity	R1		11,602	36.25%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		233	0.73%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**52.58%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		28	0.09%	
81	Pasture/Hay	A3		36	0.11%	
82	Cultivated Crops	A2		332	1.04%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*32,002*	*100.00%*	*100.00%*

Tate & Lyle SE Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**

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23	Developed, Medium Intensity	R2/R3	Urban	6,170	19.28%	39.03%
24	Developed, High Intensity	I1/I2/C1		6,319	19.75%	
11	Open Water	A5		3,876	12.11%	
21	Developed, Open Space	A1/R4		3,245	10.14%	
22	Developed, Low Intensity	R1		11,635	36.36%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		330	1.03%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	60.97%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		49	0.15%	
81	Pasture/Hay	A3		36	0.11%	
82	Cultivated Crops	A2		342	1.07%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*32,002*	*100.00%*	*100.00%*

Nilwood Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	116	0.36%	0.36%
24	Developed, High Intensity	I1/I2/C1			0.00%	
11	Open Water	A5		17	0.05%	
21	Developed, Open Space	A1/R4		1,089	3.40%	
22	Developed, Low Intensity	R1		918	2.87%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		463	1.45%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	99.64%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3		47	0.15%	
82	Cultivated Crops	A2		29,340	91.72%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*31,990*	*100.00%*	*100.00%*

Wood River Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	6,443	20.13%	32.01%
24	Developed, High Intensity	I1/I2/C1		3,801	11.88%	
11	Open Water	A5		4,014	12.54%	
21	Developed, Open Space	A1/R4		3,239	10.12%	
22	Developed, Low Intensity	R1		7,274	22.73%	
31	Barren Land (Rock/Sand/Clay)	A3		1	0.00%	
41	Deciduous Forest	A4		614	1.92%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	67.99%

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52	Shrub/Scrub	A4		70	0.22%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3		132	0.41%	
82	Cultivated Crops	A2		3,231	10.10%	
90	Wood Wetlands	A4		2,876	8.99%	
95	Emergent Herbaceous Wetlands	A3		309	0.97%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area			***Total***	***32,004***	***100.00%***	***100.00%***

East St. Louis Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	7,006	21.89%	**43.67%**
24	Developed, High Intensity	I1/I2/C1		6,973	21.79%	
11	Open Water	A5		2,642	8.25%	
21	Developed, Open Space	A1/R4		3,222	10.07%	
22	Developed, Low Intensity	R1		9,277	28.98%	
31	Barren Land (Rock/Sand/Clay)	A3		34	0.11%	
41	Deciduous Forest	A4		332	1.04%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**	9	0.03%	**56.33%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		7	0.02%	
81	Pasture/Hay	A3		249	0.78%	
82	Cultivated Crops	A2		643	2.01%	
90	Wood Wetlands	A4		1,562	4.88%	
95	Emergent Herbaceous Wetlands	A3		52	0.16%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area			***Total***	***32,008***	***100.00%***	***100.00%***

Pekin Study Area Auer's Analysis				**Auer's 3 km Ring**		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	4,511	14.12%	**20.81%**
24	Developed, High Intensity	I1/I2/C1		2,135	6.68%	
11	Open Water	A5		2,661	8.33%	
21	Developed, Open Space	A1/R4		1,890	5.92%	
22	Developed, Low Intensity	R1		8,523	26.68%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	
41	Deciduous Forest	A4		1,293	4.05%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**79.19%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		272	0.85%	
81	Pasture/Hay	A3		210	0.66%	
82	Cultivated Crops	A2		8,932	27.96%	
90	Wood Wetlands	A4		1,236	3.87%	
95	Emergent Herbaceous Wetlands	A3		278	0.87%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,941***	***100.00%***	***100.00%***

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Washington HS Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	9,327	29.24%	47.89%
24	Developed, High Intensity	I1/I2/C1		5,950	18.65%	
11	Open Water	A5		6,408	20.09%	
21	Developed, Open Space	A1/R4		1,037	3.25%	
22	Developed, Low Intensity	R1		4,178	13.10%	
31	Barren Land (Rock/Sand/Clay)	A3		1,071	3.36%	
41	Deciduous Forest	A4		370	1.16%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural	163	0.51%	52.11%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3			0.00%	
81	Pasture/Hay	A3		1,061	3.33%	
82	Cultivated Crops	A2		443	1.39%	
90	Wood Wetlands	A4		995	3.12%	
95	Emergent Herbaceous Wetlands	A3		900	2.82%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*31,903*	*100.00%*	*100.00%*

Perez Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	9,578	30.03%	93.70%
24	Developed, High Intensity	I1/I2/C1		20,307	63.67%	
11	Open Water	A5		343	1.08%	
21	Developed, Open Space	A1/R4		154	0.48%	
22	Developed, Low Intensity	R1		1,494	4.68%	
31	Barren Land (Rock/Sand/Clay)	A3		6	0.02%	
41	Deciduous Forest	A4			0.00%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	Rural		0.00%	6.30%
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		14	0.04%	
81	Pasture/Hay	A3			0.00%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4			0.00%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			*Total*	*31,896*	*100.00%*	*100.00%*

Granite City Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	NLCD 2011 Description	Auer's Code	Auer's Class	Cell Count	Percentage	Totals
23	Developed, Medium Intensity	R2/R3	Urban	6,371	19.91%	39.30%
24	Developed, High Intensity	I1/I2/C1		6,208	19.40%	
11	Open Water	A5		3,119	9.75%	
21	Developed, Open Space	A1/R4		2,727	8.52%	
22	Developed, Low Intensity	R1		9,283	29.00%	
31	Barren Land (Rock/Sand/Clay)	A3			0.00%	

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41	Deciduous Forest	A4		216	0.67%	
42	Evergreen Forest	A4			0.00%	
43	Mixed Forest	A4	**Rural**		0.00%	**60.70%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		159	0.50%	
81	Pasture/Hay	A3		1,227	3.83%	
82	Cultivated Crops	A2		559	1.75%	
90	Wood Wetlands	A4		1,574	4.92%	
95	Emergent Herbaceous Wetlands	A3		563	1.76%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***32,006***	***100.00%***	***100.00%***

Lyons Township Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	9,998	31.35%	**50.54%**
24	Developed, High Intensity	I1/I2/C1		6,121	19.19%	
11	Open Water	A5		1,160	3.64%	
21	Developed, Open Space	A1/R4		767	2.40%	
22	Developed, Low Intensity	R1		8,300	26.02%	
31	Barren Land (Rock/Sand/Clay)	A3		3,197	10.02%	
41	Deciduous Forest	A4		78	0.24%	
42	Evergreen Forest	A4		34	0.11%	
43	Mixed Forest	A4	**Rural**	81	0.25%	**49.46%**
52	Shrub/Scrub	A4			0.00%	
71	Grassland/Herbaceous	A3		486	1.52%	
81	Pasture/Hay	A3		372	1.17%	
82	Cultivated Crops	A2			0.00%	
90	Wood Wetlands	A4		1,302	4.08%	
95	Emergent Herbaceous Wetlands	A3			0.00%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,896***	***100.00%***	***100.00%***

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Distance Between PSD Project and Monitors	Project
Lat 1	38.69439
Long 1	-90.147709

Monitor Name	Latitude	Longitude	Distance (km)	NO2	SO2	PM10	PM2.5	CO	Ozone	Pb
Bondville	40.05278	-88.37251	214.70		X		X	X	X	
Com Ed	41.75139998	-87.71348815	397.78	X	X		X		X	
Schiller Park	41.96519348	-87.87626473	411.48	X			X		X	
Lansing Kingery	41.578603	-87.557392	388.98	X						
Chicago Kennedy	41.920681	-87.674425	415.50	X						
Lemont	41.66812034	-87.99056969	378.02		X				X	
Northbrook	42.139996	-87.79922692	431.60		X	X	X	X	X	
Oglesby	41.29301454	-89.04942498	303.72		X					
Decatur	39.86693389	-88.92559445	167.52		X		X		X	
ADM	39.880404	-88.894488	170.36		X					
Tate & Lyle NW	39.850712	-88.933635	165.69		X					
Tate & Lyle SE	39.846856	-88.923323	165.92		X					
Nilwood	39.39607533	-89.80973892	83.30	X	X				X	
Wood River	38.86066947	-90.10585111	18.84		X		X		X	
East St. Louis	38.61203448	-90.16047663	9.22	X	X		X	X	X	
Pekin	40.55646017	-89.65402807	211.32		X					
Washington HS	41.68716544	-87.53931548	399.74			X	X			X
Perez	41.855917	-87.658419	410.05							X
Granite City (Air Products)	38.69443831	-90.15395426	0.54							X
Lyons Township	41.80118	-87.832349	397.40			X	X			
Quincy	39.91554094	-91.33586832	169.96						X	
Champaign	40.1237962	-88.229531	228.94				X			
Thomasboro	40.244913	-88.188519	240.83						X	
West Union	39.210883	-87.668416	221.94						X	
Alsip	41.6709919	-87.7324569	389.38				X		X	
Mayfair Pump Station	41.96548483	-87.74992806	416.62				X			
SWFP	41.75583241	-87.54534967	405.78						X	
Springfield Ave. Pump Station	41.912739	-87.722673	412.70				X			
Taft HS	41.98433233	-87.7920017	416.72						X	
Cicero Cook County Trailer	41.85524313	-87.7524697	405.94	X					X	
Cicero Liberty School	41.86442642	-87.74890238	406.97				X			
Des Plaines	42.06028469	-87.86322543	421.30				X		X	
Evanston	42.062053	-87.675254	429.00						X	
Summit Graves Elementary	41.78276601	-87.80537679	396.77				X			
Lisle Morton Arboretum	41.81304939	-88.0728269	388.89						X	
Naperville	41.77107094	-88.15253365	381.71				X			
Effingham	39.06715932	-88.54893401	144.46						X	
Knight Prairie	38.08215516	-88.6249434	149.16				X		X	
Jerseyville	39.101439	-90.344494	48.36				X		X	
Stockton	42.4869	-89.9997	421.89						X	
Aurora	41.78471651	-88.32937361	376.67				X			

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Elgin Larsen Junior High	42.04914776	-88.27302929	405.40						X	
Elgin McKinley Schol	42.050403	-88.28001471	405.30				X			
Zion	42.4675733	-87.81004705	463.63						X	
Alton Clara Barton School	38.89018605	-90.14803114	21.77						X	
Alton SIU Dental Clinic	38.90308534	-90.14316803	23.21				X			
Granite City (Fire Station #1)	38.70453426	-90.13967484	1.33			X	X			
Granite City (Gateway Medical Center)	38.7006315	-90.14476267	0.74				X			
Highland	38.869	-89.6228	49.47						X	
Maryville	38.72657262	-89.95996251	16.68						X	
Cary	42.22144166	-88.24220734	424.00				X		X	
Normal	40.51873537	-88.99689571	225.54				X		X	
Peoria City Office Building	40.697326	-89.584084	227.88				X			
Peoria Fire Station	40.68742038	-89.60694277	226.39						X	
Peoria Heights	40.74550393	-89.58586902	233.08						X	
Houston	38.17627761	-89.78845862	65.56				X		X	
Rock Island	41.51472697	-90.51735026	315.18				X		X	
Springfield Agricultural Building	39.83192087	-89.64416359	133.71				X			
Springfield Illinois Building	39.831522	-89.640926	133.76						X	
Mount Carmel	38.397276	-87.773631	209.09		X					
Braidwood	41.22153707	-88.19096718	326.75				X		X	
Joliet	41.52688509	-88.11647381	359.19				X			
Loves Park	42.33498222	-89.0377748	415.54							
Rockford Fire Department	42.4670002	-89.08917	428.90				X			
Rockford Health Department	42.26308105	-89.09276716	406.72						X	
				7	14	4	33	3	37	3

		Overall	NO2	SO2	PM10	PM2.5	CO	Ozone	Pb
Closest Monitor	**Distance (km)**	0.54	9.22	9.22	1.33	0.74	9.22	9.22	0.54
	Name	nite City (Air Produ	East St. Louis	ast St. Lou	ite City (Fire Statio	Gateway Me	ast St. Loui	East St. Louis	nite City (Air Products)

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FEDERAL_ID	NAME_PLANT	OP_Type	UTM_E_X	UTM_N_Y	Elevation	EMIS_YEAR	TPY-PTE	TPY-Actuals	Distance	Jefferson		St. Charles		St. Louis County		St. Louis City		Actual Impact Removal	Impact Removal
										PTE	Actuals*	PTE	Actuals*	PTE	Actuals*	PTE	Actuals*		
2909990002	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	P70	733471.84	4229131.13	124.42	2018.00	703.62	507.05	59.56	58.56	7.40	1.13	0.95	3.03	2.39	1.58	1.08		
2909990007	FRED WEBER INC FESTUS ASPHALT PLANT	CP-NOP	729134.40	4231428.28	121.54	2018.00	0.19	0.03	58.59	0.68	N/A	0.02	N/A	0.04	N/A	0.02	N/A		X
2909990008	US SILICA	CP-NOP	729108.25	4231444.96	121.69	2018.00	0.16	0.08	58.58	0.46	N/A	0.01	N/A	0.02	N/A	0.01	N/A		X
2909990010	BRECKENRIDGE OF JEFFERSON COUNTY PLANT 5	CP-NOP	728308.28	4231659.93	127.99	2017.00	0.01	0.00	58.64	0.21	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
2909990011	UNION PACIFIC RAILROAD CO DESOTO CAR SHOP	INT	714576.20	4224511.20	149.73	2018.00	0.05	0.00	70.80	6.24	N/A	0.01	N/A	0.02	N/A	0.00	N/A		X
2909990013	COVIA HOLDINGS CORP PEVELY	CP-NOP	722152.16	4238060.55	172.69	2017.00	0.71	0.00	55.28	0.39	N/A	0.04	N/A	0.09	N/A	0.03	N/A		X
2909990014	DDP SPECIALTY ELECTRONIC MATERIALS US INC THE RIVERSIDE PLANT	P70	728353.47	4240500.97	140.02	2018.00	3.23	0.00	50.39	58.52	37.18	0.68	0.43	2.32	1.48	1.03	0.65		
2909990015	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	P70	739491.07	4224078.19	123.13	2018.00	24836.10	18484.46	63.36	379.85	128.84	72.52	16.59	33.44	24.89	24.13	17.75		
2909990034	EASTERN MISSOURI CONCRETE HILLSBORO	CP-NOP	713982.87	4236409.34	220.33	2018.00	0.01	0.00	60.92	0.06	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
2909990046	METAL CONTAINER CORPORATION ARNOLD	P70	730800.10	4257280.94	134.39	2018.00	21.27	0.19	54.28	467.96	1.43	7.96	0.02	467.96	1.43	30.45	0.09	X	
2909990048	MERCY HOSPITAL JEFFERSON	CP-NOP	728195.03	4230846.83	128.73	2017.00	15.42	0.04	59.45	813.40	190.01	2.46	0.61	9.84	2.35	3.82	0.93		
2909990052	ENGINEERED COIL COMPANY D.B.A. DRS MARLO COIL	INT	713890.13	4259179.94	219.89	2018.00	0.02	0.00	64.04	0.22	N/A	0.01	N/A	0.02	N/A	0.00	N/A		X
2909990068	ARDAGH GLASS INC. PEVELY	P70	727306.83	4241579.49	139.96	2018.00	62.58	44.28	49.83	147.25	177.73	2.13	2.23	5.02	5.51	3.20	3.52		
2909990084	SCHAEFER MORTUARY SERVICE	CP-NOP	721906.76	4257606.53	237.03	2018.00	0.11	0.05	39.29	4.22	N/A	0.03	N/A	0.51	N/A	0.06	N/A		X
2909990092	REHR PROCESS CORPORATION IMPERIAL	CP-NOP	722606.76	4249432.22	147.20	2012.00	0.01	0.00	45.30	0.49	N/A	0.00	N/A	0.02	N/A	0.01	N/A		X
2909990101	ARNOLD READY MIX CORP CEDAR HILL SITE	CP-NOP	705038.33	4247338.03	143.30	2015.00	0.02	0.00	58.49	1.08	N/A	0.01	N/A	0.02	N/A	0.01	N/A		X
2909990111	CARONDELET CORPORATION PEVELY	INT	727491.85	4241725.78	143.95	2018.00	1.01	0.20	49.62	31.72	12.97	0.13	0.05	0.49	0.20	0.24	0.10		
2909990114	AERO METAL FINISHING	CP-NOP	718099.61	4263747.23	184.71	2014.00	1.58	0.32	37.90	85.43	57.74	0.65	0.44	78.94	53.35	0.76	0.52		
2909990116	SINCLAIR AND RUSH ARNOLD PLANT	CP-NOP	731095.76	4257755.95	134.98	2012.00	0.09	0.01	33.72	0.75	N/A	0.01	N/A	0.20	N/A	0.03	N/A		X
2909990125	NATIONAL GEOSPATIAL INTELLIGENCE AGENCY ARNOLD	CP-NOP	727174.16	4255051.22	172.61	2018.00	0.03	0.02	38.09	0.14	N/A	0.00	N/A	0.02	N/A	0.01	N/A		X
2909990146	FRED WEBER, INC. ANTONIA	CP-NOP	720102.79	4248877.71	203.44	2014.00	50.29	0.05	47.20	345.67	545.57	3.33	3.08	18.31	18.27	4.08	4.00		
2909990147	BRECKENRIDGE MATERIALS JEFFCO PLANT 12	CP-NOP	726107.87	4259055.67	139.80	2017.00	0.00	0.00	55.47	0.90	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
2909990150	ANIMAL CARE SERVICE INC FESTUS	CP-NOP	724479.42	4236856.27	132.87	2014.00	8.54	1.09	55.31	18.40	10.41	0.77	0.40	1.76	0.92	0.74	0.38		
2909990155	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	CP-NOP	728536.07	4239554.88	178.32	2011.00	1.14	0.01	53.19	77.70	10.19	0.50	0.07	1.48	0.19	0.75	0.10		
2909990156	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	CP-NOP	726459.86	4259186.04	123.25	2009.00	1.27	0.13	35.15	16.74	7.48	0.34	0.15	16.74	7.48	0.73	0.33		
2909990172	AMERICAN CREMATION SERVICES LLC FESTUS	CP-NOP	724488.55	4236853.80	133.02	2012.00	1.10	0.01	55.31	1.68	N/A	0.09	N/A	0.17	N/A	0.07	N/A		X
2909990174	SUPERIOR SOLVENTS AND CHEMICALS ARNOLD	INT	731241.07	4256633.82	126.88	2017.00	0.01	0.00	34.62	0.07	N/A	0.00	N/A	0.07	N/A	0.00	N/A		X
2909990179	H-J ENTERPRISES	CP-NOP	713197.82	4259238.84	209.56	2016.00	0.00	0.00	64.54	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
2909940007	AAA ZOELLNER MATERIALS INC	CP-NOP	718403.43	4250460.86	259.55	2012.00	3.79	0.10	47.00	60.53	3.78	0.96	0.06	1.99	0.12	1.19	0.07	X	
2909950012	PRODUCTION CASTINGS	CP-NOP	718311.53	4263597.54	166.78	2003.00	0.44	0.02	37.83	77.59	4.06	0.31	0.02	20.57	1.08	0.37	0.02	X	
2909990094	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	CP-NOP	712353.42	4251763.19	159.78	2017.00	20.62	0.77	50.12	334.37	139.75	7.09	2.52	17.68	6.07	7.32	1.89		
2918300001	AMEREN MISSOURI SIOUX ENEAGY CENTER	P70	734752.14	4310260.61	135.29	2018.00	3453.68	2276.01	26.98	6.49	4.11	149.56	35.15	59.35	29.95	17.97	11.18		
2918300004	FRED WEBER INC O'FALLON ASPHALT PLANT	INT	695429.39	4297531.36	174.87	2017.00	6.75	0.36	53.80	0.65	N/A	2.66	N/A	0.71	N/A	0.24	N/A		X
2918300010	BOEING COMPANY ST. CHARLES	P70	719409.76	4298420.37	137.44	2018.00	0.20	0.03	30.99	0.05	N/A	2.88	N/A	0.93	N/A	0.10	N/A		X
2918300019	SSM HEALTH ST JOSEPHS HOSPITAL	CP-NOP	718499.57	4295433.59	156.93	2015.00	43.80	0.10	30.88	8.63	1.86	202.75	24.88	89.40	14.74	13.42	2.56		
2918300027	MEMC LLC-ST. PETERS PLANT	INT	703282.65	4298580.54	147.29	2018.00	0.10	0.03	46.38	0.02	N/A	0.18	N/A	0.04	N/A	0.01	N/A		X
2918300029	RB MANUFACTURING LLC ST. PETERS	CP-NOP	704453.54	4298543.79	149.02	2016.00	0.05	0.00	45.24	0.01	N/A	0.53	N/A	0.03	N/A	0.02	N/A		X
2918300038	LMI AEROSPACE, INC HWY 94 PLANT	CP-NOP	719362.42	4299311.12	134.56	2018.00	0.01	0.00	31.36	0.00	N/A	0.51	N/A	0.10	N/A	0.01	N/A		X
2918300064	SCHREITER READY MIX	CP-NOP	701795.35	4298286.02	149.59	2012.00	0.01	0.00	47.75	0.00	N/A	0.40	N/A	0.01	N/A	0.01	N/A		X
2918300076	GENERAL MOTORS LLC WENTZVILLE CENTER	P70	689428.03	4299089.70	189.85	2018.00	3351.44	0.48	59.99	40.28	40.27	209.59	209.40	45.45	45.41	18.90	18.89		
2918300077	O'FALLON CASTING LLC	INT	702963.32	4297576.48	150.80	2018.00	0.05	0.00	46.45	0.01	N/A	0.49	N/A	0.02	N/A	0.01	N/A		X
2918300079	ST CHARLES COUNTY CONCRETE WENTZVILLE PLANT	CP-NOP	683590.90	4297292.12	200.89	2012.00	0.03	0.00	65.41	0.00	N/A	0.17	N/A	0.00	N/A	0.00	N/A		X
2918300093	MFA AGRI SERVICES WENTZVILLE	CP-NOP	686261.70	4297939.57	190.90	2014.00	0.01	0.00	62.88	0.00	N/A	0.63	N/A	0.01	N/A	0.00	N/A		X
2918301033	SSM HEALTH ST JOSEPH HOSPITAL WEST	CP-NOP	693164.96	4297283.00	162.76	2014.00	16.88	0.00	55.97	3.39	3.39	100.30	100.30	7.31	7.31	3.37	3.37		
2918301102	ZOLTEK CORPORATION WELDON SPRINGS	CP-NOP	701432.03	4285877.66	179.84	2018.00	0.09	0.00	46.73	0.02	N/A	0.83	N/A	0.26	N/A	0.01	N/A		X
2918301303	BLASTCO INC	CP-NOP	690213.84	4297755.23	165.62	2012.00	9.83	0.17	58.96	2.15	0.14	305.34	19.99	7.03	0.46	2.38	0.16		
2918301331	SUPERIOR HOME PRODUCTS INC	P70	688266.36	4298854.51	194.48	2018.00	0.00	0.00	61.08	0.00	N/A	0.03	N/A	0.00	N/A	0.00	N/A		X
2918301413	ALPLA, INC WOODBRIDGE SITE - ST. PETERS	CP-NOP	704579.75	4298266.32	148.26	2018.00	0.01	0.00	45.05	0.00	N/A	0.85	N/A	0.01	N/A	0.00	N/A		X
2918301833	ST. CHARLES COUNTY HUMANE SERVICES COTTLEVILLE	CP-NOP	705392.06	4292481.08	146.24	2018.00	1.24	0.16	43.13	0.26	N/A	2.82	N/A	0.79	N/A	0.21	N/A		X
2918301884	TRUE MANUFACTURING CO O'FALLON	INT	702777.57	4297717.78	150.94	2018.00	13.89	9.02	46.66	3.03	2.98	105.34	102.36	8.84	8.64	4.69	4.52		
2918301899	CRAFTSMEN INDUSTRIES INC ELM POINT PLANT	CP-NOP	716108.25	4299844.40	134.44	2012.00	0.00	0.00	34.59	0.00	N/A	0.11	N/A	0.01	N/A	0.00	N/A		X
2918301961	SEYER INDUSTRIES INC	CP-NOP	709684.88	4297541.08	152.85	2018.00	0.03	0.00	39.93	0.01	N/A	0.68	N/A	0.04	N/A	0.01	N/A		X
2918302011	T AND J REALTY LLC KIENSTRA READY MIX OF FORISTELL, LLC	CP-NOP	678377.07	4297944.62	213.79	2012.00	0.19	0.00	70.66	0.04	N/A	2.91	N/A	0.06	N/A	0.02	N/A		X
2918302217	EASTERN MISSOURI CONCRETE ST. CHARLES PLANT	CP-NOP	717056.43	4291933.73	138.56	2017.00	0.04	0.00	31.51	0.01	N/A	0.29	N/A	0.29	N/A	0.07	N/A		X
2918302223	CHEMICO SYSTEMS WENTZVILLE	CP-NOP	688080.92	4298911.66	195.38	2012.00	16.83	0.03	61.28	3.21	0.03	354.44	3.02	9.52	0.08	2.20	0.02	X	
2918302241	PITMAN CREMATION SERVICES WENTZVILLE	CP-NOP	684231.94	4299541.47	184.10	2018.00	0.68	0.00	65.17	0.06	N/A	1.15	N/A	0.14	N/A	0.04	N/A		X
2918302242	BAUE CARE AND CREMATION CENTER	CP-NOP	711083.11	4297080.45	161.62	2017.00	1.10	0.07	38.46	0.18	N/A	1.15	N/A	0.32	N/A	0.11	N/A		X
2918302244	HUTCHEN-STYGAR FUNERAL AND CREMATION CENTER	CP-NOP	705381.52	4291782.14	143.24	2015.00	1.43	0.07	43.05	0.28	N/A	3.09	N/A	0.99	N/A	0.23	N/A		X
2918302245	HANSEN'S TREE SERVICE O'FALLON	CP-NOP	697357.18	4298189.47	178.41	2016.00	27.14	0.15	52.05	4.79	0.28	2429.87	143.50	23.09	1.36	9.26	0.55		
2918302247	GARDNER DENVER NASH LLC ST. PETERS	CP-NOP	704289.02	4298324.33	151.91	2018.00	0.01	0.00	45.35	0.00	N/A	0.23	N/A	0.01	N/A	0.00	N/A		X
2918302248	BROOKER CREMATION SERVICES EHMANN	CP-NOP	712311.97	4297924.40	146.28	2016.00	2.46	0.25	37.52	0.49	N/A	4.97	N/A	1.32	N/A	0.45	N/A		X
2918302257	LMI AEROSPACE, INC. FOUNTAIN LAKES	CP-NOP	734982.89	4300757.73	133.45	2014.00	0.02	0.00	35.97		N/A		N/A	0.01	N/A		N/A		X
2918302259	GROUND EFFECTS, LLC WENTZVILLE	CP-NOP	687833.12	4299669.99	190.21	2018.00	0.01	0.01	61.67	0.00	N/A	0.25	N/A	0.01	N/A	0.00	N/A		X
2918302262	KNAPHEIDE EQUIPMENT CO	CP-NOP	687499.27	4299686.07	192.92	2018.00	0.01	0.00	62.00	0.00	N/A	0.24	N/A	0.00	N/A	0.00	N/A		X
2918302263	SYNERGETICS	CP-NOP	698268.93	4288385.69	158.66	2018.00	0.01	0.00	49.91	0.00	N/A	0.26	N/A	0.02	N/A	0.00	N/A		X
2918302264	AMERISTAR ST. CHARLES	CP-NOP	718432.28	4294005.30	134.26	2018.00	0.44	0.05	30.57	0.15	0.03	275.10	45.93	91.70	15.31	0.49	0.08		
2918302265	ST. CHARLES COUNTY POLICE DEPT.	CP-NOP	702525.36	4299647.56	151.79	2018.00	0.07	0.00	47.39	0.01	N/A	1.25	N/A	0.07	N/A	0.03	N/A		X
2918350015	NIKE IHM INC ST. CHARLES	CP-NOP	701677.83	4286267.70	189.75	2018.00	0.00	0.00	46.48	0.00	N/A	0.03	N/A	0.01	N/A	0.00	N/A		X
2918390001	EASTERN MISSOURI CONCRETE WENTZVILLE	CP-NOP	685114.53	4297599.45	196.96	2017.00	0.00	0.00	63.95	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
29183P211	WESTERN READY MIX WENTZVILLE	CP-NOP	690232.58	4298902.21	187.55	2014.00	0.01	0.00	59.17	0.00	N/A	0.06	N/A	0.00	N/A	0.00	N/A		X
2918900010	AMEREN MISSOURI MERAMEC ENERGY CENTER	P70	732736.78	4253752.81	127.48	2018.00	15075.91	3346.06	36.90	155.83	34.38	33.20	7.38	172.42	38.28	72.63	16.10		
2918900012	INTERNATIONAL PAPER- PLANT 7396	CP-NOP	720616.57	4269263.51	142.35	2016.00	3.27	0.01	32.67	4.10	N/A	0.96	N/A	15.72	N/A	0.99	N/A		X
2918900013	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	CP-NOP	722244.75	4279363.47	200.47	2016.00	99.08	0.04	26.97	32.87	5.47	49.18	8.45	808.43	73.18	42.22	4.14		
2918900020	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	INT	726250.11	4283348.63	210.39	2018.00	46.18	0.19	22.18	14.61	1.55	26.47	2.82	454.11	48.30	33.89	3.49		
2918900021	U. S. SILICA COMPANY PACIFIC	CP-NOP	698244.91	4262010.04	142.69	2018.00	112.94	0.08	55.75	126.39	126.36	48.34	48.32	396.52	396.40	5.13	5.17		
2918900022	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	CP-NOP	722224.73	4280414.44	192.68	2015.00	49.14	0.09	26.72	12.38	12.07	12.31	12.20	78.27	77.52	10.67	10.52		
2918900032	MONSANTO CHESTERFIELD VILLAGE	INT	712608.90	4282124.50	178.67	2018.00	46.14	0.36	35.86	22.92	9.67	97.28	41.05	495.14	183.63	20.37	8.60		
2918900040	FRED WEBER, INC. JEFFERSON BARRICKS	CP-NOP	736875.29	4262156.73	128.55	2015.00	3.68	0.10	27.14	1.36	N/A	0.31	N/A	3.79	N/A	0.53	N/A		X
2918900041	MIDWEST, LLC	CP-NOP	725259.72	4265458.11	125.19	2009.00	0.19	0.00	31.33	0.16	N/A	0.03	N/A	0.27	N/A	0.04	N/A		X
2918900042	WASHINGTON UNIVERSITY DANFORTH CAMPUS	INT	734425.40	4281362.46	154.91	2017.00	508.58	0.12	14.78	125.63	124.86	94.39	90.70	894.16	893.18	789.75	750.57		
2918900057	ST. LOUIS POST-DISPATCH DUNLAP IND DR	NOP	723552.04	4288010.51	164.55	2017.00	0.01	0.00	24.63	0.01	N/A	0.03	N/A	0.44	N/A	0.03	N/A		X

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291890064	SUNNEN PRODUCTS COMPANY MAPLEWOOD	INT	732332.04	4277122.52	152.33	2017.00	0.77	0.01	18.57	0.37	N/A	0.24	N/A	3.09	N/A	2.00	N/A		X
291890065	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	INT	728947.29	4291571.16	164.29	2018.00	3.60	0.06	19.78	0.44	0.03	0.87	0.05	10.40	0.60	0.87	0.05	X	
291890069	THE QUIKRETE COMPANIES, INC. VALLEY PARK	INT	719634.33	4269966.70	129.52	2018.00	0.36	0.01	33.14	0.20	N/A	0.07	N/A	0.30	N/A	0.05	N/A		X
291890101	BRECKENRIDGE MATERIAL CO PLANT GA	CP-NOP	720634.29	4291120.10	140.92	2017.00	0.02	0.00	27.85	0.01	N/A	0.03	N/A	0.23	N/A	0.01	N/A		X
291890104	BRECKENRIDGE MATERIAL CO-PLANT 3	CP-NOP	710839.02	4282233.37	142.05	2017.00	0.01	0.00	37.60	0.01	N/A	0.07	N/A	0.20	N/A	0.01	N/A		X
291890111	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	INT	721914.39	4294042.31	140.97	2017.00	10.53	0.28	27.21	1.42	1.17	27.60	27.59	123.87	123.81	5.00	4.97		
291890140	STOUT MARKETING JENNINGS	CP-NOP	738591.48	4288667.89	149.61	2013.00	0.03	0.00	9.74	0.01	N/A	0.04	N/A	1.53	N/A	1.53	N/A		X
291890201	FRED WEBER, INC. ANTIRE	CP-NOP	731291.07	4264547.49	134.72	2017.00	63.51	1.78	43.08	214.93	18.87	14.81	1.30	214.93	18.87	5.22	0.46		
291890217	METROPOLITAN ST. LOUIS SEWER DISTRICT LEMAY WWTP	P70	737818.81	4268121.76	139.71	2018.00	7.37	0.63	21.38	2.04	N/A	0.55	N/A	1.97	N/A	1.13	N/A		X
291890221	PM RESOURCES, INC. VIRBAC ANIMAL HEALTH	CP-NOP	722483.25	4294399.14	146.43	2018.00	0.04	0.00	26.76	0.01	N/A	0.05	N/A	0.14	N/A	0.01	N/A		X
291890230	THE BOEING COMPANY ST. LOUIS	P70	728742.77	4293777.11	167.09	2018.00	116.09	0.40	20.62	11.80	11.09	25.24	22.47	114.96	99.52	21.34	19.46		
291890283	GOLDEN TRIANGLE CONCRETE COMPANY ANTIRE QUARRY	CP-NOP	711341.68	4264539.67	136.17	2016.00	0.01	0.00	43.04	0.19	N/A	0.01	N/A	0.31	N/A	0.01	N/A		X
291890308	CHAMP LANDFILL COMPANY LLC	P70	720845.43	4291144.98	147.70	2018.00	13.25	0.17	27.65	0.99	0.99	3.98	3.97	15.62	15.58	1.78	1.78		
291890310	ADVANCED DISPOSAL SERVICES OAK RIDGE LANDFILL	P70	715270.71	4270434.90	177.84	2018.00	11.04	1.79	36.75	10.72	1.74	3.17	0.51	16.31	2.65	1.65	0.27	X	
291890312	BRIDGETON LANDFILL, LLC	P70	722107.35	4294454.70	139.99	2018.00	746.28	74.99	27.14	114.22	47.62	550.27	220.67	951.87	385.00	176.08	72.12		
291890315	FOL TAPE LLC FENTON	P70	722400.26	4295382.25	132.32	2018.00	0.00	0.00	31.12	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
291890318	SSM HEALTH ST MARYS HOSPITAL	INT	734075.92	4279544.88	181.84	2017.00	63.57	0.25	15.86	9.19	8.12	4.81	4.61	59.03	58.42	58.03	58.42		
291890321	LHB INDUSTRIES BERKELEY	CP-NOP	731030.73	4293368.80	158.44	2015.00	0.01	0.00	18.33	0.00	N/A	0.01	N/A	0.13	N/A	0.02	N/A		X
291890326	AIR PRODUCTS-PRISM MEMBRANES DIV OF AIR PRODUCTS AND CHEMICALS	CP-NOP	724210.29	4286383.57	160.25	2017.00	0.03	0.00	23.95	0.02	N/A	0.05	N/A	0.44	N/A	0.05	N/A		X
291891012	BELTSERVICE CORP	P70	719386.00	4293877.45	134.24	2018.00	0.01	0.00	29.62	0.00	N/A	0.04	N/A	0.05	N/A	0.00	N/A		X
291891029	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	INT	723046.72	4292134.06	166.76	2018.00	40.12	0.06	25.66	6.66	6.14	25.77	23.82	94.28	87.21	10.48	9.70		
291891040	VALHALLA CEMETERY CREMATORY AND MAUSOLEU ST. LOUIS	CP-NOP	733090.91	4285958.54	185.46	2012.00	0.48	0.00	15.09	0.10	N/A	0.09	N/A	0.68	N/A	0.28	N/A		X
291891052	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	CP-NOP	736944.98	4264089.51	156.01	2015.00	142.86	0.41	25.36	113.94	126.31	39.65	48.62	1119.55	1473.72	148.02	173.90		
291891059	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	CP-NOP	739738.60	4295554.78	175.32	2016.00	1.80	0.03	12.12	0.29	0.28	4.89	4.80	112.12	109.93	9.51	9.32		
291891071	HONEYWELL INTELLIGRATED	CP-NOP	728889.54	4283933.87	189.80	2008.00	0.03	0.01	19.48	0.01	N/A	0.03	N/A	0.49	N/A	0.09	N/A		X
291891093	BODINE ALUMINUM INC WALTON ROAD	CP-NOP	730791.15	4286068.83	187.38	2018.00	23.00	2.53	17.38	4.88	1.02	6.26	1.21	66.11	11.22	11.74	2.26		
291891097	REICHHOLD LLC 2 VALLEY PARK	INT	718899.54	4269850.38	129.28	2017.00	150.32	0.08	33.83	215.21	215.10	49.74	49.71	656.38	656.00	65.65	65.62		
291891101	ST. LUKE'S HOSPITAL WOODS MILL ROAD	INT	717334.17	4280934.01	155.10	2017.00	31.26	0.04	31.38	6.38	N/A	4.17	N/A	13.02	N/A	1.23	N/A		X
291891114	LOGAN UNIVERSITY CHESTERFIELD	CP-NOP	733945.76	4278742.22	194.89	2012.00	0.43	0.02	35.16	0.28	N/A	0.22	N/A	1.11	N/A	0.08	N/A		X
291891133	MEMORIAL PARK CREMATORY JENNINGS	CP-NOP	736164.03	4288282.79	186.25	2012.00	2.86	0.07	12.08	0.47	N/A	0.54	N/A	4.10	N/A	1.58	N/A		X
291891155	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	CP-NOP	728489.70	4265428.04	193.36	2017.00	33.90	0.11	29.07	63.98	19.50	9.37	2.39	466.90	97.08	16.89	5.74		
291891172	MOUNT HOPE CEMETERY AND MAUSOLEUM CO LEMAY FERRY ROAD	CP-NOP	736020.58	4268202.21	151.94	2012.00	0.71	0.00	22.24	0.36	N/A	0.10	N/A	0.96	N/A	0.46	N/A		X
291891175	NEW ST MARCUS CEMETERY GRAVOIS	CP-NOP	735277.67	4271563.03	144.04	2017.00	0.95	0.03	19.98	0.50	N/A	0.18	N/A	2.69	N/A	2.69	N/A		X
291891205	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	P70	718333.79	4290583.38	136.51	2018.00	30.49	5.56	30.06	12.58	2.46	188.29	33.45	812.30	105.04	29.40	5.70		
291891226	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	INT	715996.20	4268469.87	127.91	2018.00	115.64	5.49	37.04	96.19	19.99	21.58	4.49	173.83	36.13	16.89	3.51		
291891248	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	INT	732929.25	4259955.19	126.82	2017.00	8.47	0.28	30.90	5.19	0.79	0.75	0.12	15.49	2.37	1.21	0.19	X	
291891249	FRED WEBER INC - NORTH ASPHALT H AND B NORTH ASPHALT	INT	720614.10	4290798.15	141.38	2017.00	8.47	1.01	27.82	1.00	0.50	3.45	1.73	9.49	4.75	0.84	0.42	X	
291891250	FRED WEBER INC. - NORTH ASPHALT B-G NORTH ASPHALT, B-G	INT	720721.92	4290857.59	146.73	2017.00	6.05	0.14	27.73	0.76	0.06	2.36	0.19	7.50	0.60	0.61	0.05	X	
291891251	MARK ANDY INC CHESTERFIELD	CP-NOP	705452.63	4282916.47	139.91	2012.00	0.00	0.00	42.88	0.00	N/A	0.01	N/A	0.01	N/A	0.00	N/A		X
291891259	MACLAN INDUSTRIES	CP-NOP	742056.49	4291436.76	152.04	2013.00	2.63	0.00	7.64	0.85	0.33	4.98	1.90	89.71	34.23	89.71	34.23		
291891268	BRECKENRIDGE MATERIALS CO, PLANT 68	CP-NOP	720620.54	4291166.38	140.80	2017.00	0.02	0.00	27.87	0.01	N/A	0.03	N/A	0.28	N/A	0.01	N/A		X
291891269	GLIDEAWAY MFG COMPANY ST. JOHN	CP-NOP	731953.94	4287278.39	176.42	2016.00	0.00	0.00	16.21	0.00	N/A	0.00	N/A	0.05	N/A	0.00	N/A		X
291891289	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	CP-NOP	715427.34	4284896.78	137.71	2018.00	22.22	9.35	32.79	9.47	0.64	50.21	3.55	121.83	8.58	9.26	0.65		
291891299	I B M GLOBAL SERVICES HAZELWOOD	CP-NOP	728059.74	4294389.33	177.61	2015.00	0.78	0.00	21.47	0.08	N/A	0.10	N/A	0.54	N/A	0.10	N/A		X
291891301	RELIABLE BIOPHARMACEUTICAL WALTON ROAD	CP-NOP	730669.81	4285566.69	184.12	2015.00	0.02	0.01	17.53	0.01	N/A	0.01	N/A	0.26	N/A	0.03	N/A		X
291891474	SPIRE MISSOURI, EAST INC.	CP-NOP	736637.09	4302290.45	161.69	2018.00	3.98	0.02	19.27	0.62	0.24	39.86	16.28	355.22	158.39	7.18	2.89		
291891476	MISSOURI AMERICAN WATER COMPANY MERAMEC BOTTOMS	CP-NOP	729844.61	4260421.67	135.93	2013.00	0.00	0.00	32.14	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A		X
291891489	GKN AEROSPACE NORTH AMERICA, INC. BERKELEY	P70	729005.49	4293562.36	164.61	2018.00	0.89	0.08	20.30	0.08	N/A	0.49	N/A	5.35	N/A	0.42	N/A		X
291891507	PATHEON BIOLOGICS, LLC	CP-NOP	731395.21	4290195.85	189.51	2018.00	0.89	0.03	17.10	0.11	N/A	0.14	N/A	0.82	N/A	0.20	N/A		X
291891520	F AND S PRINTING ST. LOUIS	CP-NOP	726924.55	4285318.88	192.04	2017.00	0.01	0.00	21.29	0.00	N/A	0.01	N/A	0.27	N/A	0.02	N/A		X
291891521	FRED WEBER, INC. FT. BELLE	CP-NOP	739499.97	4302900.13	134.04	2015.00	11.44	0.18	18.24	1.96	0.22	1129.52	124.99	1129.52	124.99	16.07	1.97		
291891533	BRECKENRIDGE MATERIAL COMPANY PLANT 15	CP-NOP	703604.72	4284148.10	137.86	2017.00	0.01	0.00	44.63	0.00	N/A	0.06	N/A	0.11	N/A	0.00	N/A		X
291891534	A.G. RECYCLING	CP-NOP	734844.18	4284158.21	160.30	2008.00	10.16	0.20	13.58	3.63	1.38	4.58	1.74	131.37	50.04	61.11	23.28		
291891541	PACKAGING CONCEPTS INC GREEN PARK	CP-NOP	732664.82	4267639.09	150.56	2016.00	0.01	0.00	24.67	0.00	N/A	0.00	N/A	0.01	N/A	0.00	N/A		X
291891544	EDWARD JONES MANCHESTER	CP-NOP	722364.20	4275958.32	202.01	2010.00	1.68	0.00	27.99	2.61	0.01	2.40	0.01	278.68	0.76	3.15	0.01	X	
291891546	SCHRADER FUNERAL HOME MANCHESTER	CP-NOP	713670.30	4274422.60	179.29	2012.00	0.10	0.01	36.65	0.07	N/A	0.03	N/A	0.32	N/A	0.02	N/A		X
291891562	ECO RECYCLING PAGE AVE	CP-NOP	734708.62	4284050.72	167.34	2012.00	0.02	0.00	13.73	0.01	N/A	0.01	N/A	0.16	N/A	0.09	N/A		X
291891564	JOST CHEMICAL CO.	CP-NOP	731957.52	4288080.73	167.12	2016.00	0.03	0.02	16.25	0.01	N/A	0.02	N/A	0.85	N/A	0.06	N/A		X
291891566	SPECGX, LLC WEBSTER GROVES	CP-NOP	731463.13	4276675.43	146.11	2013.00	0.03	0.03	19.54	0.01	N/A	0.00	N/A	0.02	N/A	0.01	N/A		X
291891580	MISSOURI-AMERICAN WATER CO FLORISSANT	CP-NOP	728394.88	4300010.04	141.06	2017.00	1.49	0.04	23.75	0.35	9.77	174.32	4861.60	295.35	8236.95	2.65	74.00		
291891590	CENVEO - ST. LOUIS EUREKA	CP-NOP	703439.56	4264593.86	154.60	2017.00	0.05	0.01	49.90	0.10	N/A	0.03	N/A	0.35	N/A	0.01	N/A		X
291891591	AMEREN MISSOURI MARYLAND HEIGHTS ENERGY CENTER	CP-NOP	720783.03	4290953.26	146.57	2018.00	1.11	0.31	27.68	0.06	N/A	0.10	N/A	0.23	N/A	0.03	N/A		X
291891652	PROFESSIONAL FUNERAL DIRECTOR SERVICES JENNINGS	CP-NOP	738230.09	4288878.89	149.62	2016.00	0.80	0.01	10.13	0.35	0.01	1.10	0.04	115.58	3.93	115.58	3.93	X	
291891685	THE HARPER COMPANY	CP-NOP	731184.93	4292013.86	176.46	2012.00	1.20	0.00	17.74	0.26	0.26	0.80	0.80	10.01	10.01	1.17	1.17		
291891697	VI-JON INC PAGE	CP-NOP	731243.57	4285291.47	175.82	2016.00	0.06	0.01	16.98	0.02	N/A	0.03	N/A	0.69	N/A	0.08	N/A		X
291891698	LOVING HEARTS PET MEMORIAL SERVICES EUREKA	CP-NOP	704021.40	4264414.32	148.40	2018.00	3.15	0.10	49.51	4.03	0.55	1.54	0.21	16.10	2.18	0.50	0.07	X	
291891706	INTERNATIONAL FOOD PRODUCTS CORP. AVIATOR	CP-NOP	729526.18	4294467.82	159.70	2016.00	0.03	0.00	20.13	0.01	N/A	0.03	N/A	0.54	N/A	0.02	N/A		X
291891720	MILLSTONE-WEBER AIRPORT CONCRETE PLANT 7002	CP-NOP	726087.98	4292518.43	176.78	2015.00	0.05	0.00	22.79	0.01	N/A	0.04	N/A	0.48	N/A	0.03	N/A		X
291891733	NESTLE PURINA SUPPORT CENTER LAKE BLUFF DRIVE	CP-NOP	732883.47	4267324.06	139.76	2017.00	0.07	0.00	24.78	0.17	N/A	0.03	N/A	2.83	N/A	0.28	N/A		X
291891739	UNITED INDUSTRIES CORP DBA CHEMSISCO	CP-NOP	731399.10	4285753.76	186.33	2018.00	0.03	0.01	16.79	0.02	N/A	0.03	N/A	0.44	N/A	0.10	N/A		X
295100003	ANHEUSER-BUSCH INC ST. LOUIS	P70	743002.81	4275906.67	142.81	2018.00	2294.43	161.86	12.09	117.04	16.15	70.20	6.58	434.46	33.33	18226.29	1026.16		
295100017	MALLINCKRODT N SECOND	P70	744362.95	4283022.76	127.99	2018.00	55.69	3.68	5.38	28.80	8.52	33.91	10.48	159.43	34.13	8115.42	3408.39		
295100027	PRECOAT METALS	P70	739365.77	4273999.99	144.48	2018.00	0.41	0.04	15.56	0.05		0.03		0.08		0.29			X
295100031	ADM GRAIN COMPANY ST. LOUIS	INT	744141.30	4284952.90	129.20	2018.00	0.22	0.00	4.45	0.11	0.06	0.18	0.10	0.91	0.52	3.93	5.68		
295100036	BUCKEYE TERMINALS LLC SOUTH ST LOUIS-OLD CLARK TERMINAL	CP-NOP	741957.84	4273938.51	128.53	2018.00	0.05	0.01	14.31	0.06		0.03		0.22		3.15			X
295100038	ASHLEY ENERGY LLC	P70	745321.30	4280225.01	128.51	2018.00	150.76	1.25	7.20	18.71	19.14	8.22	8.42	23.93	24.53	34.37	34.54		
295100040	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	P70	738259.22	4279906.98	154.64	2018.00	152.58	0.58	12.08	24.97	10.09	18.73	6.45	131.51	52.97	873.62	321.67		
295100047	FRED WEBER INC KINGSHIGHWAY ASPHALT	INT	737928.10	4278514.12	140.93	2017.00	3.63	0.06	13.19	0.56		0.38		1.96		2.84			X
295100053	METROPOLITAN ST. LOUIS SEWER DISTRICT BISSELL POINT WWTP	P70	743783.86	4284552.97	131.19	2018.00	3.73	2.98	4.93	0.37		0.16		0.42		0.53			X
295100054	NATIONAL GRAPHICS	CP-NOP	741348.03	4274954.64	163.86	2006.00	0.01	0.00	13.70	0.00		0.00		0.01		0.05			X
295100056	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	CP-NOP	741047.52	4280704.99	163.99	2014.00	309.60	0.06	9.39	54.61	4.11	34.22	4.05	91.32	17.51	289.13	134.93		
295100057	PROCTER AND GAMBLE ST. LOUIS	INT	743507.63	4284424.63	128.96	2017.00	36.80	0.05	5.24	6.53	0.01	4.68	0.01	27.92	0.04	51.42	0.07	X	
295100063	HENKEL, ST. LOUIS	CP-NOP	741857.10	4286434.47	128.42	2017.00	0.43	0.01	6.31	0.10		0.22		0.84		5.97			X

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295100066	ELEMENTIS SPECIALTIES INC	P70	737002.56	4278454.04	137.90	2018.00	0.24	0.02	13.95	0.09		0.06		0.67		4.98			X
295100070	KCI SPECIALTY PRODUCTS INC CARONDELET PLANT	P70	737985.63	4270043.36	126.75	2018.00	714.93	0.13	19.64	202.45	202.45	74.08	74.08	427.66	427.66	543.62	543.62		
295100096	ELANTAS PDG, INC. SECOND ST	P70	743167.88	4284941.73	128.65	2018.00	28.22	0.02	5.34	5.44	5.44	5.61	5.61	34.16	34.16	152.29	152.29		
295100118	IW ALUMINUM ST. LOUIS	P70	740003.39	4271318.74	129.21	2018.00	1.32	0.45	17.53	1.24	1.24	0.39	0.39	11.46	11.46	61.53	61.53		
295100159	ADM MILLING COMPANY ST. LOUIS MILL	CP-NOP	740179.22	4285267.05	144.53	2018.00	0.02	0.00	8.33	0.01	N/A	0.01	N/A	0.08	N/A	0.30	N/A		X
295100179	ETAIGRANI ELEVATOR USA US OLRUM	CP-NOP	739212.90	4269466.53	129.09	2017.00	0.05	0.00	19.54	0.06	N/A	0.02	N/A	0.60	N/A	1.30	N/A		X
295100181	INTERNATIONAL PAPER ST. LOUIS	CP-NOP	738918.10	4285784.09	151.65	2013.00	0.05	0.02	9.30	0.01	N/A	0.01	N/A	0.13	N/A	0.17	N/A		Y
295100200	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	CP-NOP	741441.37	4274961.73	184.77	2016.00	6.99	0.01	13.65	2.36	2.36	1.54	1.54	4.84	4.84	20.53	20.53		
295100201	KOP-COAT INC.	CP-NOP	737445.96	4277202.22	161.51	2007.00	0.01	0.00	14.43	0.00	N/A	0.00	N/A	0.02	N/A	0.14	N/A		X
295100204	BARNES JEWISH HOSPITAL	INT	738059.57	4279829.93	155.46	2018.00	15.84	0.20	12.29	6.11	6.11	4.78	4.78	32.59	32.92	140.62	142.04		
295100269	SENSIENT COLORS LLC	CP-NOP	742516.54	4281683.89	155.36	2017.00	0.63	0.00	7.64	0.09	N/A	0.08	N/A	0.30	N/A	1.01	N/A		X
295100391	HERMANN OAK LEATHER CO	INT	744001.08	4283643.42	128.40	2017.00	0.09	0.01	5.24	0.06	N/A	0.08	N/A	0.27	N/A	2.36	N/A		X
295100405	ABLE RACK CO N BROADWAY	CP-NOP	741485.33	4286249.89	130.96	2008.00	0.01	0.00	6.70	0.00	N/A	0.00	N/A	0.02	N/A	0.08	N/A		X
295100417	LOY LANGE BOX CO ST. LOUIS	CP-NOP	743779.13	4276624.85	129.26	2015.00	0.06	0.00	11.18	0.04	N/A	0.03	N/A	0.14	N/A	1.04	N/A		X
295100491	SPORTSPLAY EQUIPMENT	CP-NOP	737653.93	4285196.76	161.52	2015.00	0.01	0.00	10.63	0.01	N/A	0.01	N/A	0.18	N/A	0.34	N/A		X
295100561	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	CP-NOP	737686.12	4278652.89	140.26	2017.00	16.03	0.00	13.29	6.32	2.45	5.23	1.89	39.82	14.20	156.66	55.67		
295100671	BEN HUR CONSTRUCTION AND STEELWORX LLC	CP-NOP	740305.24	4285378.12	139.62	2012.00	0.03	0.00	7.99	0.02	N/A	0.03	N/A	0.16	N/A	1.05	N/A		X
295100674	STRATEGIC MATERIALS INC BRANCH ST	CP-NOP	744711.03	4282472.95	137.40	2017.00	0.01	0.00	5.56	0.01	N/A	0.01	N/A	0.04	N/A	2.07	N/A		X
295100697	SIGMA - ALDRICH MFG LLC DEKALB FACILITY	P70	742482.23	4274782.24	147.81	2018.00	5.44	0.07	13.33	1.54	0.02	0.87	0.01	3.64	0.05	17.73	0.20	X	
295100807	KIENSTRA MATERIALS COMPANY LLC TYLER	CP-NOP	745045.02	4281427.38	128.53	2012.00	0.01	0.00	6.24	0.00	N/A	0.01	N/A	0.02	N/A	0.20	N/A		X
295100809	PQ CORPORATION -THE	P70	739053.43	4285317.19	150.56	2018.00	0.30	0.19	9.23	0.08	0.06	0.10	0.08	1.74	1.55	12.06	10.71		
295101011	MICROFINISH IPC LLC GRATIOT	CP-NOP	739565.05	4279341.23	147.63	2018.00	0.07	0.01	11.40	0.06	N/A	0.04	N/A	0.36	N/A	2.64	N/A		X
295101088	SCHAEFFER MFG	INT	743869.37	4276134.19	128.12	2018.00	0.05	0.01	11.53	0.03	N/A	0.02	N/A	0.07	N/A	1.46	N/A		X
295101093	BRENNTAG MID-SOUTH INC	P70	739817.63	4270970.39	127.40	2018.00	0.03	0.00	17.93	0.02	N/A	0.01	N/A	0.09	N/A	0.57	N/A		X
295101204	BI STATE DEVELOPMENT AGENCY DBA METRO MAIN REPAIR FACILITY	CP-NOP	741158.80	4279328.49	144.87	2018.00	0.03	0.00	10.27	0.01	N/A	0.01	N/A	0.07	N/A	0.54	N/A		X
295101216	U S POLYMERS-ACCUREZ, LLC PRIMM STREET	CP-NOP	738971.88	4269685.75	138.29	2015.00	0.04	0.00	19.46	0.01	N/A	0.00	N/A	0.04	N/A	0.17	N/A		X
295101270	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	CP-NOP	737162.32	4278817.40	145.02	2013.00	5.62	0.87	13.61	1.55	0.83	0.93	0.50	8.90	4.73	9.54	5.09		
295101349	ST. LOUIS UNIV HEALTH SCIENCES CENTER	CP-NOP	740464.71	4278467.32	166.05	2016.00	10.63	0.04	11.37	2.33	0.25	1.66	0.18	6.82	0.71	26.95	2.94	X	
295101357	WILLERT HOME PRODUCTS	CP-NOP	739541.55	4278373.73	145.79	2017.00	0.02	0.01	12.08	0.01	N/A	0.01	N/A	0.04	N/A	0.26	N/A		X
295101363	ALSCO, INC ST. LOUIS	CP-NOP	743334.17	4275818.28	130.55	2015.00	102.24	0.01	12.03	45.39	45.37	36.22	36.21	124.40	124.35	1471.89	1471.38		
295101370	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	CP-NOP	743107.71	4275132.40	131.72	2018.00	0.12	0.02	12.75	0.10	0.10	0.06	0.06	0.37	0.37	12.13	12.09		
295101390	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	CP-NOP	741727.54	4275049.76	127.97	2018.00	127.79	0.02	15.43	37.72	37.68	15.68	15.66	59.43	59.37	637.31	636.61		
295101407	SOUTHERN METAL PROCESSING	INT	739807.53	4271091.77	130.09	2017.00	182.13	7.22	17.83	33.36	21.20	15.64	9.98	70.71	44.94	112.97	71.80		
295101421	PSC METALS, LLC	CP-NOP	744406.27	4283139.66	127.58	2018.00	0.00	0.00	5.27	0.00	N/A	0.00	N/A	0.01	N/A	0.43	N/A		X
295101506	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	INT	740357.18	4278600.20	161.04	2018.00	835.44	0.25	11.35	64.72	75.36	25.72	29.91	77.85	77.85	2023.23	2023.21		
295101518	NIES/ARTCRAFT ST. LOUIS	CP-NOP	736298.80	4279120.42	160.70	2009.00	0.01	0.00	14.15	0.00	N/A	0.00	N/A	0.01	N/A	0.02	N/A		X
295101521	RONNOCO COFFEE	CP-NOP	739195.65	4279537.37	152.38	2017.00	3.50	0.72	11.56	0.95	N/A	0.61	N/A	4.46	N/A	6.77	N/A		X
295101556	CONNECTOR CASTINGS	INT	743041.14	4281096.00	155.21	2017.00	0.17	0.01	7.69	0.07	0.01	0.07	0.01	0.67	0.10	27.37	4.98	X	
295101642	F S ALBERICI CONSTRUCTION	INT	736723.60	4285287.44	175.36	2017.00	19.03	0.00	11.54	3.89	3.89	4.25	4.25	356.14	356.14	856.14	356.14		
295101761	NESTLE PURINA PETCARE COMPANY ST. LOUIS	INT	743912.49	4278167.30	141.77	2017.00	20.53	0.62	9.66	7.53	7.53	8.37	8.37	31.43	31.43	516.67	516.67		
295101860	BRECKENRIDGE MATERIAL CO ST. LOUIS-PLANT 7	CP-NOP	744778.07	4277468.00	124.39	2017.00	0.01	0.00	9.98	0.00	N/A	0.00	N/A	0.01	N/A	0.19	N/A		X
295101875	RANKEN TECHNICAL COLLEGE	CP-NOP	739444.43	4281841.75	155.51	2014.00	0.07	0.01	10.04	0.03	N/A	0.03	N/A	0.18	N/A	1.00	N/A		Y
295102226	PAULO PRODUCTS COMPANY	CP-NOP	736597.70	4278776.67	151.74	2018.00	0.12	0.00	14.09	0.11	0.08	0.06	0.05	1.26	0.86	7.79	5.36		
295102314	CLASSIC METAL CRAFT MC	CP-NOP	739269.40	4278872.54	148.67	2015.00	0.00	0.00	11.94	0.00	N/A	0.00	N/A	0.00	N/A	0.02	N/A		X
295102378	BRANDONVIEW, LLC GALLERY 720 BUILDING	P70	744460.61	4279253.62	141.88	2018.00	0.24	0.04	8.44	0.03	N/A	0.02	N/A	0.07	N/A	0.66	N/A		X
295102433	RIVIANA FOODS INC.	INT	738790.36	4269187.16	133.76	2017.00	0.09	0.02	19.98	0.03	N/A	0.01	N/A	0.09	N/A	0.17	N/A		X
295102435	TRI-RINSE INC	CP-NOP	744400.07	4277372.94	127.25	2018.00	0.20	0.00	10.19	0.08	N/A	0.08	N/A	0.22	N/A	3.07	N/A		X
295102456	CHRISTY REFRACTORIES CO L L C	CP-NOP	738223.37	4278219.85	147.31	2018.00	0.31	0.10	13.15	0.29	0.40	0.20	0.27	2.81	3.84	105.21	143.85		
295102501	WESTERN READY MIX, INC.	CP-NOP	744290.36	4283952.83	128.14	2015.00	0.01	0.00	4.83	0.00	N/A	0.00	N/A	0.01	N/A	0.12	N/A		X
295102545	SOUTHWESTERN BELL TELEPHONE COMPANY	INT	744346.61	4279152.95	140.68	2017.00	122.77	0.00	8.58	5.68	5.68	2.67	2.67	3.77	3.77	9.53	9.53		
295102560	GP RECYCLING, LLC	CP-NOP	743830.86	4284034.28	128.30	2014.00	0.17	0.00	5.16	0.09	0.00	0.13	0.00	0.73	0.01	46.39	0.78	X	
295102629	ARTCO NORTH TERMINAL FIRST ST	CP-NOP	742163.68	4274112.09	129.89	2018.00	0.01	0.00	14.07	0.00	N/A	0.00	N/A	0.01	N/A	0.10	N/A		X
295102644	LUXCO CORP	CP-NOP	737350.09	4276355.77	170.21	2009.00	0.81	0.00	15.06	0.40	0.00	0.28	0.00	1.67	0.02	12.49	0.14	X	
295102660	ST LOUIS CREMATION SERVICE	CP-NOP	742480.05	4278462.05	137.02	2018.00	3.23	0.19	10.12	0.66	N/A	0.39	N/A	1.73	N/A	4.02	N/A		X
295102662	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	CP-NOP	739332.17	4270413.67	127.78	2017.00	0.74	0.01	18.65	1.04	1.04	0.42	0.42	5.28	5.28	24.38	24.38		
295102710	AT AND T ST. LOUIS	CP-NOP	742329.53	4279815.47	160.84	2011.00	2.31	0.02	9.13	0.40	N/A	0.37	N/A	1.23	N/A	6.25	N/A		X
295102711	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	INT	740384.08	4280241.69	153.26	2017.00	9.60	0.04	10.20	3.86	3.62	3.72	3.33	19.94	17.60	170.34	152.79		
295102721	METRO ST. LOUIS PSYCHIATRIC CENTER	CP-NOP	737050.60	4281890.90	160.19	2015.00	0.50	0.00	12.16	0.22	N/A	0.20	N/A	1.55	N/A	7.31	N/A		X
295102766	ASPEN INDUSTRIES ST. LOUIS	CP-NOP	738281.29	4278204.10	147.25	2016.00	0.00	0.00	13.12	0.00	N/A	0.00	N/A	0.01	N/A	0.04	N/A		X
295102802	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	CP-NOP	740376.29	4278334.05	166.57	2018.00	85.18	0.11	11.53	24.93	2.41	19.19	1.63	86.55	5.88	731.29	27.34		
295102849	HEARTLAND PET CREMATION PAPIN	CP-NOP	742496.24	4278542.52	137.34	2018.00	0.67	0.04	10.04	0.19	N/A	0.13	N/A	0.55	N/A	4.41	N/A		X
295102939	KINDER MORGAN TRANSMIX CO ST. LOUIS	INT	741840.04	4275774.96	128.56	2018.00	0.04	0.02	14.51	0.02	N/A	0.01	N/A	0.04	N/A	0.46	N/A		X
295102953	MIDWEST SHINGLE RECYCLING	CP-NOP	741553.45	4287420.32	129.30	2011.00	6.20	0.10	6.63	1.71	0.03	3.48	0.06	30.68	0.51	95.48	1.60	X	
295103022	INTERNATIONAL FOOD PRODUCTS PRAIRIE STATION	CP-NOP	743675.17	4285015.08	130.96	2015.00	0.04	0.00	4.84	0.01	N/A	0.01	N/A	0.03	N/A	0.12	N/A		X
295103031	FAIRWAY HOLDINGS INC.	CP-NOP	742163.18	4274528.20	160.84	2018.00	0.01	0.00	13.69	0.00	N/A	0.00	N/A	0.02	N/A	0.17	N/A		X
295103035	OBAX INFRASTRUCTURES	CP-NOP	740681.25	4285381.13	135.66	2018.00	0.23	0.01	7.62	0.11	0.02	0.21	0.03	1.45	0.20	10.15	1.38	X	

*N/A indicates that the facility was removed before actual emissions were modeled due to PTE concentrations less than the 1-Hour Significant Impact Level.

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FEDERAL_ID	NAME_PLANT	OP_Type	UTM_E_X	UTM_N_Y	Elevation	EMIS_YEAR	TPY-PTE	TPY-Actuals	Distance	Jefferson		St. Charles		St. Louis County		St. Louis City		Actual Impact Removal	PTE Impact Removal
										PTE	Actuals*	PTE	Actuals*	PTE	Actuals*	PTE	Actuals*		
2909900002	RIVER CEMENT CO. DBA BUZZI UNICEM USA SELMA PLANT	P70	733931.84	4229333.13	134.42	2018	1566.49	1129.43	59.56	776.16	N/A	36.43	N/A	73.82207	N/A	8.46	N/A		x
2909900007	FRED WEBER INC FESTUS ASPHALT PLANT	CP-NOP	729134.80	4231424.28	133.54	2018	26.27	0.78	58.59	95.07	N/A	2.71	N/A	5.52397	N/A	3.20	N/A		x
2909900008	US SILICA	CP-NOP	729308.26	4231444.96	121.69	2018	22.07	10.73	58.58	78.34	N/A	11.98	N/A	2.94235	N/A	2.52	N/A		x
2909900010	BRECKENRIDGE OF JEFFERSON COUNTY PLANT 5	CP-NOP	729308.28	4231659.93	127.99	2017	0.88	0.00	58.64	63.65	N/A	1.49	N/A	0.68739	N/A	1.38	N/A		x
2909900011	UNION PACIFIC RAILROAD CO DESOTO CAR SHOP	INT	714576.20	4224511.20	149.73	2018	3.56	0.00	70.80	873.52	N/A	0.41	N/A	1.06011	N/A	0.34	N/A		x
2909900013	COVIA HOLDINGS CORP PEVELY	CP-NOP	727152.16	4238060.55	172.69	2017	7.38	1.16	55.28	4.03	N/A	0.44	N/A	0.95903	N/A	0.33	N/A		x
2909900014	DOW SPECIALTY ELECTRONIC MATERIALS US, INC. THE RIVERSIDE PLANT	P70	728353.47	4240500.97	140.02	2018	26.24	0.00	60.39	343.44	N/A	4.34	N/A	16.02434	N/A	6.27	N/A		x
2909900016	AMEREN MISSOURI RUSH ISLAND ENERGY CENTER	P70	739491.07	4224078.19	174.33	2018	3465.61	1124.14	63.36	79.69	N/A	3.27	N/A	4.79979	N/A	3.45	N/A		x
2909900034	EASTERN MISSOURI CONCRETE HILLSBORO	CP-NOP	713982.87	4236409.34	220.33	2018	0.94	0.04	60.97	8.61	N/A	0.17	N/A	0.32149	N/A	0.14	N/A		x
2909900044	METAL CONTAINER CORPORATION ARNOLD	P70	730890.10	4257280.94	134.39	2018	111.43	10.13	34.28	1973.58	129.12507	33.75	2.23315	1973.5777	129.12507	128.67	8.45536		
2909900045	MERCY HOSPITAL JEFFERSON	CP-NOP	728105.03	4230846.83	128.73	2017	61.54	2.45	59.45	2901.38	813.84298	9.26	2.90184	37.25604	11.58679	14.36	4.39512		
2909900052	ENGINEERED COIL COMPANY D.B.A. ORS MARLO COIL	INT	713890.13	4259179.94	219.89	2018	1.60	0.04	44.04	14.27	N/A	0.43	N/A	1.6571	N/A	0.34	N/A		x
2909900068	ARDAGH GLASS INC. PEVELY	P70	727306.83	4241579.49	139.96	2018	34.38	2.08	49.83	2568.47	396.54825	6.23	0.88781	23.21615	4.07673	11.11	1.69914		
2909900084	SCHAEFER MORTUARY SERVICE	CP-NOP	721906.76	4257606.53	237.03	2018	0.47	0.08	39.29	17.67	N/A	0.13	N/A	2.15265	N/A	0.27	N/A		x
2909900090	N-J ENTERPRISES INC HIGH RIDGE	CP-NOP	715077.24	4259638.13	275.33	2005	0.37	0.16	42.83	22.34	N/A	0.11	N/A	1.66443	N/A	0.12	N/A		x
2909900092	BEHR PROCESS CORPORATION IMPERIAL	CP-NOP	722606.76	4249432.22	147.20	2012	1.40	0.00	45.30	68.18	N/A	0.37	N/A	2.23546	N/A	0.70	N/A		x
2909900101	ARNOLD READY MIX CORP CEDAR HILL SITE	CP-NOP	705028.13	4247338.03	143.30	2015	0.93	0.01	58.49	20.44	N/A	0.13	N/A	0.44173	N/A	0.10	N/A		x
2909900111	CARONDELET CORPORATION PEVELY	INT	727491.85	4241725.78	143.95	2018	94.70	4.31	49.62	2230.61	463.68158	8.00	1.73552	31.36365	6.59681	14.36	3.13204		
2909900116	SINCLAIR AND RUSH ARNOLD PLANT	CP-NOP	731095.76	4257755.95	134.98	2012	7.37	0.98	33.72	25.17	N/A	0.81	N/A	12.03186	N/A	1.51	N/A		x
2909900125	NATIONAL GEOSPATIAL INTELLIGENCE AGENCY ARNOLD	CP-NOP	727174.16	4255051.22	172.61	2018	202.34	6.06	38.09	246.99	N/A	18.85	N/A	45.39547		16.08	N/A		x
2909900146	FRED WEBER, INC. ANTONIA	CP-NOP	720102.79	4248877.71	203.44	2014	0.08	0.00	47.20	1.35	N/A	0.01	N/A	0.04906	N/A	0.01	N/A		x
2909900147	BRECKENRIDGE MATERIALS JEFFCO PLANT 12	CP-NOP	726107.87	4259055.67	139.80	2017	0.53	0.04	35.47	7.06	N/A	0.15	N/A	7.05844	N/A	0.31	N/A		x
2909900150	ANIMAL CARE SERVICE INC FESTUS	CP-NOP	724479.42	4236856.27	132.87	2014	2.10	0.24	55.31	4.67	N/A	0.19	N/A	0.41853	N/A	0.18	N/A		x
2909900155	JEFFERSON COUNTY CREMATION SERVICES LC PEVELY	CP-NOP	728536.07	4239554.88	178.32	2011	4.26	0.02	51.19	105.63	N/A	0.68	N/A	2.01067	N/A	1.02	N/A		x
2909900156	SIMPSON CONSTRUCTION MATERIALS PAULINA HILLS SITE	CP-NOP	726459.86	4259186.04	123.25	2009	4.15	0.44	35.15	54.81	N/A	1.12	N/A	54.80526	N/A	2.38	N/A		x
2909900172	AMERICAN CREMATION SERVICES LLC FESTUS	CP-NOP	724488.55	4236853.80	133.02	2012	0.26	0.00	55.31	0.40	N/A	0.02	N/A	0.04112	N/A	0.02	N/A		x
2909900174	SUPERIOR SOLVENTS AND CHEMICALS ARNOLD	INT	731241.67	4256633.82	126.88	2017	0.20	0.05	34.62	2.34	N/A	0.06	N/A	2.33808	N/A	0.14	N/A		x
2909900179	N-J ENTERPRISES	CP-NOP	712397.82	4259238.84	209.58	2016	0.13	0.01	44.54	0.93	N/A	0.05	N/A	0.55894	N/A	0.04	N/A		x
2909900007	AAA ZOELLNER MATERIALS INC	CP-NOP	718403.43	4250460.86	259.55	2012	0.14	0.00	47.00	2.17	N/A	0.03	N/A	0.07138	N/A	0.04	N/A		x
2909995012	PRODUCTION CASTINGS	CP-NOP	716311.53	4263597.54	166.78	2003	1.05	0.19	37.83	155.28	N/A	0.79	N/A	20.2673	N/A	0.92	N/A		x
2909999094	N. B. WEST CONTRACTING CO INC HOUSE SPRINGS ASPHALT	CP-NOP	712353.42	4251763.19	159.78	2017	71.37	1.94	50.12	2171.58	228.85577	29.19	4.48887	68.71525	11.32711	22.36	3.52041		
2918300001	AMEREN MISSOURI SIOUX ENERGY CENTER	P70	734752.14	4310260.61	135.26	2018	2836.61	786.29	26.98	5.90	N/A	146.92	N/A	58.30323	N/A	16.87	N/A		x
2918300004	FRED WEBER INC O'FALLON ASPHALT PLANT	INT	695429.39	4297531.36	174.87	2017	623.72	31.35	53.80	56.93	N/A	371.90	N/A	61.46861	N/A	22.37	N/A		x
2918300010	BOEING COMPANY ST. CHARLES	P70	719409.76	4298420.37	137.44	2018	27.52	1.67	30.99	6.67	N/A	402.69	N/A	129.99836	N/A	13.79	N/A		x
2918300019	SSM HEALTH ST JOSEPHS HOSPITAL	CP-NOP	718499.57	4295433.59	156.93	2015	124.47	3.36	30.88	23.48	N/A	488.58	N/A	243.73382	N/A	38.18	N/A		x
2918300023	MAGELLAN TERMINALS HOLDINGS LP ST. CHARLES TERMINAL	CP-NOP	709524.38	4296960.80	163.45	2017	35.11	4.31	39.94	3.57	N/A	28.72	N/A	4.51329	N/A	1.86	N/A		x
2918300027	MEMC LLC-ST. PETERS PLANT	INT	703782.66	4298580.54	147.29	2018	14.16	4.35	46.38	2.27	N/A	24.74	N/A	5.38499	N/A	1.99	N/A		x
2918300029	RB MANUFACTURING LLC ST. PETERS	CP-NOP	704453.54	4298543.75	149.02	2016	4.29	0.00	45.24	0.93	N/A	49.23	N/A	2.6185	N/A	1.42	N/A		x
2918300038	LMI AEROSPACE, INC. HWY 94 PLANT	CP-NOP	719382.42	4299311.12	134.56	2018	1.47	0.00	31.36	0.34	N/A	71.25	N/A	13.83414	N/A	1.56	N/A		x
2918300064	SCHREITER READY MIX	CP-NOP	701795.35	4298286.02	149.59	2012	1.69	0.00	47.75	0.27	N/A	55.96	N/A	1.9184	N/A	0.80	N/A		x
2918300076	GENERAL MOTORS LLC WENTZVILLE CENTER	P70	689428.03	4299089.70	189.85	2018	3461.40	67.28	59.99	43.08	N/A	234.54	N/A	51.1329	N/A	19.13	N/A		x
2918300077	O'FALLON CASTING LLC	INT	702963.32	4297576.48	150.80	2018	1.36	0.00	46.45	0.26	N/A	8.63	N/A	0.69795	N/A	0.33	N/A		x
2918300079	ST CHARLES COUNTY CONCRETE WENTZVILLE PLANT	CP-NOP	683590.90	4297292.12	200.89	2012	1.58	0.09	65.41	0.31	N/A	23.66	N/A	0.55529	N/A	0.21	N/A		x
2918300093	MFA AGRI SERVICES WENTZVILLE	CP-NOP	686261.70	4297939.57	190.90	2014	0.46	0.00	62.88	0.10	N/A	20.02	N/A	0.2184	N/A	0.04	N/A		x
2918300103	SSM HEALTH ST JOSEPH HOSPITAL WEST	CP-NOP	693164.96	4297283.00	167.76	2014	46.11	0.00	55.97	9.20	N/A	277.38	N/A	19.77898	N/A	9.54	N/A		x
2918300110	ZOLTEK CORPORATION WELDON SPRINGS	CP-NOP	701432.03	4285877.66	179.84	2018	9.96	0.12	46.73	2.21	N/A	27.64	N/A	8.56549	N/A	0.80	N/A		x
2918300129	WOODBRIDGE CORPORATION ST. PETERS	INT	704461.44	4298235.04	150.13	2017	8.06	0.00	45.16	1.42	N/A	413.43	N/A	10.7936	N/A	4.29	N/A		x
2918300130	BLASTCO INC	CP-NOP	690213.84	4297755.23	165.62	2012	32.23	0.57	58.96	7.05	N/A	1000.28	N/A	23.05147	N/A	7.79	N/A		x
2918300131	SUPERIOR HOME PRODUCTS INC	P70	688266.36	4298854.61	194.48	2018	0.03	0.00	64.08	0.00	N/A	2.03	N/A	0.01291	N/A	0.00	N/A		x
2918300143	ALPLA, INC WOODBRIDGE SITE - ST. PETERS	CP-NOP	704579.75	4298266.33	148.26	2018	0.92	0.05	45.05	0.17	N/A	118.57	N/A	1.13597	N/A	0.40	N/A		x
2918300183	ST. CHARLES COUNTY HUMANE SERVICES COTTLEVILLE	CP-NOP	705392.06	4292481.08	146.24	2018	5.85	0.62	63.13	1.21	N/A	13.62	N/A	3.79796	N/A	1.02	N/A		x
2918300184	TRUE MANUFACTURING CO O'FALLON	INT	702777.57	4297717.78	150.94	2018	67.21	1.58	46.66	13.29	N/A	502.85	N/A	39.85278	N/A	23.64	N/A		x
2918300189	CRAFTSMEN INDUSTRIES INC ELM POINT PLANT	CP-NOP	716108.25	4299844.40	134.44	2012	0.28	0.03	34.59	0.05	N/A	7.06	N/A	0.57961	N/A	0.16	N/A		x
2918300196	SEYER INDUSTRIES INC	CP-NOP	709684.88	4297541.08	162.85	2018	2.54	0.00	39.93	0.68	N/A	63.59	N/A	5.29951	N/A	1.87	N/A		x
2918300201	T AND J REALTY LLC KIENSTRA READY MIX OF FORISTELL, LLC	CP-NOP	678377.07	4297944.62	213.79	2012	0.03	0.00	70.66	0.00	N/A	0.40	N/A	0.00807	N/A	0.00	N/A		x
2918300217	EASTERN MISSOURI CONCRETE ST. CHARLES PLANT	CP-NOP	717056.43	4291933.73	138.56	2017	2.63	0.01	33.51	0.73	N/A	21.96	N/A	21.44171	N/A	1.44	N/A		x
2918300223	CHEMICO SYSTEMS WENTZVILLE	CP-NOP	688080.92	4298911.66	195.38	2012	16.83	0.03	63.28	3.21	N/A	354.44	N/A	9.51776	N/A	2.29	N/A		x
2918300241	PITMAN CREMATION SERVICES WENTZVILLE	CP-NOP	684233.94	4299541.47	184.10	2018	0.09	0.00	65.17	0.01	N/A	0.21	N/A	0.02541	N/A	0.01	N/A		x
2918300242	BAUE CARE AND CREMATION CENTER	CP-NOP	711083.11	4297080.45	161.62	2017	4.38	0.28	38.46	0.71	N/A	4.61	N/A	1.2749	N/A	0.48	N/A		x
2918300244	KUTCHEN-STYGAR FUNERAL AND CREMATION CENTER	CP-NOP	705361.52	4291782.14	143.24	2016	0.04	0.00	43.06	0.01	N/A	0.09	N/A	0.029	N/A	0.01	N/A		x
2918300245	HANSEN'S TREE SERVICE O'FALLON	CP-NOP	697357.18	4298189.47	178.41	2016	89.75	0.50	52.05	15.86	0.96579	8036.31	489.42861	76.37854	4.65154	30.64	1.86605		
2918300247	GARDNER DENVER NASH LLC ST. PETERS	CP-NOP	704289.02	4298324.33	151.91	2018	0.91	0.18	45.35	0.17	N/A	31.79	N/A	1.26511	N/A	0.51	N/A		x
2918300248	BRODER CREMATION SERVICES EHMANN	CP-NOP	712311.97	4297924.40	146.28	2016	9.86	0.99	37.52	1.98	N/A	19.87	N/A	4.87706	N/A	1.81	N/A		x
2918300257	LMI AEROSPACE, INC. FOUNTAIN LAKES	CP-NOP	714982.89	4300757.73	133.45	2014	2.98	0.00	35.97	0.43	N/A	3.44	N/A	1.23447	N/A	0.43	N/A		x
2918300259	GADUND EFFECTS, LLC WENTZVILLE	CP-NOP	687833.12	4299669.99	190.21	2018	2.10	1.04	61.67	0.42	N/A	35.42	N/A	1.25193	N/A	0.27	N/A		x
2918300262	KNAPHEIDE EQUIPMENT CO	CP-NOP	687499.27	4299686.07	182.92	2018	0.99	0.05	62.00	0.25	N/A	33.26	N/A	0.553	N/A	0.12	N/A		x
2918300263	SYNERGETICS	CP-NOP	698268.93	4288385.69	158.66	2018	1.21	0.00	49.91	0.55	N/A	35.81	N/A	3.423	N/A	0.53	N/A		x
2918300264	AMERISTAR ST. CHARLES	CP-NOP	718432.28	4294005.30	134.26	2018	47.23	6.76	30.57	16.31	2.35244	29593.31	4269.30488	9864.68786	1423.13801	52.86	7.62541		
2918300265	ST. CHARLES COUNTY POLICE DEPT.	CP-NOP	702525.38	4299647.56	151.79	2018	1.68	0.00	47.39	0.25	N/A	30.10	N/A	1.75999	N/A	0.84	N/A		x
2918350015	NIKE IHM INC ST. CHARLES	CP-NOP	701677.83	4286267.70	189.75	2018	0.00	0.00	46.48	0.00	N/A	0.01	N/A	0.00246	N/A	0.00	N/A		x
2918390001	EASTERN MISSOURI CONCRETE WENTZVILLE	CP-NOP	685114.53	4297599.45	196.96	2017	0.04	0.00	63.95	0.01	N/A	0.26	N/A	0.01397	N/A	0.01	N/A		x
2918P211	WESTERN READY MIX WENTZVILLE	CP-NOP	690232.58	4298902.21	187.55	2014	0.21	0.00	59.17	0.05	N/A	2.60	N/A	0.0806	N/A	0.03	N/A		x
2918900010	AMEREN MISSOURI MERAMEC ENERGY CENTER	P70	732736.78	4253752.81	127.48	2018	9043.38	1043.12	36.50	119.09	N/A	25.51	N/A	173.18314	N/A	48.72	N/A		x
2918900012	INTERNATIONAL PAPER- PLANT 7396	CP-NOP	720616.57	4269263.51	142.35	2016	7.34	1.87	32.67	9.20	N/A	2.15	N/A	35.38382	N/A	2.23	N/A		x
2918900013	MISSOURI BAPTIST MEDICAL CENTER NORTH BALLAS	CP-NOP	722244.75	4279363.47	200.47	2016	298.20	0.60	26.97	106.95	10.01362	161.04	14.57772	2647.25182	239.64213	138.58	12.54458		
2918900020	MONSANTO WORLD HEADQUARTERS LINDBERGH BLVD	INT	726250.11	4283348.63	210.39	2018	220.07	13.69	22.38	30.08	N/A	53.23	N/A	912.46728	N/A	68.04	N/A		x
2918900021	U. S. SILICA COMPANY PACIFIC	CP-NOP	698244.91	4262010.04	142.69	2018	37.54	13.29	55.75	78.34	N/A	11.98	N/A	81.52325	N/A	2.52	N/A		x
2918900022	ST. JOHNS MERCY MEDICAL CNTR/MAINTENANCE NEW BALLAS RD	CP-NOP	722224.73	4280434.44	192.68	2015	106.94	13.91	26.72	26.43	N/A	26.71	N/A	169.87078	N/A	23.04	N/A		x
2918900032	MONSANTO CHESTERFIELD VILLAGE	INT	712608.90	4282124.50	178.67	2018	375.12	19.48	35.86	40.11	N/A	170.26	N/A	761.58623	N/A	35.66	N/A		x
2918900040	FRED WEBER, INC. JEFFERSON BARRICKS	CP-NOP	736875.29	4262156.73	128.55	2015	632.85	16.67	27.34	235.73	N/A	54.31	N/A	655.2973	N/A	92.44	N/A		x
2918900041	MIDWEST, LLC	CP-NOP	725259.72	4265458.11	125.19	2009	27.04	0.27	31.33	22.24	N/A	4.09	N/A	37.35435	N/A	5.53	N/A		x
2918900042	WASHINGTON UNIVERSITY DANFORTH CAMPUS	INT	734425.40	4281363.46	154.91	2017	609.86	12.76	34.78	170.05	91.01062	197.64	107.59071	6152.28189	3462.34328	4986.87	2783.35136		
2918900057	ST. LOUIS POST-DISPATCH DUNLAP IND DR	NOP	723552.04	4268010.51	164.55	2017	1.80	0.25	24.63	0.81	N/A	4.11	N/A	62.14486	N/A	3.85	N/A		x

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291890064	SUNNEN PRODUCTS COMPANY MAPLEWOOD	INT	732332.04	4277122.52	152.83	2017	3.35	0.97	18.57	1.61	N/A	1.04	N/A	13.46841	N/A	8.73	N/A		X
291890065	ST. LOUIS AIRPORT AUTHORITY LAMBERT INTERNATIONAL BLVD	INT	728947.29	4291571.16	164.29	2018	649.90	8.29	19.78	109.02	5.07734	311.32	11.07982	5661.59634	201.32982	371.41	13.20953		
291890069	THE QUIKRETE COMPANIES, INC. VALLEY PARK	INT	719634.33	4269966.70	129.52	2018	46.53	1.08	33.14	25.58	N/A	8.70	N/A	39.63165	N/A	6.93	N/A		X
291890101	BRECKENRIDGE MATERIAL CO PLANT 6A	CP-NOP	720634.29	4291120.10	140.92	2017	2.45	0.06	27.85	0.80	N/A	5.03	N/A	35.06062	N/A	1.58	N/A		X
291890104	BRECKENRIDGE MATERIAL CO-PLANT 3	CP-NOP	718839.02	4282233.37	142.05	2017	1.10	0.07	37.60	0.79	N/A	9.39	N/A	27.87795	N/A	1.06	N/A		X
291890111	MISSOURI ASPHALT PRODUCTS, LLC WEST LAKE QUARRY MATERIAL CO	INT	721914.39	4294042.31	140.97	2017	529.12	23.92	27.21	59.38	N/A	258.85	N/A	539.99589	N/A	80.67	N/A		X
291890140	STOUT MARKETING JENNINGS	CP-NOP	738591.48	4288667.89	149.61	2013	4.42	0.33	9.74	1.94	N/A	5.28	N/A	214.86087	N/A	214.86	N/A		X
291890201	FRED WEBER, INC. ANTIRE	CP-NOP	711291.07	4264547.49	134.72	2017	290.24	8.06	43.08	963.44	N/A	66.76	N/A	963.43567	N/A	24.14	N/A		X
291890217	METROPOLITAN ST. LOUIS SEWER DISTRICT LEMAY WWTP	P70	737818.81	4268121.76	139.71	2018	3388.97	284.20	21.38	946.10	N/A	256.40	N/A	905.84694	N/A	515.77	N/A		X
291890221	PM RESOURCES, INC. VIRBAC ANIMAL HEALTH	CP-NOP	722483.25	4294399.14	146.43	2018	5.33	0.65	26.76	1.04	N/A	6.41	N/A	19.74595	N/A	1.87	N/A		X
291890230	THE BOEING COMPANY ST. LOUIS	P70	726742.77	4293777.11	167.09	2018	1964.21	23.19	20.62	350.14	41.109	1180.24	111.21239	11266.92969	897.01994	1062.84	100.25902		
291890283	GOLDEN TRIANGLE CONCRETE COMPANY ANTIRE QUARRY	CP-NOP	713341.68	4264539.67	136.17	2016	1.75	0.00	43.04	28.37	N/A	1.70	N/A	45.96725	N/A	1.21	N/A		X
291890308	CHAMP LANDFILL COMPANY LLC	P70	720845.43	4291144.98	147.70	2018	709.56	330.42	27.65	53.03	N/A	213.28	N/A	836.72694	N/A	95.35	N/A		X
291890310	ADVANCED DISPOSAL SERVICES OAK RIDGE LANDFILL	P70	715270.71	4270434.90	177.84	2018	260.96	42.28	36.75	253.48	N/A	74.92	N/A	385.62567	N/A	38.98	N/A		X
291890312	BRIDGETON LANDFILL, LLC	P70	722107.35	4294454.70	139.99	2018	1195.83	32.31	27.14	31.47	N/A	156.00	N/A	275.68746	N/A	49.22	N/A		X
291890315	FOL TAPE LLC FENTON	P70	722400.26	4269382.25	132.32	2018	0.33	0.00	31.12	0.26	N/A	0.07	N/A	0.60482	N/A	0.09	N/A		X
291890318	SSM HEALTH ST MARYS HOSPITAL	INT	734075.92	4279544.88	181.84	2017	165.19	5.07	15.86	22.34	N/A	11.76	N/A	130.06796	N/A	130.07	N/A		X
291890321	LMB INDUSTRIES BERKELEY	CP-NOP	731030.73	4293368.80	158.44	2015	0.74	0.26	18.33	0.37	N/A	1.89	N/A	18.78066	N/A	2.75	N/A		X
291890326	AIR PRODUCTS-PRISM MEMBRANES DIV OF AIR PRODUCTS AND CHEMICALS	CP-NOP	724210.29	4286383.57	160.25	2017	4.86	0.55	23.95	2.12	N/A	6.71	N/A	62.07197	N/A	7.12	N/A		X
291891012	BELTSERVICE CORP	P70	719386.00	4293877.45	134.24	2018	1.15	0.55	29.62	0.35	N/A	6.07	N/A	6.61805	N/A	0.60	N/A		X
291891029	SSM HEALTH DEPAUL HOSPITAL - ST. LOUIS BRIDGETON	INT	723046.72	4292134.06	166.76	2018	202.81	7.89	25.66	27.10	N/A	91.69	N/A	319.5181	N/A	36.64	N/A		X
291891040	VALHALLA CEMETERY CREMATORY AND MAUSOLEU ST. LOUIS	CP-NOP	733090.91	4285958.54	185.46	2012	0.65	0.00	15.09	0.14	N/A	0.13	N/A	0.93054	N/A	0.38	N/A		X
291891052	VETERANS ADMIN MEDICAL CENTER JEFFERSON BARRACKS DRIVE	CP-NOP	736944.98	4264089.51	156.01	2015	419.34	5.28	25.36	335.46	391.23736	123.87	157.02661	3581.6711	4748.66355	449.34	537.22932		
291891059	CHRISTIAN HOSPITAL NORTHEAST DUNN ROAD	CP-NOP	739738.60	4295554.78	175.32	2016	171.73	4.20	12.12	31.77	30.8163	534.21	523.75312	12238.54156	11999.61653	1037.78	1017.50693		
291891093	BODINE ALUMINUM INC WALTON ROAD	CP-NOP	730791.15	4286068.83	167.38	2018	21.82	3.89	17.38	9.67	N/A	20.60	N/A	712.99436	N/A	85.88	N/A		X
291891097	REICHHOLD LLC 2 VALLEY PARK	INT	718899.54	4269850.38	129.28	2017	27.18	4.32	33.83	33.09	N/A	8.37	N/A	160.61772	N/A	11.22	N/A		X
291891101	ST. LUKE'S HOSPITAL WOODS MILL ROAD	INT	717334.17	4280934.01	155.10	2017	66.84	6.12	31.38	13.64	N/A	8.91	N/A	27.84291	N/A	2.64	N/A		X
291891114	LOGAN UNIVERSITY CHESTERFIELD	CP-NOP	713945.76	4278742.22	194.89	2012	7.84	3.42	35.16	10.60	N/A	24.45	N/A	127.11189	N/A	4.69	N/A		X
291891133	MEMORIAL PARK CREMATORY JENNINGS	CP-NOP	736164.03	4288282.79	185.25	2012	6.42	0.14	12.08	1.05	N/A	1.19	N/A	9.05263	N/A	3.50	N/A		X
291891155	ST. ANTHONY'S MEDICAL CENTER KENNERLY ROAD	CP-NOP	728489.70	4265428.04	193.36	2017	101.22	1.21	29.07	205.85	N/A	30.31	N/A	1528.74985	N/A	53.75	N/A		X
291891172	MOUNT HOPE CEMETERY AND MAUSOLEUM CO LEMAY FERRY ROAD	CP-NOP	736020.58	4268202.21	151.94	2012	0.97	0.00	22.24	0.49	N/A	0.14	N/A	1.30363	N/A	0.62	N/A		X
291891175	NEW ST MARCUS CEMETERY GRAVOIS	CP-NOP	735277.67	4271563.03	144.04	2017	1.29	0.04	19.98	0.67	N/A	0.25	N/A	3.66224	N/A	3.66	N/A		X
291891205	MSD, MISSOURI RIVER WWTP MO RIVER WASTERWATER TREATMENT PLANT	P70	718333.79	4290583.38	136.51	2018	135.37	14.76	30.06	56.76	9.38116	868.50	181.8659	4004.17054	466.73689	132.41	21.81756		
291891226	SIMPSON CONSTRUCTION MATERIALS LLC VALLEY PARK	INT	715996.20	4268469.87	127.91	2018	532.05	25.23	37.04	437.26	90.87059	98.32	20.43239	807.21141	167.75266	77.29	16.06238		
291891248	FRED WEBER INC. - SOUTH ASPHALT BATCH SOUTH ASPHALT	INT	732929.25	4259955.19	126.82	2017	737.61	24.67	30.90	451.51	69.05317	65.69	10.16125	1347.03749	206.01376	105.17	16.26816		
291891249	FRED WEBER INC - NORTH ASPHALT H AND B NORTH ASPHALT	INT	720614.10	4290798.15	141.38	2017	345.96	48.92	27.82	119.63	20.44562	357.70	70.23307	1076.55883	193.39956	89.85	17.1767		
291891250	FRED WEBER INC. - NORTH ASPHALT B-G NORTH ASPHALT, B-G	INT	720721.92	4290857.59	146.71	2017	556.67	11.87	27.73		5.26935		16.26789		51.83101		4.29744	X	
291891251	MARK ANDY INC CHESTERFIELD	CP-NOP	705452.63	4282916.47	139.91	2012	0.33	0.17	42.88	0.16	N/A	1.61	N/A	1.64771	N/A	0.09	N/A		X
291891259	MACLAN INDUSTRIES	CP-NOP	742056.49	4291436.76	152.04	2013	367.92	0.00	7.64	119.68	0.32617	696.82	1.89913	12559.58604	34.23033	12559.59	34.23033	X	
291891268	BRECKENRIDGE MATERIALS CO, PLANT 6B	CP-NOP	720670.54	4291166.38	140.80	2017	2.45	0.18	27.87	0.80	N/A	5.00	N/A	41.28984	N/A	1.61	N/A		X
291891269	GUIDEAWAY MFG COMPANY ST. JOHN	CP-NOP	731953.94	4287278.39	176.42	2016	0.40	0.16	16.21	0.12	N/A	0.22	N/A	6.4588	N/A	0.58	N/A		X
291891289	MISSOURI AMERICAN WATER-CENTRAL PLANT CHESTERFIELD	CP-NOP	715427.34	4284896.78	137.71	2018	72.77	1.16	32.79	31.02	N/A	164.44	N/A	398.96817	N/A	30.34	N/A		X
291891299	E B M GLOBAL SERVICES HAZELWOOD	CP-NOP	728059.74	4294389.33	177.61	2015	432.56	0.37	21.47	41.62	N/A	56.31	N/A	299.97276	N/A	55.77	N/A		X
291891301	RELIABLE BIOPHARMACEUTICAL WALTON ROAD	CP-NOP	730669.81	4285566.69	184.12	2015	2.83	0.74	17.53	0.88	N/A	1.45	N/A	36.64301	N/A	3.55	N/A		X
291891474	SPIRE MISSOURI, EAST INC	CP-NOP	736637.09	4302290.45	161.69	2018	738.55	41.45	19.27	147.52	22.38991	4274.02	695.56921	25038.7116	4485.3731	1216.58	190.11821		
291891476	MISSOURI AMERICAN WATER COMPANY MERAMEC BOTTOMS	CP-NOP	729844.61	4260421.67	135.93	2013	86.17	0.00	32.14	463.95	5.40182	30.58	0.3561	1070.67344	12.46597	65.05	0.75739	X	
291891489	GKN AEROSPACE NORTH AMERICA, INC BERKELEY	P70	729005.49	4293562.35	164.61	2018	113.40	10.69	20.30	10.55	N/A	69.09	N/A	748.80243	N/A	58.16	N/A		X
291891507	PATHEON BIOLOGICS, LLC	CP-NOP	731393.21	4290195.85	189.51	2018	272.93	5.25	17.10	32.52	N/A	39.17	N/A	255.71395	N/A	52.29	N/A		X
291891520	F AND S PRINTING ST. LOUIS	CP-NOP	736924.55	4285318.88	192.04	2017	1.47	0.00	21.29	0.62	N/A	1.81	N/A	42.79867	N/A	3.52	N/A		X
291891521	FRED WEBER, INC. FT. BELLE	CP-NOP	739499.97	4302900.13	134.04	2015	254.29	4.23	18.24	43.95	2.73779	25121.63	1378.40268	25121.62562	1378.40268	355.37	22.19931		
291891533	BRECKENRIDGE MATERIAL COMPANY PLANT 15	CP-NOP	703604.72	4284148.10	137.86	2017	1.22	0.00	44.63	0.57	N/A	8.67	N/A	17.17949	N/A	0.48	N/A		X
291891534	A.G. RECYCLING	CP-NOP	734844.18	4284158.21	160.30	2008	33.29	0.65	13.58	11.88	N/A	15.00	N/A	430.34121	N/A	200.18	N/A		X
291891541	PACKAGING CONCEPTS INC GREEN PARK	CP-NOP	732664.82	4267639.09	150.56	2016	8.79	2.06	24.67	3.59	N/A	1.00	N/A	10.68857	N/A	1.72	N/A		X
291891544	EDWARD JONES MANCHESTER	CP-NOP	722364.20	4275958.32	202.01	2010	60.98	0.11	27.99	79.62	0.32474	73.77	8.80187	5493.43449	17.30342	97.14	0.39839	X	
291891546	SCHRADER FUNERAL HOME MANCHESTER	CP-NOP	713670.30	4274422.60	179.29	2012	0.13	0.01	36.65	0.09	N/A	0.04	N/A	0.43591	N/A	0.02	N/A		X
291891562	ECO RECYCLING PAGE AVE	CP-NOP	734708.62	4284050.72	167.34	2012	12.09	0.84	13.73	5.04	N/A	5.38	N/A	99.7642	N/A	57.18	N/A		X
291891564	JOST CHEMICAL CO.	CP-NOP	731957.52	4288060.73	167.12	2016	8.42	2.73	16.25	1.39	N/A	2.83	N/A	118.91779	N/A	7.82	N/A		X
291891566	SPECOX, LLC WEBSTER GROVES	CP-NOP	731463.13	4276675.43	146.11	2013	3.64	1.57	19.54	0.90	N/A	0.52	N/A	2.76063	N/A	2.00	N/A		X
291891585	MISSOURI-AMERICAN WATER CO FLORISSANT	CP-NOP	728394.88	4300010.04	141.06	2017	25.30	0.73	23.75	5.93	165.41701	2952.00	82331.32525	5001.53789	139492.7858	44.93	1253.14702		
291891590	CENVEO - ST. LOUIS EUREKA	CP-NOP	703439.56	4264693.86	154.60	2017	7.03	0.71	49.90	13.43	N/A	3.68	N/A	48.81299	N/A	1.01	N/A		X
291891591	AMEREN MISSOURI MARYLAND HEIGHTS ENERGY CENTER	CP-NOP	720783.09	4290953.26	146.57	2018	69.54	19.28	27.68	3.52	N/A	6.65	N/A	17.47826	N/A	1.96	N/A		X
291891652	PROFESSIONAL FUNERAL DIRECTOR SERVICES JENNINGS	CP-NOP	738230.09	4288878.89	149.62	2016	0.13	0.00	10.13	0.06	N/A	0.18	N/A	19.31659	N/A	19.32	N/A		X
291891685	THE HARPER COMPANY	CP-NOP	731184.93	4292013.86	176.45	2012	20.22	0.00	17.74	4.36	N/A	13.40	N/A	168.27161	N/A	19.68	N/A		X
291891697	VI-JON INC PAGE	CP-NOP	731243.57	4285291.47	175.82	2016	8.19	1.38	16.98	2.44	N/A	3.81	N/A	99.89302	N/A	10.63	N/A		X
291891698	LOVING HEARTS PET MEMORIAL SERVICES EUREKA	CP-NOP	704021.40	4264414.32	148.40	2018	12.59	0.41	49.51	16.12	N/A	6.16	N/A	64.40639	N/A	1.99	N/A		X
291891706	INTERNATIONAL FOOD PRODUCTS CORP. AVIATOR	CP-NOP	729526.18	4294467.82	159.70	2016	3.83	0.00	20.13	0.89	N/A	3.57	N/A	75.36549	N/A	3.18	N/A		X
291891720	MILLSTONE-WEBER AIRPORT CONCRETE PLANT 7002	CP-NOP	726087.98	4292518.43	176.78	2015	26.48	0.00	22.79	7.26	N/A	24.00	N/A	264.45854	N/A	17.83	N/A		X
291891733	NESTLE PURINA SUPPORT CENTER LAKE BLUFF DRIVE	CP-NOP	732883.47	4267324.06	139.76	2017	0.06	0.00	24.78	0.14	N/A	0.02	N/A	2.38526	N/A	0.24	N/A		X
291891739	UNITED INDUSTRIES CORP DBA CHEMSISCO	CP-NOP	731399.10	4285753.76	186.33	2018	4.34	1.48	16.79	2.11	N/A	4.13	N/A	62.21697	N/A	13.88	N/A		X
295100003	ANHEUSER-BUSCH INC ST. LOUIS	P70	743002.81	4275906.67	142.81	2018	703.07	79.17	12.09	72.94	N/A	30.91	N/A	81.02713	N/A	1325.87	N/A		X
295100017	MALLINCKRODT N SECOND	P70	744362.95	4283022.76	127.99	2018	620.31	23.80	5.38	341.90	26.49699	441.59	33.55574	1754.73098	143.78488	35808.47	7484.80101		
295100027	PRECOAT METALS	P70	739365.77	4273999.99	144.48	2018	57.40	6.12	15.56	7.37	N/A	3.75	N/A	11.2354	N/A	40.35	N/A		X
295100031	ADM GRAIN COMPANY ST. LOUIS	INT	744141.30	4284932.90	129.20	2018	17.11	0.18	4.45	8.39	N/A	14.51	N/A	72.32431	N/A	786.87	N/A		X
295100036	BUCKEYE TERMINALS LLC SOUTH ST LOUIS-OLD CLARK TERMINAL	CP-NOP	741957.84	4273958.51	128.53	2018	7.57	1.32	14.31	7.90	N/A	4.55	N/A	30.1372	N/A	160.99			X
295100038	ASHLEY ENERGY LLC	P70	745321.30	4280225.01	128.53	2018	287.71	31.49	7.20	28.69	N/A	14.14	N/A	40.07922	N/A	57.44	N/A		X
295100040	WASHINGTON UNIV MEDICAL SCHOOL BOILER PLANT	P70	738259.22	4279906.98	154.64	2018	393.19	25.70	12.08	83.55	200.51734	62.08	122.59164	437.03269	1453.51095	2913.57	7604.433		
295100047	FRED WEBER INC KINGSHIGHWAY ASPHALT	INT	737928.10	4278514.12	140.93	2017	315.59	5.56	13.19	48.90	N/A	32.87	N/A	170.52679	N/A	246.53	N/A		X
295100053	METROPOLITAN ST. LOUIS SEWER DISTRICT BISSELL POINT WWTP	P70	743783.86	4284552.97	131.19	2018	902.68	658.22	4.93	89.77	N/A	39.77	N/A	102.4151	N/A	127.70	N/A		X
295100054	NATIONAL GRAPHICS	CP-NOP	741348.01	4274954.64	163.86	2006	2.10	0.33	13.70	0.57	N/A	0.34	N/A	1.05794	N/A	7.01	N/A		X
295100056	VETERANS ADMIN MEDICAL CENTER JOHN COCHRAN DIV	CP-NOP	741047.52	4280704.99	163.59	2014	109.38	3.83	9.39	26.80	N/A	26.61	N/A	115.24111	N/A	889.46	N/A		X
295100057	PROCTER AND GAMBLE ST. LOUIS	INT	743507.63	4284424.63	128.96	2017	68.91	6.77	5.24	12.22	N/A	8.77	N/A	52.28385	N/A	96.27	N/A		X
295100063	HENKEL, ST. LOUIS	CP-NOP	741857.10	4286434.47	128.42	2017	21.01	1.43	6.31	6.66	N/A	12.69	N/A	66.1825	N/A	417.98	N/A		X
295100066	ELEMENTIS SPECIALTIES INC	P70	737002.56	4278454.04	137.90	2018	33.32	3.03	13.95	13.03	N/A	8.67	N/A	34.0918	N/A	697.68	N/A		X
295100070	ICL SPECIALTY PRODUCTS INC CARONDELET PLANT	P70	737985.63	4270043.36	126.75	2018	116.07	22.04	19.64	31.18	N/A	11.37	N/A	66.68724	N/A	86.69	N/A		X
295100096	ELANTAS PDG, INC. SECOND ST	P70	743167.86	4284941.73	128.65	2018	38.37	3.86	5.34	7.89	N/A	8.43	N/A	34.17709	N/A	185.76	N/A		X

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2951001118	JW ALUMINUM ST. LOUIS	P70	740003.39	4271338.74	129.21	2016	48.57	13.33	17.53	34.41	N/A	5.82	N/A	28.70508	N/A	122.30	N/A		x
2951001159	ADM MILLING COMPANY ST. LOUIS MILL	CP-NOP	740179.22	4285287.05	144.53	2018	3.31	0.27	8.13	1.22	N/A	1.38	N/A	10.65393	N/A	44.81	N/A		x
2951001179	ITALGRAIN ELEVATOR USA US DURUM	CP-NOP	739212.90	4269466.53	129.09	2017	7.33	0.38	19.54	8.50	N/A	2.95	N/A	83.31095	N/A	387.60	N/A		x
2951001181	INTERNATIONAL PAPER ST. LOUIS	CP-NOP	738918.10	4285784.09	151.65	2013	7.32	2.97	9.30	1.53	N/A	1.57	N/A	17.69216	N/A	23.47	N/A		x
2951002200	ST. ALEXIUS HOSPITAL JEFFERSON CAMPUS	CP-NOP	741441.37	4279961.73	164.77	2016	44.31	0.51	13.65	7.71	N/A	5.05	N/A	15.82782	N/A	230.57	N/A		x
2951002201	KOP-COAT INC.	CP-NOP	737445.96	4277202.22	161.51	2007	1.19	0.19	14.41	0.57	N/A	0.48	N/A	2.61508	N/A	20.27	N/A		x
2951002204	BARNES JEWISH HOSPITAL	INT	738059.57	4279829.93	155.46	2016	683.66	29.65	12.29	246.40	284.9165	193.10	223.78098	1335.18998	1548.77933	5476.27	6563.21252		
2951002269	SENSIENT COLORS LLC	CP-NOP	742516.54	4281983.89	155.16	2017	30.01	0.80	7.64	6.42	N/A	3.78	N/A	14.30034	N/A	81.85	N/A		x
2951002391	HERMANN OAK LEATHER CO	INT	744001.08	4283643.42	128.40	2017	11.94	0.74	5.24	7.63	N/A	10.17	N/A	35.27223	N/A	306.37	N/A		x
2951002405	ABLE RACK CO N BROADWAY	CP-NOP	741485.33	4286249.89	130.96	2006	0.03	0.00	6.70	0.01	N/A	0.01	N/A	0.05001	N/A	0.23	N/A		x
2951002417	LOY-LANGE BOX CO ST. LOUIS	CP-NOP	743779.13	4276624.85	129.26	2015	7.91	0.52	11.11	5.43	N/A	4.68	N/A	17.95082	N/A	139.46	N/A		x
2951002491	SPORTSPLAY EQUIPMENT	CP-NOP	737853.93	4285196.76	161.52	2015	0.03	0.02	10.63	0.02	N/A	0.03	N/A	0.56146	N/A	1.34	N/A		x
2951002561	INDUSTRIAL CONTAINER SERVICES - MO, LLC MANCHESTER	CP-NOP	737686.12	4278652.89	140.26	2017	2246.31	0.46	13.29	885.14	342.68331	737.48	264.93627	5574.0818	2057.18843	21930.12	7707.93806		
2951006671	BEN HUR CONSTRUCTION AND STEELWORX LLC	CP-NOP	740305.24	4285378.12	139.62	2012	3.86	0.00	7.99	2.21	N/A	1.55	N/A	32.35784	N/A	147.19	N/A		x
2951006674	STRATEGIC MATERIALS INC BRANCH ST	CP-NOP	744711.02	4282472.95	127.40	2017	1.77	0.06	5.56	0.82	N/A	1.14	N/A	5.902296	N/A	289.35	N/A		x
2951006697	SIGMA - ALDRICH MFG LLC DEKALB FACILITY	P70	742482.23	4274782.24	147.81	2018	763.69	9.59	13.33	216.23	3.27651	121.67	3.79147	510.02985	7.1526	2481.73	27.85809	X	
2951006807	KENSTRA MATERIALS COMPANY LLC TYLER	CP-NOP	745045.02	4281427.38	128.53	2012	2.57	0.00	6.24	0.86	N/A	1.19	N/A	3.30778	N/A	39.17	N/A		x
2951006809	PQ CORPORATION -TIME	P70	739053.43	4285117.19	150.56	2018	24.16	9.96	9.23	3.02	N/A	3.28	N/A	27.24914	N/A	49.40	N/A		x
2951010111	MICROFINISH #PC LLC GRATIOT	CP-NOP	739365.05	4279941.23	147.63	2018	9.64	1.60	11.40	2.79	N/A	5.16	N/A	50.55372	N/A	369.18	N/A		x
2951010177	MID-WEST INDUSTRIAL CHEMICAL	P70	736790.36	4278429.74	137.56	2018	0.18	0.00	14.17	0.09	N/A	0.08	N/A	0.98809	N/A	3.13	N/A		x
2951010888	SCHAEFFER MFG	INT	741869.37	4276134.19	128.12	2018	7.38	1.37	13.53	3.89	N/A	2.78	N/A	10.47445	N/A	204.26	N/A		x
2951010993	BRENNTAG MID-SOUTH INC	P70	739817.63	4270970.39	127.80	2018	3.68	0.00	17.93	2.65	N/A	1.43	N/A	12.3805	N/A	79.62	N/A		x
2951011204	BI-STATE DEVELOPMENT AGENCY DBA METRO MAIN REPAIR FACILITY	CP-NOP	741158.80	4279328.49	144.87	2018	5.66	0.00	10.27	1.30	N/A	3.12	N/A	8.53635	N/A	72.23	N/A		x
2951011216	U S POLYMERS-ACCUREZ, LLC PRIMM STREET	CP-NOP	738991.88	4285985.75	138.29	2015	3.06	0.13	19.46	0.97	N/A	0.78	N/A	1.89316	N/A	9.02	N/A		x
2951011270	HUMANE SOCIETY OF MISSOURI ST. LOUIS - MACKLIND AVE	CP-NOP	737162.32	4278817.40	145.92	2018	1.19	0.04	13.61	0.30	N/A	0.22	N/A	1.91786	N/A	2.96	N/A		x
2951011349	ST. LOUIS UNIV HEALTH SCIENCES CENTER	CP-NOP	740464.71	4279467.32	166.05	2016	32.53	0.06	11.37	7.52	N/A	5.38	N/A	22.2224	N/A	86.51	N/A		x
2951011357	WILLERT HOME PRODUCTS	CP-NOP	739543.55	4278373.73	145.79	2017	2.45	0.92	12.08	1.09	N/A	0.80	N/A	4.95417	N/A	36.07	N/A		x
2951011363	ALSCO, INC ST. LOUIS	CP-NOP	741334.17	4275818.28	130.55	2015	11.66	0.96	12.03	5.18	N/A	4.15	N/A	14.18412	N/A	167.83	N/A		x
2951011370	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY ST LOUIS	CP-NOP	743107.71	4275132.40	131.72	2018	93.57	1.53	12.25	72.23	72.14982	61.80	61.7634	253.1309	252.89585	9352.32	9346.55941		
2951011390	ARTCO ST. LOUIS-AMERICAN RIVER TRANS CO ST. LOUIS	CP-NOP	741227.54	4273049.76	127.97	2018	45.69	0.71	15.83	13.49	N/A	5.61	N/A	21.74962	N/A	220.71	N/A		x
2951011407	SOUTHERN METAL PROCESSING	INT	739807.53	4271091.77	130.90	2017	0.90	0.06	17.83	0.27	N/A	0.13	N/A	0.56812	N/A	0.91	N/A		x
2951011421	PSC METALS, LLC	CP-NOP	744406.27	4283139.66	127.58	2018	0.17	0.05	5.27	0.13	N/A	0.15	N/A	0.92092	N/A	60.34	N/A		x
2951011505	SSM HEALTH ST. LOUIS UNIVERSITY HOSPITAL	INT	740357.18	4278600.20	161.04	2016	182.08	13.53	11.35	35.37	23.78318	33.19	22.31789	152.24186	102.3586	1956.38	1859.98581		
2951011518	MES/ABTCRAFT ST. LOUIS	CP-NOP	736298.80	4279126.42	166.78	2009	1.64	0.12	14.15	0.37	N/A	0.25	N/A	1.86019	N/A	3.08	N/A		x
2951011571	ROMANOCO COFFEE	CP-NOP	739195.65	4279537.37	152.38	2017	144.54	29.75	11.56	39.27	N/A	25.03	N/A	181.41332	N/A	379.19	N/A		x
2951011586	CONNECTOR CASTINGS	INT	743041.14	4281096.06	156.25	2012	6.78	0.00	7.60	1.60	N/A	2.56	N/A	19.99337	N/A	351.67	N/A		x
2951011642	J S ALBERICI CONSTRUCTION	INT	736723.60	4285287.44	175.36	2017	213.22	0.00	11.54	82.74	13.16248	30.40	14.27848	7567.08935	1182.12885	7567.08	1182.12885		
2951011761	NESTLE PURINA PETCARE COMPANY ST. LOUIS	INT	743917.49	4285367.38	141.77	2012	105.46	1.32	9.66	25.76	25.73779	28.15	28.14949	105.70012	105.6976	1715.08	1715.08184		
2951011860	BRECKENRIDGE MATERIAL CO ST. LOUIS-PLANT 7	CP-NOP	744774.07	4277468.98	124.38	2017	0.90	0.07	9.96	0.66	N/A	0.67	N/A	1.84278	N/A	26.79	N/A		x
2951011875	RANKEN TECHNICAL COLLEGE	CP-NOP	739444.43	4281841.75	155.51	2016	8.93	0.72	10.04	4.58	N/A	3.85	N/A	25.4587	N/A	139.93	N/A		x
2951012161	PAULO PRODUCTS COMPANY	CP-NOP	736597.70	4278776.62	161.74	2018	4.18	0.12	14.09	4.07	N/A	2.22	N/A	46.04943	N/A	285.78	N/A		x
2951012314	CLASSIC METAL CRAFT INC	CP-NOP	739263.40	4278872.54	148.67	2018	0.01	0.00	11.94	0.01	N/A	0.01	N/A	0.07651	N/A	0.56	N/A		x
2951012378	BRANDONVIEW, LLC GALLERY 720 BUILDING	P70	744460.61	4279053.62	141.88	2018	899.76	265.67	8.44	166.85	N/A	106.03	N/A	401.36583	N/A	756.43	N/A		x
2951012433	RIVIANA FOODS INC.	INT	736790.86	4269387.16	133.76	2017	12.07	2.62	19.98	4.76	N/A	1.80	N/A	12.4017	N/A	23.21	N/A		x
2951012435	TRI-RINSE INC	CP-NOP	744400.07	4277772.94	127.20	2018	21.88	0.49	10.19	8.26	N/A	8.50	N/A	23.78328	N/A	834.97	N/A		x
2951012456	CHRISTY REFRACTORIES CO L.L.C.	CP-NOP	738223.37	4278219.85	147.33	2018	0.71	0.27	12.15	0.67	N/A	0.45	N/A	6.67618	N/A	242.80	N/A		x
2951012501	WESTERN READY MIX, INC.	CP-NOP	744290.36	4283052.83	128.16	2015	0.21	0.00	4.83	0.07	N/A	0.11	N/A	0.31156	N/A	3.90	N/A		x
2951012545	SOUTHWESTERN BELL TELEPHONE COMPANY	INT	744346.61	4279152.95	140.68	2012	788.24	0.16	8.58	32.51	N/A	15.01	N/A	21.26948	N/A	55.24	N/A		x
2951012560	GP RECYCLING, LLC	CP-NOP	741830.86	4284034.28	126.36	2016	23.19	0.21	5.16	12.46	0.16633	17.62	0.24185	100.43938	1.39047	6371.06	107.62391		
2951012620	ARTCO NORTH TERMINAL FIRST ST	CP-NOP	742163.68	4274112.09	129.89	2018	1.69	0.00	14.07	0.63	N/A	0.30	N/A	1.3802	N/A	13.93	N/A		x
2951012644	LUXCO CORP	CP-NOP	737350.09	4276355.77	170.23	2009	113.36	0.64	15.06	56.50	N/A	38.61	N/A	233.43824	N/A	1748.86	N/A		x
2951012660	ST LOUIS CREMATION SERVICE	CP-NOP	742480.05	4278652.05	137.02	2018	7.29	0.58	10.12	1.49	N/A	0.89	N/A	3.90496	N/A	9.05	N/A		x
2951012662	BKEP MATERIALS, LLC ST. LOUIS TERMINAL CO	CP-NOP	739322.17	4270433.67	127.78	2017	6.71	1.50	18.65	3.48	N/A	1.46	N/A	17.30505	N/A	79.84	N/A		x
2951012710	A1 AND T ST. LOUIS	CP-NOP	742329.53	4279815.47	160.84	2013	110.48	0.30	9.13	34.27	N/A	34.63	N/A	131.68254	N/A	1251.65	N/A		x
2951012711	SAINT LOUIS UNIVERSITY FACILITIES SERVICES	INT	740384.08	4280041.69	153.26	2012	116.42	6.08	10.20	60.00	14.75672	65.30	14.56079	441.77107	78.9239	3532.20	659.7853		
2951012721	METRO ST. LOUIS PSYCHIATRIC CENTER	CP-NOP	737050.60	4281890.90	160.19	2015	4.15	0.27	12.16	1.79	N/A	1.66	N/A	12.86902	N/A	60.86	N/A		x
2951012786	ASPEN INDUSTRIES ST. LOUIS	CP-NOP	738281.29	4278204.10	147.25	2016	0.04	0.01	13.12	0.03	N/A	0.02	N/A	0.2231	N/A	1.40	N/A		x
2951012802	SSM CARDINAL GLENNON CHILDRENS HOSPITAL	CP-NOP	740376.29	4278334.05	166.57	2018	246.51	4.82	11.53	80.04	6.57833	61.86	8.17967	282.23732	13.98518	2393.53	67.77371	X	
2951012849	HEARTLAND PET CREMATION PAPIN	CP-NOP	742496.24	4278542.52	137.34	2018	0.39	0.08	10.04	0.20	N/A	0.19	N/A	1.14177	N/A	14.69	N/A		x
2951029939	XINDER MORGAN TRANSMIX CO ST. LOUIS	INT	741840.04	4273774.96	128.56	2018	5.41	3.25	14.51	2.13	N/A	1.14	N/A	5.42206	N/A	55.35	N/A		x
2951029953	MIDWEST SHINGLE RECYCLING	CP-NOP	741553.45	4287420.32	129.30	2011	20.29	0.34	6.63	5.60	N/A	11.39	N/A	100.51065	N/A	312.70	N/A		x
2951030022	INTERNATIONAL FOOD PRODUCTS PRAIRIE STATION	CP-NOP	743075.17	4285015.08	130.96	2015	6.03	0.09	4.84	1.05	N/A	1.09	N/A	4.89493	N/A	18.72	N/A		x
2951030031	FAIRWAY HOLDINGS INC.	CP-NOP	742163.38	4274528.20	160.84	2018	0.85	0.14	13.69	0.55	N/A	0.31	N/A	2.22479	N/A	24.50	N/A		x
2951030035	OBAX INFRASTRUCTURES	CP-NOP	740681.25	4285381.11	135.66	2018	0.16	0.01	7.62	0.08	N/A	0.16	N/A	1.00923	N/A	7.07	N/A		x

*N/A indicates that the facility was removed before actual emissions were modeled due to PTE concentrations less than the 1 Hour Significant Impact Level.

R007725

SO2 Annual Emissions Inventory

Radius: 50 km

Centering UTM: Zone 16 226332 m E 4287677 m N

Converted From: Zone 15 748156 m E 4286841 m N

Strip ID	Pollutant	Facility ID	Facility Name	PSD Increment	Stack ID	Stack Description	Distance from Centering UTM	Actual UTM Zone	Zone 16		Zone 15		Height	Temperature	Exit Velocity	Diameter	Emissions	Emissions
							(km)		X UTM (m)	Y UTM (m)	X UTM (m)	Y UTM (m)	(m)	(K)	(m/s)	(m)	(g/s)	(lb/y)
13	SO2	163110AAV	Asphalt Sales & Products Inc.		126187	Drum mix asphalt plant	27.19	16	250353	4274928	772959	4275690	10.06	435.9	14.37	1.37	0.74	25.81227
14	SO2	163110AAV	Asphalt Sales & Products Inc.		155441	Asphalt heaters and boilers	27.19	16	250353	4274928	772959	4275690	10.06	444.8	5.6	0.58	0.35	12.2304
15	SO2	163B02AAA	Christ Bros Products, LLC		136547	Drum mix asphalt plant	17.07	15	224226	4270740	747162	4268805	10.97	430.4	25.4	1.07	0.74	25.81488
21	SO2	119010AAE	Alton Steel Inc		131841	Electric arc furnaces	21	15	227306	4308653	747753	4307832	30.48	394.3	9.46	7.38	5.81	230.66
23	SO2	119010AAE	Alton Steel Inc	X	155302	Ladle Furnace	21	15	227306	4308653	747753	4307832	22.56	408.2	26.59	0.91	1.08	37.52
27	SO2	119801AAE	National Maintenance and Repair	X	132739	Cleaver Brooks boiler (Stack 1 of 2)	14.33	15	230007	4303531	750915	4300904	10.36	505.4	7.11	0.61	0.63	21.84
28	SO2	119801AAE	National Maintenance and Repair	X	246930	Cleaver Brooks boiler (Stack 2 of 2)	14.33	15	230011	4303530	750920	4300904	10.36	505.4	7.11	0.61	0.63	21.84
42	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132833	Blast furnaces: Blast furnace A - stoves	1.66	15	227986	4287537	749816	4286810	66.14	533.2	15.14	2.13	51.91	1804.50816
43	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132834	Blast furnaces: Blast furnace A - fugitives	1.56	15	227880	4287487	749714	4286753	18.29	409.8	9.26	2.32	0.32	10.96368
44	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132836	Blast furnaces: Blast furnace casthouse baghouse	1.46	15	227782	4287473	749617	4286733	19.2	388.7	19.47	3.35	12.14	421.9488
45	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132837	Blast furnaces: Flare 1	1.62	15	227950	4287571	749778	4286841	45.42	518.7	11.94	1.83	5.84	203.06832
46	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132838	Blast furnaces: Blast furnace B - stoves	1.53	15	227830	4287458	749666	4286721	68.58	533.2	15.56	3	51.91	1804.50816
47	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132839	Blast furnaces: Blast furnace B - fugitives	1.63	15	227936	4287516	749768	4286786	18.29	409.8	9.26	2.32	0.32	10.96368
48	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132842	Hot strip mill: Slab reheat furnaces #1	0.43	15	225901	4287617	747730	4286743	17.37	616.5	4.64	4.19	9.48	329.52696
49	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132849	Finishing operations: Galvanizing line #6 - fume scrubber	0.83	15	227080	4287983	748883	4287195	24.38	299.8	12.7	0.91	0.04	1.3104
50	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132857	Basic oxygen furnaces: Desulfurization and Reladling	0.35	15	226514	4287377	748358	4286554	27.43	449.8	4.73	2.16	4.49	155.9376
51	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132861	Boilers: Boilers 1-7	1.59	15	227913	4287563	749741	4286831	68.58	460.9	4.51	4.27	74.55	2591.617392
52	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132862	Boilers: Boilers 8-10	1.53	15	227859	4287527	749690	4286791	60.96	460.9	2.13	3.35	95.85	3331.919136
53	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132867	Boilers: Boiler 11	1.71	15	228041	4287609	749866	4286885	45.72	441.5	0.91	2.44	54.03	1878.76184
54	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132871	Boilers: Boiler 12	1.73	15	228057	4287612	749882	4286889	45.72	441.5	8.14	2.44	54.03	1878.17448
55	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132876	Coke production: Battery A - pushing	1.9	15	228228	4287685	750048	4286977	5.49	314.8	25.97	1.22	0.39	13.710934
56	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132877	Coke production: Battery A - soaking	1.93	15	228264	4287699	750082	4286989	76.2	529.3	5.01	2.74	6.26	217.605024
57	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132889	Coke production: Battery B - pushing	1.97	15	228297	4287724	750114	4287016	5.49	326.5	25.97	1.22	0.41	14.365784
58	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132890	Coke production: Battery B - soaking	1.94	15	228224	4287704	750092	4286995	76.2	475.4	4.97	2.74	9.25	321.515376
59	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		132895	By-products plant: Flare	1.81	15	228146	4287706	749965	4286988	30.48	408.7	26.68	0.61	9.16	5.042952
60	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132905	Blast furnace slag pits	1.57	15	227893	4287516	749725	4286783	3.66	428.2	9.32	1.95	0.46	15.829632
61	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132926	Basic oxygen furnaces: Ladle drying/preheating	0.39	15	226645	4287439	748454	4286625	60.96	455.4	10.51	1.34	23.26	808.56048
62	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	132927	Blast furnaces: Iron spout baghouse	1.68	15	228003	4287545	749832	4286619	13.11	333.7	10.48	2.39	0.89	30.92544
63	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	172512	Hot strip mill: Slab reheat furnace #3	0.47	15	225870	4287597	747701	4286731	17.37	616.5	4.64	4.19	9.48	329.51436
64	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		172514	Hot strip mill: Slab reheat furnace #4	0.47	15	225869	4287581	747701	4286715	44.5	644.3	9.81	3.83	34.65	1204.51968
65	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		172516	Coke production: Battery A - pushing	1.91	15	228246	4287697	750085	4286986	53.04	376.5	6.76	2.1	0.03	0.921866
66	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		172518	Coke production: Battery B - pushing	1.94	15	228275	4287707	750093	4286998	53.04	376.5	6.76	2.1	0.03	0.965896
67	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	172532	Hot strip mill: Slab reheat furnace #2	0.45	15	225886	4287613	747716	4286748	17.37	616.5	4.64	4.19	9.48	329.52696
68	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		225851	Malfunctions	0.39	15	226477	4288034	748278	4287207	49.07	440.8	15.97	5.49	5.7	198.21984
69	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	229601	Internal combustion: Emergency Generator (3500 HP)	1.48	15	227814	4287601	749641	4286683	11.28	500.9	10	0.58	0.09	3.135
70	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	235979	Emergency portable Boiler #1	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
71	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236039	Emergency portable Boiler #2	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
72	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236040	Emergency portable Boiler #3	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
73	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	236041	Emergency portable Boiler #4	0.15	15	226235	4287568	748067	4286726	17.68	497.6	8.43	1.04	0.01	0.3276
74	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	238459	New Cogeneration Boiler	1.64	15	227964	4287804	749777	4287075	41.78	500.9	18.95	1.83	12.98	451.140144
75	SO2	119813AAI	Granite City Works of Unites States Steel Corp.	X	240479	Blast furnaces: Flare 2	1.71	15	228043	4287645	749866	4286921	45.72	533.2	26.77	1.83	5.84	203.06832
76	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		241099	Desulfurization unit	2.17	15	228493	4287892	750299	4287197	44.2	810.9	26.66	1.52	8.46	293.9664
77	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		242882	Coke production: Battery A - soaking	0.15	15	226235	4287568	748067	4286726	28.52	580.9	14.23	1.03	0.42	14.76384
78	SO2	119813AAI	Granite City Works of Unites States Steel Corp.		242883	Coke production: Battery B - soaking	0.15	15	226235	4287568	748067	4286726	28.52	580.9	14.23	1.03	0.45	15.5064
79	SO2	163100AAD	Darling Ingredients, Inc.		136169	Continuous rendering process	5.45	15	225295	4282330	747472	4281438	13.41	297	25.87	1.22	0.09	3.003
80	SO2	163100AAD	Darling Ingredients, Inc.		160742	Kewanee boiler	5.49	15	225295	4282330	747472	4281438	10.67	505.4	16.6	0.79	0.79	27.297754
81	SO2	163100AAD	Darling Ingredients, Inc.		211834	Johnson boiler	5.45	15	225295	4282330	747472	4281438	10.06	505.4	14.81	0.85	0.79	27.297754
84	SO2	119090AAF	Roxana Landfill, Inc.	X	232785	Enclosed flare	18.22	15	238258	4301453	759153	4301368	10.67	1144.3	0.07	3.66	0.22	7.68768
85	SO2	119090AAF	Roxana Landfill, Inc.	X	249499	Zink ultra-Low emissions (Zule) Flare	18.22	15	238258	4301453	759153	4301368	18.29	1144.3	0.15	3.96	1.95	67.87872
86	SO2	119090AAF	Roxana Landfill, Inc.	X	255341	New open flare	18.22	15	238258	4301453	759153	4301368	13.72	1144.3	10.49	0.41	1.03	35.68656
88	SO2	119801AAK	Chain of Rocks Recycling & Disposal	X	212692	Open flare	6.55	15	225544	4294176	746945	4293274	6.1	1033.2	14.41	0.2	0.13	4.619976
96	SO2	119821AAE	Charles E. Mahoney	X	169908	Drum mix asphalt plant	23.09	15	229202	4310592	749517	4309892	7.62	419.3	20.21	1.22	0.74	25.81488
97	SO2	119821AAE	Charles E. Mahoney	X	237382	Asphalt heaters and boilers	23.09	15	229202	4310592	749517	4309892	3.05	449.8	21.34	0.3	0.35	12.2304
99	SO2	163121AAY	Contract Services, LLC	X	190090	3 Boilers	11.17	15	224220	4276704	746767	4275755	12.19	327.6	7.89	1.27	0.65	22.464624
100	SO2	163121AAY	Contract Services, LLC	X	218569	Boiler #4	11.17	15	224220	4276704	746767	4275755	12.19	408.2	8.37	1.14	0.21	7.16352
102	SO2	163050AAD	Milam Recycling and Disposal Facility	X	136125	Open flare	4.63	15	228341	4283507	750434	4282812	12.8	1255.4	3.07	0.3	0.75	26.298
103	SO2	163050AAD	Milam Recycling and Disposal Facility	X	164190	Engine #1	4.65	15	228454	4283543	750548	4282852	7.92	866.5	26.29	0.25	0.22	7.783776
104	SO2	163050AAD	Milam Recycling and Disposal Facility	X	164191	Engine #2	4.65	15	228447	4283540	750538	4282852	7.92	699.8	26.29	0.25	0.22	7.783776
105	SO2	163050AAD	Milam Recycling and Disposal Facility	X	164192	Engine #3	4.65	15	228458	4283543	750548	4282855	7.92	699.8	26.29	0.25	0.23	8.019648
106	SO2	163050AAD	Milam Recycling and Disposal Facility	X	204833	3 Passive solar flares	4.93	15	228439	4283225	750550	4282537	6.1	1255.4	7.26	0.21	0.55	19.13184
107	SO2	163050AAD	Milam Recycling and Disposal Facility	X	226013	325 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.13	603.7	22.57	0.1	0.03	0.5
108	SO2	163050AAD	Milam Recycling and Disposal Facility	X	226014	Enclosed flare	4.64	15	228384	4283317	750476	4282825	16.76	1033.2	0.2	3.66	0.76	26.55744
109	SO2	163050AAD	Milam Recycling and Disposal Facility	X	226015	760 HP Tub grinder	4.93	15	228439	4283225	750550	4282537	2.44	603.7	21.61	0.2	0.04	1.52
110	SO2	163050AAD	Milam Recycling and Disposal Facility	X	245839	Landfill gas conversion plant	4.68	15	228578	4283575	750666	4282895	16.76	294.3	0	1.37	0.11	3.9312
111	SO2	163050AAD	Milam Recycling and Disposal Facility	X	253738	2000 scfm Utility Flare	4.93	15	228439	4283225	750550	4282537	10.97	728.7	5.66	1.39	0.92	31.97376
112	SO2	163065AAI	Christ Bros Products, LLC		198552	Drum mix asphalt plant	12.3	16	256126	4275206	778702	4276345	10.67	420.4	18.98	1.16	0.74	25.8132
115	SO2	163123AAB	Alton Chemical Corp.	X	159942	Unit 266: Flare 36-0031/36-0610	10.59	15	224145	4277311	746653	4276356	30.48	644.3	18.1	0.2	6.15	213.822336
117	SO2	163123AAB	Alton Chemical Corp.	X	159949	258 Sulfonation Stack	10.67	15	224003	4277269	746513	4276305	45.16	294.3	12.75	0.3	0.7	24.41712
118	SO2	163123AAB	Alton Chemical Corp.		159965	Flare 36-0219	10.67	15	224003	4277269	746513	4276305	44.5	810.9	11.12	0.12	3.45	119.817298
121	SO2	119090AAA	ConocoPhillips Co.		132496	Catalytic reformer #1 (STK12-6)	17.15	15	234086	4302986	754869	4302625	106.68	588.7	17.32	4.57	11.97	416.121888
123	SO2	119090AAA	ConocoPhillips Co.		132511	Distilling unit: HTR-DU1-F302 (STK5-1)	17.39	15	233555	4303498	754326	4303100	45.72	338.7	3.56	2.59	0.68	23.10672
124	SO2	119090AAA	ConocoPhillips Co.	X	132512	Steam methane reformer; SMR Heater (MTR-SMR - STK12-8)	17.27	15	234078	4303113	754873	4302750	60.96	672	11.12	3.66	8.58	297.6792
126	SO2	119090AAA	ConocoPhillips Co.		132517	Rectified absorption system to RFG	17.4	15	233472	4303548	754240	4303144	45.72	649.8	8.03	1.83	15.08	524.160966
128	SO2	119090AAA	ConocoPhillips Co.		132526	CCU-1 Startup heater B-1	17.4	15	233472	4303548	754240	4303144	64.62	533.2	26.53	1.37	4.46	154.97664
129	SO2	119090AAA	ConocoPhillips Co.		132535	Catalytic cracking unit #2 (STK6-3)	17.4	15	234063	4303260	754848	4302895	60.96	352.6	15.23	3.35	272.54	9474.282505
133	SO2	119090AAA	ConocoPhillips Co.		132556	Utility boiler #15 (STK12-15)	17.29	15	234066	4303140	754859	4302778	40.23	491.5	13.16	2.13	2.03	70.71792

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134	SO2	119090AAA	ConocoPhillips Co.		132557	Utility boiler #16 (STK12-16)	17.3	15	234081	4303141	754875	4302778	40.23	491.5	13.16	2.13	1.78	61.746048
135	SO2	119090AAA	ConocoPhillips Co.		132558	Utility boiler 17 (STK12-17)	17.31	15	234109	4303145	754902	4302784	45.72	431.5	15.92	3.05	2.29	79.45392
136	SO2	119090AAA	ConocoPhillips Co.		132559	Utility boiler 18 (STK8-9)	17.34	15	234128	4303369	754919	4302809	30.48	435.9	4.41	1.89	0.83	28.87248
141	SO2	119090AAA	ConocoPhillips Co.	X	132567	Catalytic reformer unit #3: Charge heater (HTR-CR3 -H4)	17.16	15	234211	4302925	755019	4302573	45.72	699.8	8.77	2.38	1.01	35.140123
142	SO2	119090AAA	ConocoPhillips Co.	X	132568	Catalytic reformer unit #3: First interreactor heater (HTR-CR3-H5)	17.14	15	234210	4302902	755019	4302548	45.72	672	8.21	2.38	0.87	30.266571
145	SO2	119090AAA	ConocoPhillips Co.	X	132594	Sulfuric acid tank	17.44	15	234324	4303176	755114	4302829	12.19	358.7	8.01	0.61	0.3	10.2648
146	SO2	119090AAA	ConocoPhillips Co.		145809	Crude heaters (STK5-3)	17.35	15	233639	4303409	754415	4303016	95.1	549.8	26.82	4.27	2.49	86.589485
147	SO2	119090AAA	ConocoPhillips Co.		145820	Sulfur recovery unit #1 (STK3-1)	16.92	15	232159	4303567	752928	4303077	38.1	792	5.4	2.19	5.09	176.904
148	SO2	119090AAA	ConocoPhillips Co.		145826	Supplemental air compressor engine CCU-1	17.4	15	233472	4303548	754240	4303144	4.57	320.4	6.21	0.46	0.22	7.60032
149	SO2	119090AAA	ConocoPhillips Co.	X	145838	Sulfur recovery unit #2 (STK3-2)	16.92	15	232158	4303561	752929	4303071	38.1	792	5.4	2.19	5.09	176.904
151	SO2	119090AAA	ConocoPhillips Co.		160799	Supplemental air compressor engine CCU-2	17.4	15	233472	4303548	754240	4303144	14.63	320.4	6.21	0.46	0.22	7.60032
152	SO2	119090AAA	ConocoPhillips Co.	X	167858	Scot unit	17.4	15	233472	4303548	754240	4303144	4.88	319.3	4.75	2.74	21.66	752.903424
160	SO2	119090AAA	ConocoPhillips Co.		148354	Catalytic cracking unit #1 (STK6-2)	17.4	15	234079	4303259	754864	4302895	60.96	352.6	15.23	3.35	4.82	167.639472
162	SO2	119090AAA	ConocoPhillips Co.		225832	Startup/malfunction/breakdown	17.4	15	233472	4303548	754240	4303144	31.39	602	6.63	1.41	24	834.288
167	SO2	119090AAA	ConocoPhillips Co.	X	227034	Sulfur operation	17.4	15	233472	4303548	754240	4303144	48.16	583.2	11.51	1.05	3.77	130.95264
172	SO2	119090AAA	ConocoPhillips Co.	X	228295	52U Regenerator vent	17.38	15	234411	4303061	755209	4302720	13.41	330.4	9.86	0.61	0.3	10.2648
176	SO2	119090AAA	ConocoPhillips Co.		241302	Coker north flare (FLR1-3)	18.16	15	234213	4304041	754947	4303684	42.37	761.5	8.09	1.64	3.87	134.630496
177	SO2	119090AAA	ConocoPhillips Co.		241303	VF-5 Heater (H350H4 - STK1-1)	17.95	15	234188	4303817	754937	4303459	45.72	616.5	8.16	3.66	1.69	58.83696
178	SO2	119090AAA	ConocoPhillips Co.		241304	Coker north heater (H351H2 - STK1-2)	17.81	15	234194	4303661	754953	4303305	45.72	533.2	6.8	3.05	0.93	32.19216
179	SO2	119090AAA	ConocoPhillips Co.		241305	Coker north heater (H351H1 - STK1-3)	17.83	15	234227	4303660	754986	4303306	45.72	533.2	6.8	3.05	0.93	32.23584
184	SO2	119090AAA	ConocoPhillips Co.		241312	Heater HP-2 (STK7-1)	17.58	15	234478	4303257	755263	4302920	35.97	477.6	13.72	3.29	3.6	126.27424
189	SO2	119090AAA	ConocoPhillips Co.	X	250894	Non-emergency air compressor #1	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
190	SO2	119090AAA	ConocoPhillips Co.	X	250895	Non-emergency air compressor #2	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
191	SO2	119090AAA	ConocoPhillips Co.	X	250896	Non-emergency air compressor #3	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.26	9.194116
192	SO2	119090AAA	ConocoPhillips Co.	X	250897	Non-emergency air compressor #4	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
193	SO2	119090AAA	ConocoPhillips Co.	X	250898	Non-emergency air compressor #5	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.27	9.249502
194	SO2	119090AAA	ConocoPhillips Co.	X	250899	Non-emergency air compressor #6	17.4	15	233472	4303548	754240	4303144	7.92	527.6	18.54	0.43	0.26	9.194116
201	SO2	119105AAA	Union Electric Co.	X	166479	Turbine CT02A	4.13	15	223543	4284632	745573	4283620	9.14	727.6	5.75	3.49	0.2	6.8175
202	SO2	119105AAA	Union Electric Co.	X	223796	Turbine CT03	4.6	15	223659	4283932	745735	4282930	11.58	590.4	22.85	1.04	0.02	0.6825
203	SO2	119105AAA	Union Electric Co.	X	223797	Turbine CT04	4.57	15	223701	4283946	745776	4282947	11.58	590.4	22.85	1.04	0.02	0.6825
204	SO2	119105AAA	Union Electric Co.	X	223798	Turbine CT05	4.15	15	223507	4284634	745538	4283620	11.58	590.4	22.85	1.04	0.01	0.4725
205	SO2	119105AAA	Union Electric Co.	X	227679	Diesel generator	4.4	15	223466	4284342	745516	4283326	7.92	527.6	18.54	0.43	D	0.02
206	SO2	119105AAA	Union Electric Co.	X	237099	Turbine CT02B	4.14	15	223542	4284625	745573	4283613	9.14	727.6	5.75	3.49	0.2	6.8175
208	SO2	119040AAQ	Gateway Regional Medical Center	X	132225	Boiler #3	0.74	15	226801	4288254	748587	4287448	14.63	588.7	12.54	1.37	0.02	0.606358
209	SO2	119040AAQ	Gateway Regional Medical Center	X	132226	Boilers #1 and 2	0.75	15	226807	4288258	748592	4287452	14.63	588.7	11.88	1.37	0.03	1.214537
210	SO2	119105AAH	Magnesium Elektron North America	X	142809	Combustion units	2.04	15	224558	4286673	746452	4285724	18.29	505.4	9.31	0.61	0.56	19.39392
211	SO2	119821AAI	Koch Fertilizer, LLC	X	232881	Ammonia heater	18.57	15	229393	4305994	750008	4305316	7.62	394.3	12.94	0.3	0.07	2.31504
212	SO2	119040ATI	Center Point Terminal Co.	X	211772	Incinerator/waste heat boiler	3	15	224697	4290189	746361	4289240	5.49	616.5	2.43	0.61	0.13	4.5864
213	SO2	119010ADU	Alton Water Treatment Facility	X	209433	Stack	23.3	15	222254	4310618	742583	4309460	6.71	477.6	25.94	0.2	0.07	2.400216
215	SO2	119040ABI	Prairie Farms Dairy, Inc.		132248	Boiler #2	0.96	15	225728	4288427	747505	4287556	7.62	435.9	19.82	0.76	0.15	5.20884
219	SO2	163121AAP	Veolia ES Technical Solutions, LLC		183733	Hazardous waste incinerator #4 (rotary kiln)	11.21	15	223000	4276971	745532	4275942	17.37	617	9.93	0.85	1.46	50.75616
224	SO2	119105AAK	Custom Steel Processing	X	218537	Scrubber	1.99	15	224461	4286999	746335	4286043	10.76	294.3	14.95	1.27	0.01	0.438
225	SO2	119105AAK	Custom Steel Processing	X	218539	Sulfuric acid storage tank	1.99	15	224461	4286999	746335	4286043	10.67	325.9	0	0.73	0.01	0.438
234	SO2	119813AAA	Christ Bros Products, LLC	X	132781	Baghouse	7	15	232088	4283693	754160	4283243	9.75	388.7	25.52	1.19	0.74	25.6128
235	SO2	119813AAA	Christ Bros Products, LLC		229921	8 Heaters and boilers	7	15	232088	4283693	754160	4283243	11.28	477.6	6.8	0.56	0.35	12.264
236	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233397	Waste heat stack 1	1.04	15	227370	4287577	749199	4286809	25.91	1366.5	22.76	2.74	1.7	59.059688
237	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233398	Pushing - Stack 1 of 6	1.49	15	227810	4287853	749620	4287113	6.1	477.6	21.22	1.52	0.26	8.918582
238	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233402	Waste heat stack 2	1.12	15	227448	4287625	749274	4286862	25.91	1366.5	22.76	2.74	1.71	59.415469
239	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233403	Waste heat stack 3	1.2	15	227531	4287677	749353	4286919	25.91	1366.5	22.76	2.74	1.7	59.059688
240	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233404	Waste heat stack 4	1.28	15	227610	4287729	749429	4286973	25.91	1366.5	22.76	2.74	1.71	59.415469
241	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233405	Waste heat stack 5	1.41	15	227732	4287800	749545	4287055	25.91	1366.5	22.76	2.74	1.71	59.415469
242	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	233406	Waste heat stack 6	1.49	15	227810	4287848	749620	4287109	25.91	1366.5	22.76	2.74	1.71	59.415469
243	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240022	Pushing - Stack 2 of 6	1.41	15	227732	4287804	749545	4287060	6.1	477.6	21.22	1.52	0.26	8.972309
244	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240023	Pushing - Stack 3 of 6	1.28	15	227610	4287729	749429	4286977	6.1	477.6	21.22	1.52	0.26	8.972309
245	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240024	Pushing - Stack 4 of 6	1.2	15	227531	4287680	749352	4286923	6.1	477.6	21.22	1.52	0.26	8.918582
246	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240025	Pushing - Stack 5 of 6	1.12	15	227449	4287629	749274	4286856	6.1	477.6	21.22	1.52	0.26	8.972309
247	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240026	Pushing - Stack 6 of 6	1.04	15	227369	4287580	749198	4286813	6.1	477.6	21.22	1.52	0.26	8.972309
248	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	240528	Coking (New Main Stack)	1.13	15	227461	4287746	749279	4286984	60.96	406.5	11.84	3.96	28.61	994.5936
249	SO2	119040ATN	Gateway Energy & Coke Co., LLC	X	242560	Malfunctions	1.05	15	227373	4287575	749202	4286808	34.44	347.6	2.96	1.33	33.67	1170.36192
250	SO2	119025ABA	Asphalt Sales & Products Inc.	X	220618	Drum mix asphalt plant	16.09	15	236572	4300093	757560	4299901	9.75	410.9	20.83	1.3	0.74	25.8096
251	SO2	119025ABA	Asphalt Sales & Products Inc.	X	222135	Asphalt heaters and boilers	16.09	15	236572	4300093	757560	4299901	10.67	455.9	8.2	1.13	0.35	12.2304
253	SO2	119465AAG	Green Plains Madison, LLC	X	237659	Boiler #1	3.2	15	223349	4286506	745256	4285477	21.64	413.2	7	1.01	0.06	2.184
254	SO2	119465AAG	Green Plains Madison, LLC	X	237660	Fire Pump back-up Engine (460 HP)	3.29	15	223279	4286442	745191	4285409	3.96	603.7	26.29	0.25	0.03	0.235
255	SO2	119465AAG	Green Plains Madison, LLC	X	237661	Electrical system backup Engine (1495 HP)	3.28	15	223241	4286572	745144	4285537	8.53	603.7	22.49	0.38	0.05	1.8135
256	SO2	119465AAG	Green Plains Madison, LLC	X	237679	Indirect dryer #1	3.27	15	223283	4286500	745191	4285468	21.64	470.4	8.7	1.4	0.05	1.79088
257	SO2	119465AAG	Green Plains Madison, LLC	X	253367	Boiler #2	3.2	15	223352	4286514	745258	4285486	21.64	413.2	7	1.01	0.06	2.184
258	SO2	119465AAG	Green Plains Madison, LLC	X	253368	Boiler #3	3.2	15	223353	4286520	745260	4285491	21.64	413.2	7	1.01	0.06	2.184
259	SO2	119465AAG	Green Plains Madison, LLC	X	253369	Boiler #4	3.19	15	223356	4286528	745262	4285500	21.64	413.2	7	1.01	0.06	2.184
260	SO2	119465AAG	Green Plains Madison, LLC	X	253370	Indirect dryer #2	3.31	15	223254	4286465	745164	4285430	24.69	470.4	2.57	1.68	0.05	1.79088
262	SO2	119097AAB	Christ Bros Products, LLC	X	224592	Drum mix asphalt plant	15.03	15	234696	4300139	755685	4299823	9.75	394.8	16.35	1.25	0.74	25.81488
263	SO2	119097AAB	Christ Bros Products, LLC	X	224594	Asphalt tank heaters and boilers	15.03	15	234713	4300156	755701	4299841	3.05	486.5	12.94	0.3	0.35	12.264
280	SO2	163045AFI	Safety Kleen Systems, Inc.		136098	Pipe still (heat exchanger)	10.54	15	227277	4277175	749786	4276425	4.57	349.8	9.09	0.3	0.09	3.024272
281	SO2	119040AAC	Amsted Rail Co., Inc.	X	132148	Electric Arc Furnace #1 (EF-1)	1.3	15	225352	4288526	747122	4287625	16.76	394.3	16.49	1.89	0.37	12.9984
282	SO2	119040AAC	Amsted Rail Co., Inc.	X	132149	Electric Arc Furnace #2 (EF-2)	1.28	15	225377	4288526	747147	4287625	13.41	394.3	12.94	2.13	0.37	12.9984
283	SO2	119040AAC	Amsted Rail Co., Inc.		167781	Pouring and casting (PR/CST-1)	1.37	15	225253	4288519	747025	4287611	30.78	394.8	10.6	2.96	0.06	2.01
284	SO2	119040AAC	Amsted Rail Co., Inc.	X	167787	Ladle Preheater (LDP-1)	1.36	15	225267	4288519	747039	4287611	24.99	535.9	9.6	1.86	0.02	0.77176
285	SO2	119040AAC	Amsted Rail Co., Inc.	X	251099	Annealing Furnace 18	1.37	15	225303	4288575	747071	4287670	11.89	413.2	7.06	0.62	0.01	0.4368
290	SO2	119040ATQ	Illinois Electric Works	X	227590	3 Burn off ovens	1.31	15	226132	4288976	747872	4288124	14.02	394.3	12.57	0.72	0.01	0.301392
291	SO2	119040AYS	Amsted Rail Co., Inc.	X	253361	Sand regeneration process (combustion)	1.37	15	225198	4288449	746975	4287537	11.89	413.2	7.06	0.62	0.03	1.001
293	SO2	163045AGR	Bunge-SF Grain, LLC.	X	236260	Grain Dryer	6.13	15	225958	4282023	746158	4281045	29.26	302.6	26.8	2.51	2.15	74.64912
295	SO2	119090AAO	Shell Oil Products US	X	239899	RTO	17.22	15	233024	4304084	753758	4303650	5.79	366.5	10.35	0.76	0.11	3.699696

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Strip ID	Facility ID	Point	Mode	Operating Permit	Construction Permit	Stack ID	Stack No.	nt Descripti	ck Descripi	Stack Distance (Km)	Background Flag	Ceased Month	Ceased Year	Modified Month	Modified Year	Rain Cap	Stack Diameter (m)	Stack Height (m)	Stack Parameter Year	Stack Parameter Type
14	119813AAI	55	1	96030056		132876	69	Coke produ	Coke production: Battery A - pushing								1.22	5.49	2020	MAX
19	119813AAI	78	1	96030056		132889	90	Coke produ	Coke production: Battery B - pushing								1.22	5.49	2020	MAX
13	119813AAI	54	1	96030056		132875	68	Coke produ	Coke production: Battery A - charging								2.27	9.14	2020	MAX
16	119813AAI	58	1	96030056		132878	72	Coke produ	Coke production: Battery A - doors								2.65	9.14	2020	MAX
17	119813AAI	59	1	96030056		132879	73	Coke produ	Coke production: Battery A - lids and standpipes								1.58	9.14	2020	MAX
18	119813AAI	76	1	96030056		132888	89	Coke produ	Coke production: Battery B - charging								2.27	9.14	2020	MAX
21	119813AAI	80	1	96030056		132891	93	Coke produ	Coke production: Battery B - doors								2.65	9.14	2020	MAX
22	119813AAI	81	1	96030056		132892	94	Coke produ	Coke production: Battery B - lids and standpipes								1.58	9.14	2020	MAX
27	119813AAI	180	1	96030056		160868	161	Coke produ	Coke production: Battery A - underfiring								2.65	10.06	2020	MAX
28	119813AAI	181	1	96030056		160869	162	Coke produ	Coke production: Battery B - underfiring								2.65	10.06	2020	MAX
40	119813AAI	218	1	96030056		229601	250	Internal co	Internal combustion: Emergency Generator (3500 HP)							N	0.58	11.28	2020	MAX
37	119813AAI	212	1	96030056		229337	244	Finishing o	Finishing operations: Galvanizing line #8 - space heaters							N	0.62	11.89	2020	MAX
38	119813AAI	213	1	96030056		229338	245	Finishing o	Finishing operations: Galvanizing line #8 - drying oven and storage area heate							N	0.62	11.89	2020	MAX
39	119813AAI	214	1	96030056		229339	246	Finishing o	Finishing operations: Galvanizing line #8 - miscellaneous heaters							N	0.62	11.89	2020	MAX
26	119813AAI	139	1	96030056		132927	150	Blast furna	Blast furnaces: Iron spout baghouse								2.39	13.11	2020	MAX
35	119813AAI	186	1	96030056		172556	219	Finishing o	Finishing operations: Galvanizing line #7A - miscellaneous heaters							N	0.7	13.11	2020	MAX
36	119813AAI	205	1	96030056		226696	242	Internal co	Internal combustion: #4 coke oven gas booster pump							N	0.63	14.33	2020	MAX
34	119813AAI	185	1	96030056		172555	218	Finishing o	Finishing operations: Galvanizing line #8 - natural gas furnace							N	0.91	16.15	2020	MAX
24	119813AAI	27	1	96030056		132910	131	Finishing o	Finishing operations: Galvanizing line #7A - natural gas furnace								0.61	16.46	2020	MAX
5	119813AAI	15	1	96030056		132842	20	Hot strip m	Hot strip mill: Slab reheat furnaces #1								4.19	17.37	2020	MAX
29	119813AAI	123	1	96030056	11050019	172512	175	Hot strip m	Hot strip mill: Slab reheat furnace #3							N	4.19	17.37	2020	MAX
33	119813AAI	122	1	96030056		172532	195	Hot strip m	Hot strip mill: Slab reheat furnace #2							N	4.19	17.37	2020	MAX
41	119813AAI	229	1		10100042	235979	259	Emergency	Emergency portable Boiler #1							N	1.04	17.68	2020	MAX
42	119813AAI	229	1		10100042	236039	260	Emergency	Emergency portable Boiler #2							N	1.04	17.68	2020	MAX
43	119813AAI	229	1		10100042	236040	261	Emergency	Emergency portable Boiler #3							N	1.04	17.68	2020	MAX
44	119813AAI	229	1		10100042	236041	262	Emergency	Emergency portable Boiler #4							N	1.04	17.68	2020	MAX
49	119813AAI	234	1			242881	269	Coke produ	Coke production: Battery B - decarbonizing							N	1.07	17.68	2020	MAX
2	119813AAI	6	1	96030056		132836	10	Blast furna	Blast furnaces: Blast furnace casthouse baghouse								3.35	19.2	2020	MAX
48	119813AAI	233	1			242880	268	Coke produ	Coke production: Battery A - decarbonizing							N	1.75	22.25	2020	MAX
6	119813AAI	182	1	96030056		132849	36	Finishing o	Finishing operations: Galvanizing line #8 - fume scrubber								0.91	24.38	2020	MAX
50	119813AAI	235	1			242882	270	Coke produ	Coke production: Battery A - soaking							N	1.03	26.52	2020	MAX
51	119813AAI	236	1			242883	271	Coke produ	Coke production: Battery B - soaking							N	1.03	26.52	2020	MAX
8	119813AAI	35	1	96030056		132857	47	Basic oxyge	Basic oxygen furnaces: Desulfurization and Reladling								2.18	27.43	2020	MAX
23	119813AAI	97	1	96030056		132895	97	By-product	By-products plant: Flare								0.61	30.48	2020	MAX
45	119813AAI	230	1		6070023	238459	263	New Coger	New Cogeneration Boiler							N	1.83	41.76	2020	MAX
47	119813AAI	97	4	96030056		241099	266	By-product	Desulfurization unit							N	1.52	44.2	2020	MAX
30	119813AAI	18	1	96030056		172514	177	Hot strip m	Hot strip mill: Slab reheat furnace #4							N	3.83	44.5	2020	MAX
3	119813AAI	8	1	96030056		132837	11	Blast furna	Blast furnaces: Flare 1								1.83	45.42	2020	MAX
11	119813AAI	44	1	96030056		132867	59	Boilers: Boi	Boilers: Boiler 11								2.44	45.72	2020	MAX
12	119813AAI	48	1	96030056		132872	64	Boilers: Boi	Boilers: Boiler 12								2.44	45.72	2020	MAX
46	119813AAI	8	1	96030056		240479	265	Blast furna	Blast furnaces: Flare 2							N	1.83	45.72	2020	MAX
7	119813AAI	33	1	96030056		132855	45	Basic oxyge	Basic oxygen furnaces: BOF #1 and #2								5.49	49.07	2020	MAX
31	119813AAI	55	1	96030056		172516	179	Coke produ	Coke production: Battery A - pushing							N	2.1	53.04	2020	MAX

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32	119813AAI	78	1	96030056	172518	181	Coke produ	Coke production: Battery B - pushing	N	2.1	53.04	2020 MAX
10	119813AAI	42	1	96030056	132862	54	Boilers: Bo	Boilers: Boilers 8-10		3.35	60.96	2020 MAX
25	119813AAI	38	1	96030056	132926	149	Basic oxyge	Basic oxygen furnaces: Ladle drying/preheating		1.34	60.96	2020 MAX
1	119813AAI	4	1	96030056	132833	7	Blast furna	Blast furnaces: Blast furnace A - stoves		2.13	66.14	2020 MAX
4	119813AAI	9	1	96030056	132838	12	Blast furna	Blast furnaces: Blast furnace B - stoves		3	68.58	2020 MAX
9	119813AAI	41	1	96030056	132861	53	Boilers: Bo	Boilers: Boiles 1-7		4.27	68.58	2020 MAX
15	119813AAI	57	1	96030056	132877	71	Coke produ	Coke production: Battery A - soaking		2.74	76.2	2020 MAX
20	119813AAI	79	1	96030056	132890	92	Coke produ	Coke production: Battery B - soaking		2.74	76.2	2020 MAX
											28.80686	

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Stack Flow Rate (acfm)	Stack Velocity (m/s)	Stack emperatur K	Error Flag	Qualifier Flag	Pollutant	Emission Year	Emission Type	Controlled Emissions (lb/hr)	Controlled Emissions (g/s)	Controlled Emissions (t/y)	Forced Y UTM	Forced X UTM	Lambert North	Lambert East	Duplicate UTM	Method	Datum
64238	25.97	326.5			CO	2020	ALLW	2.0614	0.26	9.028932	4287688	228228	2066838	2822626		19	NAD83
64238	25.97	326.5			CO	2020	ALLW	2.41746	0.3	10.58848	4287724	228297	2066959	2822847		19	NAD83
60319	7.03	391.5			CO	2020	ALLW	0.03395	0	0.148701	4287697	228226	2066864	2822619		19	NAD83
57040	4.87	359.8			CO	2020	ALLW	0.64	0.08	2.8032	4287683	228217	2066820	2822590		19	NAD83
18467	4.42	355.4			CO	2020	ALLW	0.06244	0.01	0.273487	4287706	228229	2066896	2822628		19	NAD83
154221	17.97	394.8			CO	2020	ALLW	0.03409	0	0.149314	4287729	228292	2066976	2822830		19	NAD83
57040	4.87	359.8			CO	2020	ALLW	0.62963	0.08	2.757779	4287732	228276	2066984	2822778		19	NAD83
18467	4.42	355.4			CO	2020	ALLW	0.06244	0.01	0.273487	4287740	228293	2067010	2822832		19	NAD83
57040	4.87	359.8			CO	2020	ALLW	0.13514	0.02	0.591913	4287693	228214	2066852	2822580		19	NAD83
57040	4.87	359.8			CO	2020	ALLW	0.13572	0.02	0.594454	4287733	228296	2066988	2822843		19	NAD83
5520	10	500.9			CO	2020	ALLW	21.11	2.66	92.4618	4287601	227814	2066516	2821285		19	NAD83
4500	7.06	413.2			CO	2020	ALLW	0.339	0.04	1.48482	4287857	226586	2067243	2817257	S	19	NAD83
4500	7.06	413.2			CO	2020	ALLW	0.195	0.02	0.8541	4287857	226586	2067243	2817257	S	19	NAD83
4500	7.06	413.2			CO	2020	ALLW	0.44	0.06	1.9272	4287857	226586	2067243	2817257	S	19	NAD83
102532	10.82	327			CO	2020	ALLW	3.43	0.43	15.0234	4287545	228003	2066351	2821903		19	NAD83
4734	5.79	414.3			CO	2020	ALLW	2.1	0.26	9.198	4287857	226586	2067243	2817257	S	19	NAD83
6060	9.06	321.5			CO	2020	ALLW	35.83	4.51	156.9354	4287568	226235	2066268	2816138	F	19	NAD83
14328	10.3	421.5			CO	2020	ALLW	1.92	0.24	8.4096	4287857	226586	2067243	2817257	S	19	NAD83
3480	5.63	505.4			CO	2020	ALLW	2.52	0.32	11.0376	4287857	226586	2067243	2817257	S	19	NAD83
135560	4.64	616.5			CO	2020	ALLW	10.655	1.34	46.6689	4287627	225901	2066429	2815045		19	NAD83
135560	4.64	616.5			CO	2020	ALLW	13.185	1.66	57.7503	4287597	225870	2066330	2814946		19	NAD83
135560	4.64	616.5			CO	2020	ALLW	9.925	1.25	43.4715	4287613	225886	2066383	2814997		19	NAD83
15060	8.43	497.6			CO	2020	ALLW	1.9	0.24	8.322	4287568	226235	2066268	2816138	F	19	NAD83
15060	8.43	497.6			CO	2020	ALLW	1.9	0.24	8.322	4287568	226235	2066268	2816138	F	19	NAD83
15060	8.43	497.6			CO	2020	ALLW	1.9	0.24	8.322	4287568	226235	2066268	2816138	F	19	NAD83
15060	8.43	497.6			CO	2020	ALLW	1.9	0.24	8.322	4287568	226235	2066268	2816138	F	19	NAD83
20700	10.93	400.9			CO	2020	ALLW	0.28692	0.04	1.25671	4287568	226235	2066268	2816138	F	19	NAD83
364208	19.47	338.7			CO	2020	ALLW	35.5	4.47	155.49	4287473	227782	2066096	2821191		19	NAD83
38280	7.54	645.4			CO	2020	ALLW	0.27325	0.03	1.196835	4287568	226235	2066268	2816138	F	19	NAD83
17672	12.7	299.8			CO	2020	ALLW	0.3	0.04	1.314	4287983	227080	2067695	2818858		27	NAD83
25140	14.23	590.9			CO	2020	ALLW	0.06831	0.01	0.299198	4287568	226235	2066268	2816138	F	19	NAD83
25140	14.23	590.9			CO	2020	ALLW	0.072	0.01	0.31536	4287568	226235	2066268	2816138	F	19	NAD83
37500	4.73	449.8			CO	2020	ALLW	11.01	1.39	48.2238	4287377	226514	2065670	2817067		19	NAD83
16500	26.68	408.7			CO	2020	ALLW	48.93	6.17	214.3134	4287706	228146	2066886	2822357		19	NAD83
105480	18.95	500.9			CO	2020	ALLW	77.463	9.76	339.2879	4287804	227964	2067192	2821755		19	NAD83
103000	26.65	922			CO	2020	ALLW	16.2	2.04	70.956	4287892	228493	2067524	2823471		19	NAD83
240000	9.81	644.3			CO	2020	ALLW	10.185	1.28	44.6103	4287581	225869	2066276	2814944		19	NAD83
66468	11.94	518.7			CO	2020	ALLW	770.28	97.06	3373.826	4287571	227950	2066430	2821728		19	NAD83
90000	9.1	441.5			CO	2020	ALLW	182.935	23.05	801.2553	4287609	228041	2066561	2822022		19	NAD83
80590	8.14	441.5			CO	2020	ALLW	73.015	9.2	319.8057	4287612	228057	2066572	2822074		19	NAD83
149000	26.77	533.2			CO	2020	ALLW	770.28	97.06	3373.826	4287645	228043	2066679	2822027		19	NAD83
800000	15.97	560.9			CO	2020	ALLW	3685.32	464.35	16141.7	4287501	226580	2066079	2817268		19	NAD83
49782	6.76	376.5			CO	2020	ALLW	0.1386	0.02	0.607068	4287697	228246	2066868	2822682		19	NAD83

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49782	6.76	376.5	CO	2020 ALLW	0.16254	0.02	0.711925	4287707	228275	2066903	2822777	19 NAD83
58618	3.13	460.9	CO	2020 ALLW	6.86	0.86	30.0468	4287527	227859	2066278	2821437	19 NAD83
31459	10.51	455.4	CO	2020 ALLW	8.149	1.03	35.69262	4287439	226645	2065885	2817486	19 NAD83
203000	26.8	533.2	CO	2020 ALLW	493.42	62.17	2161.18	4287537	227986	2066323	2821851	19 NAD83
232440	15.56	533.2	CO	2020 ALLW	595.85	75.08	2609.823	4287458	227830	2066052	2821349	19 NAD83
136775	4.51	460.9	CO	2020 ALLW	15.997	2.02	70.06686	4287563	227913	2066402	2821609	19 NAD83
62684	5.01	529.3	CO	2020 ALLW	24.459	3.08	107.1304	4287699	228264	2066874	2822741	19 NAD83
62285	4.97	529.3	CO	2020 ALLW	25.499	3.21	111.6856	4287704	228274	2066893	2822773	19 NAD83

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siteID	seas	yr	Criteria1	Criteria2	Criteria3	Ca	Mg	K	Na	NH4	NO3	totalN	Cl	SO4	Br	hplus	svol	ppt	fullChemLa	daysSampl	startDate	lastDate
IL46	Annual	1999	71	92	88	1.615	0.177	0.146	0.369	2.145	9.62	3.84	0.761	13.418	-9	0.219	46806.9	76.896	26	364	########	########
IL46	Annual	2000	79	100	85	1.946	0.205	0.216	0.714	3.168	13.212	5.446	1.157	15.201	-9	0.226	64630.7	108.115	34	371	########	########
IL46	Annual	2001	81	100	85	1.269	0.164	0.156	0.606	2.277	8.721	3.739	1.097	10.859	-9	0.162	48494.6	81.89	33	364	########	########
IL46	Annual	2002	79	100	91	1.868	0.227	0.227	0.83	3.222	10.307	4.832	1.206	14.517	-9	0.167	62014.1	98.823	35	364	########	########
IL46	Annual	2003	92	100	90	1.816	0.191	0.143	0.392	3.47	11.165	5.218	0.851	14.521	-9	0.192	58324	95.594	40	364	########	########
IL46	Annual	2004	92	100	93	1.643	0.232	0.221	0.885	3.645	10.944	5.304	1.475	15.263	-9	0.213	65006.4	105.333	37	364	########	########
IL46	Annual	2005	89	100	95	1.738	0.227	0.168	0.553	2.973	9.719	4.505	1.037	15.576	-9	0.222	62596.6	98.769	39	371	########	########
IL46	Annual	2006	88	100	96	1.784	0.219	0.146	0.57	2.793	8.307	4.047	0.929	10.845	-9	0.118	45436.9	73.128	39	364	########	########
IL46	Annual	2007	96	100	96	1.502	0.186	0.131	0.399	2.535	7.074	3.567	0.696	10.173	-9	0.111	44126.4	68.878	37	363	########	########
IL46	Annual	2008	88	100	89	2.631	0.329	0.298	1.159	4.746	13.047	6.635	1.833	20.659	-9	0.243	94463	156.625	41	365	########	########
IL46	Annual	2009	88	100	99	2.154	0.256	0.218	0.744	4.025	9.896	5.363	1.218	13.934	-9	0.135	83110.8	128.19	41	364	########	########
IL46	Annual	2010	96	100	98	1.759	0.231	0.165	0.627	3.123	8.918	4.441	0.979	11.787	-9	0.141	71180.5	109.957	43	364	########	########
IL46	Annual	2011	79	100	91	3.186	0.37	0.465	1.074	5.631	12.516	7.203	1.575	14.079	-9	0.084	63051.7	119.311	36	371	########	########
IL46	Annual	2012	90	100	96	2.591	0.288	0.203	0.686	3.7	8.629	4.825	0.965	9.298	-9	0.049	52348.8	84.679	37	364	########	########
IL46	Annual	2013	92	100	93	2.045	0.234	0.277	0.597	3.473	7.83	4.467	1.023	8.64	-9	0.06	65606.8	106.536	41	364	########	########
IL46	Annual	2014	85	100	90	2.258	0.266	0.221	0.686	3.863	8.601	4.945	1.029	9.564	-9	0.07	65093.4	110.693	38	364	########	########
IL46	Annual	2015	89	99	91	1.546	0.279	0.596	0.925	4.309	7.148	4.963	1.356	7.895	-9	0.07	73567.2	126.732	38	368	########	########
IL46	Annual	2016	85	100	95	2	0.254	0.233	0.548	3.949	8.04	4.885	0.904	6.873	-9	0.048	63908.3	101.521	38	371	########	########
IL46	Annual	2017	94	100	96	2.727	0.331	0.232	0.718	4.074	8.049	4.984	1.049	7.144	-9	0.061	70801.5	110.414	30	364	########	########
IL46	Annual	2018	90	100	97	1.632	0.189	0.292	0.519	3.99	6.725	4.619	0.858	5.697	-9	0.043	59483.4	94.316	35	364	########	########
IL46	Annual	2019	96	100	98	1.704	0.227	0.227	0.611	4.673	9.119	5.691	0.966	7.826	-9	0.092	96156.8	142.038	47	364	########	########

X	Y	DISPLAYEC	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748399.6	4287065	592	127.55	127.55	0	8-HR	ALL	1ST		16110108
748434.9	4287033	646	127.16	127.16	0	8-HR	ALL	1ST		16110108
748470.1	4287000	588	126.94	126.94	0	8-HR	ALL	1ST		16110108
748505.4	4286968	524	126.61	126.61	0	8-HR	ALL	1ST		16011508
748541.2	4286934	524	126.56	126.56	0	8-HR	ALL	1ST		16101808
748869.8	4286563	546	126.26	126.26	0	8-HR	ALL	1ST		16111908
748897.5	4286537	544	126.92	126.92	0	8-HR	ALL	1ST		16111908
748925.3	4286511	543	127.02	127.02	0	8-HR	ALL	1ST		16111824
748896.5	4286489	580	127.08	127.08	0	8-HR	ALL	1ST		16111824
748867.7	4286468	525	126.93	126.93	0	8-HR	ALL	1ST		16111824
748528.8	4286381	565	126.68	126.68	0	8-HR	ALL	1ST		16092816
748481.6	4286378	596	126.67	126.67	0	8-HR	ALL	1ST		16092816
748908	4286456	518	126.8	126.8	0	8-HR	ALL	1ST		16111824
748941.8	4286480	555	126.84	126.84	0	8-HR	ALL	1ST		16111824
748500	4286300	525	126.15	126.15	0	8-HR	ALL	1ST		16092816
748400	4287100	575	128.28	128.28	0	8-HR	ALL	1ST		16110108
748400	4287200	534	129.03	129.03	0	8-HR	ALL	1ST		16110108
748400	4287300	501	129.32	129.32	0	8-HR	ALL	1ST		16110108

R007733

X	Y	DISPLAYEE	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748364.4	4287098	520	128.3	128.3	0	8-HR	ALL	1ST		17112624
748399.6	4287065	603	127.55	127.55	0	8-HR	ALL	1ST		17112624
748434.9	4287033	612	127.16	127.16	0	8-HR	ALL	1ST		17112624
748470.1	4287000	555	126.94	126.94	0	8-HR	ALL	1ST		17061324
748505.4	4286968	536	126.61	126.61	0	8-HR	ALL	1ST		17061324
748756.2	4286732	539	125.76	125.76	0	8-HR	ALL	1ST		17012516
748792	4286698	509	126.06	126.06	0	8-HR	ALL	1ST		17012516
748869.8	4286563	513	126.26	126.26	0	8-HR	ALL	1ST		17012608
748897.5	4286537	537	126.92	126.92	0	8-HR	ALL	1ST		17012608
748925.3	4286511	527	127.02	127.02	0	8-HR	ALL	1ST		17012608
748528.8	4286381	578	126.68	126.68	0	8-HR	ALL	1ST		17050508
748481.6	4286378	545	126.67	126.67	0	8-HR	ALL	1ST		17031408
748975.6	4286504	503	126.82	126.82	0	8-HR	ALL	1ST		17012608
750539.9	4287160	511	126.77	126.77	0	8-HR	ALL	1ST		17090416
750505.9	4287125	533	126.91	126.91	0	8-HR	ALL	1ST		17090416
750472	4287091	541	125.7	125.7	0	8-HR	ALL	1ST		17081716
750438	4287056	548	126.28	126.28	0	8-HR	ALL	1ST		17081716
750401.1	4287022	535	126.34	126.34	0	8-HR	ALL	1ST		17081716
750364.3	4286989	506	126.14	126.14	0	8-HR	ALL	1ST		17090416
748617.9	4287154	500	126.83	126.83	0	8-HR	ALL	1ST		17101624
748500	4286300	501	126.15	126.15	0	8-HR	ALL	1ST		17031408
748800	4286700	506	126	126	0	8-HR	ALL	1ST		17012516
748500	4287000	513	126.82	126.82	0	8-HR	ALL	1ST		17061324
750400	4287000	511	126.27	126.27	0	8-HR	ALL	1ST		17090416
748400	4287100	593	128.28	128.28	0	8-HR	ALL	1ST		17112624
750500	4287100	540	126.12	126.12	0	8-HR	ALL	1ST		17081716
750600	4287100	517	126.79	126.79	0	8-HR	ALL	1ST		17081716
748400	4287200	562	129.03	129.03	0	8-HR	ALL	1ST		17112624
748400	4287300	532	129.32	129.32	0	8-HR	ALL	1ST		17112624
748400	4287400	504	128.46	128.46	0	8-HR	ALL	1ST		17112624

R007734

X	Y	DISPLAYED	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748364.4	4287098	520	128.3	128.3	0	8-HR	ALL	1ST		17112624
748399.6	4287065	603	127.55	127.55	0	8-HR	ALL	1ST		17112624
748434.9	4287033	612	127.16	127.16	0	8-HR	ALL	1ST		17112624
748470.1	4287000	555	126.94	126.94	0	8-HR	ALL	1ST		17061324
748505.4	4286968	536	126.61	126.61	0	8-HR	ALL	1ST		17061324
748756.2	4286732	539	125.76	125.76	0	8-HR	ALL	1ST		17012516
748792	4286698	509	126.06	126.06	0	8-HR	ALL	1ST		17012516
748869.8	4286563	513	126.26	126.26	0	8-HR	ALL	1ST		17012608
748897.5	4286537	537	126.92	126.92	0	8-HR	ALL	1ST		17012608
748925.3	4286511	527	127.02	127.02	0	8-HR	ALL	1ST		17012608
748528.8	4286381	578	126.68	126.68	0	8-HR	ALL	1ST		17050508
748481.6	4286378	545	126.67	126.67	0	8-HR	ALL	1ST		17031408
748975.6	4286504	503	126.82	126.82	0	8-HR	ALL	1ST		17012608
750539.9	4287160	511	126.77	126.77	0	8-HR	ALL	1ST		17090416
750505.9	4287125	533	126.91	126.91	0	8-HR	ALL	1ST		17090416
750472	4287091	541	125.7	125.7	0	8-HR	ALL	1ST		17081716
750438	4287056	548	126.28	126.28	0	8-HR	ALL	1ST		17081716
750401.1	4287022	535	126.34	126.34	0	8-HR	ALL	1ST		17081716
750364.3	4286989	506	126.14	126.14	0	8-HR	ALL	1ST		17090416
748617.9	4287154	500	126.83	126.83	0	8-HR	ALL	1ST		17101624
748500	4286300	501	126.15	126.15	0	8-HR	ALL	1ST		17031408
748800	4286700	506	126	126	0	8-HR	ALL	1ST		17012516
748500	4287000	513	126.82	126.82	0	8-HR	ALL	1ST		17061324
750400	4287000	511	126.27	126.27	0	8-HR	ALL	1ST		17090416
748400	4287100	593	128.28	128.28	0	8-HR	ALL	1ST		17112624
750500	4287100	540	126.12	126.12	0	8-HR	ALL	1ST		17081716
750600	4287100	517	126.79	126.79	0	8-HR	ALL	1ST		17081716
748400	4287200	562	129.03	129.03	0	8-HR	ALL	1ST		17112624
748400	4287300	532	129.32	129.32	0	8-HR	ALL	1ST		17112624
748400	4287400	504	128.46	128.46	0	8-HR	ALL	1ST		17112624

R007735

X	Y	DISPLAYEC	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748434.9	4287033	548	127.16	127.16	0	8-HR	ALL	1ST		18082708
748470.1	4287000	568	126.94	126.94	0	8-HR	ALL	1ST		18082708
748505.4	4286968	529	126.61	126.61	0	8-HR	ALL	1ST		18103024
748792	4286698	514	126.06	126.06	0	8-HR	ALL	1ST		18122816
748869.8	4286563	541	126.26	126.26	0	8-HR	ALL	1ST		18041524
748897.5	4286537	575	126.92	126.92	0	8-HR	ALL	1ST		18041524
748925.3	4286511	570	127.02	127.02	0	8-HR	ALL	1ST		18041524
748896.5	4286489	532	127.08	127.08	0	8-HR	ALL	1ST		18041524
748803.4	4286469	515	126.58	126.58	0	8-HR	ALL	1ST		18040324
748767.9	4286459	516	126.54	126.54	0	8-HR	ALL	1ST		18112608
748528.8	4286381	534	126.68	126.68	0	8-HR	ALL	1ST		18111224
748481.6	4286378	669	126.67	126.67	0	8-HR	ALL	1ST		18111224
748941.8	4286480	527	126.84	126.84	0	8-HR	ALL	1ST		18041524
748975.6	4286504	542	126.82	126.82	0	8-HR	ALL	1ST		18041524
749014.6	4286505	510	126.98	126.98	0	8-HR	ALL	1ST		18041524
750539.9	4287160	516	126.77	126.77	0	8-HR	ALL	1ST		18051316
750505.9	4287125	532	126.91	126.91	0	8-HR	ALL	1ST		18051316
750472	4287091	533	125.7	125.7	0	8-HR	ALL	1ST		18051316
750438	4287056	544	126.28	126.28	0	8-HR	ALL	1ST		18061016
750401.1	4287022	551	126.34	126.34	0	8-HR	ALL	1ST		18061016
750364.3	4286989	539	126.14	126.14	0	8-HR	ALL	1ST		18061016
750327.4	4286955	508	126.49	126.49	0	8-HR	ALL	1ST		18061016
748873.5	4286391	503	126.81	126.81	0	8-HR	ALL	1ST		18112608
748500	4286200	534	127.11	127.11	0	8-HR	ALL	1ST		18111224
748500	4286300	618	126.15	126.15	0	8-HR	ALL	1ST		18111224
748800	4286700	508	126	126	0	8-HR	ALL	1ST		18122816
750400	4287000	543	126.27	126.27	0	8-HR	ALL	1ST		18061016
750500	4287000	505	125.6	125.6	0	8-HR	ALL	1ST		18061016
750500	4287100	528	126.12	126.12	0	8-HR	ALL	1ST		18051316
750600	4287100	502	126.79	126.79	0	8-HR	ALL	1ST		18061016

R007736

X	Y	DISPLAYEC	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748399.6	4287065	505	127.55	127.55	0	8-HR	ALL	1ST		14111024
748434.9	4287033	568	127.16	127.16	0	8-HR	ALL	1ST		14111024
748470.1	4287000	573	126.94	126.94	0	8-HR	ALL	1ST		14061724
748505.4	4286968	542	126.61	126.61	0	8-HR	ALL	1ST		14061724
748756.2	4286732	621	125.76	125.76	0	8-HR	ALL	1ST		14112416
748792	4286698	584	126.06	126.06	0	8-HR	ALL	1ST		14112416
748869.8	4286563	554	126.26	126.26	0	8-HR	ALL	1ST		14040416
748897.5	4286537	543	126.92	126.92	0	8-HR	ALL	1ST		14121616
748925.3	4286511	504	127.02	127.02	0	8-HR	ALL	1ST		14121616
748717.9	4286390	500	126.75	126.75	0	8-HR	ALL	1ST		14010524
748528.8	4286381	538	126.68	126.68	0	8-HR	ALL	1ST		14020208
748481.6	4286378	609	126.67	126.67	0	8-HR	ALL	1ST		14032308
748434.3	4286376	565	126.63	126.63	0	8-HR	ALL	1ST		14032308
748500	4286200	523	127.11	127.11	0	8-HR	ALL	1ST		14032308
748500	4286300	538	126.15	126.15	0	8-HR	ALL	1ST		14032308
748800	4286700	581	126	126	0	8-HR	ALL	1ST		14112416
748500	4287000	533	126.82	126.82	0	8-HR	ALL	1ST		14061724

R007737

X	Y	DISPLAYEE	ZELEV	ZHILL	ZFLAG	AVE	GRP	HIVAL	NET ID	DATE(CONC)
748399.6	4287065	535	127.55	127.55	0	8-HR	ALL	1ST		15020308
748434.9	4287033	607	127.16	127.16	0	8-HR	ALL	1ST		15020308
748470.1	4287000	593	126.94	126.94	0	8-HR	ALL	1ST		15020308
748505.4	4286968	504	126.61	126.61	0	8-HR	ALL	1ST		15061308
748756.2	4286732	569	125.76	125.76	0	8-HR	ALL	1ST		15111208
748792	4286698	562	126.06	126.06	0	8-HR	ALL	1ST		15111208
748869.8	4286563	507	126.26	126.26	0	8-HR	ALL	1ST		15042016
748897.5	4286537	518	126.92	126.92	0	8-HR	ALL	1ST		15042016
748925.3	4286511	500	127.02	127.02	0	8-HR	ALL	1ST		15042016
748481.6	4286378	534	126.67	126.67	0	8-HR	ALL	1ST		15062624
750244.8	4287437	507	126.34	126.34	0	8-HR	ALL	1ST		15060716
748500	4286300	503	126.15	126.15	0	8-HR	ALL	1ST		15062624
748800	4286700	559	126	126	0	8-HR	ALL	1ST		15111208
748500	4287000	506	126.82	126.82	0	8-HR	ALL	1ST		15020308
748400	4287100	524	128.28	128.28	0	8-HR	ALL	1ST		15020308
748500	4287100	523	127.34	127.34	0	8-HR	ALL	1ST		15020308
748500	4287200	509	128.34	128.34	0	8-HR	ALL	1ST		15020308

R007738

Source Type	Source ID	Stack Release Type	Easting - X (m)	Northing - Y (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	CO Emissions Increase (g/s)	CO Emissions Increase (lb/hr)
Point	132833	DEFAULT	749816.02	4286809.08	127.049784	66.1416	533.15	15.136368	2.1336	202.1661	1604.52
Point	132838	DEFAULT	749665.5	4286719.93	127.150368	68.58	533.15	15.56004	2.98704	231.5539	1837.76
Point	132837	DEFAULT	749777.33	4286841.02	127.470408	67.60464	1272.98333	20.000976	4.69392	395.6951	3140.49
Point	132836	DEFAULT	749616.61	4286732.18	127.3302	19.2024	338.705556	19.470624	3.3528	3.076868	24.42
Point	132927	DEFAULT	749831.35	4286818.73	126.790704	13.1064	323.705556	13.118592	2.37744	0.307435	2.44
Point	132867	DEFAULT	749865.15	4286883.84	126.869952	45.68952	441.483333	9.089136	2.4384	11.40029	90.48
Point	132872	DEFAULT	749881.4	4286887.85	126.9492	45.72	441.483333	8.150352	2.4384	11.40029	90.48
Point	BOF	DEFAULT	748415	4286681	126.970536	38.1	477.594444	15.24	4.572	160.5226	1274.01

Source Type	Source ID	Easting - X (m)	Northing - Y (m)	Base Elevation (m)	Release Height (m)	Initial Horizontal Dimension (m)	Initial Vertical Dimension (m)	CO Emissions Increase (g/s)	CO Emissions Increase (lb/hr)
Volume	26070	748457.2	4286596.4	126.150624	51.5112	6.58368	23.95728	0.172995	1.373
Volume	26080	748466.6	4286606	126.181104	51.5112	6.58368	23.95728	0.172995	1.373
Volume	26090	748475.4	4286616.1	126.150624	51.5112	6.58368	23.95728	0.172995	1.373
Volume	26100	748483.6	4286624.1	126.14148	51.5112	6.58368	23.95728	0.129652	1.029

R007739

Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2011 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	6,420	20.44%	**39.40%**
24	Developed, High Intensity	I1/I2/C1		5,957	18.97%	
11	Open Water	A5		3,564	11.35%	
21	Developed, Open Space	A1/R4		2,776	8.84%	
22	Developed, Low Intensity	R1		9,624	30.64%	
31	Barren Land (Rock/Sand/Clay)	A3		0	0.00%	
41	Deciduous Forest	A4		219	0.70%	
42	Evergreen Forest	A4		0	0.00%	
43	Mixed Forest	A4	**Rural**	0	0.00%	**60.60%**
52	Shrub/Scrub	A4		0	0.00%	
71	Grassland/Herbaceous	A3		133	0.42%	
81	Pasture/Hay	A3		531	1.69%	
82	Cultivated Crops	A2		207	0.66%	
90	Wood Wetlands	A4		1,462	4.65%	
95	Emergent Herbaceous Wetlands	A3		517	1.65%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,410***	***100.00%***	***100.00%***

R007740

Study Area Auer's Analysis (NLCD 2016)				Auer's 3 km Ring		
NLCD Value	**NLCD 2016 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	Urban	6,592	20.99%	**39.57%**
24	Developed, High Intensity	I1/I2/C1		5,838	18.59%	
11	Open Water	A5	**Rural**	3,246	10.33%	**60.43%**
21	Developed, Open Space	A1/R4		2,541	8.09%	
22	Developed, Low Intensity	R1		8,676	27.62%	
31	Barren Land (Rock/Sand/Clay)	A3		303	0.96%	
41	Deciduous Forest	A4		81	0.26%	
42	Evergreen Forest	A4		0	0.00%	
43	Mixed Forest	A4		4	0.01%	
52	Shrub/Scrub	A4		2	0.01%	
71	Grassland/Herbaceous	A3		415	1.32%	
81	Pasture/Hay	A3		572	1.82%	
82	Cultivated Crops	A2		335	1.07%	
90	Wood Wetlands	A4		1,497	4.77%	
95	Emergent Herbaceous Wetlands	A3		1,308	4.16%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,410***	***100.00%***	***100.00%***

R0007741

Study Area Auer's Analysis				Auer's 3 km Ring		
NLCD Value	**NLCD 2019 Description**	**Auer's Code**	**Auer's Class**	**Cell Count**	**Percentage**	**Totals**
23	Developed, Medium Intensity	R2/R3	**Urban**	8,574	27.30%	**50.05%**
24	Developed, High Intensity	I1/I2/C1		7,148	22.76%	
11	Open Water	A5		1,915	6.10%	
21	Developed, Open Space	A1/R4		1,393	4.43%	
22	Developed, Low Intensity	R1		7,044	22.43%	
31	Barren Land (Rock/Sand/Clay)	A3		360	1.15%	
41	Deciduous Forest	A4		43	0.14%	
42	Evergreen Forest	A4		0	0.00%	
43	Mixed Forest	A4	**Rural**	2	0.01%	**49.95%**
52	Shrub/Scrub	A4		6	0.02%	
71	Grassland/Herbaceous	A3		583	1.86%	
81	Pasture/Hay	A3		572	1.82%	
82	Cultivated Crops	A2		268	0.85%	
90	Wood Wetlands	A4		1,538	4.90%	
95	Emergent Herbaceous Wetlands	A3		1,964	6.25%	
Analysis based on 30 meter by 30 meter raster cells extracted for each area.			***Total***	***31,410***	***100.00%***	***100.00%***

R007742

Source Description	Source Type	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)	CO Emissions Increase (g/s)
Blast Furnace A Stoves	Point	1604.52	1604.52	202.17
Blast Furnace B Stoves	Point	1837.76	1837.76	231.55
Blast Furnace Gas Flare 1	Point	3140.49	3140.49	395.69
Blast Furnace Gas Flare 2	Point	3140.49	0.00	0.00
Casthouse Baghouse	Point	71.82	24.42	3.08
Blast Furnace A and B Iron Spot Baghouse	Point	7.18	2.44	0.31
Cogeneration Boiler	Point	203.08	0.00	0.00
Boiler 11	Point	90.48	90.48	11.40
Boiler 12	Point	90.48	90.48	11.40
BOF ESP	Point	4121.79	1274.01	160.52
Slab Reheat Furnace 1	Point	26.52	0.00	0.00
Slab Reheat Furnace 2	Point	26.52	0.00	0.00
Slab Reheat Furnace 3	Point	26.52	0.00	0.00
Slab Reheat Furance 4	Point	40.76	0.00	0.00
Galvanizing line #8 - fume scrubber	Point	0.00	0.00	0.00
Galvanizing line #8 - space heaters	Point	0.00	0.00	0.00
Galvanizing line #8 - drying oven and storage area heaters	Point	0.00	0.00	0.00
Galvanizing line #8 - miscellaneous heaters	Point	0.00	0.00	0.00
Emergency Generator (3500 HP)	Point	0.00	0.00	0.00
Waste Heat Main Stack (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 1 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 2 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 3 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 4 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 5 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 6 (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - A (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - B (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - C (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - D (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - E (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - F (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - A (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - B (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - C (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - D (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - E (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - F (Gateway Energy)	Point	0.00	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17
Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17
Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	1.03	0.13

R007743

Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Slag Pit Volume 1	Volume	0.00	0.00	0.00
Slag Pit Volume 2	Volume	0.00	0.00	0.00
Slag Pit Volume 3	Volume	0.00	0.00	0.00
Slag Pit Volume 4	Volume	0.00	0.00	0.00
Slag Pit Volume 5	Volume	0.00	0.00	0.00
Total		14440.963	8069.75	1016.77
		tpy	lb/hr	lb/hr

Comments: R-of-I=1495.301 (m) Sig Level=500
Comments: Origin for R-of-I (m) 749148.2 East 4286742 North

X	Y	ZElev	ZHill	ZFlag		Concentra	Distance (m)
748434.9	4287033	128.1	128.1		0	570.7534	770.2881
748470.1	4287000	127.98	127.98		0	556.6619	725.6536
748505.4	4286968	127.75	127.75		0	530.4994	681.3602
748541.2	4286934	127.29	127.29		0	503.585	636.6904
748792	4286698	126.1	126.1		0	516.2013	358.9195
748869.8	4286563	126.5	126.5		0	545.4649	330.753
748897.5	4286537	126.78	126.78		0	575.2476	323.8352
748925.3	4286511	126.88	126.88		0	570.3356	321.2862
748896.5	4286489	126.68	126.68		0	531.5522	356.6566
748803.4	4286469	126.5	126.5		0	517.11	439.5949
748767.9	4286459	126.5	126.5		0	518.7909	474.2722
748528.8	4286381	126.5	126.5		0	535.5961	717.1633
748481.6	4286378	126.5	126.5		0	671.5342	759.4006
748198	4286364	126.5	126.5		0	524.7952	1022.541
748150.7	4286362	126.5	126.5		0	512.192	1067.454
748941.8	4286480	126.52	126.52		0	527.4751	333.6049
748975.6	4286504	126.64	126.64		0	543.1884	294.3955
749014.6	4286505	126.42	126.42		0	508.9323	271.7079
750539.9	4287160	126.01	126.01		0	515.1707	1453.188
750505.9	4287125	126.28	126.28		0	531.9619	1410.781
750472	4287091	126.26	126.26		0	538.149	1368.916
750438	4287056	126.34	126.34		0	547.7792	1327.412
750401.1	4287022	126.34	126.34		0	554.1513	1283.84
750364.3	4286989	126.34	126.34		0	543.7161	1240.843
750327.4	4286955	126.34	126.34		0	510.7161	1198.277
748873.5	4286391	126.76	126.76		0	503.8125	445.4702
748500	4286200	126.5	126.5		0	533.4496	844.9326
748500	4286300	126.5	126.5		0	623.8327	784.5451
748800	4286700	126.07	126.07		0	510.6697	350.7115
750400	4287000	126.34	126.34		0	546.6317	1278.123
750500	4287000	126.34	126.34		0	510.8589	1376.213
750500	4287100	126.34	126.34		0	531.4568	1398.414
750600	4287100	126.34	126.34		0	502.9195	1495.301

Comments: R-of-I=1495.301 (m) Sig Level=500
Comments: Origin for R-of-I (m) 749148.2 East 4286742 North

X	Y	ZElev	ZHill	ZFlag	Concentra	Distance (m)
747673.7	4286779	126.3	126.3	0	240.2459	1474.954
747707.4	4286816	126.38	126.38	0	244.8138	1442.671
747740.4	4286851	126.61	126.61	0	238.0254	1412.016
747773.3	4286887	126.88	126.88	0	229.3462	1382.491
747806.2	4286922	127.16	127.16	0	230.1862	1354.045
747839.1	4286958	127.46	127.46	0	224.4953	1326.772
747872	4286993	127.69	127.69	0	232.2324	1300.714
747904.9	4287029	127.84	127.84	0	244.1353	1275.961
747937.8	4287065	127.97	127.97	0	250.6449	1252.615
747970.8	4287100	128.09	128.09	0	250.0897	1230.612
748003.7	4287136	128.3	128.3	0	241.7103	1210.278
748036.6	4287171	128.59	128.59	0	225.9091	1191.534
748068.7	4287207	128.89	128.89	0	219.6789	1175.34
748100.8	4287243	129.1	129.1	0	221.9414	1160.871
748126.9	4287267	129.24	129.24	0	222.0958	1148.418
748152.9	4287292	129.38	129.38	0	220.5919	1137.048
748188.1	4287260	129.36	129.36	0	226.9484	1090.676
748223.4	4287227	129.31	129.31	0	232.7205	1044.296
748258.6	4287195	129.3	129.3	0	237.6753	998.1499
748293.9	4287162	129.2	129.2	0	241.6057	952.0815
748329.1	4287130	128.91	128.91	0	305.31	906.295
748364.4	4287098	128.5	128.5	0	401.9714	860.6411
748399.6	4287065	128.25	128.25	0	491.3969	815.3385
748434.9	4287033	128.1	128.1	0	570.7534	770.2881
748470.1	4287000	127.98	127.98	0	556.6619	725.6536
748505.4	4286968	127.75	127.75	0	530.4994	681.3602
748541.2	4286934	127.29	127.29	0	503.585	636.6904
748577	4286900	126.89	126.89	0	486.634	592.7442
748612.9	4286867	126.5	126.5	0	475.7436	549.6206
748648.7	4286833	126.29	126.29	0	458.6447	507.6914
748684.5	4286799	126.12	126.12	0	376.7576	467.19
748720.3	4286765	126.1	126.1	0	401.3379	428.5214
748756.2	4286732	126.05	126.05	0	468.8528	392.1281
748792	4286698	126.1	126.1	0	516.2013	358.9195
748827.8	4286664	126.16	126.16	0	461.9126	329.7456
748863.6	4286630	126.29	126.29	0	397.0609	305.7602
748899.5	4286596	126.5	126.5	0	405.0791	288.175
748869.8	4286563	126.5	126.5	0	545.4649	330.753
748897.5	4286537	126.78	126.78	0	575.2476	323.8352
748925.3	4286511	126.88	126.88	0	570.3356	321.2862
748896.5	4286489	126.68	126.68	0	531.5522	356.6566
748867.7	4286468	126.57	126.57	0	488.26	392.1087
748838.9	4286447	126.63	126.63	0	491.5297	427.6223
748803.4	4286469	126.5	126.5	0	517.11	439.5949

748767.9	4286459	126.5	126.5	0	518.7909	474.2722
748742.1	4286441	126.5	126.5	0	454.4101	505.7759
748716.2	4286422	126.5	126.5	0	362.1138	537.421
748717.9	4286390	126.58	126.58	0	441.8434	556.0505
748670.6	4286388	126.58	126.58	0	441.9885	594.7773
748623.3	4286385	126.56	126.56	0	442.7585	634.6756
748576.1	4286383	126.55	126.55	0	416.888	675.5063
748528.8	4286381	126.5	126.5	0	535.5961	717.1633
748481.6	4286378	126.5	126.5	0	671.5342	759.4006
748434.3	4286376	126.5	126.5	0	494.6517	802.3327
748387	4286374	126.5	126.5	0	350.7956	845.6942
748339.8	4286371	126.5	126.5	0	329.4873	889.3723
748292.5	4286369	126.5	126.5	0	361.5715	933.4906
748245.2	4286367	126.5	126.5	0	419.2698	977.9503
748198	4286364	126.5	126.5	0	524.7952	1022.541
748150.7	4286362	126.5	126.5	0	512.192	1067.454
748103.4	4286360	126.5	126.5	0	426.8822	1112.604
748076.5	4286360	126.5	126.5	0	392.2933	1137.599
748049.5	4286361	126.5	126.5	0	352.9769	1162.808
748003.6	4286350	126.48	126.48	0	332.8137	1209.95
747959.6	4286348	126.47	126.47	0	351.3042	1252.126
747915.7	4286347	126.41	126.41	0	357.5469	1294.329
747871.7	4286345	126.01	126.01	0	358.345	1336.739
747827.8	4286344	126.34	126.34	0	359.4531	1379.125
747783.9	4286342	126.36	126.36	0	346.8595	1421.633
747739.9	4286341	126.25	126.25	0	352.5253	1464.321
747707.4	4286380	126.67	126.67	0	385.5824	1485.593
747714.1	4286416	126.57	126.57	0	376.4006	1470.741
747719.9	4286447	126.52	126.52	0	356.4342	1458.495
747725.7	4286478	126.49	126.49	0	334.2703	1446.851
747688.4	4286510	126.51	126.51	0	296.2813	1478.124
748874.2	4286433	126.5	126.5	0	474.918	413.2766
748908	4286456	126.5	126.5	0	457.094	373.3252
748941.8	4286480	126.52	126.52	0	527.4751	333.6049
748975.6	4286504	126.64	126.64	0	543.1884	294.3955
749014.6	4286505	126.42	126.42	0	508.9323	271.7079
749053.6	4286507	126.51	126.51	0	465.928	253.0432
749092.6	4286509	126.5	126.5	0	417.6753	239.4418
749089.2	4286552	126.52	126.52	0	418.7639	198.5641
749085.7	4286596	127.38	127.38	0	407.6912	159.178
749120.8	4286620	126.77	126.77	0	406.9097	124.646
749156	4286645	126.5	126.5	0	399.9873	97.21443
749191.1	4286670	126.59	126.59	0	385.55	83.90407
749226.2	4286695	126.52	126.52	0	389.035	91.2318
749261.3	4286719	126.53	126.53	0	416.8324	115.3482
749296.4	4286744	126.53	126.53	0	439.6165	148.2288
749331.5	4286769	126.52	126.52	0	453.8645	185.2902

749364.4	4286790	126.51	126.51	0	455.7544	221.4333
749397.3	4286811	126.5	126.5	0	446.471	258.3854
749430.2	4286832	126.5	126.5	0	424.0739	295.8738
749463.1	4286852	126.5	126.5	0	390.6081	333.6704
749507.5	4286873	126.5	126.5	0	336.6833	382.4823
749551.9	4286894	126.55	126.55	0	270.4448	431.3437
749596.3	4286915	126.58	126.58	0	212.7579	480.2396
749640.7	4286936	126.51	126.51	0	190.6194	529.1605
749685.1	4286956	126.5	126.5	0	169.432	578.0999
749729.5	4286977	126.54	126.54	0	197.2493	627.0536
749773.9	4286998	126.6	126.6	0	226.8325	676.0184
749797.5	4287009	126.6	126.6	0	238.5102	701.8753
749821	4287019	126.57	126.57	0	244.7348	727.6788
749858.1	4287036	126.5	126.5	0	242.3613	768.3826
749895.2	4287053	126.48	126.48	0	226.4875	809.0886
749932.4	4287070	126.45	126.45	0	244.1558	849.8888
749962.2	4287088	126.44	126.44	0	264.7801	884.5738
749997.4	4287106	126.55	126.55	0	278.2284	923.7392
750032.6	4287123	126.85	126.85	0	308.6848	962.9487
750067.8	4287140	126.99	126.99	0	333.0362	1002.123
750112	4287156	126.93	126.93	0	356.0342	1049.124
750153.9	4287177	126.81	126.81	0	363.7399	1095.916
750195.8	4287199	126.77	126.77	0	363.0545	1142.753
750237.8	4287220	126.69	126.69	0	356.681	1189.688
750279.7	4287241	126.59	126.59	0	346.3304	1236.536
750315.3	4287265	126.42	126.42	0	347.4671	1279.101
750350.9	4287290	126.34	126.34	0	353.0047	1321.715
750386.5	4287315	126.34	126.34	0	355.2892	1364.375
750422.1	4287340	126.34	126.34	0	354.5975	1407.117
750457.8	4287364	126.34	126.34	0	351.8496	1449.946
750493.4	4287389	126.34	126.34	0	347.4755	1492.718
750539.9	4287160	126.01	126.01	0	515.1707	1453.188
750505.9	4287125	126.28	126.28	0	531.9619	1410.781
750472	4287091	126.26	126.26	0	538.149	1368.916
750438	4287056	126.34	126.34	0	547.7792	1327.412
750401.1	4287022	126.34	126.34	0	554.1513	1283.84
750364.3	4286989	126.34	126.34	0	543.7161	1240.843
750327.4	4286955	126.34	126.34	0	510.7161	1198.277
750290.6	4286921	126.34	126.34	0	459.229	1156.397
750253.7	4286894	126.34	126.34	0	438.2846	1115.859
750216.8	4286866	126.34	126.34	0	403.0363	1075.771
750180	4286838	126.36	126.36	0	359.1765	1036.287
750143.1	4286811	126.37	126.37	0	350.1459	997.2678
750106.3	4286783	126.39	126.39	0	330.4254	958.9808
750069.4	4286755	126.36	126.36	0	300.0394	921.3057
750032.5	4286727	126.39	126.39	0	269.9457	884.433
749995.7	4286700	126.51	126.51	0	262.2489	848.5674

749958.8	4286672	126.43	126.43	0	242.5471	813.6465
749922	4286644	126.47	126.47	0	224.4128	780.006
749885.2	4286616	126.51	126.51	0	225.2745	747.7054
749848.4	4286588	126.5	126.5	0	257.6158	716.9474
749811.6	4286560	126.5	126.5	0	276.388	687.8981
749774.7	4286532	126.5	126.5	0	278.2976	660.7072
749737.9	4286504	126.5	126.5	0	262.5346	635.8161
749701.1	4286476	126.5	126.5	0	234.2258	613.3968
749653.6	4286465	126.5	126.5	0	259.8043	576.3426
749606.2	4286454	126.5	126.5	0	306.5568	541.3019
749558.7	4286442	126.5	126.5	0	344.0166	508.3901
749511.2	4286431	126.5	126.5	0	368.2906	478.211
749463.8	4286419	126.5	126.5	0	379.0536	451.3829
749414.6	4286417	126.71	126.71	0	379.4344	420.2388
749365.4	4286415	127.36	127.36	0	373.602	392.9021
749316.2	4286412	127.84	127.84	0	380.243	370.0409
749267	4286410	127.98	127.98	0	408.9948	352.6194
749217.8	4286408	128.09	128.09	0	427.0102	341.5688
749168.6	4286405	128.5	128.5	0	430.4962	337.3182
749119.4	4286403	128.64	128.64	0	415.6619	340.2201
749070.2	4286401	128.47	128.47	0	380.659	350.1942
749021.1	4286398	128.23	128.23	0	392.4738	366.4436
748971.9	4286396	127.86	127.86	0	423.2178	388.3211
748922.7	4286394	127.54	127.54	0	466.8177	415.0026
748873.5	4286391	126.76	126.76	0	503.8125	445.4702
749140.2	4286699	126.4	126.4	0	385.0736	43.44065
749106.3	4286731	126.48	126.48	0	392.2227	43.28247
749072.3	4286763	128.47	128.47	0	396.5433	78.73952
749038.4	4286795	126.5	128.66	0	390.0363	121.8676
749004.5	4286827	127.42	127.42	0	381.2611	166.8447
748970.6	4286859	127.84	127.84	0	397.4161	212.445
748936.6	4286891	127.79	127.79	0	403.5512	258.4986
748902.7	4286922	127.57	127.57	0	401.6166	304.6445
748887.8	4286933	127.4	127.4	0	398.332	322.7509
748871.8	4286919	126.72	126.72	0	391.1793	328.2058
748835.6	4286953	127.25	127.25	0	383.3452	376.857
748799.3	4286986	127.31	127.31	0	372.771	425.8019
748763	4287020	127.42	127.42	0	387.5978	474.8544
748726.8	4287053	127.21	127.21	0	414.5602	523.8443
748690.5	4287087	127.36	127.36	0	387.6334	573.0313
748654.2	4287120	127.55	127.55	0	413.5076	622.2014
748617.9	4287154	127.74	127.74	0	415.8743	671.4659
748581.7	4287188	127.94	127.94	0	390.3104	720.6791
748611.4	4287217	128	128	0	388.8786	716.9072
748641.1	4287247	127.99	127.99	0	389.8907	715.5849
748670.8	4287277	127.99	127.99	0	379.7616	716.7259
748700.5	4287306	128	128	0	371.6829	720.3184

748730.2	4287336	128	128	0	372.1897	726.326
748761	4287309	128	128	0	376.4659	686.6707
748791.9	4287282	127.99	127.99	0	340.5927	647.1977
748823.8	4287318	128	128	0	334.9449	660.8008
748855.8	4287353	128	128	0	329.5548	677.4464
748887.8	4287389	128	128	0	324.207	697.0604
748904.1	4287412	128	128	0	320.8381	712.983
748920.5	4287435	128	128	0	317.7493	729.7304
748937.4	4287480	128.02	128.02	0	317.023	767.8009
748954.3	4287525	128.03	128.03	0	300.4528	807.0365
748954.3	4287555	128.1	128.1	0	290.1005	835.4108
748972.4	4287597	128.11	128.11	0	282.5639	873.0798
749021.3	4287600	128.1	128.1	0	292.0237	866.9361
749070.2	4287602	128.02	128.02	0	273.7865	863.4293
749119.1	4287604	128.1	128.1	0	255.3467	862.7905
749168	4287607	128	128	0	281.73	864.827
749216.9	4287609	127.22	127.22	0	289.8622	869.7186
749265.8	4287611	126.86	126.86	0	314.0172	877.2202
749314.7	4287614	126.75	126.75	0	356.355	887.4612
749363.5	4287614	126.7	126.7	0	389.5283	898.0919
749412.3	4287614	126.49	126.49	0	409.684	911.2156
749461.1	4287614	126.46	126.46	0	412.9988	926.7263
749508.4	4287617	126.41	126.41	0	397.2373	945.8743
749555.7	4287619	126.54	126.54	0	364.1252	967.0551
749603	4287621	126.75	126.75	0	319.67	989.9611
749650.4	4287624	126.83	126.83	0	366.0368	1014.611
749697.7	4287626	126.59	126.59	0	398.6284	1040.875
749745	4287628	126.51	126.51	0	412.4292	1068.51
749792.3	4287631	126.48	126.48	0	434.5267	1097.493
749839.6	4287633	126.45	126.45	0	438.8618	1127.721
749886.9	4287635	126.46	126.46	0	418.4818	1159.173
749934.2	4287638	126.55	126.55	0	392.3509	1191.602
749981.5	4287640	126.62	126.62	0	375.2406	1225.004
750023.5	4287641	126.91	126.91	0	353.7224	1254.382
750065.6	4287641	126.78	126.78	0	361.9593	1284.534
750107.6	4287642	126.59	126.59	0	374.9849	1315.269
750149.6	4287642	126.46	126.46	0	380.896	1346.613
750191.7	4287643	126.42	126.42	0	372.2253	1378.535
750222.7	4287641	126.34	126.34	0	366.7982	1401.12
750235.3	4287623	126.34	126.34	0	378.1451	1399.276
750237.7	4287577	126.34	126.34	0	396.0566	1372.441
750240.1	4287530	126.39	126.39	0	409.3395	1346.674
750242.4	4287484	126.34	126.34	0	415.3891	1321.956
750244.8	4287437	126.34	126.34	0	412.1744	1298.515
750247.2	4287391	126.34	126.34	0	398.7965	1276.334
750249.6	4287345	126.34	126.34	0	389.0144	1255.482
750251.1	4287296	126.43	126.43	0	356.9915	1234.413

750238.5	4287252	126.54	126.54	0	338.4837	1203.737
750194.3	4287230	126.47	126.47	0	343.3278	1154.295
750150	4287208	126.63	126.63	0	342.4375	1104.807
750105.8	4287186	126.79	126.79	0	333.0482	1055.369
750061.6	4287163	126.88	126.88	0	314.525	1005.933
750017.4	4287141	126.68	126.68	0	299.9012	956.5411
749973.1	4287119	126.45	126.45	0	287.9737	907.0199
749928.9	4287097	126.46	126.46	0	264.0667	857.5931
749884.7	4287075	126.51	126.51	0	268.8526	808.2119
749840.5	4287053	126.59	126.59	0	286.2245	758.7944
749802	4287034	126.56	126.56	0	282.6436	716.1774
749763.5	4287016	126.51	126.51	0	262.7761	673.5618
749725	4286998	126.5	126.5	0	234.6769	630.9883
749686.5	4286980	126.5	126.5	0	204.5313	588.3762
749648	4286961	126.5	126.5	0	184.2181	545.7666
749609.5	4286943	126.5	126.5	0	206.1951	503.2
749601	4286956	126.5	126.5	0	208.1781	500.8345
749562.5	4286948	126.5	126.5	0	256.3576	462.8332
749529	4286929	126.5	126.5	0	295.4909	424.1168
749495.5	4286909	126.5	126.5	0	324.3572	385.4197
749452	4286894	126.5	126.5	0	377.1371	339.5805
749408.5	4286878	126.5	126.5	0	419.1747	293.8372
749371.4	4286862	126.5	126.5	0	446.9499	253.4716
749338	4286839	126.5	126.5	0	466.4926	213.0705
749304.7	4286816	126.5	126.5	0	473.113	172.9116
749271.3	4286792	126.5	126.5	0	468.1941	132.9539
749237.9	4286769	126.5	126.5	0	453.4383	93.65865
749205.4	4286746	126.5	126.5	0	432.2922	57.33202
749172.8	4286723	126.42	126.42	0	406.714	31.40104
748800	4285300	126.89	126.89	0	273.0915	1483.441
748900	4285300	126.62	126.62	0	226.7062	1463.202
749000	4285300	126.27	126.27	0	203.2186	1449.594
749100	4285300	125.61	125.61	0	213.1823	1442.805
749200	4285300	125.14	125.14	0	225.0335	1442.931
749300	4285300	126.27	126.27	0	222.5158	1449.969
749400	4285300	125.5	125.5	0	214.3493	1463.822
749500	4285300	126.58	126.58	0	267.4315	1484.297
748500	4285400	126.51	126.51	0	247.6354	1490.339
748600	4285400	126.57	126.57	0	299.5395	1449.646
748700	4285400	126.52	126.52	0	268.437	1414.863
748800	4285400	124.32	124.32	0	255.6859	1386.434
748900	4285400	126.96	126.96	0	242.5667	1364.757
749000	4285400	126.62	126.62	0	192.5742	1350.157
749100	4285400	126.21	126.21	0	218.7032	1342.865
749200	4285400	125.43	125.43	0	239.8215	1343
749300	4285400	126.58	126.58	0	243.8814	1350.56
749400	4285400	125.68	125.68	0	227.2255	1365.421

749500	4285400	126.39	126.39	0	275.5127	1387.349
749600	4285400	126.52	126.52	0	316.9534	1416.015
749700	4285400	121.9	126.74	0	295.0904	1451.021
749800	4285400	123.34	123.34	0	241.917	1491.919
748400	4285500	125.59	125.59	0	255.3426	1449.948
748500	4285500	126.65	126.65	0	274.3289	1400.968
748600	4285500	127.58	127.58	0	311.3536	1357.598
748700	4285500	126.4	126.4	0	302.2465	1320.392
748800	4285500	126.5	126.5	0	252.734	1289.883
748900	4285500	123.41	125.12	0	244.5795	1266.555
749000	4285500	127	127	0	212.3141	1250.809
749100	4285500	126.71	126.71	0	217.8338	1242.934
749200	4285500	126.07	126.07	0	251.7359	1243.08
749300	4285500	125.09	125.09	0	263.6825	1251.244
749400	4285500	127.17	127.17	0	253.7302	1267.27
749500	4285500	125.07	125.07	0	278.6513	1290.866
749600	4285500	125.72	125.72	0	332.9849	1321.627
749700	4285500	126.56	126.56	0	322.0734	1359.066
749800	4285500	121.9	121.9	0	257.3911	1402.649
749900	4285500	121.94	125.69	0	248.8836	1451.822
748200	4285600	126.88	126.88	0	262.9414	1484.326
748300	4285600	126.58	126.58	0	234.4808	1422.528
748400	4285600	125.91	125.91	0	257.6731	1365.265
748500	4285600	124.61	124.61	0	300.7618	1313.13
748600	4285600	126.18	126.18	0	314.5905	1266.757
748700	4285600	128.17	128.17	0	319.2122	1226.799
748800	4285600	126.4	126.4	0	281.2883	1193.901
748900	4285600	126.5	126.5	0	235.5067	1168.658
749000	4285600	124.1	124.1	0	229.5748	1151.574
749100	4285600	126.68	126.68	0	244.7485	1143.016
749200	4285600	126.32	126.32	0	257.1052	1143.175
749300	4285600	125.02	125.02	0	282.5188	1152.047
749400	4285600	125.7	125.7	0	280.5374	1169.433
749500	4285600	126.4	126.4	0	280.9644	1194.963
749600	4285600	126.51	126.51	0	349.7077	1228.128
749700	4285600	124.91	124.91	0	338.9265	1268.33
749800	4285600	122.17	125.29	0	274.9771	1314.923
749900	4285600	122	125.23	0	272.42	1367.255
750000	4285600	123.66	126.74	0	272.6046	1424.692
750100	4285600	125.07	125.07	0	297.5734	1486.644
748100	4285700	126.68	126.68	0	216.3375	1477.992
748200	4285700	127.02	127.02	0	273.4164	1408.838
748300	4285700	127.2	127.2	0	251.5564	1343.572
748400	4285700	127.53	127.53	0	255.7998	1282.789
748500	4285700	125.91	125.91	0	340.4999	1227.156
748600	4285700	124.13	124.13	0	317.8117	1177.401
748700	4285700	125.6	125.6	0	303.0929	1134.3

748800	4285700	128.19	128.19	0	296.3692	1098.635
748900	4285700	126.43	126.43	0	237.334	1071.149
749000	4285700	126.26	126.26	0	247.4722	1052.484
749100	4285700	125.51	125.51	0	268.6132	1043.114
749200	4285700	125.37	125.37	0	262.3899	1043.287
749300	4285700	124.84	124.84	0	295.6642	1053.001
749400	4285700	125	125	0	306.9442	1071.995
749500	4285700	126.49	126.49	0	280.554	1099.789
749600	4285700	125.15	125.15	0	357.1029	1135.737
749700	4285700	125.61	125.61	0	358.3607	1179.093
749800	4285700	125	125	0	296.3044	1229.074
749900	4285700	122.03	125.61	0	298.5989	1284.907
750000	4285700	122.01	122.01	0	290.6649	1345.864
750100	4285700	124.01	124.01	0	328.8529	1411.28
750200	4285700	124.82	124.82	0	340.7367	1480.565
748000	4285800	124.71	124.71	0	201.5549	1485.159
748100	4285800	126.5	126.5	0	202.903	1409.277
748200	4285800	126.87	126.87	0	279.1868	1336.572
748300	4285800	126.71	126.71	0	269.4201	1267.591
748400	4285800	126.5	126.5	0	250.8821	1202.975
748500	4285800	126.5	126.5	0	367.8145	1143.464
748600	4285800	128.56	128.56	0	384.7294	1089.896
748700	4285800	124.9	124.9	0	307.625	1043.186
748800	4285800	124.87	124.87	0	291.375	1004.29
748900	4285800	126.68	126.68	0	267.1808	974.1463
749000	4285800	126.4	126.4	0	284.3236	953.5846
749100	4285800	125.29	125.29	0	281.5485	943.2317
749200	4285800	124.9	124.9	0	292.9953	943.4238
749300	4285800	127.01	127.01	0	300.8352	954.1546
749400	4285800	124.81	124.81	0	329.8127	975.0762
749500	4285800	125.21	125.21	0	312.4544	1005.553
749600	4285800	126.61	126.61	0	364.2037	1044.748
749700	4285800	125.3	125.3	0	371.8504	1091.724
749800	4285800	125	125	0	319.3878	1145.523
749900	4285800	124.62	124.62	0	329.8046	1205.233
750000	4285800	121.97	121.97	0	318.6817	1270.019
750100	4285800	121.88	121.88	0	356.7251	1339.146
750200	4285800	124.82	124.82	0	370.9302	1411.975
750300	4285800	124.99	124.99	0	340.9518	1487.964
748000	4285900	124.8	124.8	0	222.8098	1423.832
748100	4285900	125.32	125.32	0	202.946	1344.493
748200	4285900	126.51	126.51	0	277.9959	1268.079
748300	4285900	126.5	126.5	0	282.6651	1195.151
748400	4285900	126.5	126.5	0	243.7458	1126.387
748500	4285900	126.5	126.5	0	392.7073	1062.596
748600	4285900	126.5	126.5	0	420.5933	1004.726
748700	4285900	127.05	127.05	0	348.8023	953.8533

748800	4285900	126.65	126.65	0	284.8833	911.1523
748900	4285900	124.94	124.94	0	281.1285	877.816
749000	4285900	126.51	126.51	0	287.684	854.9407
749100	4285900	125.69	125.69	0	293.1738	843.3777
749200	4285900	124.87	124.87	0	319.3239	843.5927
749300	4285900	126.5	126.5	0	323.51	855.5764
749400	4285900	126.5	126.5	0	346.8063	878.8478
749500	4285900	124.89	124.89	0	344.4426	912.5437
749600	4285900	125.01	125.01	0	364.0265	955.5619
749700	4285900	126.27	126.27	0	385.9132	1006.708
749800	4285900	126.6	126.6	0	350.6965	1064.812
749900	4285900	126.15	126.15	0	362.3352	1128.798
750000	4285900	121.94	121.94	0	355.4295	1197.726
750100	4285900	121.86	121.86	0	388.85	1270.792
750200	4285900	124.11	124.11	0	390.2899	1347.321
750300	4285900	124.74	124.74	0	337.8991	1426.757
747900	4286000	126.3	126.3	0	318.3186	1452.08
748000	4286000	125.52	125.52	0	256.4326	1367.077
748100	4286000	124.83	124.83	0	230.587	1284.236
748200	4286000	125.49	125.49	0	267.8141	1204.003
748300	4286000	126.5	126.5	0	296.2411	1126.937
748400	4286000	126.5	126.5	0	255.2215	1053.731
748500	4286000	126.5	126.5	0	412.7305	985.2467
748600	4286000	126.5	126.5	0	426.8171	922.5364
748700	4286000	126.5	126.5	0	364.2571	866.8541
748800	4286000	126.56	126.56	0	280.2428	819.6332
748900	4286000	126.51	126.51	0	322.2146	782.4072
749000	4286000	126.92	126.92	0	309.2371	756.6528
749100	4286000	126.58	126.58	0	327.5772	743.563
749200	4286000	126.59	126.59	0	336.3987	743.8068
749300	4286000	126.5	126.5	0	356.867	757.3712
749400	4286000	126.5	126.5	0	340.7021	783.5646
749500	4286000	126.5	126.5	0	373.717	821.1797
749600	4286000	124.87	124.87	0	384.8526	868.7339
749700	4286000	125.28	125.28	0	415.843	924.6951
749800	4286000	124.94	124.94	0	376.2004	987.6353
749900	4286000	126.37	126.37	0	393.1607	1056.308
750000	4286000	124.76	126	0	394.8082	1129.667
750100	4286000	122.03	122.03	0	417.6	1206.86
750200	4286000	121.77	121.77	0	388.0893	1287.196
750300	4286000	124.84	124.84	0	347.6255	1370.123
750400	4286000	126.35	126.35	0	360.0568	1455.197
747800	4286100	125.78	125.78	0	256.54	1493.243
747900	4286100	126.42	126.42	0	280.9191	1403.615
748000	4286100	125.93	125.93	0	346.7908	1315.484
748100	4286100	125.3	125.3	0	252.6951	1229.171
748200	4286100	125.09	125.09	0	248.8117	1145.087

748300	4286100	125.92	125.92	0	311.1858	1063.76
748400	4286100	126.5	126.5	0	281.8441	985.8745
748500	4286100	126.5	126.5	0	428.1518	912.3109
748600	4286100	126.5	126.5	0	405.2976	844.2
748700	4286100	126.5	126.5	0	358.228	782.9662
748800	4286100	126.5	126.5	0	339.8297	730.3414
748900	4286100	126.5	126.5	0	367.1198	688.303
749000	4286100	126.47	126.47	0	381.3415	658.8805
749100	4286100	126.5	126.5	0	313.7411	643.8059
749200	4286100	126.46	126.46	0	328.4724	644.0873
749300	4286100	125.8	125.8	0	372.1296	659.7053
749400	4286100	126.5	126.5	0	376.537	689.6184
749500	4286100	126.5	126.5	0	379.4128	732.0765
749600	4286100	125.47	125.47	0	393.3139	785.0468
749700	4286100	124.72	124.72	0	435.844	846.5583
749800	4286100	123.01	123.01	0	402.7315	914.8899
749900	4286100	126.16	126.16	0	418.5847	988.6284
750000	4286100	125.07	125.07	0	417.5658	1066.653
750100	4286100	123.38	123.38	0	428.9222	1148.09
750200	4286100	123.7	123.7	0	369.5668	1232.264
750300	4286100	124.74	124.74	0	371.9843	1318.649
750400	4286100	124.82	124.82	0	342.4211	1406.84
747800	4286200	124.92	124.92	0	292.1763	1453.057
747900	4286200	125.33	125.33	0	293.0125	1360.785
748000	4286200	126.39	126.39	0	364.1	1269.684
748100	4286200	126.01	126.01	0	384.8586	1180.026
748200	4286200	125.72	125.72	0	279.8395	1092.165
748300	4286200	125.89	125.89	0	318.3751	1006.571
748400	4286200	126.31	126.31	0	313.0558	923.8769
748500	4286200	126.5	126.5	0	533.4496	844.9326
748600	4286200	126.5	126.5	0	436.8902	770.8914
748700	4286200	126.5	126.5	0	338.6997	703.3036
748800	4286200	126.5	126.5	0	430.4196	644.2038
748900	4286200	126.5	126.5	0	411.9247	596.1216
749000	4286200	126.5	126.5	0	264.6793	561.8928
749100	4286200	126.46	126.46	0	351.4478	544.1379
749200	4286200	124.93	124.93	0	360.1212	544.4709
749300	4286200	126.88	126.88	0	358.4424	562.8597
749400	4286200	125.4	125.4	0	387.5309	597.64
749500	4286200	126.16	126.16	0	360.2986	646.1703
749600	4286200	126.58	126.58	0	376.4416	705.6193
749700	4286200	125.41	125.41	0	436.1616	773.4733
749800	4286200	124.61	124.61	0	426.7716	847.7167
749900	4286200	125.28	125.28	0	430.2521	926.815
750000	4286200	124.96	124.96	0	415.3415	1009.628
750100	4286200	124.62	124.62	0	407.5741	1095.313
750200	4286200	123.39	123.39	0	350.9234	1183.247

750300	4286200	124.32	124.32	0	357.2393	1272.964
750400	4286200	123.97	123.97	0	361.0874	1364.111
750500	4286200	125.67	125.67	0	357.6222	1456.421
747800	4286300	125.31	125.31	0	344.8856	1418.793
747900	4286300	124.99	124.99	0	338.4741	1324.136
748000	4286300	126.38	126.38	0	335.2625	1230.325
748100	4286300	126.5	126.5	0	461.5251	1137.568
748200	4286300	126.38	126.38	0	378.5462	1046.147
748300	4286300	126.27	126.27	0	316.6599	956.4445
748400	4286300	126.27	126.27	0	344.1108	868.9928
748500	4286300	126.5	126.5	0	623.8327	784.5451
748600	4286300	126.5	126.5	0	430.2065	704.1829
748700	4286300	126.5	126.5	0	474.1747	629.4728
748800	4286300	126.5	126.5	0	453.5341	562.6709
748900	4286300	126.4	126.4	0	331.4471	506.9132
749000	4286300	126.55	126.55	0	443.2219	466.1797
749100	4286300	126.75	126.75	0	383.1963	444.619
749200	4286300	127.79	127.79	0	318.7083	445.0264
749300	4286300	126.12	126.12	0	350.0031	467.3447
749400	4286300	126.65	126.65	0	362.0424	508.6979
749500	4286300	124.78	124.78	0	359.7159	564.9213
749600	4286300	126.52	126.52	0	328.8398	632.059
749700	4286300	126.57	126.57	0	398.4512	707.0085
749800	4286300	126.23	126.23	0	427.1272	787.5427
749900	4286300	124.84	124.84	0	419.345	872.1158
750000	4286300	124.97	124.97	0	391.7588	959.6606
750100	4286300	123.58	123.58	0	361.9845	1049.434
750200	4286300	124.11	124.11	0	353.3922	1140.909
750300	4286300	123.8	123.8	0	364.5089	1233.708
750400	4286300	124.91	124.91	0	369.6084	1327.554
750500	4286300	122.69	122.69	0	364.0406	1422.238
747700	4286400	126.6	126.6	0	379.2094	1488.023
748800	4286400	126.7	126.7	0	454.603	488.0559
749100	4286400	128.55	128.55	0	398.9101	345.3781
749200	4286400	128.24	128.24	0	423.8493	345.9025
749300	4286400	127.69	127.69	0	396.2238	374.1805
749400	4286400	126.84	126.84	0	378.5426	424.7041
749500	4286400	126.5	126.5	0	363.9339	490.6486
749600	4286400	126.5	126.5	0	295.6127	566.6556
749700	4286400	126.5	126.5	0	304.2793	649.2003
749800	4286400	125.19	125.19	0	370.642	736.0866
749900	4286400	126.73	126.73	0	380.5759	825.9456
750000	4286400	124.97	124.97	0	370.3515	917.9044
750100	4286400	124.55	124.55	0	369.7833	1011.391
750200	4286400	125.05	125.05	0	339.0099	1106.017
750300	4286400	123.39	123.39	0	351.4944	1201.514
750400	4286400	124.43	124.43	0	403.0674	1297.69

750500	4286400	122.54	122.54	0	414.07	1394.403
750600	4286400	124.96	124.96	0	436.5571	1491.551
749800	4286500	126.19	126.19	0	262.4867	695.2867
749900	4286500	125.87	125.87	0	303.283	789.8013
750000	4286500	125.72	125.72	0	366.8517	885.5216
750100	4286500	124.78	124.78	0	352.6359	982.0952
750200	4286500	123.17	123.17	0	329.864	1079.293
750300	4286500	125.15	125.15	0	409.6581	1176.96
750400	4286500	123.31	123.31	0	419.7831	1274.99
750500	4286500	125.1	125.1	0	405.3105	1373.303
750600	4286500	123.72	123.72	0	364.4822	1471.844
748900	4286600	126.5	126.5	0	405.7377	285.9389
749000	4286600	127.78	127.78	0	411.4135	205.2402
749900	4286600	126.5	126.5	0	239.3628	765.1052
750000	4286600	125.59	125.59	0	289.9071	863.5673
750100	4286600	126.57	126.57	0	279.6689	962.3466
750200	4286600	124.42	124.42	0	334.9871	1061.355
750300	4286600	123.14	123.14	0	370.9081	1160.533
750400	4286600	124.96	124.96	0	370.7938	1259.841
750500	4286600	124.28	124.28	0	337.7458	1359.25
750600	4286600	122.21	122.21	0	306.1238	1458.74
748800	4286700	126.07	126.07	0	510.6697	350.7115
748900	4286700	125.81	125.81	0	437.4351	251.7162
749000	4286700	125.52	125.52	0	383.5272	154.0245
749100	4286700	126.61	126.61	0	390.2428	63.9221
749200	4286700	126.5	126.5	0	392.0849	66.69734
750000	4286700	126.53	126.53	0	262.0668	852.8473
750100	4286700	126.4	126.4	0	283.9218	952.7387
750200	4286700	126.35	126.35	0	309.8528	1052.651
750300	4286700	124.13	124.13	0	330.0097	1152.578
750400	4286700	124.08	124.08	0	328.562	1252.517
750500	4286700	124.54	124.54	0	315.5909	1352.465
750600	4286700	124.97	124.97	0	308.9243	1452.42
748700	4286800	126.1	126.1	0	375.4566	451.9248
748800	4286800	126	126	0	324.8122	352.9852
748900	4286800	126.08	126.08	0	347.1941	254.8745
749000	4286800	126.28	126.28	0	373.7861	159.1337
749300	4286800	126.5	126.5	0	471.2186	162.5147
750200	4286800	126.35	126.35	0	369.2173	1053.41
750300	4286800	126.34	126.34	0	381.3825	1153.272
750400	4286800	123.25	123.25	0	361.3563	1253.155
750500	4286800	124.64	124.64	0	363.0467	1353.056
750600	4286800	123.58	123.58	0	345.0675	1452.971
747700	4286900	126.81	126.81	0	230.9674	1456.781
748600	4286900	126.78	126.78	0	471.6947	570.5029
748700	4286900	126.5	126.5	0	402.1844	475.2221
748800	4286900	126.42	126.42	0	362.1921	382.3592

748900	4286900	126.79	126.79	0	395.3285	294.2126
749500	4286900	126.5	126.5	0	327.2197	385.6631
750300	4286900	126.34	126.34	0	444.6226	1162.599
750400	4286900	126.34	126.34	0	428.8634	1261.744
750500	4286900	124.85	124.85	0	427.5252	1361.015
750600	4286900	124.76	124.76	0	411.5383	1460.385
747700	4287000	127.68	127.68	0	219.513	1470.99
747800	4287000	127.48	127.48	0	226.0443	1372.652
748500	4287000	127.69	127.69	0	494.078	697.6468
748600	4287000	127.28	127.28	0	454.6656	605.866
748700	4287000	127.02	127.02	0	425.5723	517.1422
750400	4287000	126.34	126.34	0	546.6317	1278.123
750500	4287000	126.34	126.34	0	510.8589	1376.213
750600	4287000	124.66	124.66	0	452.938	1474.559
747700	4287100	128.12	128.12	0	223.5215	1491.781
747800	4287100	127.92	127.92	0	233.8719	1394.91
747900	4287100	127.91	127.91	0	243.8496	1298.513
748400	4287100	128.32	128.32	0	470.5114	829.4266
748500	4287100	128	128	0	487.0026	740.4803
748600	4287100	127.62	127.62	0	433.5158	654.7316
750500	4287100	126.34	126.34	0	531.4568	1398.414
750600	4287100	126.34	126.34	0	502.9195	1495.301
747800	4287200	128.3	128.3	0	210.6176	1423.859
747900	4287200	128.28	128.28	0	212.2887	1329.562
748000	4287200	128.6	128.6	0	214.8106	1236.163
748300	4287200	129.42	129.42	0	241.6255	963.9429
748400	4287200	129.08	129.08	0	450.4939	877.2391
748500	4287200	128.42	128.42	0	456.8382	793.6694
747800	4287300	128.66	128.66	0	205.8928	1459.1
747900	4287300	128.78	128.78	0	208.9827	1367.237
748000	4287300	129.1	129.1	0	212.5861	1276.596
748100	4287300	129.21	129.21	0	216.8556	1187.46
748200	4287300	129.49	129.49	0	221.3436	1100.193
748300	4287300	129.5	129.5	0	241.8718	1015.276
748400	4287300	129.52	129.52	0	429.2164	933.3534
748500	4287300	128.9	128.9	0	431.2674	855.2842
748600	4287300	128.42	128.42	0	361.2407	782.2234
748800	4287300	128	128	0	339.4045	657.7222
750300	4287300	126.59	126.59	0	320.8836	1279.858
747900	4287400	129.1	129.1	0	197.0222	1411.005
748000	4287400	129.19	129.19	0	197.2285	1323.366
748100	4287400	129.42	129.42	0	196.7662	1237.603
748200	4287400	129.58	129.58	0	195.2828	1154.133
748300	4287400	129.5	129.5	0	244.1232	1073.492
748400	4287400	129.48	129.48	0	405.0651	996.3677
748500	4287400	129.42	129.42	0	406.4439	923.6401
748600	4287400	128.88	128.88	0	371.5304	856.4307

748700	4287400	128.27	128.27	0	349.2802	796.1382
748800	4287400	128	128	0	361.6367	744.4451
750300	4287400	126.44	126.44	0	390.7547	1326.513
750400	4287400	126.34	126.34	0	317.4741	1414.213
747900	4287500	129.29	129.29	0	175.6987	1460.321
748000	4287500	129.32	129.32	0	172.0986	1375.827
748100	4287500	129.4	129.4	0	167.2697	1293.546
748200	4287500	129.5	129.5	0	160.97	1213.929
748300	4287500	129.4	129.4	0	238.7919	1137.535
748400	4287500	129.51	129.51	0	380.3258	1065.058
748500	4287500	129.5	129.5	0	380.0511	997.352
748600	4287500	129.23	129.23	0	373.3711	935.4537
748700	4287500	128.42	128.42	0	321.5923	880.5884
748800	4287500	128.37	128.37	0	334.1569	834.1454
748900	4287500	128.17	128.17	0	315.9287	797.597
750300	4287500	126.34	126.34	0	392.872	1378.853
750400	4287500	126.24	126.24	0	367.5044	1463.42
748000	4287600	129.5	129.5	0	143.067	1433.352
748100	4287600	129.38	129.38	0	158.1515	1354.57
748200	4287600	129.22	129.22	0	176.3411	1278.759
748300	4287600	129.3	129.3	0	231.6326	1206.477
748400	4287600	129.31	129.31	0	357.3294	1138.397
748500	4287600	129.3	129.3	0	353.5958	1075.319
748600	4287600	129.12	129.12	0	359.0265	1018.172
748700	4287600	128.8	128.8	0	311.4481	968.0062
748800	4287600	128.47	128.47	0	315.7888	925.9582
748900	4287600	128.22	128.22	0	317.9645	893.1747
749000	4287600	128.1	128.1	0	289.0214	870.7029
750300	4287600	126.46	126.46	0	387.2121	1436.258
748100	4287700	129.39	129.39	0	169.8956	1420.021
748200	4287700	129.19	129.19	0	183.269	1347.896
748300	4287700	129.1	129.1	0	227.5808	1279.526
748400	4287700	129.16	129.16	0	335.868	1215.545
748500	4287700	129.08	129.08	0	333.4205	1156.681
748600	4287700	128.9	128.9	0	338.486	1103.754
748700	4287700	128.6	128.6	0	287.1274	1057.656
748800	4287700	128.4	128.4	0	289.6751	1019.313
748900	4287700	128.2	128.2	0	293.1593	989.6267
749000	4287700	128.02	128.02	0	281.4822	969.3934
749100	4287700	128	128	0	278.3864	959.2112
749200	4287700	128	128	0	281.5324	959.4001
749300	4287700	127.99	127.99	0	354.8329	969.9542
749400	4287700	128.01	128.01	0	390.7591	990.5421
749500	4287700	127.45	127.45	0	367.0013	1020.557
749600	4287700	127.8	127.8	0	322.9024	1059.197
749700	4287700	127.26	127.26	0	392.7274	1105.559
749800	4287700	126.4	126.4	0	419.4086	1158.716

749900	4287700	126.26	126.26	0	397.2437	1217.779
750000	4287700	127.16	127.16	0	363.7718	1281.932
750100	4287700	126.93	126.93	0	354.8716	1350.448
750200	4287700	126.51	126.51	0	367.2933	1422.699
748100	4287800	129.29	129.29	0	170.7773	1489.316
748200	4287800	129.1	129.1	0	181.5899	1420.712
748300	4287800	129	129	0	222.6444	1356.018
748400	4287800	129.07	129.07	0	315.9464	1295.82
748500	4287800	128.88	128.88	0	316.1397	1240.77
748600	4287800	128.77	128.77	0	311.9728	1191.584
748700	4287800	128.64	128.64	0	289.609	1149.015
748800	4287800	128.48	128.48	0	273.8593	1113.822
748900	4287800	128.28	128.28	0	269.9678	1086.72
749000	4287800	128.23	128.23	0	275.039	1068.327
749100	4287800	128.1	128.1	0	254.0153	1059.097
749200	4287800	128	128	0	298.6028	1059.268
749300	4287800	128	128	0	349.1773	1068.836
749400	4287800	128.1	128.1	0	360.7339	1087.554
749500	4287800	128.68	128.68	0	330.0524	1114.96
749600	4287800	128.73	128.73	0	320.5272	1150.434
749700	4287800	128.27	128.27	0	374.8612	1193.256
749800	4287800	127.98	127.98	0	390.9716	1242.668
749900	4287800	127.97	127.97	0	375.4651	1297.916
750000	4287800	127.61	127.61	0	354.972	1358.289
750100	4287800	127.39	127.39	0	325.16	1423.134
750200	4287800	127.31	127.31	0	350.1991	1491.869
748300	4287900	128.98	128.98	0	217.1616	1435.405
748400	4287900	128.91	128.91	0	297.2961	1378.676
748500	4287900	128.79	128.79	0	301.1117	1327.069
748600	4287900	128.57	128.57	0	290.0691	1281.2
748700	4287900	128.48	128.48	0	292.65	1241.707
748800	4287900	128.5	128.5	0	270.1905	1209.214
748900	4287900	128.37	128.37	0	261.5005	1184.298
749000	4287900	128.28	128.28	0	255.515	1167.443
749100	4287900	128.2	128.2	0	247.2262	1159.002
749200	4287900	128.1	128.1	0	300.5481	1159.159
749300	4287900	128	128	0	330.7472	1167.909
749400	4287900	128	128	0	325.2126	1185.063
749500	4287900	128.03	128.03	0	298.6645	1210.263
749600	4287900	128.17	128.17	0	310.2599	1243.02
749700	4287900	128.5	128.5	0	351.9528	1282.755
749800	4287900	128.81	128.81	0	361.2813	1328.843
749900	4287900	129.04	129.04	0	350.7045	1380.647
750000	4287900	128.08	128.08	0	338.4858	1437.549
748400	4288000	128.68	128.68	0	282.4861	1463.676
748500	4288000	128.63	128.63	0	288.897	1415.172
748600	4288000	128.3	128.3	0	265.3759	1372.251

748700	4288000	128.4	128.4	0	286.841	1335.453
748800	4288000	128.21	128.21	0	256.5622	1305.296
748900	4288000	128.2	128.2	0	235.2941	1282.248
749000	4288000	128.19	128.19	0	230.7178	1266.698
749100	4288000	128.2	128.2	0	253.9469	1258.923
749200	4288000	128.2	128.2	0	291.565	1259.067
749300	4288000	128.1	128.1	0	305.5135	1267.127
749400	4288000	128	128	0	299.8421	1282.955
749500	4288000	128	128	0	266.3228	1306.268
749600	4288000	128	128	0	295.485	1336.674
749700	4288000	128.2	128.2	0	327.4318	1373.703
749800	4288000	128.73	128.73	0	332.6151	1416.836
749900	4288000	128.95	128.95	0	325.7982	1465.533
748600	4288100	128.2	128.2	0	256.9093	1464.47
748700	4288100	128.09	128.09	0	279.3049	1430.048
748800	4288100	128.17	128.17	0	236.4242	1401.927
748900	4288100	128	128	0	227.1693	1380.493
749000	4288100	128	128	0	223.8744	1366.061
749100	4288100	128	128	0	251.782	1358.855
749200	4288100	128.08	128.08	0	275.7556	1358.988
749300	4288100	128	128	0	279.3698	1366.459
749400	4288100	128	128	0	273.1988	1381.149
749500	4288100	128	128	0	250.3488	1402.831
749600	4288100	128	128	0	278.5338	1431.188
749700	4288100	128	128	0	303.5812	1465.831
748900	4288200	128.1	128.1	0	234.6748	1478.973
749000	4288200	128	128	0	215.121	1465.511
749100	4288200	128	128	0	243.1884	1458.796
749200	4288200	128	128	0	256.2661	1458.92
749300	4288200	128.09	128.09	0	260.2276	1465.882
749400	4288200	128	128	0	246.6263	1479.586

R007761

Distance Between PSD Project and Class I Areas	Project - ICEMAN DERIVED
Lat 1	38.69439
Long 1	-90.147709

Class 1 Area	Latitude	Longitude	Distance (km)
Mingo National Wilderness Refuge	36.9933216	-90.1735825	189.16
Mammoth Cave National Park	37.187	-86.1005	392.45
Hercules-Glades Wilderness	36.666667	-92.933333	333.03
Closest Class 1 Area		**Distance (km)**	189.16
		Name	Mingo National Wilderness Refuge

	UTM (km) - Zone 15			
	EAST	NORTH	LAT	LONG
ICEMAN CENTERING COORDINATES	748.067	4286.726	38.69439	-90.1477
APPLICANT-PROVIDED COORDINATES	749	4287	38.6966	-90.1369

R007762

Distance Between PSD Project and Class I Areas	Project - APPLICANT PROVIDED
Lat 1	38.6966
Long 1	-90.13689

Class 1 Area	Latitude	Longitude	Distance (km)
Mingo National Wilderness Refuge	36.9933216	-90.1735825	189.42
Mammoth Cave National Park	37.187	-86.1005	391.69
Hercules-Glades Wilderness	36.666667	-92.933333	333.90
Closest Class 1 Area		**Distance (km)**	189.42
		Name	Mingo National Wilderness Refuge

Source Description	Source Type	CO Potential Emissions (lb/hr)	CO Emissions Increase (lb/hr)	CO Emissions Increase (g/s)
Blast Furnace A Stoves	Point	1604.52	1604.52	202.17
Blast Furnace B Stoves	Point	1837.76	1837.76	231.55
Blast Furnace Gas Flare 1	Point	3140.49	3140.49	395.69
Blast Furnace Gas Flare 2	Point	3140.49	0.00	0.00
Casthouse Baghouse	Point	71.82	24.42	3.08
Blast Furnace A and B Iron Spot Baghouse	Point	7.18	2.44	0.31
Cogeneration Boiler	Point	203.08	0.00	0.00
Boiler 11	Point	90.48	90.48	11.40
Boiler 12	Point	90.48	90.48	11.40
BOF ESP	Point	4121.79	1274.01	160.52
Slab Reheat Furnace 1	Point	26.52	0.00	0.00
Slab Reheat Furnace 2	Point	26.52	0.00	0.00
Slab Reheat Furnace 3	Point	26.52	0.00	0.00
Slab Reheat Furance 4	Point	40.76	0.00	0.00
Galvanizing line #8 - fume scrubber	Point	0.00	0.00	0.00
Galvanizing line #8 - space heaters	Point	0.00	0.00	0.00
Galvanizing line #8 - drying oven and storage area heaters	Point	0.00	0.00	0.00
Galvanizing line #8 - miscellaneous heaters	Point	0.00	0.00	0.00
Emergency Generator (3500 HP)	Point	0.00	0.00	0.00
Waste Heat Main Stack (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 1 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 2 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 3 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 4 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 5 (Gateway Energy)	Point	0.00	0.00	0.00
Waste Heat Stack 6 (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - A (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - B (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - C (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - D (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - E (Gateway Energy)	Point	0.00	0.00	0.00
Coke Pushing - F (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - A (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - B (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - C (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - D (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - E (Gateway Energy)	Point	0.00	0.00	0.00
Coal Charging - F (Gateway Energy)	Point	0.00	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17

BR0077763

R007764

Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17
Ladle Preheaters/Dryers (formerly BOF 4, NG & COG) - Roof Monitor	Volume	1.373	1.37	0.17
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	1.03	0.13
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Ladle Preheaters/Dryers (formerly BOF 5, NG & COG) - Roof Monitor	Volume	1.029	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Galv Line 8	Volume	0.254	0.00	0.00
Slag Pit Volume 1	Volume	0.00	0.00	0.00
Slag Pit Volume 2	Volume	0.00	0.00	0.00
Slag Pit Volume 3	Volume	0.00	0.00	0.00
Slag Pit Volume 4	Volume	0.00	0.00	0.00
Slag Pit Volume 5	Volume	0.00	0.00	0.00
Total		14440.963	8069.75	1016.77
		tpy	lb/hr	lb/hr

R007765

Distance Between PSD Project and Met Stations	Project	
	Lat 1	38.69439
	Long 1	-90.147709

MET Station	Latitude	Longitude	Distance (km)
COU	38.817063	-92.214736	179.75
CPS	38.564045	-90.148826	14.49
DBQ	42.398371	-90.709132	414.58
EVV	38.050201	-87.51466	240.45
IND	39.725179	-86.281606	352.23
IRK	40.096638	-92.546971	258.47
MDW	41.784098	-87.755142	399.05
MKE	42.954874	-87.904498	509.91
MLI	41.448154	-90.523723	307.87
ORD	41.96019	-87.93162	408.82
PAH	37.056364	-88.774246	218.41
PIA	40.667481	-89.684213	222.95
RFD	42.193248	-89.093333	399.15
SPI	39.845319	-89.683996	134.06
STL	38.752444	-90.373473	20.62
SUS	38.657505	-90.655839	44.30
UGN	42.42545	-87.863223	457.52

Closest Met Station		
	Distance (km)	14.49
	Name	CPS

STL has a more complete data set and is not much fur

'ther away.

R007767

18V

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

19945

Original to file
Dept Calculations
Compliance/DCS/PWRD
Original Signed

REPLY TO THE ATTENTION OF
(AR-18J)

AUG 23 2005

Mr. Paul Dubenetzky
Permits Branch Chief
Office of Air Quality
Indiana Department of Environmental Quality
100 North Senate Ave.
Indianapolis, Indiana 46204

RECEIVED
State of Indiana
AUG 25 2005
Department of Environmental Mgmt.
Office of Air Quality

Dear Mr. Dubenetzky:

The United States Environmental Protection Agency (USEPA) has been reviewing the proposed construction permit modification for ISG Burns Harbor (ISG) in Porter County (permit no. 127-19945-00001). As part of the permit modification, ISG is requesting that a coal usage limitation taken in 1994 to avoid the Prevention of Significant Deterioration (PSD) rules be increased. In accordance with 40 C.F.R. § 52.21(r)(4), if a past permit modification becomes major solely by virtue of a relaxation in any enforceable limitation, then the requirements of PSD must be applied as though construction had not yet commenced on the past modification. ISG claims that the original netting analysis erroneously overestimated the nitrogen oxide emissions from the blast furnace granulated injection system dryers. According to ISG, correcting this error will allow the source to re-evaluate the 1994 netting analysis and to increase the coal usage limit without increasing emissions above the PSD threshold.

It is USEPA's position to allow a source to re-evaluate a past netting analysis if it is been determined that an error has occurred in the calculation. It is also USEPA's position that, upon re-evaluating a past netting analysis, the entire netting analysis will become subject to a thorough review to determine if other errors may have occurred.

In reviewing the 1994 netting analysis, our office has discovered several errors. The most significant error is ISG's use of source-specific allowable sulfur dioxide (SO2)

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emissions under 40 C.F.R. § 52.21(b)(21)(iii) to calculate its past actual emissions. ISG, however, should have used the past actual emission approach prescribed by 40 C.F.R. §52.21(b)(21)(ii). USEPA believes that the provision ISG relied upon is only for those situations where there is insufficient representative operating data to determine historical actual emissions. See, e.g., [the Draft New Source Review Workshop Manual (p.41)]. USEPA believes that actual historic data for ISG was available to calculate its past actual SO2 emissions.

In conclusion, it is our position that there were errors made in the original 1994 netting analysis that will affect the netting re-evaluation in the current proposed permit modification. Because of these past errors, IDEM will need to evaluate whether this current proposed permit modification will cause the facility to become major for SO2, as well as other pollutants, and result in a full PSD analysis. We will be happy to work with you to resolve this particular issue and to address other concerns we have with the 1994 netting analysis at your convenience.

If you have any concerns or questions please feel free to contact Ethan Chatfield, of my staff, at (312) 886-5112.

Sincerely yours,

Pamela Blakley

Pamela Blakley, Chief
Air Permits Section

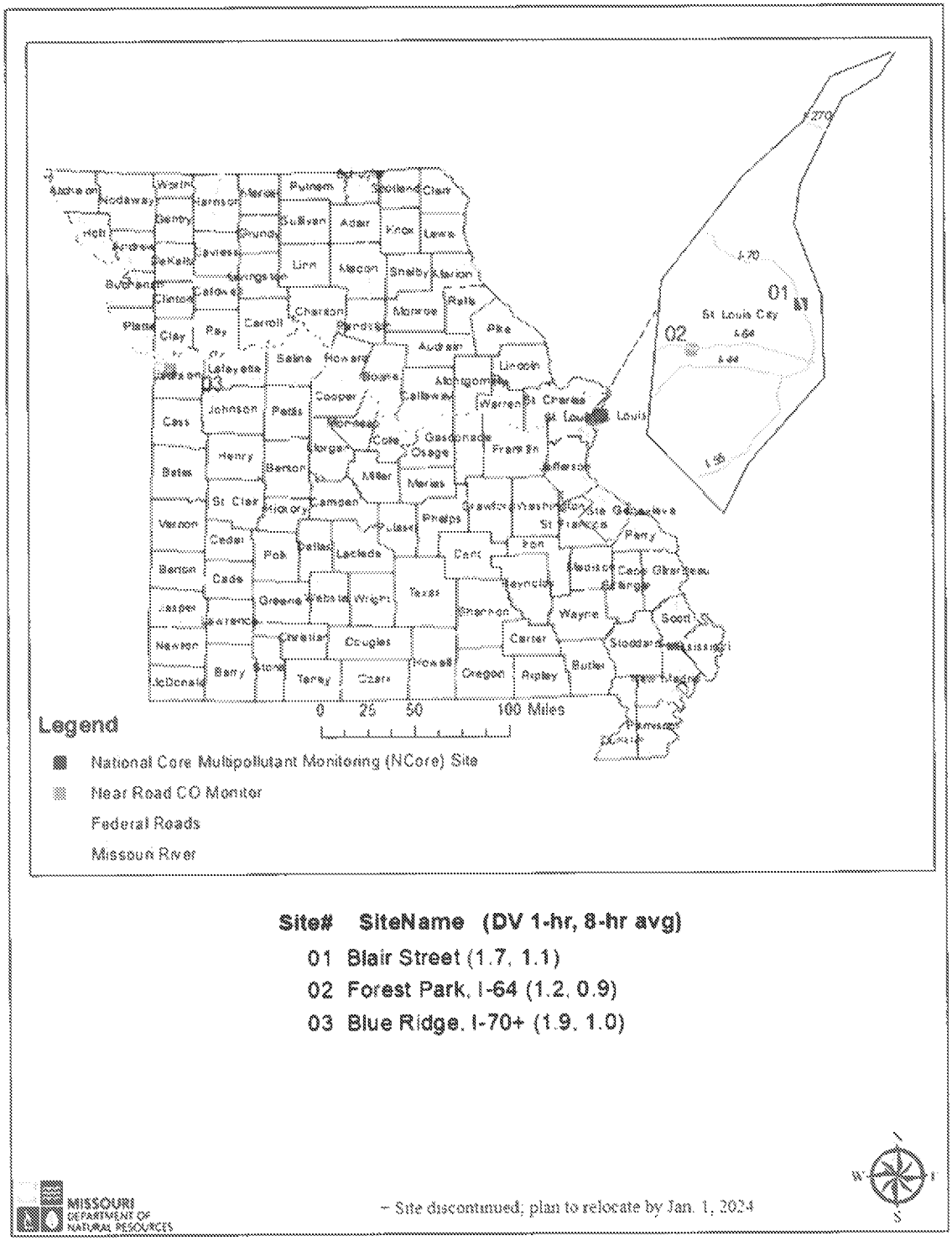
MISSOURI
NATURAL
RESOURCES

Missouri has only two CO ambient monitoring stations in St. Louis

Missouri Department of Natural Resources
Air Pollution Control Program
2023 Monitoring Network Plan

September 1, 2023

2023 Missouri Carbon Monoxide (CO) Monitoring Network*, NAAQS=35 ppm (1 hour), 9 ppm (8 hour). (Numbers in Parentheses are 2020-2022 Design Values for the 1-hour and 8-hour Standards)



*The Blue Ridge I-70 site will be replaced by a new Kansas City area near-roadway site. No other changes to the CO network are proposed in this plan.

United States Steel Corporation
Granite City Works and
IEPA Memorandum of Understanding

The Memorandum of Understanding (MOU or Agreement) is entered into by and between United States Steel Corporation (U. S. Steel) and the Illinois Environmental Protection Agency (IEPA), and is dated and effective as of the last date of signature in the signature block.

U. S. Steel and IEPA have reached an Agreement that will achieve reductions in emissions of particulate matter from U. S. Steel's Granite City Works, with the specific intent of reducing the emissions of particulate matter$_{2.5}$ (PM2.5). This MOU sets forth the terms of the Agreement between U. S. Steel and IEPA and sets forth the intended regulatory uses for those emission reductions. This agreement does not relieve U.S. Steel from the continuing obligation to comply with requirements of applicable Federal and State regulations, construction or operating permits, and other applicable requirements to control emissions.

1. Enhancements to Compliance Procedures
    a. Within 2 months of the effective date of this agreement, U. S. Steel shall begin installation of an enhanced operational monitoring system for the capture systems for particulate matter emissions from the Basic Oxygen Furnaces (BOF), including installation, operation and maintenance of monitoring devices to verify the performance of each capture system during the various steps in the steelmaking process. This will include establishment of values of operating parameters that reliably indicate and ensure adequate capture of emissions by each existing hood.
    b. Within 3 months of beginning operation of any additional new pollution control equipment at the BOF, as prescribed in this MOU, U. S. Steel shall implement enhanced operational monitoring for such new capture system for particulate matter. Such implementation will include installation, operation and maintenance of appropriate monitoring devices. These devices will verify the performance of the new capture system. Such monitoring devices will be used to establish values of operating parameters that reliably indicate and ensure adequate capture of emissions by each new hood.
    c. Within 2 months of the effective date of this agreement, U. S. Steel shall conduct opacity readings of emissions escaping from any openings in the Basic Oxygen Process Furnace (BOPF) building in accordance with USEPA Method 9 in 40 CFR Part 60, Appendix A. These readings shall be performed for at least five (5) days out of every seven (7). A day is defined as any day when a BOF is in operation for a minimum of four hours during conditions that are acceptable for Method 9 readings. A minimum of 60 consecutive minutes of opacity readings must be obtained and must encompass at least one steel production cycle. A production

cycle is defined as the beginning of scrap charging to the completion of deslagging of the steelmaking vessel. Results of these readings shall be reduced to three (3) minute rolling averages. U.S. Steel shall maintain appropriate records for all opacity measurements and these records shall be made available upon request from the IEPA.

d. U.S. Steel may, at some later date, submit a formal request to IEPA to streamline the monitoring requirements. This request shall be submitted as an application for a significant modification to the CAAPP permit.

2. Emission Limits
   a. All particulate matter emission limits in this MOU are expressed in terms of particulate as would be measured by USEPA Methods 5, 5D or 17.
   b. As of January 1, 2012, U. S. Steel shall comply with the following requirements for particulate matter emissions:
      i. Particulate matter emissions from the basic oxygen process (BOP) that exit from the electrostatic precipitator stack must not exceed 0.01 gr/dscf.
      ii. Particulate matter emissions from hot metal desulfurization and reladling (BOF Hot Metal Transfer and Desulfurization Baghouse(s)) that exit from the baghouse must not exceed 0.005 gr/dscf.
      iii. Particulate matter emissions from slag skimming (BOF Slag Skimming Baghouse(s)) that exit from the baghouse stack must not exceed 0.005 gr/dscf.
      iv. Particulate matter emissions from ladle metallurgy operations (LMF Baghouse) that exit from the baghouse stack must not exceed 0.005 gr/dscf.
   c. As of March 31, 2013, or such later date established pursuant to paragraph 4(c)(v) below, U. S. Steel will comply with the following requirements for particulate matter emissions from tapping:
      i. Emissions shall be controlled by a new baghouse.
      ii. Emissions that exit from this baghouse stack must not exceed 0.005 gr/dscf.

3. Within 2 months of the effective date of this Agreement U. S. Steel shall submit an application for a federally enforceable permit or permits to incorporate the requirements of Sections 1 and 2 above. The federally enforceable permit or permits shall include the requirements imposed by Sections 1 and 2 and appropriate requirements for emission testing, monitoring, recordkeeping and reporting associated with these requirements.

4. Emission Reduction Projects
   a. Steam Rings for the Oxygen Lances
      i. Within 6 months of the effective date of the Agreement, U. S. Steel will complete basic engineering of steam rings for the oxygen lances in the BOP shop.

ii. U. S. Steel will submit a construction permit application and an installation schedule to IEPA within 30 days of completion of the basic engineering. In consideration of the need to begin operation of the steam rings by October 31, 2011, U. S. Steel shall commence construction of the steam rings within 40-days of issuance of a final construction permit, assuming that no appeal(s) or challenge(s) of the Permit or the requirements therein have been filed with the Pollution Control Board or Federal Court within that 40-day period.

b. U. S. Steel will complete the installation and begin operation of the steam rings no later than October 31, 2011 provided that the required construction permit is obtained in a reasonable time and not appealed.

c. Secondary Emission Control for Tapping

i. Within 9 months of the effective date of the Agreement, U. S. Steel will complete the basic engineering for the installation and operation of a dedicated tapping emission control system that includes a fabric filter control device (baghouse).

ii. The tapping emission control system will be designed for optimal capture to minimize emissions from tapping, which have the potential of escaping to the atmosphere from the BOPF building. The air pollution control device for the captured emissions will be designed to comply with a particulate matter emission rate of 0.005 grains per dry standard cubic feet exhaust, at the stack.

iii. Within 30 days of the completion of the basic engineering for the new control system, U. S. Steel will submit a construction permit application for the new system to the IEPA that contains a schedule for the design engineering, construction and initial start up of the new tapping emission control system.

iv. In consideration of the need to begin operation of the secondary emission controls for tapping by March 31, 2013, IEPA shall act on all required permit(s) within three months of receipt of permit application(s) from U. S. Steel. U. S. Steel shall commence construction of the secondary emission controls for tapping within 40-days of issuance of a final construction permit, assuming that no appeal(s) or challenge(s) of the Permit or the requirements therein have been filed with the Pollution Control Board or Federal Court within that 40-day period.

v. U. S. Steel will begin operation of the new tapping emission control system no later than March 31, 2013 provided that required permits are obtained in a reasonable time and not appealed.

d. Secondary Emission Control for Charging

i. As part of the engineering for the new tapping emission control system, U. S. Steel will also evaluate the current emission control system for charging and potential projects to reduce particulate matter emissions from charging. As part of this evaluation, U. S. Steel will evaluate improvements to the capture efficiency achieved for charging emissions and ducting some or all of the captured charging emissions, which currently are controlled by the electrostatic precipitator, to the new control device for tapping or another new baghouse.

ii. If the evaluation completed in paragraph 4(d)(i) does not support implementing additional projects to reduce particulate emission from charging, U. S. Steel will submit within 9 months of the effective date of the Agreement, an evaluation report that includes a summary of the evaluation, statement on decision criteria for potential projects, and incremental cost per ton of pollutant reduction analysis.

iii. If the evaluation completed in paragraph 4(d)(i) does support implementing additional projects to reduce particulate emissions from charging, U. S. Steel will complete within 9 months of the effective date of the agreement the basic engineering for installation and operation of an upgrade to the existing charging control system. Future submittals will coincide with the tapping hood schedule identified in paragraph 4(c)(iii) – 4(c)(v).

5. Regulatory Uses of Emission Reductions

a. For the Granite City BOP, the particulate emission reductions set forth in the MOU will be incorporated into the Illinois 1997 $PM_{2.5}$ National Ambient Air Quality Standard State Implementation Plan (NAAQS SIP) submitted to U. S. EPA in accordance with 40 CFR §51.1001, et seq., and §§ 110 and 172 of the Clean Air Act

b. IEPA shall use its best efforts to support and represent that the requirements of this MOU satisfy U. S. Steel's obligations towards Illinois EPA's requirement to demonstrate compliance with the 1997 $PM_{2.5}$ NAAQS.

c. IEPA will provide U. S. Steel with an opportunity to review and provide comments on the 1997 $PM_{2.5}$ modeled attainment demonstration.
d. U. S. Steel and IEPA shall mutually support and use best efforts to obtain the appropriate permits and approvals incorporating the terms of this agreement to make the reductions federally enforceable so that they can be incorporated into the Illinois 1997 $PM_{2.5}$ SIP.
e. U. S. Steel's commitments and obligations under this MOU are subject to and conditioned upon: 1) the issuance and sustained validity of a federally enforceable permit or permits containing the particulate matter emission reductions requirements set forth in the MOU; 2) IEPA's approval that the particulate matter emission reductions satisfy U. S. Steel's requirement for the 1997 $PM_{2.5}$ NAAQS SIP; and 3) IEPA not pursuing a regulation pursuant to the 1997 PM2.5 NAAQS containing additional restrictions for the Granite City Works BOP. U. S. Steel and IEPA shall mutually support and use best efforts to obtain the appropriate permits and SIP approvals based on this agreement.
f. In developing rules, regulations, or state implementation plan revisions designed to comply with the $PM_{2.5}$ NAAQS, IEPA, taking into account all emission reduction efforts and other appropriate factors, will use best efforts to seek $PM_{2.5}$ reductions in regards to future NAAQS from other sources before seeking additional emission reductions from the U. S. Steel BOP.

6. Force Majeure

U. S. Steel shall not be liable for any failure or delay in performance under this MOU (other than for delay for submitting a permit application) to the extent said failures or delays are caused by extraordinary circumstances beyond U. S. Steel's reasonable control and occurring without its fault or negligence, provided that, U. S. Steel gives prompt written notice, with full details following the occurrence of the cause relied upon. Dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

For United States Steel Corporation	For Illinois EPA
MS Williams Michael S. Williams Senior Vice President – North American Flat Roll Operations	Douglas P. Scott Douglas P. Scott Director, Illinois EPA
Date: 6 / 30 / 2010	Date: 7 / 1 / 2010

R007777

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

November 12, 1998

RECEIVED
NOV 13 1998
IEPA-DAPC-SPFLD.

CERTIFIED MAIL NO. Z 284 052 649
RETURN RECEIPT REQUESTED

Mr. Donald Sutton
Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for a Construction Permit for
Natural Gas Increase, I.D. No. 119813 AAI
GCD Application No. NG 119081 C

Dear Mr. Sutton:

Granite City Division of National Steel Corporation (GCD) requests a permit to increase the allowed use of natural gas at the Boilers 1 - 10, Boiler 11, Boiler 12 and the ladle drying preheaters (5 heaters). Attachments A & B present the actual usage of natural gas in the year 1996 and 1997. Attachment C presents the 1996-97 base period emissions, the emissions as a result of the requested increase in natural gas usage, and the net increase in emissions.

Should you have any questions regarding this matter, please contact Larry Siebenberger, Manager of Environmental Technology, telephone (618) 451-3391.

Very truly yours,

James Squires (JH)

James H. Squires
Sr. Vice President - Granite City Division

Attachment(s)

ATTACHMENT A

1996 NATURAL GAS ACTUAL USAGE
(MMft.³ Natural Gas)

1996 Month	Boiler 1- 10	Boiler 11	Boiler 12	Ladle Drying Preheaters
January	37.84	16.81	31.75	34.69
February	41.44	13.56	20.45	36.80
March	25.17	8.37	27.95	33.84
April	10.11	17.42	22.34	28.08
May	9.11	29.87	34.03	30.39
June	58.05	25.68	11.88	31.11
July	39.94	8.10	14.47	35.36
August	71.53	5.16	12.75	35.31
September	7.36	5.29	12.17	26.06
October	8.48	7.57	13.73	30.22
November	9.05	5.39	12.91	27.72
December	22.00	26.54	22.03	35.13
Sub Total	340.10	169.76	236.46	384.71

Annual Total 1,131.03

ATTACHMENT B

1997 NATURAL GAS ACTUAL USAGE
(MMft.^{3} Natural Gas)

1997 Month	Boiler 1 - 10	Boiler 11	Boiler 12	Ladle Drying Preheaters
January	82.75	23.47	68.83	32.68
February	69.81	26.28	62.14	32.58
March	56.06	36.58	32.43	40.63
April	15.69	12.83	11.55	38.51
May	33.27	8.20	11.75	37.62
June	17.05	8.28	9.08	32.99
July	28.49	73.23	7.66	29.14
August	29.91	19.96	5.79	27.99
September	10.96	31.45	5.34	30.99
October	20.02	13.00	6.64	28.64
November	45.36	43.72	11.12	33.64
December	21.58	8.05	11.27	44.86
Sub Total	430.95	305.05	243.60	410.27

Annual Total	1,389.87
Allowable Total	1,145

ATTACHMENT C

NET EMISSION INREASE (TPY)

Base Period Natural Gas 1996 1131
1997 1145

Average 1138 $MMft^3/yr$.

Proposed Natural Gas Usage 1346 $MMft^3/yr$.

Pollutant	Emission Factor lb./$MMft^3$	Base Period Emission (TPY) (1138 lb./$MMft^3$ NG)	Proposed Emission (TPY) (1346 lb./$MMft^3$ NG)	Net Increase Emission (TPY)	Emission Significant Levels (TPY)
PM	5.1	2.90	3.43	0.53	25
PM_{10}	5.1	2.90	3.43	0.53	15
SO_2	0.6	0.34	0.67	0.33	40
NO_x	306	174.11	205.94	31.83	40
VOM	2.8	1.59	1.88	0.29	40
CO	40	22.76	26.92	4.16	100

R007781

CALCULATION SHEET

Facility National Steel Corp	I.D. 119813 AAI
Anal. Eng. BLK Date 12 07 98	PN 98110038
Rev. Eng. _____ Date __ __ __	Date Rec. 11 13 98

FLAGS - TOXIC - NOT REQUIRED

APPLICATION FOR A CONSTRUCTION PERMIT TO ALLOW FOR AN INCREASE IN NATURAL GAS USAGE FROM Boilers 1. 12 and 5 ladle drying preheaters. Applicant proposing new NG usage limit of 1,346 mmscf/yr

BASE LINE Determination for NG usage from 12 boilers & 5 ladle preheaters

'96 Actual NG usage 1,131.03 mmscf
'97 Actual NG usage 1,389.87 mmscf

Permitted Allowable = 1,145 mmscf/yr

∴ base line based on 96 actual & 97 permit Allowable
Base Line Average = (1,131.03 + 1,145)/2 = 1,138 mmscf/yr

	Emissions from Base Line usage of 1,138 mmscf/yr (TON/YR)	E. Factor lb/mmscf	Emissions from proposed (TON/yr) NG usage of 1,346 mmscf/yr
PM	2.9	5.1	3.43
PM_{10}	2.9	5.1	3.43
SO_2	0.34	0.6	0.40
NO_x	174.11	306	205.94
VOM	1.59	2.8	1.88
CO	22.76	40	26.92

Emission factor used from permit 950100AI issued 6/6/97 (Public Noticed version of the production increase permit)

	Increase	Significant Level	
PM	0.53	25	ALL LESS THAN SIGNIFICANT LEVELS
PM_{10}	0.53	15	
SO_2	0.06	40	
NO_x	31.83	40	
VOM	0.29	40	
CO	4.16	100	

R007782

CALCULATION SHEET

Facility Nauvoo Stone	I.D. 119 913 AAI
Anal. Eng. BJK Date 12 03 98	PN 98 11 0038
Rev. Eng. _____ Date __ __ __	Date Rec. 11 13 98

LEVELS < SIGNIFICANT ALSO < 80% of SIGNIFICANT ∴ NO PUBLIC NOTICE IS REQUIRED

LIMIT NG USAGE FOR THE EQUIPMENT TO 1,346 MM FT³/YR W/ EMISSIONS DEFINED BELOW BASED ON PREVIOUS PERMITTED EMISSION FACTORS

PM/PM$_{10}$	3.43 TPY
SO_2	0.40 TPY
NO_x	205.94 TPY
VOM	1.81
CO	24.92

[redacted]

Grant, Construction Permit

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director
217/782-2113

P. O. Box 19506, Springfield, IL 62794-9506

CONSTRUCTION PERMIT

38.3

PERMITTEE

Granite City Division
of National Steel Corporation
Attn: James Squires
20th and State Street
Granite City, Illinois 62040

Application No.: 98110038
Applicant's Designation: NGI98
Subject: Natural Gas Usage Increase
Date Issued: December 9, 1998
Location: Southeastern Granite City

I.D. No.: 119813AAI
Date Received: November 13, 1998

Permit is hereby granted to the above-designated Permittee for an increase in natural gas usage for boiler house boilers (1-10), blast furnace boilers (11 and 12), and five (5) ladle drying preheaters as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

1. This permit is issued such that the net increases in emissions of PM, PM_{10}, SO_2, NO_x, and VOM resulting from increased natural gas combustion are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration. The accounting of the increases in emissions are shown in Tables I, II, and III of the attachments.

2. Total fuel usage for boiler house boilers (1-10), blast furnace boilers (11 and 12), and the five (5) ladle drying preheaters shall not exceed the following limits:

   a. Natural Gas usage: 225 million ft^3 per month and 1,346 million ft^3 per year.

   b. Combined emissions of each pollutant from the units listed above shall not exceed the following limits:

Pollutant	Emission Factor (Lbs/mmcf)	Maximum Emissions (Tons/Yr)
PM	5.1	3.43
PM-10	5.1	3.43
SO_2	0.6	0.40
NO_x	306	205.94
VOM	2.8	1.88
CO	40	26.92

3. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The

report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

4. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

a. Natural gas usage (mmft³/month and mmft³/yr, each).

If you have any questions on this permit, please call Ernie Kierbach at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:ELK:jar
cc: Illinois EPA, FOS Region 3

COPY
Original Signed by
Donald E Sutton, P E

TABLE I

Change in Emissions

Baseline Emissions (Average of 1996 and 1997 Actuals)

Pollutant	Emissions (Tons/Yr)
PM	2.9
PM-10	2.9
SO_2	0.34
NO_x	174.11
VOM	1.59
CO	22.76

Potential Emissions from Natural Gas Usage of 1,346 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	3.43
PM-10	3.43
SO_2	0.40
NO_x	205.94
VOM	1.88
CO	26.92

Net Emission Change

Pollutant	Emissions (Ton/Yr)	Significant Emissions Level (Tons/Yr)
PM	0.53	25
PM-10	0.53	15
SO_2	0.06	40
NO_x	31.83	40
VOM	0.29	40
CO	4.16	100

ELK:jar

TABLE II

1996 Actual Emissions from Natural Gas Usage of 1,131 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.88
PM-10	2.88
SO_x	0.34
NO_x	173.04
VOM	1.58
CO	22.62

TABLE III

1997 Emissions from an Allowable Natural Gas Usage of 1,145 $mmft^3/Yr$

Pollutant	Emissions (Tons/Yr)
PM	2.92
PM-10	2.92
SO_x	0.34
NO_x	175.19
VOM	1.60
CO	22.9

ELK:jak

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless susperseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and to copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emissions of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

Granite City Works
United States Steel
20th & State Street
Granite City, IL 62040
(618) 451-3456

LTR
11-13-2014
10-I

R007789
STI
119813AAI141113T.pdf

RECEIVED
ENVIRONMENTAL PROTECTION AGENCY
JAN 12 2015
BUREAU OF AIR
STATE OF ILLINOIS

January 9, 2015

CERTIFIED MAIL NO. 7012 3460 0000 0293 1145
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Source Emission Test Specialist
9511 West Harrison Street
Des Plaines, Illinois 60016

RE: 119813AAI U.S. Steel – Granite City Works BOF ESP Test Results – November 11-13, 2014

To Whom It May Concern:

The BOF electrostatic precipitator stack test performed on November 11-13, 2014 demonstrated compliance with the 0 02 gr/dscf emission factor limit as indicated in 40 CFR 63.7790 (a) (Table 1) Subpart FFFFF. The subject test also demonstrates conformance with the BOF ESP carbon monoxide and lead emission factor limits established in Title V operating permit #96030056. The subject test results did not conform to emission factor limits established in the Title V permit for NOx and VOM. The tests were performed during normal BOF operations. Enclosed is the test report and supporting operational data.

Allowable PM Emission Limit:
0.02 gr/dscf
Average PM Emission BOF ESP:
0.0016 gr/dscf

Allowable CO Emission Limit:
8.993 lbs/ton
Average CO Emission BOF ESP:
6.54 lbs/ton

Allowable NOx Emission Limit:
0.0389 lbs/ton
Average NOx Emission BOF ESP:
0.3030 lbs/ton

Allowable VOM Emission Limit:
0.006 lbs/ton
Average VOM Emission BOF ESP:
0.0177 lbs/ton

Allowable Lead Emission Limit:
0.1934 lbs/hr
Average Lead Emission BOF ESP:
0.027 lbs/hr

Should you have questions or require further information, please feel free to contact Bryan Kresak at 618-451-3391, bmkresak@uss.com or Stefanie Wolf at 618-451-3812, smboehme@uss.com.

Sincerely,

Bryan Kresak
Director, Environmental – Granite City Works

cc: Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Office
2009 Mall Street
Collinsville, Illinois 62234
CERTIFIED MAIL NO. 7012 3460 0000 0293 1152

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn: Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506
CERTIFIED MAIL NO. 7012 3460 0000 0293 1169

DATE 13-NOV-2014 04:38S DAILY TECHNICAL BOF YIELD REPORT REPORT DATE 13-NOV-2014

REACT	V S L	SPEC	-----CHARGING (LBS)----- HMTL	SCRAP	ADDTV	TOTAL CHS	SKIM WT	EXT SKIM WT	LIQ SCRAP	HM CHMP	HM(SI)	BM (S) PPG	POST	REMLD REACT	TAP CU	FLUX WT	GRAMS	YIELD
78302	2	BV03	416960	85000	5740	514710	3100	6150	0	2410	0.410	0.059	0.003	1028.0	38600	471580		91.16
78303	2	VW02	426960	75000	10742	513741	3100	7850	0	2320	0.510	0.068	0.004	492.0	31050	474300		91.78
78304	2	BV03	427000	75000	5624	507625	3500	7150	0	2359	0.410	0.061	0.003	808.0	29950	468900		91.88
78305	2	VW02	417960	100000	10954	527854	4600	6850	0	2778	0.420	0.081	0.002	684.0	38000	486850		92.25
78306	1	BV03	421960	80000	5332	506332	3800	6950	0	2379	0.560	0.062	0.003	800.0	35200	465000		91.34
78307	2	VW02	417960	100000	11012	528812	4300	6800	0	2480	0.420	0.052	0.002	532.0	38900	487900		91.85
78308	1	BV03	431000	85000	5830	523830	3400	7500	0	2438	0.440	0.062	0.003	1056.0	31900	481600		91.56
78309	2	BV03	436000	95000	5156	536156	4700	8500	0	2834	0.430	0.075	0.003	873.0	33700	488100		92.15
78310	1	BV03	421000	95000	5678	521678	300	6800	0	2578	0.470	0.062	0.003	1148.0	34000	484500		91.74
78311	1	VW02	436000	90000	14088	540088	8500	7800	0	2911	0.710	0.064	0.003	695.0	31100	487300		90.18
78312	2	VW02	427000	80000	11819	518819	6300	8000	0	2315	0.560	0.069	0.003	852.0	32900	486700		93.78
78313	2	VW02	433000	85000	11970	529970	5300	9800	0	2381	0.360	0.080	0.002	826.0	31500	488800		92.02
78314	2	VW02	417000	70000	12164	529164	3900	7200	0	2347	0.370	0.085	0.002	2102.0	31000	487800		91.68
78315	2	VW02	430000	70000	10714	540714	0	4900	0	2850	0.000	0.080	0.000	548.0	26100	466000		83.42
78316	1	VW02	447000	70000	10440	527440	3900	8900	0	2378	0.310	0.087	0.001	837.0	28800	483900		91.26
78317	1	VW02	442000	70000	10650	527950	10500	8200	0	2256	0.460	0.079	0.003	868.0	30100	480200		91.24
78318	2	BA05	438000	80000	3858	521858	4400	8500	0	2392	0.340	0.049	0.009	10980.0	27300	0		0.00
78319	1	VW02	442000	70000	10824	526124	3400	7500	0	2331	0.420	0.058	0.005	587.0	30000	481200		90.48
78320	2	ZA20	417400	100000	2126	519526	4600	6500	0	2372	0.770	0.042	0.002	748.0	36100	472800		90.97
78321	2	KA13	419000	105000	3246	527246	4900	8300	0	2413	0.440	0.045	0.011	948.0	33900	473300		90.84
78322	1	SO16	435000	90000	8640	533640	5900	9900	0	2365	0.560	0.039	0.007	1512.0	28900	461000		88.06
78323	2	WA07	419000	105000	3218	527218	7100	8000	0	2299	0.630	0.043	0.006	618.0	33400	485700		88.39
78324	1	SO16	439000	85000	9938	532938	5800	8800	0	2374	0.610	0.061	0.007	802.0	30800	474200		90.75
78325	2	WA19	408800	105000	1858	515658	3100	6700	0	2378	0.470	0.058	0.005	710.0	29200	474700		91.27
78326	1	SO16	434800	90000	6988	530988	0	7800	0	2318	0.670	0.058	0.006	1031.0	31900	476900		91.69
78327	2	KA20	413000	100000	3942	518942	4200	5700	0	2446	0.320	0.064	0.005	1449.0	28850	480700		92.54
78328	1	SO16	438000	85000	9464	532464	3500	6100	0	2416	0.500	0.052	0.007	836.0	29750	479000		91.34

DAILY AVERAGES 428807 87037 9441 525288 4788 8837 0 2372 0.487 0.052 0.005 847.2 33148 477784 91.03

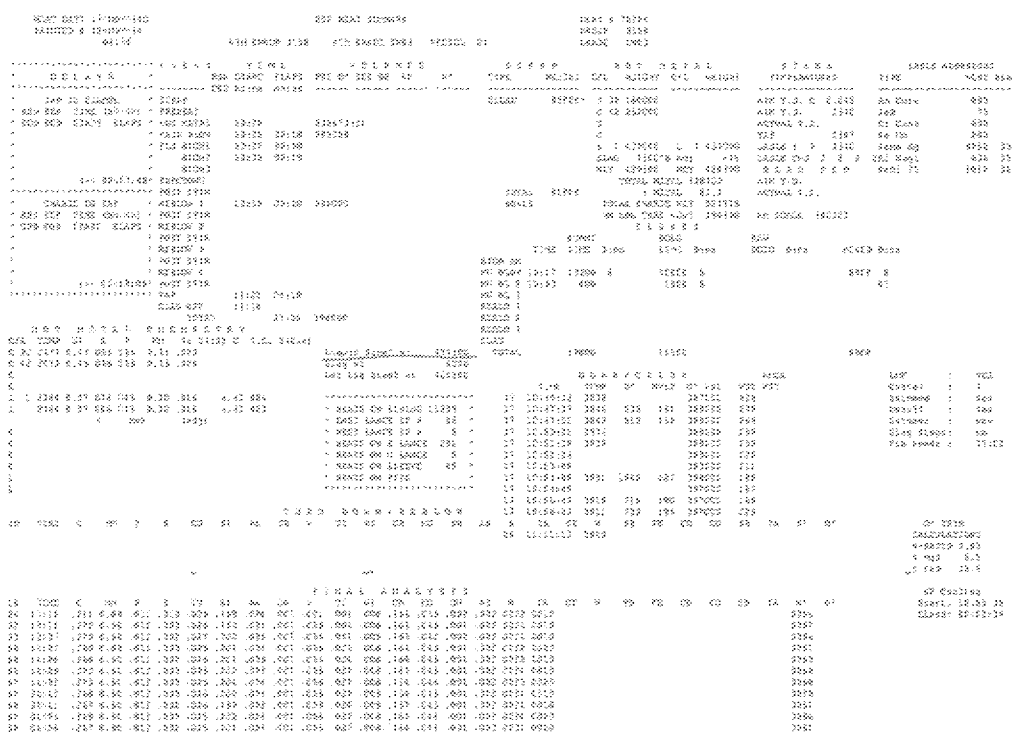
DATE 13-NOV-2014 04:30S DAILY TECHNICAL BAT YIELD REPORT REPORT DATE 13-NOV-2014

HDNTF	V B L	SPEC	-----CHARGING (*10)----- PYRL	SCRAP	ADDTV	TOTAL CHG	BH/K WT	PST BACK WT	LAG BACK	HI YIELD	MM(SI)	AC (S) PRE	POST	FEMALE FEASH	PAR OZ	FLUX NT	CRANE	YIELD
78268	1	GA65	480000	110000	3400	593400	4800	4980	0	3388	0.610	0.067	0.004		533.0	26960	460200	86.26
78269	1	GA62	422000	95000	3400	521400	3280	4080	0	2420	0.630	0.079	0.002		488.0	32160	476000	90.73
78270	1	GA03	870000	195000	7733	807733	9700	9980	0	7436	0.690	0.075	0.003		1553.0	26200	463300	86.46
78271	2	GA05	437000	80000	5037	526537	7200	8480	0	3267	0.630	0.069	0.003		626.0	28150	477600	86.80
78272	1	GA08	420000	90000	3078	513078	11100	9280	0	3229	0.670	0.062	0.005		1164.0	31850	458100	89.80
78273	1	GA03	401000	115000	8713	524713	5300	4980	0	2426	0.668	0.076	0.005		845.0	21740	481500	91.62
78274	1	GA13	432000	95000	9484	536484	5400	7780	0	3332	0.656	0.073	0.010		879.0	28800	460500	92.21
78275	2	GA03	417000	90000	8078	525078	5300	7780	0	2328	0.496	0.079	0.006		901.0	23800	479000	90.88
78276	2	GA13	417000	75000	6434	498434	5500	8280	0	2262	0.396	0.077	0.009		935.0	22700	460800	91.12
78277	1	GA03	422000	80000	8341	510341	6700	7080	0	2351	0.580	0.073	0.004		886.0	25900	464500	91.04
78278	2	GA13	412000	95000	3238	525238	2100	4680	0	2397	0.480	0.078	0.013		889.0	26850	473300	90.19
78279	1	GA03	411000	105000	8353	524353	0	4380	0	2418	0.580	0.080	0.004		896.0	26250	478500	91.31
78280	2	GA13	416000	100000	3554	519554	2900	4180	0	2428	0.580	0.077	0.015		894.0	28900	470100	90.91
78281	2	GA13	432000	80000	3288	515288	6200	7080	0	2383	0.280	0.073	0.010		798.0	28750	476200	91.34
78282	2	GA03	440000	70000	7873	525873	4100	4480	0	2394	0.416	0.082	0.003		834.0	28800	488400	91.51
78283	2	GA07	412000	90000	2992	504992	4000	7100	0	2373	0.516	0.084	0.010		864.0	28950	453600	89.34
78284	1	GA03	413000	80000	8675	501675	2500	7100	0	2364	0.570	0.074	0.005		0.0	34400	471100	89.60
78285	2	GA07	418000	65000	2874	485874	4700	7800	0	2343	0.280	0.101	0.009		828.0	27800	463600	91.31
78286	1	GA03	406000	75000	8103	489103	3100	7800	0	2341	0.460	0.077	0.006		775.0	28100	458000	89.52
78287	2	GA07	417000	100000	2414	519414	6000	6180	0	2433	0.540	0.088	0.005		851.0	29700	472500	90.92
78288	2	GA03	438000	80000	8405	526405	5500	7200	0	2376	0.730	0.078	0.004		891.0	29600	482100	91.57
78289	2	GA07	438000	80000	2812	520812	5300	6600	0	2385	0.690	0.080	0.005		792.0	32700	464800	89.30
78290	1	GA03	422000	95000	8181	525181	5600	6500	0	2404	0.630	0.082	0.004		883.0	31700	473100	89.98
78291	2	GA07	432000	85000	2724	519724	5700	7100	0	2389	0.694	0.087	0.009		750.0	28600	474000	90.63
78292	2	GA03	414500	1060000	8323	5246823	5400	5800	0	2460	0.650	0.122	0.005		874.5	28600	482800	91.48
78293	1	GA07	437000	85000	3221	525221	5700	6800	0	2403	0.610	0.082	0.004		888.0	30950	481600	91.03
78294	2	GV01	421500	85000	10209	516709	5100	8300	0	2402	0.586	0.083	0.006		920.0	33000	466800	88.17
78295	2	GA07	422000	85000	4945	511945	5000	8400	0	2402	0.586	0.069	0.013		899.0	30000	466800	88.71
78296	1	GV01	430000	85000	10459	527459	5300	8200	0	2419	0.440	0.055	0.006		932.0	34100	482800	90.96
78297	2	GA07	416000	85000	3266	504266	5400	8700	0	2384	0.540	0.058	0.014		823.0	28900	460300	88.53
78298	1	GV01	436000	85000	10181	531081	4200	8200	0	2410	0.440	0.068	0.005		894.0	29000	474500	88.58
78299	1	GA07	426000	90000	3388	521388	0	4920	0	2410	0.350	0.078	0.013		856.0	29000	481300	92.68
78300	2	GA02	420700	80000	11415	528115	4800	4980	0	2370	0.600	0.068	0.012		826.0	30000	479400	90.81
78301	1	GA07	430200	80000	4947	521147	4800	4780	0	2384	0.630	0.058	0.012		858.0	31100	474600	90.72

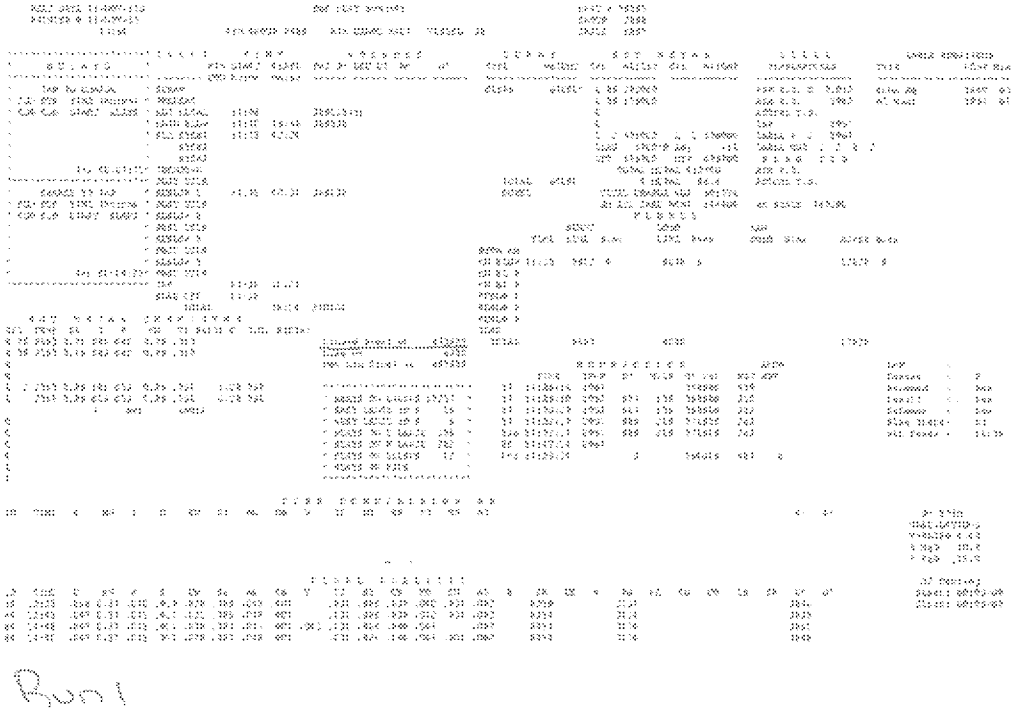
DAILY AVERAGES 424.3X 80973 4685 513981 4725 6878 0 2379 0.499 0.069 0.007 880.9 28630 472258 90.51

DATE 14-NOV-2014 04:36S DATAV TECHNICAL BOT YIELD REPORT REPORT DATE 13-NOV-2014

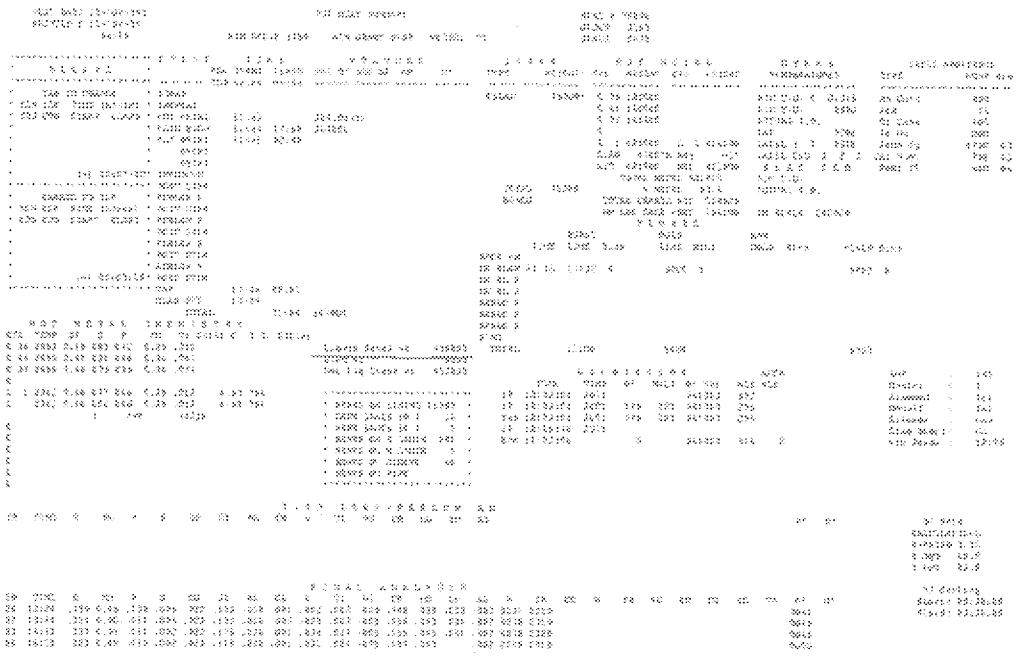
HEAT#	P S L	SPEC	----CHARGING (LBS)---- MTL	SCRAP	ANDTV	TOTAL CHG	OXIM MT	EST OXIN MT	LIC SCRAP	AV TEMP	AM(BI)	BX (G) PRE	POST	REHEAD READY	IRR O2	FLUX G?	CRANE	YIELD
70336	P	PA07	165000	165000	1485	881850	0	3420	0	2461	0.870	0.088	0.008		812.0	23180	469900	83.50
70335	1	SD1E	432000	85000	8390	827340	3100	5320	0	2489	0.340	0.069	0.008		595.0	27200	481100	81.53
70331	1	SV0E	427000	90000	8084	925084	2000	7400	0	2134	0.850	0.081	0.010		610.0	31600	476500	89.67
70332	1	SD1E	443000	75000	6734	823734	1700	6100	0	2606	0.420	0.047	0.008		835.0	33300	471400	88.15
70333	1	SV06	438000	80000	7878	825878	0	5900	0	2834	0.410	0.078	0.012		619.0	30650	492300	83.52
70334	1	SD1E	443000	75000	8074	823074	3500	6500	0	2385	0.420	0.077	0.006		1799.0	30150	478000	81.19
70335	2	VD01	448000	90000	8316	834316	0	7000	0	2258	0.440	0.066	0.008		1060.0	27900	483200	90.50
70336	1	SD1E	432400	85000	8346	827746	4100	8200	0	2650	0.380	0.082	0.008		581.0	29250	487900	91.82
70337	1	VD01	411000	165000	8636	821636	0	3900	0	2325	0.620	0.032	0.008		743.0	28350	474600	90.82
70338	1	SD1E	422000	80000	5810	807810	4700	8400	0	2452	0.420	0.052	0.009		1071.0	28650	464400	91.15
70339	1	VD01	412000	85000	9726	822726	0	6100	0	2418	0.390	0.060	0.006		744.0	27350	480950	91.85
70340	1	VD01	437000	85000	6126	828126	4400	6800	0	2386	0.540	0.064	0.008		1918.0	28850	479300	90.41
70341	1	VD01	432000	95000	8552	822552	990	8800	0	2267	0.480	0.078	0.011		683.0	25600	478900	90.15
70342	1	VD01	427000	95000	9618	822618	600	5900	0	2449	0.390	0.065	0.010		724.0	26750	0	0.00
70343	2	VJ02	440000	70000	8164	826164	1200	8500	0	2272	0.530	0.089	0.008		558.0	28800	483600	91.95
70344	1	VJ02	438000	80000	8170	826170	5000	7600	0	2370	0.360	0.081	0.006		434.0	26100	487800	92.51
70345	1	VJ02	438000	80000	8378	826378	5200	7800	0	2343	0.450	0.067	0.010		582.0	28200	468800	88.88
70346	1	VJ02	432800	85000	8538	826538	6200	7700	0	2312	0.510	0.086	0.006		739.0	28500	472700	89.73
70347	1	VJ02	437700	75000	8588	827788	6500	7600	0	2238	0.420	0.067	0.007		649.0	29600	463800	88.97
70348	1	KA07	446100	70000	7482	818582	10400	8400	0	2268	0.490	0.082	0.010		731.0	27950	469400	91.45
70349	1	VJ02	448000	75000	6682	823682	9500	8100	0	2283	0.430	0.052	0.007		705.0	32150	472300	90.71
70350	1	KA07	435900	80000	7773	818673	10000	8700	0	2251	0.520	0.064	0.010		968.0	36900	458000	88.27
70351	2	VJ02	442700	75000	8820	826820	3000	8000	0	2283	0.460	0.049	0.007		681.0	32050	476200	89.80
70352	2	KA07	428000	95000	7028	818028	8000	7500	0	2325	0.480	0.034	0.006		1137.0	29800	470400	90.70
70353	1	KA07	421000	80000	2508	981708	7200	9300	0	2336	0.720	0.049	0.008		773.0	35100	462800	87.77
HEAT# AVERAGES			432212	83400	6051	821683	3200	7618	0	2368	0.485	0.060	0.009		765.4	28816	474808	89.69



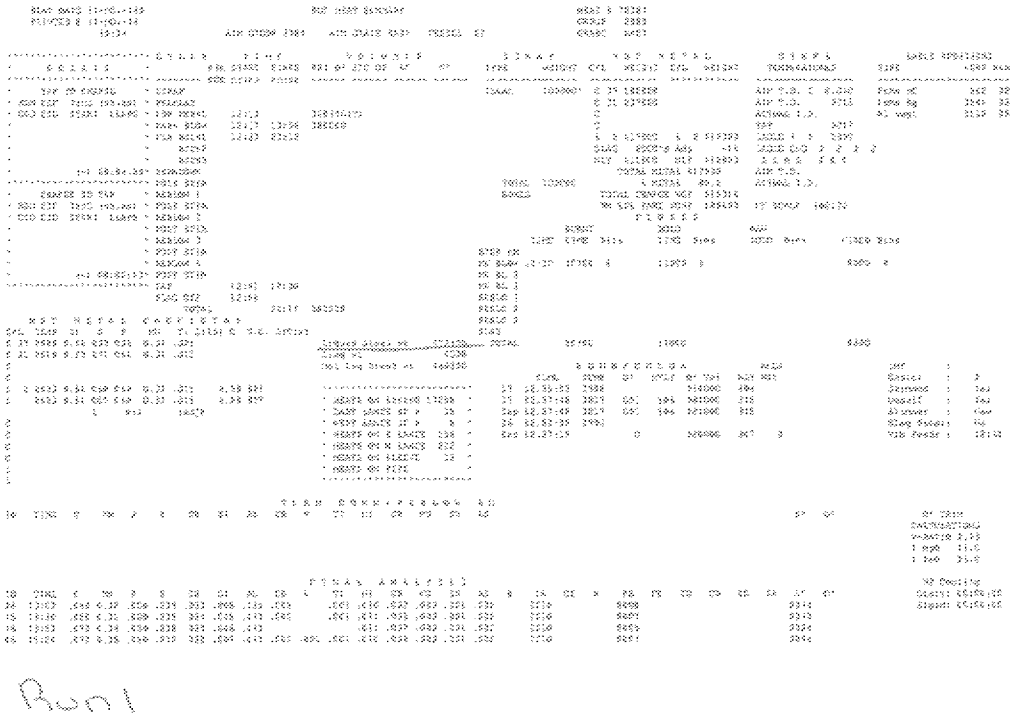
Run1



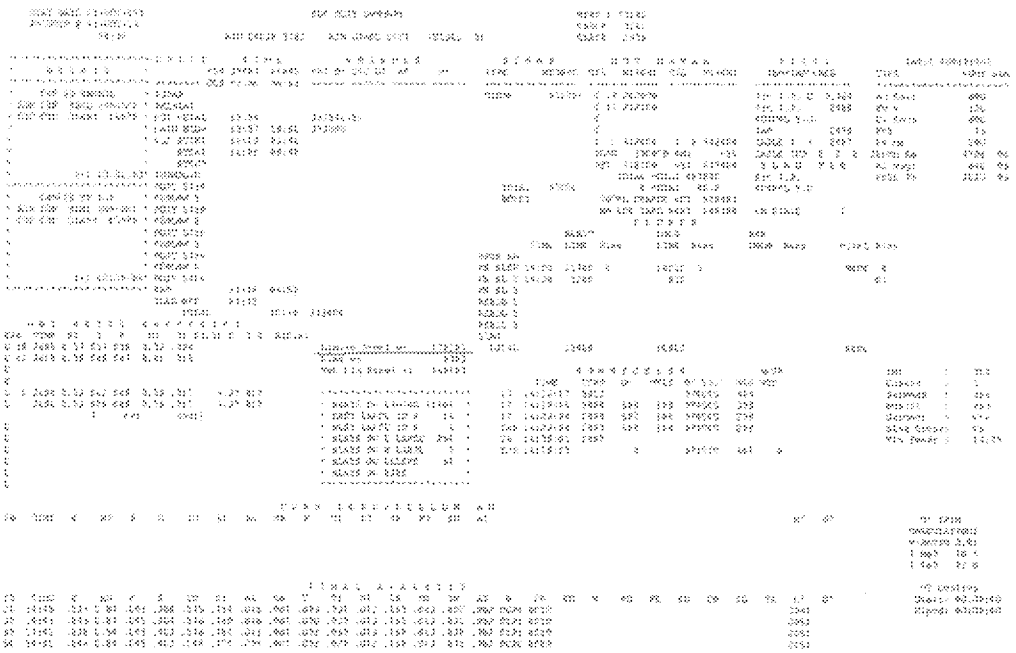
Run 1



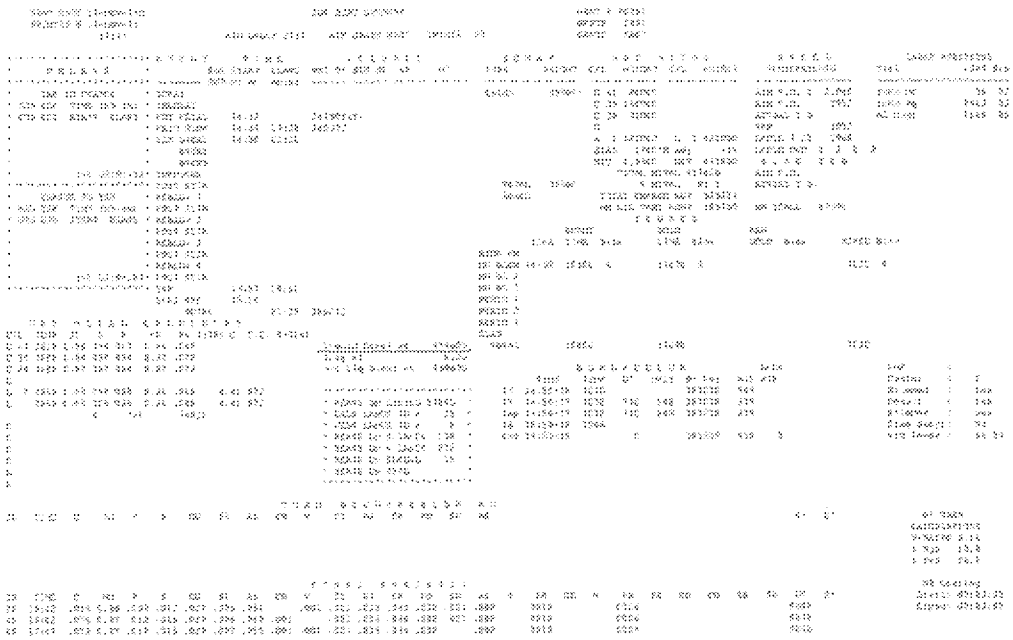
Run 1



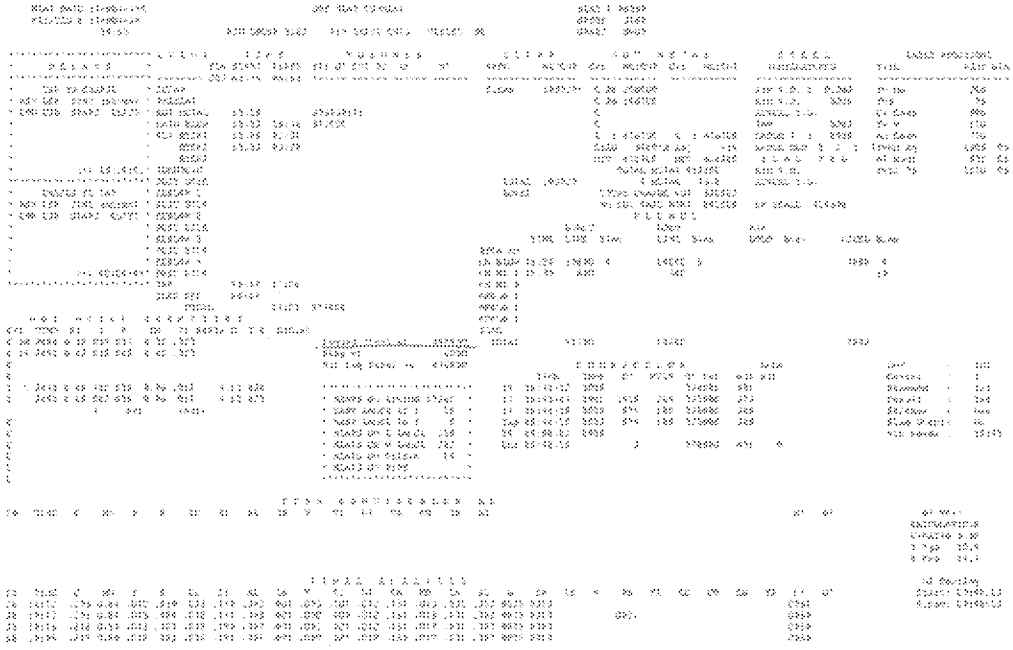
Run1



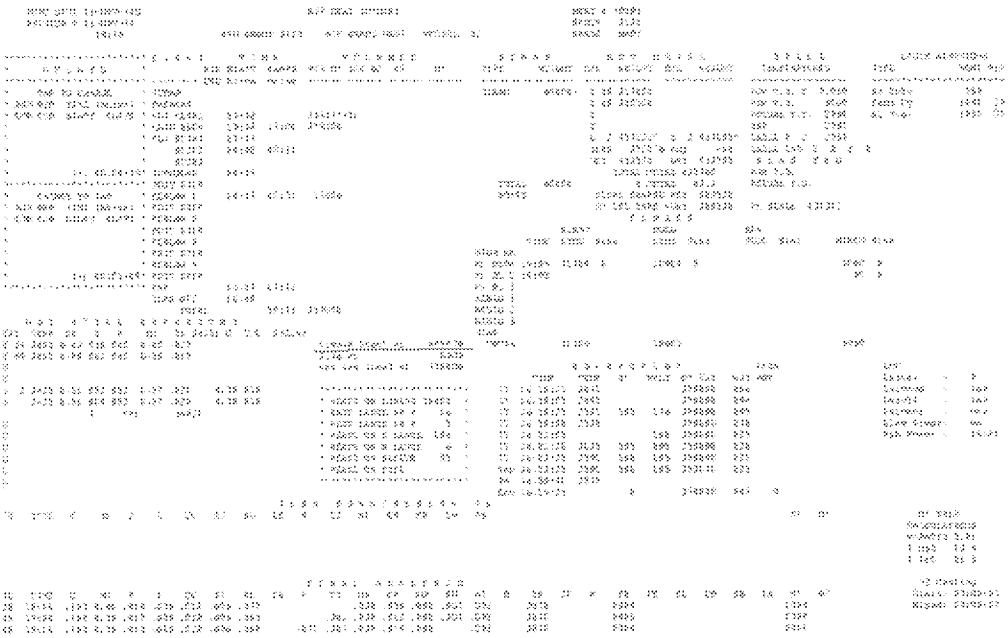
Run 2



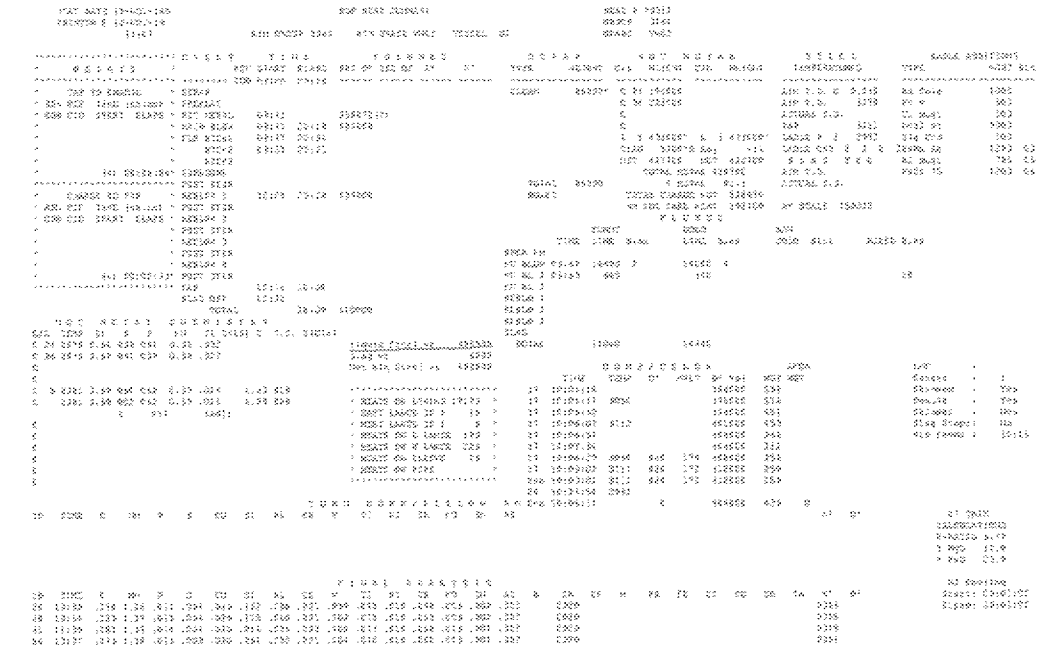
Run 2



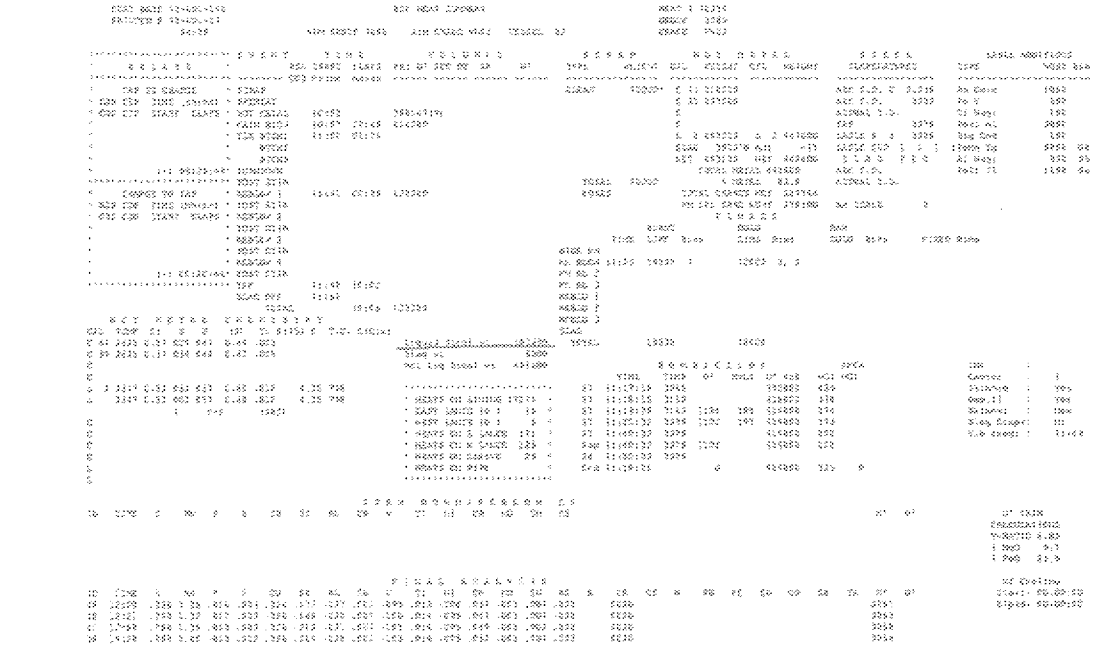
Run 2



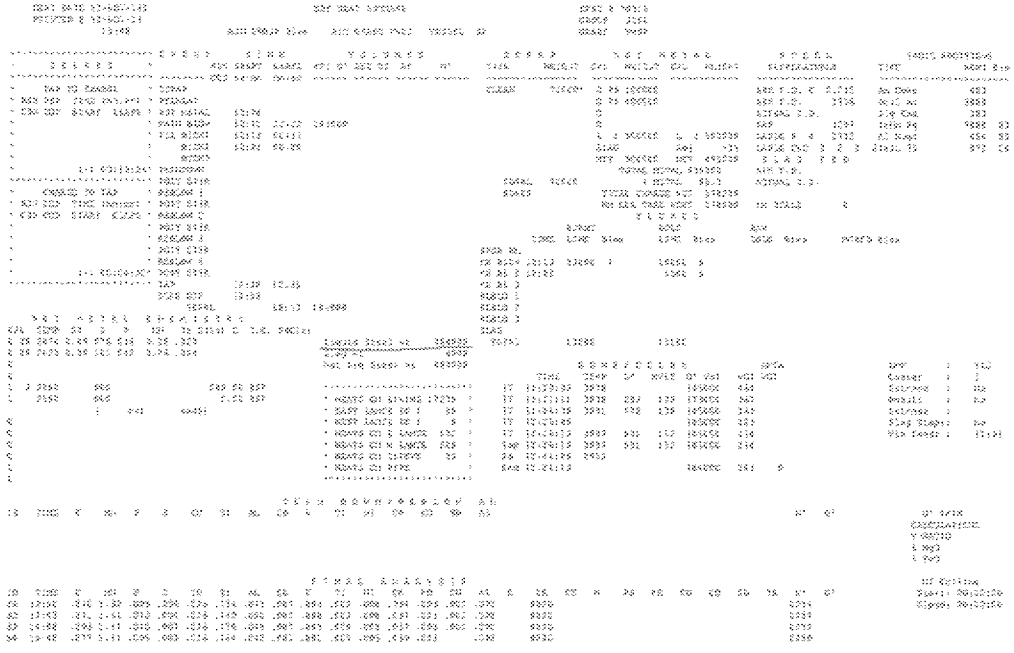
Run 2



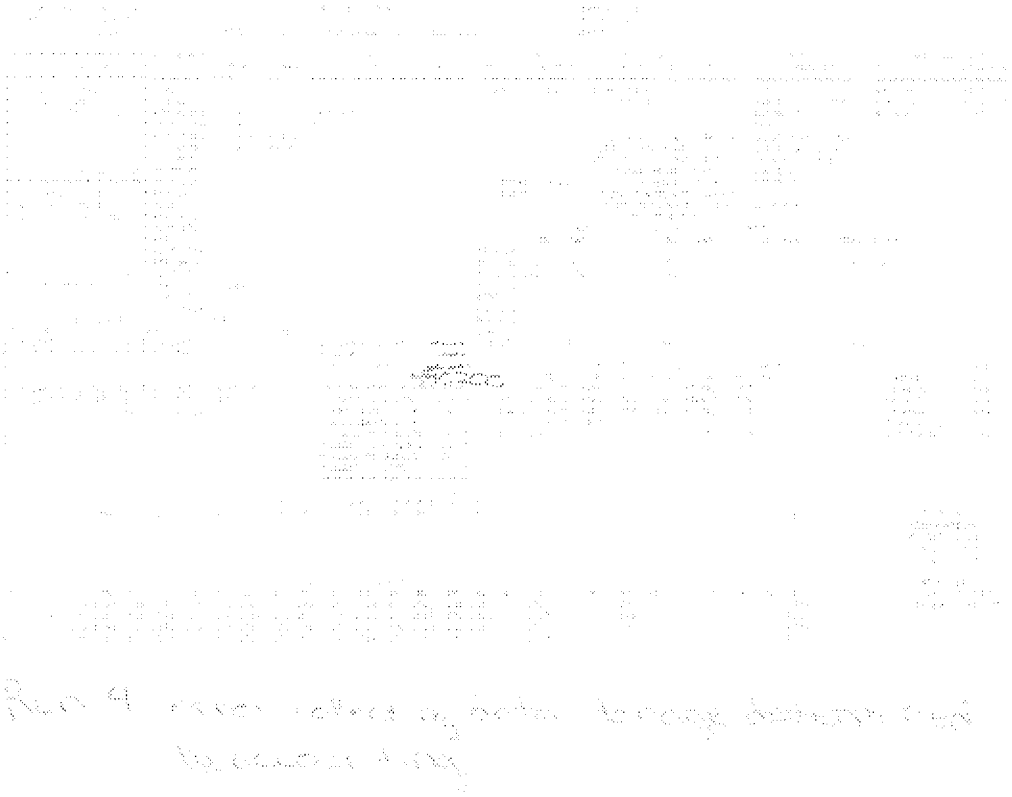
Run 3

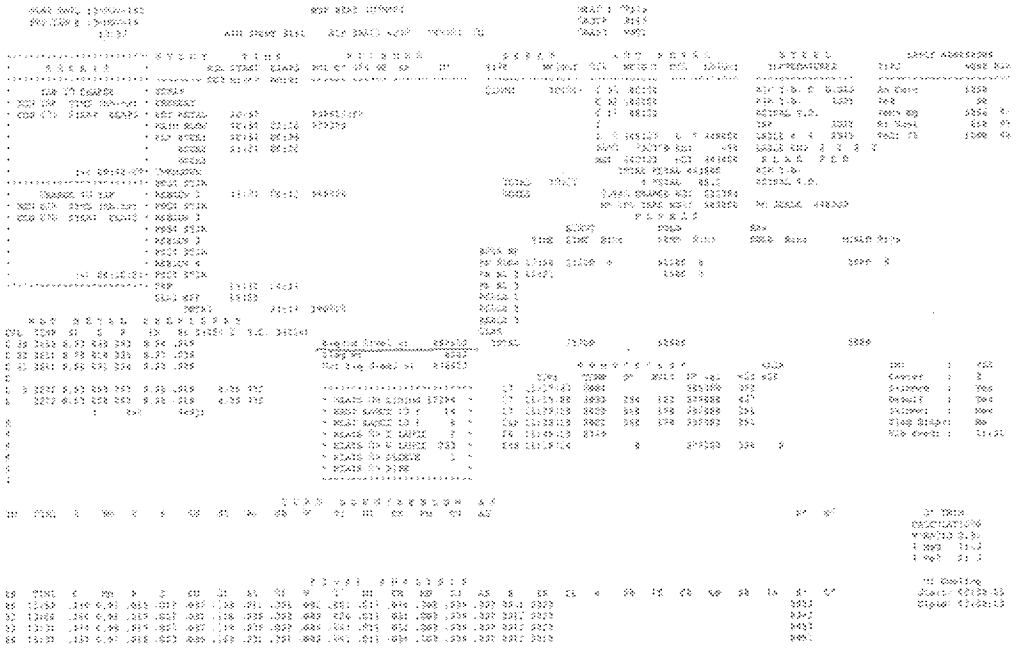


Run 3

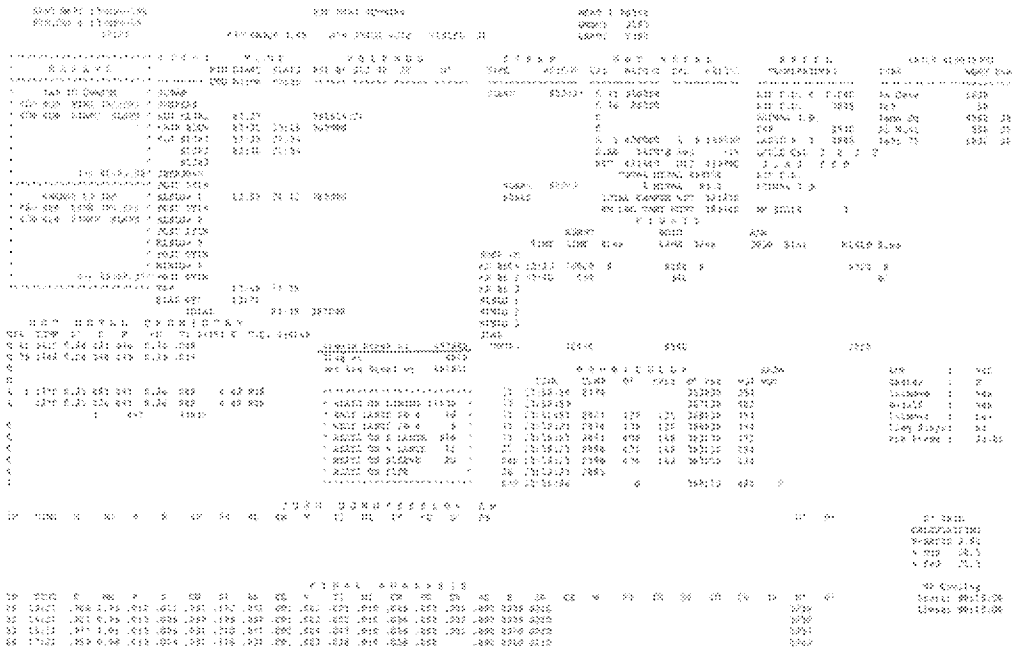


Run 3





Run 4



Run 4

	BOF_2V_PH_DAMPER_POS	BOF_2V_PH_DAMPER_POS	BOF_2V_D2_FLOW_SCFM	BOF_2V_D2_FLOW_SCFM	BOF_DOWNCOMER_TEMP_1	BOF_CORRECTED_STACK_GAS_FLOW	BOF_STEAM_FLOW
Run 1							
12/12/2014 10:15	4	91	0	0	137	387145.625	0
12/12/2014 10:16	100	0	0	0	202	395393.25	0
12/12/2014 10:17	98	50	0	0	186	594740.125	0
12/12/2014 10:18	95	50	0	0	186	607357.875	0
12/12/2014 10:19	93	88	0	0	196	728864.4375	33374
12/12/2014 10:20	89	96	0	0	181	799478.6875	34435
12/12/2014 10:21	88	46	0	0	187	768481.25	34748
12/12/2014 10:22	90	0	0	0	186	768255.0625	34819
12/12/2014 10:23	40	0	0	0	188	785109.375	34501
12/12/2014 10:24	40	0	0	0	188	764708.3	34607
12/12/2014 10:25	100	0	743401	0	180	748384.625	35033
12/12/2014 10:26	102	0	731528	0	175	746330.0625	35043
12/12/2014 10:27	102	0	1.8E+06	0	490	786832.9375	35836
12/12/2014 10:28	102	0	1.91E+06	0	330	763868.3125	35876
12/12/2014 10:29	102	0	2.06E+06	0	336	748573.8125	35861
12/12/2014 10:30	102	0	1.79E+06	0	462	732271.3125	35872
12/12/2014 10:31	102	0	1.84E+06	0	488	754778.9375	35804
12/12/2014 10:32	102	0	1.86E+06	0	559	744450.875	0
12/12/2014 10:33	102	0	1.81E+06	0	579	737765.5625	0
12/12/2014 10:34	102	0	1.97E+06	0	572	737771.3125	0
12/12/2014 10:35	102	0	1.85E+06	0	579	736040.1875	0
12/12/2014 10:36	102	0	2.06E+06	0	561	753985.5625	0
12/12/2014 10:37	102	0	1.77E+06	0	569	737830.0625	0
12/12/2014 10:38	102	0	1.88E+06	0	585	748017.75	0
12/12/2014 10:39	102	0	1.74E+06	0	602	728860.375	0
12/12/2014 10:40	102	0	1.92E+06	0	595	743857.625	0
12/12/2014 10:41	102	0	1.84E+06	0	603	733403.3125	0
12/12/2014 10:42	102	0	1.88E+06	0	603	738046.75	0
12/12/2014 10:43	102	0	1.99E+06	0	582	743065.8375	0
12/12/2014 10:44	102	0	1.91E+06	0	582	739868.125	0
12/12/2014 10:45	102	0	1.98E+06	0	593	742687.3125	0
12/12/2014 11:06	100	0	0	0	269	607411.9938	0
12/12/2014 11:07	101	0	0	0	187	385765.625	0
12/12/2014 11:08	101	0	0	0	203	415038.5313	0
12/12/2014 11:09	102	0	0	0	265	603114.375	38073
12/12/2014 11:04	103	0	0	0	185	738406.6875	34244
12/12/2014 11:05	102	0	0	0	187	753216.3	34778
12/12/2014 11:06	102	0	0	0	352	772655.25	0
12/12/2014 11:07	79	36	0	0	441	783284.75	0
12/12/2014 11:08	3	46	0	0	243	771737.625	35981
12/12/2014 11:09	4	46	0	0	364	772130.5625	35289
12/12/2014 11:10	3	96	0	0	484	775780.125	35377
12/12/2014 11:11	4	89	0	20952	695	747835.875	35858
12/12/2014 11:12	3	88	0	16801	580	742430.375	0
12/12/2014 11:13	3	88	0	18755	520	745947.5625	0
12/12/2014 11:14	3	90	0	18791	463	748383.375	0
12/12/2014 11:15	3	88	0	19183	532	730501.1875	0
12/12/2014 11:16	3	88	0	19143	573	731122.8375	0
12/12/2014 11:17	3	90	0	18834	564	733132.8125	0
12/12/2014 11:18	3	90	0	19022	607	726028.6875	0
12/12/2014 11:19	3	88	0	18883	587	725580.5625	0
12/12/2014 11:20	3	88	0	18890	594	730612.4375	0
12/12/2014 11:21	4	90	0	18980	599	737624.6875	0

11/11/2014 11:22	4	89	0	138643	601	738779.625	0
11/11/2014 11:23	3	88	0	139067	625	729194.25	0
11/11/2014 11:24	3	90	0	138427	618	728468.4375	0
11/11/2014 11:25	3	89	0	138256	610	729935.25	0
11/11/2014 11:26	4	90	0	139103	596	736884	0
11/11/2014 11:27	3	90	0	138997	583	734848.25	0
11/11/2014 11:28	3	90	0	138056	611	733325.75	0
11/11/2014 11:29	3	90	0	139042	412	675980.8	84256
11/11/2014 11:30	3	88	0	0	331	430998.6875	0
11/11/2014 11:38	14	88	0	0	136	683995.9375	0
11/11/2014 11:39	14	90	0	0	188	595628.75	0
11/11/2014 11:40	37	0	0	0	182	680848.5625	352215
11/11/2014 11:41	37	0	0	0	172	768674.1875	348378
11/11/2014 11:42	37	0	0	0	170	776098.5	347557
11/11/2014 11:43	37	0	0	0	172	776362.375	347234
11/11/2014 11:44	101	0	0	0	186	768120	349819
11/11/2014 11:45	107	0	209873	0	508	745006.6875	338940
11/11/2014 11:46	107	0	218067	0	590	738819.3125	0
11/11/2014 11:47	107	0	218005	0	583	739276.75	0
11/11/2014 11:48	107	0	208855	0	492	745063.4375	0
11/11/2014 11:49	107	0	218089	0	504	738859	0
11/11/2014 11:50	107	0	218035	0	585	727885.75	0
11/11/2014 11:51	107	0	211104	0	599	736892.5	0
11/11/2014 11:52	107	0	218018	0	595	732801.875	0
11/11/2014 11:53	107	0	197702	0	621	744110.6875	0
11/11/2014 11:54	107	0	196678	0	587	744089.8125	0
11/11/2014 11:54	107	0	195588	0	621	748965	0
11/11/2014 11:55	107	0	203101	0	608	734257.5	0
11/11/2014 11:55	107	0	203384	0	618	733868	0
11/11/2014 11:57	107	0	200012	0	599	743423.5625	0
11/11/2014 11:58	107	0	193357	0	600	742721.6875	0
11/11/2014 11:59	107	0	203141	0	592	747511.625	0
11/11/2014 12:00	107	0	203389	0	570	759852.9375	0
11/11/2014 12:01	107	0	203811	0	372	791177.4375	308804
11/11/2014 12:02	102	0	0	0	280	451756.0938	46
11/11/2014 12:03	102	0	0	0	273	3595.9063	0
11/11/2014 12:04	102	0	0	0	257	386742.75	0
11/11/2014 12:05	102	0	0	0	256	441804	0
11/11/2014 12:06	101	29	0	0	272	588965.0625	0
11/11/2014 12:07	101	28	0	0	271	604281.1875	0
11/11/2014 12:08	102	28	0	0	252	605074.5	0
11/11/2014 12:12	3	41	0	0	184	689067.0625	214470
11/11/2014 12:13	4	41	0	0	179	765281.0625	333591
11/11/2014 12:14	3	41	0	0	170	768235.25	347948
11/11/2014 12:15	3	41	0	0	205	771370.1875	346073
11/11/2014 12:16	3	89	0	0	213	771787.8125	346086
11/11/2014 12:17	3	88	0	211757	503	751340.8125	348848
11/11/2014 12:18	3	88	0	188695	521	728256.0625	0
11/11/2014 12:19	4	89	0	189032	477	745469.375	0
11/11/2014 12:20	4	90	0	189883	498	745247.375	106597
11/11/2014 12:21	3	88	0	189813	488	716725.25	351178
11/11/2014 12:22	4	89	0	189840	593	738338.25	0
11/11/2014 12:23	4	90	0	189961	615	738432.25	0
11/11/2014 12:24	3	88	0	189826	589	738871.8125	0
11/11/2014 12:25	3	89	0	190054	644	721123	0

11/11/2014 12:26	3	89	0	18217	619	718786.125	0
11/11/2014 12:27	3	90	0	19243	650	720756.375	0
11/11/2014 12:28	3	90	0	18959	614	721174.625	0
11/11/2014 12:29	4	87	0	18992	613	732875.375	0
11/11/2014 12:30	4	89	0	19364	629	736208.4375	0
11/11/2014 12:31	4	89	0	19477	627	731668.125	0
11/11/2014 12:32	4	87	0	18998	623	731633.8875	0
11/11/2014 12:33	4	87	0	18815	604	730074.3125	0
11/11/2014 12:34	3	83	0	18441	551	716569.3125	0
11/11/2014 12:35	3	89	0	18835	463	716313.8375	0
11/11/2014 12:36	3	90	0	19002	357	986691.625	33459
11/11/2014 12:37	3	86	0	0	291	418647.5313	3591
11/11/2014 12:38	3	87	0	0	271	403594.9375	0
11/11/2014 12:39	3	89	0	0	255	391368.5938	0
11/11/2014 12:40	3	90	0	0	255	393514.9688	0
11/11/2014 12:41	16	91	0	0	249	579234.1875	0
11/11/2014 12:42	16	90	0	0	242	604816.25	0

Run 2	BOF_1V_PRI_DAMPER_POS	BOF_2V_PRI_DAMPER_POS	BOF_1V_O2_FLOW_SCFM	BOF_2V_O2_FLOW_SCFM	BOF_DOWNCOMER_TEMP_1	BOF_CORRECTED_STACK_GAS_FLOW	BOF_STEAM_FLOW
11/11/2014 13:46	3	99	0	0	342	396627.8125	0
11/11/2014 13:47	101	0	0	0	304	397996.875	0
11/11/2014 13:48	101	0	0	0	349	398384.9688	0
11/11/2014 13:49	16	99	0	0	348	581893.625	0
11/11/2014 13:50	16	99	0	0	239	581744.4375	0
11/11/2014 13:51	16	99	0	0	253	599787	0
11/11/2014 13:52	16	99	0	0	221	642800.25	0
11/11/2014 13:53	37	0	0	0	232	673888.325	31735
11/11/2014 13:54	37	0	0	0	207	748894	34206
11/11/2014 13:55	37	0	0	0	206	786893.5625	34632
11/11/2014 13:56	104	0	0	0	198	785772.8125	34746
11/11/2014 13:57	103	0	18178	0	206	749670.375	35827
11/11/2014 13:58	107	0	19335	0	475	767008.3125	10092
11/11/2014 13:59	107	0	20300	0	590	766852.875	0
11/11/2014 14:00	107	0	20168	0	527	755807.6875	0
11/11/2014 14:01	107	0	19676	0	498	728548.75	0
11/11/2014 14:02	107	0	19027	0	533	722584.4375	0
11/11/2014 14:03	107	0	20387	0	570	745408.25	0
11/11/2014 14:04	106	0	20363	0	584	734981.375	0
11/11/2014 14:05	107	0	19518	0	579	742520.75	0
11/11/2014 14:06	107	0	19696	0	597	736739.3125	0
11/11/2014 14:07	107	0	19764	0	641	742760.625	0
11/11/2014 14:08	107	0	19838	0	580	748727.375	0
11/11/2014 14:09	106	0	18703	0	585	734745.8125	0
11/11/2014 14:10	107	1	19825	0	617	745445.0625	0
11/11/2014 14:11	107	2	17142	0	608	735263.0625	0
11/11/2014 14:12	107	3	19853	0	632	740809.0625	0
11/11/2014 14:13	107	4	19403	0	650	738441.8125	0
11/11/2014 14:14	107	2	20226	0	582	736700.875	0
11/11/2014 14:15	107	3	19874	0	485	733141.875	0
11/11/2014 14:16	102	4	0	0	339	543851.9375	3942
11/11/2014 14:28	101	24	0	0	272	683733.1875	0
11/11/2014 14:29	101	0	0	0	258	720185.4375	32420
11/11/2014 14:30	101	38	0	0	228	789387.8125	33819
11/11/2014 14:31	101	38	0	0	206	783580.3125	34579
11/11/2014 14:32	4	38	0	0	198	746487.8125	34702
11/11/2014 14:33	4	38	0	0	184	765187.1875	34818
11/11/2014 14:34	3	38	0	0	168	780873.3125	34731
11/11/2014 14:35	4	90	0	0	177	765475.5	34866
11/11/2014 14:36	3	90	0	20008	504	769185.6875	35769
11/11/2014 14:37	3	90	0	20136	543	743875.0375	784
11/11/2014 14:38	3	90	0	19817	544	7686+1.5	0
11/11/2014 14:39	3	90	0	20148	538	762728.6875	0
11/11/2014 14:40	3	90	0	20084	511	737384.25	0
11/11/2014 14:41	3	90	0	20149	532	725173.9375	0
11/11/2014 14:42	4	90	0	19805	567	729148.8125	0
11/11/2014 14:43	3	90	0	19879	603	732817.5625	0
11/11/2014 14:44	3	90	0	20068	609	729979.375	0
11/11/2014 14:45	4	90	0	20203	595	729084.375	0
11/11/2014 14:46	3	90	0	17519	640	733185.5	0
11/11/2014 14:47	3	90	0	20131	624	735963.5625	0
11/11/2014 14:48	3	90	0	19906	630	734141.5	0
11/11/2014 14:49	3	90	0	18879	633	736132.5	0

11/11/2014 14:50	5	93	0	19967	639	741320.375	0
11/11/2014 14:51	3	93	0	19119	620	741311.75	0
11/11/2014 14:52	4	90	0	28000	858	732201	0
11/11/2014 14:53	3	90	0	19907	603	713859.0625	0
11/11/2014 14:54	4	93	0	30008	908	727093.75	0
11/11/2014 14:55	4	93	0	0	384	670636.75	35403
11/11/2014 14:56	3	90	0	0	333	859491.6875	0
11/11/2014 14:57	3	93	0	0	360	667436.625	0
11/11/2014 14:58	3	90	0	0	262	616487.5	0
11/11/2014 15:17	3	90	0	0	228	0	0
11/11/2014 15:18	3	87	0	0	214	648710.875	33730
11/11/2014 15:19	3	41	0	0	185	775290	35934
11/11/2014 15:20	4	41	0	0	177	784468.875	36129
11/11/2014 15:21	3	41	0	0	183	798839.8125	36107
11/11/2014 15:22	3	93	0	0	178	794583.875	36154
11/11/2014 15:23	3	93	0	39643	387	734431.25	35815
11/11/2014 15:24	3	90	0	59771	518	747087.1875	35943
11/11/2014 15:25	3	90	0	19899	503	738497.125	0
11/11/2014 15:26	3	90	0	18674	465	764807.875	0
11/11/2014 15:27	4	90	0	28179	484	723436.1875	0
11/11/2014 15:28	3	90	0	19967	576	720813.6875	0
11/11/2014 15:29	3	90	0	20073	580	735690.3125	0
11/11/2014 15:30	3	90	0	28194	591	742340.1875	0
11/11/2014 15:31	3	90	0	21040	595	733148.125	0
11/11/2014 15:32	3	90	0	30150	611	727148.5625	0
11/11/2014 15:33	4	90	0	18968	605	729398.0625	0
11/11/2014 15:34	3	90	0	20135	626	731956.25	0
11/11/2014 15:35	3	90	0	19886	625	719494.6875	0
11/11/2014 15:36	3	90	0	18438	622	735544.25	0
11/11/2014 15:37	4	90	0	18866	605	742894.3125	0
11/11/2014 15:38	3	90	0	30498	636	727515.8125	0
11/11/2014 15:39	3	90	0	28329	622	733826.5625	0
11/11/2014 15:40	4	90	0	20684	598	728138.75	0
11/11/2014 15:41	4	90	0	30688	680	723963.25	0
11/11/2014 15:42	3	90	0	0	409	439059.375	0
11/11/2014 15:43	3	90	0	0	353	411008.7188	0
11/11/2014 15:44	3	90	0	0	344	393858.8125	0
11/11/2014 15:45	3	90	0	0	285	384115.9688	0
11/11/2014 15:46	4	93	0	0	369	398211.9688	0
11/11/2014 15:47	4	93	0	0	755	553080.1875	0
11/11/2014 15:53	95	0	0	0	187	764969.875	34939
11/11/2014 15:54	95	0	0	0	184	786462.0625	34863
11/11/2014 15:55	102	0	0	0	146	791348.4375	35003
11/11/2014 15:56	101	0	19798	0	281	734405.9375	35887
11/11/2014 15:57	107	0	20865	0	476	733848.75	35711
11/11/2014 15:58	107	0	18911	0	423	732528.8125	35627
11/11/2014 15:59	106	0	19693	0	397	737567.4375	35650
11/11/2014 16:00	107	0	21515	0	473	738340.75	35642
11/11/2014 16:01	107	0	20213	0	584	743708.6875	5539
11/11/2014 16:02	107	0	18891	0	580	738415.5625	0
11/11/2014 16:03	107	0	20807	0	575	757109	0
11/11/2014 16:04	107	0	20886	0	597	748755.1875	0
11/11/2014 16:05	107	0	18774	0	613	727971.9375	0
11/11/2014 16:06	107	0	20280	0	583	742583.1875	0
11/11/2014 16:07	107	0	20543	0	658	754800.25	0

12/31/2014 16:08	107	0	20759	0	608	34 8588.125	0
12/31/2014 16:09	107	0	19333	0	618	727305.0625	0
12/31/2014 16:10	107	0	18446	0	628	7.1E+05	0
12/31/2014 16:11	107	0	16834	0	617	7612951.5625	0
12/31/2014 16:12	107	0	79132	0	630	747386.6875	0
12/31/2014 16:13	107	0	20749	0	575	753611.875	0
12/31/2014 16:14	107	0	20734	0	488	7468 11.375	0
12/31/2014 16:15	102	0	0	0	329	553711.9375	5819
12/31/2014 16:16	102	0	0	0	309	4825 90.75	0
12/31/2014 16:17	102	0	0	0	283	368961	0
12/31/2014 16:18	102	0	0	0	268	354573.875	0
12/31/2014 16:19	102	0	19579	0	235	394793.6875	35255
12/31/2014 16:20	102	0	0	0	223	5059 18.0625	7864
12/31/2014 16:21	102	0	0	0	233	357965.3438	0
12/31/2014 16:22	102	0	0	0	238	399380.3438	0
12/31/2014 16:23	103	0	0	0	211	455305.5	0
12/31/2014 16:42	16	80	0	0	242	3946 88.25	0

	BOI_1V_PRI_DAMPER_POS	BOI_2V_PRI_DAMPER_POS	BOI_1V_O2_FLOW_SCFM	BOI_2V_O2_FLOW_SCFM	BOI_ECONOMIZER_TEMP_1	BOI_CORRECTED_STACK_GAS_FLOW	BOI_STEAM_FLOW
Run 1							
11/12/2014 8:43	4	41	0	0	148	771602.8125	33940
11/12/2014 8:44	4	41	0	0	142	767884	34030
11/12/2014 8:45	4	42	0	0	145	769479	34145
11/12/2014 8:46	4	39	0	38594	134	753426.8125	33759
11/12/2014 8:47	4	39	0	70938	139	767890.125	33740
11/12/2014 8:48	3	39	0	136884	155	798734.25	34198
11/12/2014 8:49	3	38	0	158965	156	745351.25	33728
11/12/2014 8:50	4	39	0	200904	153	745523.75	33650
11/12/2014 8:51	4	39	0	201107	146	733568.125	33795
11/12/2014 8:52	3	39	0	159919	141	708415.3125	30644
11/12/2014 8:53	4	39	0	159895	138	704888.625	0
11/12/2014 8:54	3	39	0	99886	132	722307.3125	0
11/12/2014 8:55	4	39	0	201132	133	733571.75	0
11/12/2014 8:56	4	38	0	158834	138	736436.8125	0
11/12/2014 8:57	3	39	0	100884	126	730870.3625	0
11/12/2014 8:58	3	39	0	200827	128	721238.25	0
11/12/2014 8:59	4	40	0	201113	134	731715.8625	0
11/12/2014 9:00	4	39	0	158897	128	730605.3875	0
11/12/2014 9:01	3	39	0	101770	129	734901.75	0
11/12/2014 9:02	4	39	0	160016	148	753816.8375	0
11/12/2014 9:03	4	39	0	159834	135	725134.3875	0
11/12/2014 9:04	4	38	0	201142	135	738893.5625	0
11/12/2014 9:05	4	39	0	158958	142	757886.5625	0
11/12/2014 9:06	4	39	0	199831	142	759308.8325	4275
11/12/2014 9:07	4	39	0	0	132	696480.5438	0
11/12/2014 9:08	4	38	0	0	129	670932.9375	34378
11/12/2014 9:09	4	39	0	0	146	781853.9375	34051
11/12/2014 9:10	4	39	0	0	135	713641.8125	0
11/12/2014 9:11	4	38	0	0	132	690370.6938	0
11/12/2014 9:12	4	39	0	0	137	738108.5688	0
11/12/2014 9:13	4	39	0	0	138	740685.4375	0
11/12/2014 9:14	4	38	0	0	147	595720.8375	33792
11/12/2014 9:15	4	39	0	0	142	590845.0625	34751
11/12/2014 9:16	4	39	0	0	141	604868.4875	34543
11/12/2014 9:17	4	39	0	0	138	595339	34506
11/12/2014 9:18	4	39	0	0	148	609316.9375	0
11/12/2014 9:19	4	39	0	0	139	596011.3375	0
11/12/2014 9:20	4	39	0	0	132	529133.75	0
11/12/2014 9:21	4	39	0	0	136	604781.5625	0
11/12/2014 9:22	4	39	0	0	124	599168	0
11/12/2014 9:23	4	39	0	0	137	482805.8438	0
11/12/2014 9:24	4	39	0	0	134	585443.0313	0
11/12/2014 9:25	4	39	0	0	136	592245.5625	4188
11/12/2014 9:26	4	39	0	0	135	568022.875	32705
11/12/2014 9:27	4	39	0	0	135	494226.9813	0
11/12/2014 9:28	4	39	0	0	128	485965.5188	0
11/12/2014 9:29	4	40	0	0	122	761983.75	34400
11/12/2014 9:30	4	40	0	0	137	772482.1875	33791
11/12/2014 9:31	4	41	0	0	135	788636.8125	34067
11/12/2014 9:32	4	42	0	0	135	749725.9375	33837
11/12/2014 9:33	3	43	0	0	137	772304	34109
11/12/2014 9:34	4	38	0	201118	171	794755.8125	34454
11/12/2014 9:35	4	39	0	159719	144	749303.8125	35842

11/12/2014 11:00	4	89	0	19855	516	756548.5	35852
11/12/2014 11:01	4	88	0	20109	538	738271.1875	0
11/12/2014 11:02	4	89	0	20388	531	729781.625	0
11/12/2014 11:03	4	89	0	19942	561	725327.5625	0
11/12/2014 11:04	4	88	0	19948	581	737571.6875	0
11/12/2014 11:05	4	89	0	20246	587	731839.5	0
11/12/2014 11:06	4	90	0	20286	600	727657.5	0
11/12/2014 11:07	4	88	0	19881	608	739764.125	0
11/12/2014 11:08	4	88	0	20044	616	733830.9625	0
11/12/2014 11:09	4	89	0	19982	623	723735.375	0
11/12/2014 11:13	4	89	0	20088	617	729638.5	0
11/12/2014 11:14	4	88	0	19979	598	724735	0
11/12/2014 11:15	4	89	0	20066	577	735983.6875	0
11/12/2014 11:16	4	89	0	19912	537	727550.75	0
11/12/2014 11:17	4	88	0	20088	441	707156.6625	9732
11/12/2014 11:18	3	80	0	19966	343	687912.875	33809
11/12/2014 11:19	4	89	0	0	265	456796.0938	4304
11/12/2014 11:20	4	89	0	0	238	385330.4688	0
11/12/2014 11:21	4	88	0	0	214	390755.5	0
11/12/2014 11:22	4	89	0	0	199	413209.0313	0
11/12/2014 11:28	4	89	0	0	186	408475.4063	0
11/12/2014 11:29	3	88	0	0	164	386957.375	0
11/12/2014 11:30	4	90	0	0	162	377775.0625	0
11/12/2014 11:31	4	89	0	0	184	345233.3406	0
11/12/2014 11:32	4	88	0	0	176	0	0
11/12/2014 11:47	4	89	0	0	143	614696.375	0
11/12/2014 11:43	4	90	0	0	233	605746.6875	24089
11/12/2014 11:44	4	88	0	0	187	603707.4375	35019
11/12/2014 11:45	3	89	0	0	177	595685.1875	34756
11/12/2014 11:46	4	89	0	0	182	605813.75	34814
11/12/2014 11:47	4	90	0	0	148	596913.8125	0
11/12/2014 11:48	4	90	0	0	129	595917.5625	0
11/12/2014 11:49	4	90	0	0	123	606096.4375	0
11/12/2014 11:50	4	88	0	0	117	599467.4375	0
11/12/2014 11:51	4	89	0	0	113	588984.375	0
11/12/2014 11:52	4	89	0	0	116	529496.4375	0
11/12/2014 11:53	4	88	0	0	129	458062.8438	0
11/12/2014 11:54	4	89	0	0	125	346489.4375	0
11/12/2014 11:55	4	90	0	0	129	316476.4688	0
11/12/2014 11:56	4	88	0	0	126	765396.8125	34687
11/12/2014 11:57	4	90	0	0	123	774583.75	36240
11/12/2014 11:58	4	89	0	0	113	792738.125	35186
11/12/2014 11:59	4	89	0	0	102	512978.0313	0
11/12/2014 12:00	4	90	0	0	105	448334.8141	0
11/12/2014 12:09	4	42	0	0	102	768451.125	36237
11/12/2014 12:10	4	89	0	0	106	781481.875	36757
11/12/2014 12:11	4	88	0	21301	107	792754.25	37068
11/12/2014 12:12	4	90	0	19858	111	742482.3125	35059
11/12/2014 12:13	4	89	0	19971	484	737451.125	35811
11/12/2014 12:14	4	88	0	18771	343	744695.5625	3537
11/12/2014 12:15	4	90	0	20125	578	746810.9375	0
11/12/2014 12:16	3	89	0	19890	544	738749.9375	0
11/12/2014 12:17	4	88	0	19904	542	731606.875	0
11/12/2014 12:18	4	88	0	20087	539	731305	0
11/12/2014 12:19	4	89	0	20109	459	728681.25	0

11/12/2014 12:20	4	83	0	0	364	558074.136	49%
11/12/2014 12:21	4	89	0	0	237	4136351.8438	0
11/12/2014 12:22	4	89	0	0	347	4313971.0938	0
11/12/2014 12:23	4	88	0	38985	253	739348.25	34833
11/12/2014 12:24	4	89	0	0	218	4852953.9938	0
11/12/2014 12:25	4	88	0	0	214	3983629.875	0
11/12/2014 12:26	4	88	0	0	205	3818385.1563	0
11/12/2014 12:27	4	88	0	0	197	4089393.8438	0
11/12/2014 12:28	4	88	0	0	183	4066467.7188	0
11/12/2014 12:29	4	88	0	0	195	3086317.75	0
11/12/2014 12:30	4	85	0	0	176	6550996.9375	0
11/12/2014 12:31	17	89	0	0	211	5837752.5	0
11/12/2014 12:32	17	89	0	0	181	5947635.6875	0
11/12/2014 12:33	17	85	0	0	170	4603852.3125	0
11/12/2014 12:34	17	89	0	0	152	4038428.125	0
11/12/2014 12:35	17	89	0	0	137	3898732.75	0
11/12/2014 12:36	17	88	0	0	135	3587755	0
11/12/2014 12:37	17	90	0	0	129	4852115.0625	0
11/12/2014 12:38	17	89	0	0	128	4048947.3125	0
11/12/2014 12:39	17	89	0	0	153	5998356.9375	0

	BOF_1V_PRI_DAMPER_POS	BOF_2V_PRI_DAMPER_POS	BOF_1V_O2_FLOW_SCFM	BOF_2V_O2_FLOW_SCFM	BOF_DOWNCOMER_TEMP_1	BOF_CORRECTED_STACK_GAS_FLOW	BOF_STEAM_FLOW
Run 4							
11/13/2014 9:28	41	0	0	0	136	633076.4375	13850
11/13/2014 9:29	41	0	0	0	138	782550.125	33383
11/13/2014 9:30	41	0	0	0	133	773946.75	25838
11/13/2014 9:31	41	1	0	0	139	762816.125	36250
11/13/2014 9:32	186	0	0	0	101	748583.3125	34848
11/13/2014 9:33	181	0	20423	0	297	737096.375	35751
11/13/2014 9:34	186	0	20137	0	459	741825.8125	35670
11/13/2014 9:35	187	0	19745	0	580	766762.5	10681
11/13/2014 9:36	203	1	20175	0	523	761663.0625	0
11/13/2014 9:37	187	1	20229	0	455	739788.3125	0
11/13/2014 9:38	187	0	20063	0	533	748863	0
11/13/2014 9:39	187	1	19572	0	555	738705.4375	0
11/13/2014 9:40	187	1	19955	0	573	741380.375	0
11/13/2014 9:41	187	0	20388	0	585	735421.75	0
11/13/2014 9:42	207	0	20205	0	587	735981.6875	0
11/13/2014 9:43	207	1	14731	0	574	733935.6875	0
11/13/2014 9:44	206	1	14918	0	582	735362.75	0
11/13/2014 9:45	207	1	15716	0	581	741627.4375	0
11/13/2014 9:46	207	1	16375	0	572	743938.3125	0
11/13/2014 9:47	207	1	18507	0	556	751099.375	0
11/13/2014 9:48	207	1	19816	0	552	753330.5	0
11/13/2014 9:49	207	2	20034	0	556	756838.75	0
11/13/2014 9:50	207	1	20047	0	545	721793.9375	0
11/13/2014 9:51	207	1	20316	0	415	707039.9375	14738
11/13/2014 9:52	202	2	0	0	383	487550.5938	7068
11/13/2014 9:53	202	1	0	0	276	309638.5625	0
11/13/2014 9:54	202	1	0	0	256	414127.3438	0
11/13/2014 9:55	202	0	0	0	233	383769.2188	0
11/13/2014 9:56	202	0	0	0	220	359110.875	0
11/13/2014 9:57	202	0	0	0	217	516066.7813	0
11/13/2014 9:58	202	0	0	0	295	508094.5625	0
11/13/2014 10:01	202	0	0	0	190	603694.8125	7853
11/13/2014 10:02	202	0	0	0	163	602442.625	0
11/13/2014 10:03	202	0	0	0	148	599376.875	0
11/13/2014 10:04	202	0	0	0	143	598833.875	0
11/13/2014 10:05	202	0	0	0	137	600428.375	0
11/13/2014 10:06	202	0	0	0	132	600967.0625	0
11/13/2014 10:07	202	0	0	0	128	597305.5625	0
11/13/2014 10:08	202	0	0	0	125	596748.3125	0
11/13/2014 10:09	202	0	0	0	135	588946.75	0
11/13/2014 10:10	202	0	0	0	166	570239.3125	0
11/13/2014 10:11	202	0	0	0	225	494079.25	0
11/13/2014 10:51	3	38	0	0	156	751759.25	34181
11/13/2014 10:52	3	38	0	0	132	758958.6875	35434
11/13/2014 10:53	3	38	0	0	119	768887.25	35841
11/13/2014 10:54	3	38	0	0	128	776112.3125	35995
11/13/2014 10:55	3	38	0	0	139	788885.3125	34894
11/13/2014 10:56	3	39	0	18423	341	754698.5625	34628
11/13/2014 10:57	3	38	0	18132	472	732762.125	34566
11/13/2014 10:58	3	38	0	20082	521	755183.0625	6720
11/13/2014 10:59	3	38	0	19836	476	748978.625	0
11/13/2014 11:00	3	38	0	19488	529	721762.4375	0
11/13/2014 11:01	3	38	0	19849	593	735577.3125	0

11/13/2014 11:02	3	89	0	201170	582	733760.6875	0
11/13/2014 11:03	3	88	0	188058	596	738055.3875	0
11/13/2014 11:04	3	89	0	204976	607	737298.6875	0
11/13/2014 11:05	3	89	0	0	643	4346073.0938	0
11/13/2014 11:06	3	89	0	0	369	423487.6875	0
11/13/2014 11:07	3	88	0	0	268	590472.8125	7382
11/13/2014 11:08	3	89	0	0	212	749911.875	21343
11/13/2014 11:09	3	89	0	199948	580	742896.25	34283
11/13/2014 11:10	3	88	0	200050	604	741368.4375	0
11/13/2014 11:11	3	89	0	199905	597	723064.4375	0
11/13/2014 11:15	3	89	0	201158	585	731287.5	0
11/13/2014 11:16	3	89	0	201103	589	724884.5625	0
11/13/2014 11:17	4	89	0	198335	590	731604.8125	0
11/13/2014 11:18	3	89	0	199568	543	736579.1875	0
11/13/2014 11:19	3	89	0	0	457	4381468.5938	0
11/13/2014 11:20	4	89	0	0	366	386182.8125	0
11/13/2014 11:21	4	89	0	0	298	434240.4688	0
11/13/2014 11:22	3	89	0	0	242	739285.0625	31997
11/13/2014 11:23	4	89	0	0	262	603898	36193
11/13/2014 11:24	3	89	0	0	220	4380774.9063	0
11/13/2014 11:25	4	89	0	0	351	411389.8438	0
11/13/2014 11:26	3	89	0	0	489	386646.8375	0
11/13/2014 11:27	3	89	0	0	385	388811.125	0
11/13/2014 11:28	3	88	0	0	179	4153809.2813	0
11/13/2014 11:29	4	89	0	0	174	386650.4688	0
11/13/2014 11:30	4	89	0	0	164	386628.8125	0
11/13/2014 11:31	13	88	0	0	163	621875.8125	0
11/13/2014 11:32	14	89	0	0	276	618657.8125	0
11/13/2014 11:33	13	88	0	0	226	5856604.25	0
11/13/2014 11:34	13	88	0	0	195	5978359.4375	0
11/13/2014 11:35	13	89	0	0	178	6030936.375	0
11/13/2014 11:36	13	89	0	0	158	5898604.25	0
11/13/2014 11:37	14	88	0	0	143	5918868.125	0
11/13/2014 11:38	13	88	0	0	143	6050056.75	0
11/13/2014 11:39	13	89	0	0	139	6043629.4375	0
11/13/2014 11:40	13	89	0	0	134	6033443.125	0
11/13/2014 11:41	14	88	0	0	129	5998376.4375	0
11/13/2014 11:42	13	89	0	0	126	6042278.25	0
11/13/2014 11:43	13	89	0	0	124	5988389.125	0
11/13/2014 11:44	13	88	0	0	122	5934418.125	0
11/13/2014 11:45	101 Under Range		0	0	224	5071583.3438	0
11/13/2014 11:28	38 Under Range		0	0	316	7880952.25	33864
11/13/2014 11:29	38 Under Range		0	0	198	771795.0625	35939
11/13/2014 11:30	38 Under Range		0	0	225	729932.6875	35907
11/13/2014 11:31	82 Under Range		0	0	330	7736328.875	35954
11/13/2014 11:32	106 Under Range		179483	0	90	7468695.4375	35940
11/13/2014 11:33	101	0	190882	0	278	7373008.8125	35908
11/13/2014 11:34	107	0	188207	0	496	732535.875	35909
11/13/2014 11:35	107 Under Range		189834	0	480	742093.25	35903
11/13/2014 11:36	106 Under Range		208531	0	382	736225.625	35886
11/13/2014 11:37	107 Under Range		182430	0	433	737023.875	35904
11/13/2014 11:38	107	0	188390	0	547	7425573.375	35992
11/13/2014 11:39	107	0	190115	0	565	7380557.75	0
11/13/2014 11:40	107	0	184176	0	588	729856.6875	0
11/13/2014 11:41	107	0	187694	0	568	754450.8125	0

11/13/2014 12:42	107	0	23771	0	589	741913.6875	0
11/13/2014 12:43	107	0	19309	0	584	728196.875	0
11/13/2014 12:44	107	0	20822	0	589	748553.875	0
11/13/2014 12:45	107	0	16073	0	586	727828.5	0
11/13/2014 12:46	107	0	18044	0	562	741013.6875	0
11/13/2014 12:47	106	0	18899	0	564	743896	0
11/13/2014 12:48	107	0	19344	0	556	745182.6875	0
11/13/2014 12:49	107	0	19969	0	550	760961.0625	0
11/13/2014 12:50	107	0	18864	0	564	746206	0
11/13/2014 12:51	107	0	17385	0	487	732765.875	0
11/13/2014 12:52	102	0	0	0	369	440108.5625	0
11/13/2014 12:53	102	0	0	0	367	386319.6563	0
11/13/2014 12:54	101	0	20964	0	324	734985.75	33515
11/13/2014 12:55	101	0	0	0	275	678785.6875	37533
11/13/2014 12:56	101	0	0	0	236	707435.125	14435
11/13/2014 12:57	101	0	0	0	209	466312.6563	0
11/13/2014 12:58	101	0	0	0	204	385642.0063	0

TEST REPORT

R007820

COMPLIANCE EMISSION TEST
BOF ESP EXHAUST

UNITED STATES STEEL CORPORATION
GRANITE CITY, ILLINOIS

PREPARED FOR:

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ARI Project No. 436-287
ARI Test Plan Project No. 436-285
ARI Proposal No. 25914 Revision 2
US Steel Purchase Order No. 20191631
Test Dates: November 11 through 13, 2014

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APPENDICES

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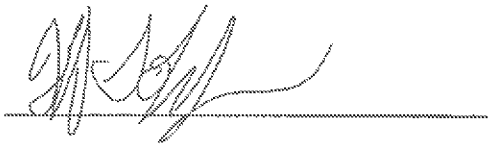
Appendix C	ARI Reference Method Monitoring Data
Appendix D	Laboratory Data
Appendix E	Process Data
Appendix F	Calibration Data
Appendix G	Test Program Qualifications

REPORT CERTIFICATION

STATEMENT OF CONFORMANCE AND TEST REPORT CERTIFICATION

I certify, to the best of my knowledge, that this test program was conducted in a manner conforming to the criteria set forth in ASTM D7036-04: Standard Practice for Competence of Air Emission Testing Bodies, and that project management and supervision of all project related activities were performed by qualified individuals as defined by this practice.

I further certify that this test report and all attachments were prepared under my direction or supervision in accordance with the ARI Environmental, Inc. quality management system designed to ensure that qualified personnel gathered and evaluated the test information submitted. Based on my inquiry of the person or persons who performed the sampling and analysis relating to this performance test, the information submitted in this test report is, to the best of my knowledge and belief, true, accurate and complete.



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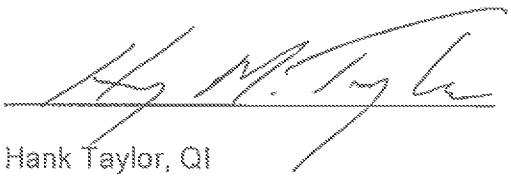


Hank Taylor, QI
Quality Assurance Manager, Source Testing Division
ARI Environmental, Inc.

SECTIONONE Introduction and Summary

ARI Environmental, Inc. (ARI) was retained by United States Steel Corporation (US Steel) to conduct a compliance emission test on the Basic Oxygen Furnace (BOF) Electrostatic Precipitator (ESP) exhaust at their facility in Granite City, Illinois. Testing was conducted on November 11 through 13, 2014.

Testing was conducted to meet Maximum Achievable Control Technology (MACT) requirements for integrated iron and steel facilities and to fulfill the testing requirements of the Code of Federal Regulations, Title 40, Part 63 (40 CFR 63), Subpart FFFFF.

Four 120-minute test runs were conducted to determine the concentrations and emission rates of particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic material (VOM) and lead (Pb) from the BOF ESP exhaust.

The test was conducted in accordance with the sampling and analytical procedures presented in the test plan dated October 10, 2014 (ARI Project No. 436-285). Specifically, test methods followed those as detailed in 40 CFR 60, Appendix A, USEPA Methods 1-5, 7E, 10, 25A and 29; 40 CFR 51, Appendix M, USEPA Method 205; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Ms. Stefanie Boehme Wolf of US Steel coordinated the test and monitored process operations during testing. Messrs. Steve Flaherty, Jeff Goldfine, Brett O'Leary and Brett Tussing of ARI conducted the test.

This report summarizes the test procedures and test results. Complete documentation of all calculation summaries, field data, ARI reference method monitoring data, laboratory data, process data, test equipment calibration data and test program qualifications are included as appendices.

A summary of the test results is presented in Table 1-1.

TABLE 1-1. SUMMARY OF BOF ESP EXHAUST TEST RESULTS

TEST RUN NO :	1	2	3	4		
TEST DATE :	11/11/2014	11/11/2014	11/12/2014	11/13/2014		Emission
TEST TIME :	10:15-12:42	13:46-16:23	09:43-12:39	09:28-12:58	Average	Limit
Particulate Matter (PM)						
Concentration						
gr/dscf	0.0016	0.0009	0.0015	0.0024	0.0016	
Emission rate						
lb/hr	5.87	3.17	5.83	9.86	6.18	
ton/yr	25.71	13.91	26.54	43.20	27.09	262.8
lb/ton steel	0.0156	0.0115	0.0237	0.0479	0.0247	0.16
Lead (Pb)						
Concentration						
lb/dscf x 10^{-9}	1.267	0.574	0.719	1.468	1.007	
Emission rate						
lb/hr	0.032	0.014	0.019	0.042	0.027	0.1934
ton/yr	0.140	0.063	0.085	0.184	0.118	1.26
NO_x as Nitrogen Dioxide (NO_2)						
Concentration						
ppmv db	10.85	17.48	9.34	10.69	12.09	
Emission rate						
lb/hr	32.61	52.23	30.19	36.51	37.89	
ton/yr	142.85	228.78	132.23	159.89	165.94	69.63
lb/ton steel	0.0868	0.8255	0.1226	0.1772	0.3030	0.0389
Carbon Monoxide (CO)						
Concentration						
ppmv db	1,004.0	994.6	175.4	380.4	638.6	
Emission rate						
lb/hr	2,887.4	2,843.6	542.3	1,242.5	1,878.9	
ton/yr	12,646.8	12,454.8	2,375.2	5,442.3	8,229.8	16,097.47
lb/ton steel	7.69	10.26	2.20	6.03	6.54	8.993
Total VOM (as Methane)						
Concentration						
ppmv wb	3.58	4.09	5.53	5.50	4.67	
Emission rate						
lb/hr	3.36	3.80	5.29	5.49	4.49	
ton/yr	14.72	16.63	23.18	24.06	19.65	10.74
lb/ton steel	0.0089	0.0137	0.0215	0.0267	0.0177	0.0060

SECTION TWO Testing and Analytical Procedures

2.1 OVERVIEW

ARI was retained by US Steel to conduct a compliance emission test on the BOF ESP exhaust at their facility in Granite City, Illinois. Four 120-minute test repetitions were performed on November 11 through 13, 2014.

2.2 METHODOLOGY

Testing was conducted following the procedural requirements as detailed in 40 CFR 60, Appendix A, USEPA Methods 1-5, 7E, 10, 25A and 29; 40 CFR 51, Appendix M, USEPA Method 205; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

2.2.1 Sampling Location (USEPA Method 1)

The sampling point locations that were used for the determination of gas velocity and volume flow rate were determined following the procedural requirements as detailed in USEPA Method 1. As shown in Figure 2-1, the sampling location and number of sampling points were as follows:

Sampling Location	Duct Diameter (inches)	Port Location Downstream from Disturbance (inches)	Port Location Upstream from Disturbance (inches)	No. of Ports	Sampling Points per Port	Total Points
BOF ESP	148	168	288	4	6	24

It should be noted that the sampling port distance from the nearest disturbances (expansion) does not meet the minimum distance requirement. A previously conducted Method 1 cyclonic flow check confirmed that cyclonic flow conditions did not exist at the sampling location.

2.2.2 Velocity and Volumetric Flow Rate (USEPA Method 2)

Stack gas velocity and volumetric flow rate were determined following USEPA Method 2. Velocity traverses were performed with a Type-S pitot tube and a Dwyer inclined oil gauge manometer. Temperature measurements were conducted using a chromel-alumel thermocouple connected to a digital direct read-out potentiometer.

2.2.3 Stack Gas Molecular Weight (USEPA Method 3A)

The stack gas molecular weight was determined following USEPA Method 3A. This procedure is detailed in Subsection 2.2.6.

2.2.4 Moisture Content (USEPA Method 4)

Moisture sampling was conducted following USEPA Method 4 procedures and combined with the USEPA Methods 5/29 sampling train.

SECTION TWO Testing and Analytical Procedures

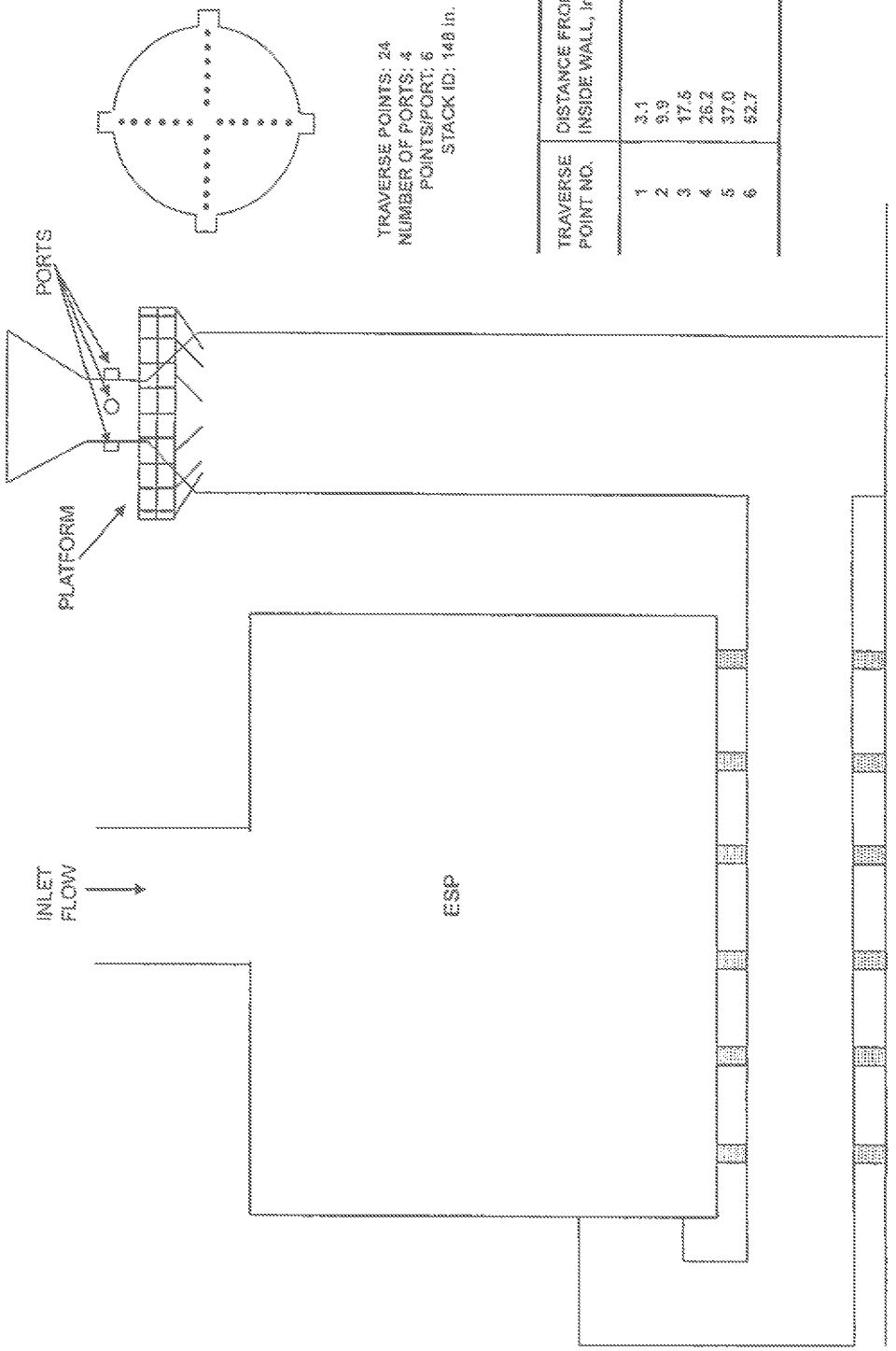


FIGURE 2-1. BOF ESP EXHAUST SAMPLING LOCATION

SECTION TWO Testing and Analytical Procedures

2.2.5 Particulate Matter Determination (USEPA Method 5)

PM sampling was conducted in accordance with USEPA Method 5 and combined with the USEPA Method 29 sampling using an Apex Instruments, Inc. sampling train (Figure 2-2).

2.2.5.1 Sampling Apparatus

The sampling train met design specifications established by the USEPA. Assembled by ARI personnel, it consisted of the following:

Nozzle - Borosilicate glass with sharp, tapered leading edge.

Probe - Borosilicate glass with a heating system capable of maintaining a probe exit temperature of 248°F ±25°F.

Pitot Tube - Type-S, attached to probe for monitoring stack gas velocity.

Filter Holder - Borosilicate glass with a glass frit filter support and a silicone rubber gasket. The holder design provides a positive seal against leakage from the outside or around the filter. The filter holder was heated to 248°F ±25°F.

Draft Gauge - Inclined manometer with a readability of 0.01-in. H_2O in the 0 to 10-in. range.

Impingers – Four impingers connected in series with glass ball joints. The first and second impingers contained 100 milliliters (mL) of dilute nitric acid/hydrogen peroxide mixture. The third impinger was empty. The fourth impinger contained approximately 200 grams of silica gel.

Metering System - Apex Model 522. Vacuum gauge, leak-free pump, thermometers capable of measuring temperature to within 5°F, dry gas meter with ±2 percent accuracy and related equipment as required to maintain an isokinetic sampling rate and to determine sample volume.

Barometer - Mercury barometer capable of measuring atmospheric pressure to within ±0.1-in. Hg.

2.2.5.2 Sampling Procedures

The sampling train was assembled as detailed in USEPA Method 29. Approximately 200 grams of silica gel was weighed and placed in a sealed impinger prior to each test run. Quartz-fiber filters were initially heated to 248°F ±25°F for 2 to 3 hours, desiccated for at least 2 hours and weighed to the nearest 0.1 mg on an analytical balance.

SECTION TWO Testing and Analytical Procedures

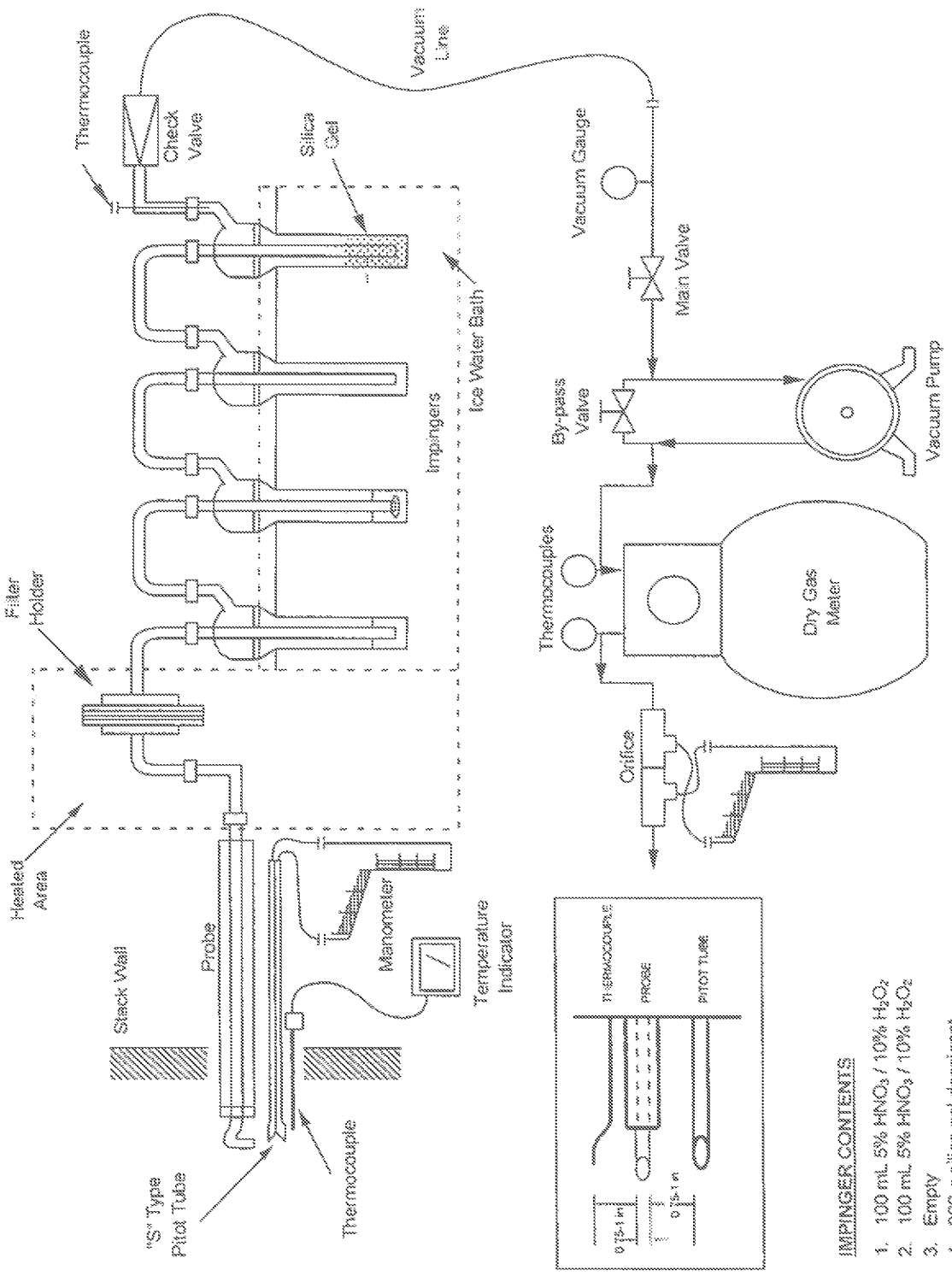


FIGURE 2-2. USEPA METHODS 5/29 SAMPLING TRAIN

SECTION TWO Testing and Analytical Procedures

The sampling train was leak-checked at the sampling site prior to each test run by plugging the inlet to the nozzle and pulling a 15-in. Hg vacuum, and at the conclusion of each test run by plugging the inlet to the nozzle and pulling a vacuum equal to the highest vacuum reached during the test run.

The pitot tube and lines were leak-checked at the test site prior to and at the conclusion of each test run. The check was made by blowing into the impact opening of the pitot tube until 3 or more inches of water column was achieved on the manometer, and then capping the impact opening and holding it for 15 seconds to assure it was leak-free. The static pressure side of the pitot tube was leak-checked by the same procedure, except suction was used to obtain the 3-in. H_2O manometer reading. Crushed ice was placed around the impingers to keep the temperature of the gases leaving the last impinger at 68°F or less.

During sampling, stack gas and sampling train data were recorded at each sampling point and whenever significant changes occurred in stack flow conditions. Isokinetic sampling rates were set throughout the sampling period with the aid of a calculator.

2.2.5.3 Sample Recovery Procedures

After sampling was completed, the sampling train was moved carefully from the test site to the cleanup area. The sample fractions were recovered as follows:

Container 1 - The filter was removed from its holder, placed in a petri dish and sealed.

Container 2 - Loose PM and acetone washings from all sample-exposed surfaces prior to the filter were placed in a glass jar, sealed and labeled. PM was removed from the probe with the aid of a brush and acetone rinsing. The liquid level was marked after the container was sealed.

Container 3 - A minimum of 200 mL of acetone was taken for the blank analysis. The blank was obtained and treated in a similar manner as the contents of Container 2.

2.2.5.4 Analytical Procedures

The analytical procedures followed those described in USEPA Method 5.

Container 1 - The filter and any loose PM from this sample container were placed in a tared glass weighing dish, dried at 105°C for two hours, desiccated for 24 hours to a constant weight and weighed to the nearest 0.1 mg.

Container 2 - The acetone washings were transferred to a tared beaker and evaporated to dryness at ambient temperature and pressure. Then the contents were desiccated for 24 hours and weighed to a constant weight to the nearest 0.1 mg. Container 3 was analyzed in the same manner.

The term "constant weight" means a difference of no more than 0.5 mg or 1 percent of the total weight less tare weight, whichever is greater between two consecutive readings, with no less than 6 hours of desiccation between weighings.

SECTION TWO Testing and Analytical Procedures

2.2.6 CO_2, O_2, NO_x and CO (USEPA Methods 3A, 7E and 10)

Carbon dioxide (CO_2) and oxygen (O_2) sampling was conducted in accordance with USEPA Method 3A using ARI's Servomex Model 1440C combination paramagnetic O_2 and non-dispersive infrared CO_2 analyzer.

NO_x sampling was conducted in accordance with USEPA Method 7E using ARI's California Analytical Instruments Model 600CLD chemiluminescent NO_x analyzer. The NO_x converter check was performed following USEPA Method 7E. This procedure uses a NO_2 cylinder gas (40-60 ppm) to provide direct measurement of the converter efficiency. The converter is acceptable if the NO_2 to nitric oxide (NO) conversion rate is greater than 90%.

CO sampling was conducted in accordance with USEPA Method 10 using ARI's Thermo Environmental Instruments, Inc. Model 48i gas filter correlation analyzer.

As shown in Figure 2-3, ARI's sampling system consisted of a heated probe followed by a calibration tee. The probe system was connected to a heated Teflon sampling line that transported the gas sample to an electronic chiller to remove moisture. The dry sample gas was then transported to a manifold system by a Teflon-lined sample pump and Teflon sample line. The manifold was connected with sample gas intake lines for ARI's analyzers.

The sampling system was calibrated with applicable zero, mid-range and high-range gases as specified in the USEPA methods. The calibration gases were generated from Protocol 1 calibration gases using an Environics Model 4040 Gas Dilution System. The gas dilution system was verified on site in accordance with USEPA Method 205. The gases met the calibration gas verification protocols as specified in USEPA Method 7E, Section 7.1.

Response time, calibration error and measurement system bias tests were performed prior to testing, and a pre/post calibration drift test was performed after each test repetition on each analyzer. The average zero and calibration drift values obtained during each test run were used to correct each analyzer's raw data for instrument zero and drift for each respective test run.

The data were collected at 15-second intervals, and one-minute averages were calculated by ARI's data acquisition system that consisted of a datalogger connected to a computer for digital data storage and reduction.

2.2.7 Total Volatile Organic Material (USEPA Method 25A)

The determination of total VOM was conducted following procedures described in USEPA Method 25A using a total hydrocarbon analyzer. This analyzer utilizes a continuous heated flame ionization detector (FID) and sample line that keeps the sample gas stream above the dew point. The sampling system consisted of a heated stainless steel probe with an in-stack filter holder connected to a calibration tee. The sample gas was transported by a Teflon-lined heated pump through a heated Teflon line (>250°F) to the intake of the hydrocarbon analyzer (see Figure 2-4).

SECTIONTWO Testing and Analytical Procedures

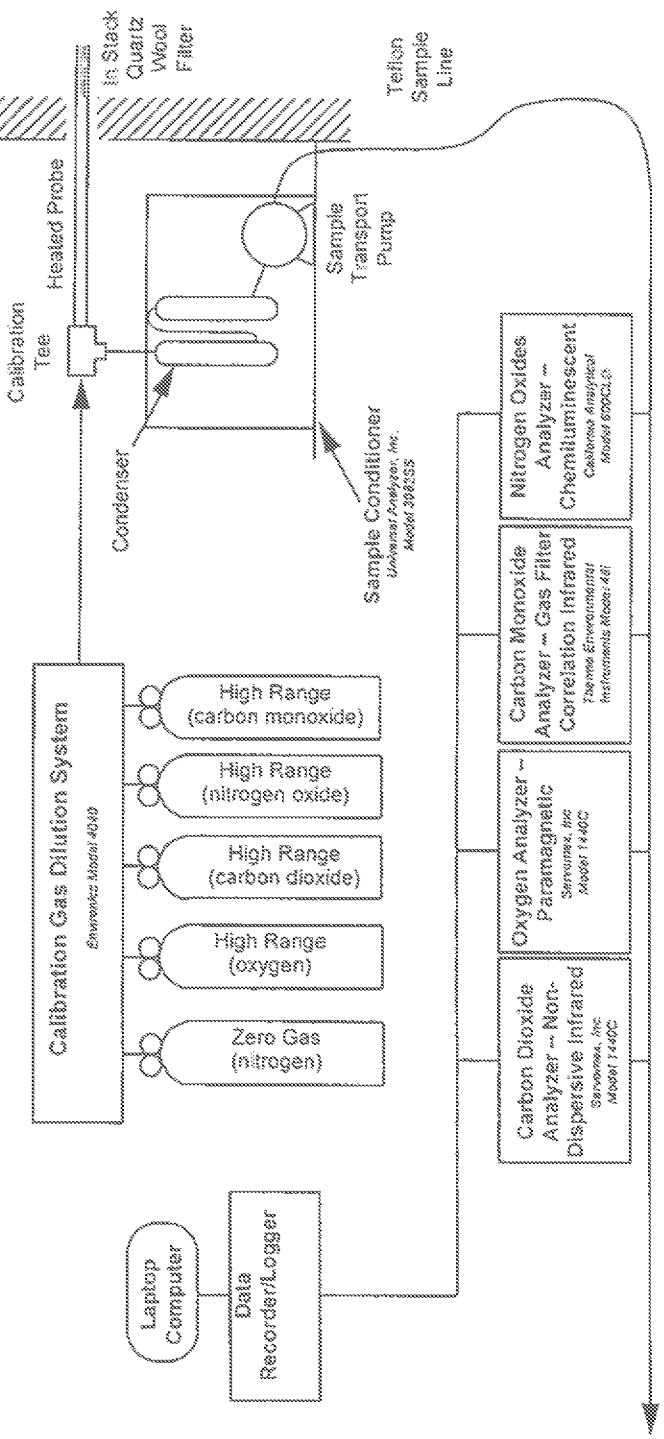


FIGURE 2-3. ARI REFERENCE METHOD CO_2, O_2, NO_X AND CO SAMPLING SYSTEM

SECTION TWO Testing and Analytical Procedures

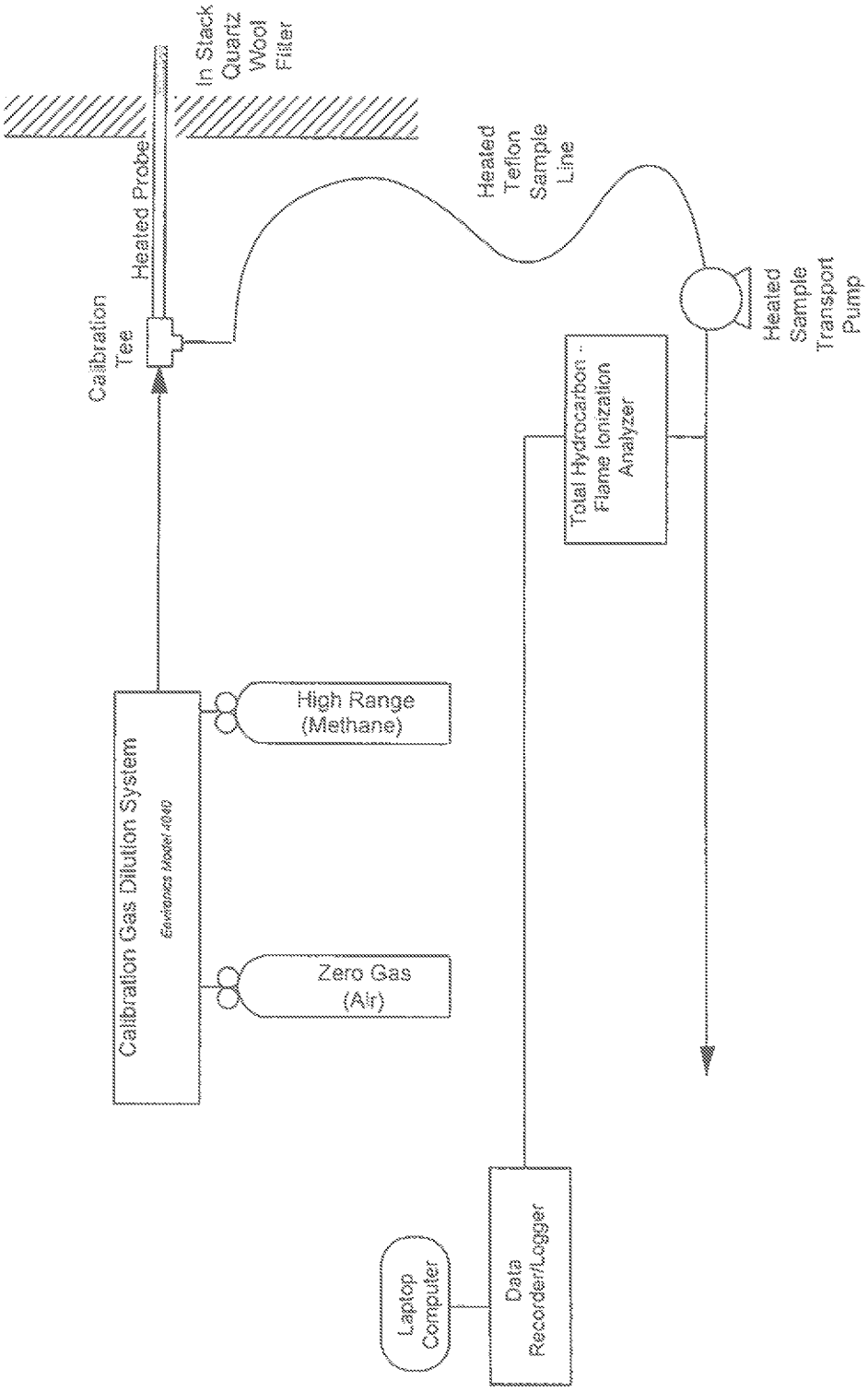


FIGURE 2-4. USEPA METHOD 25A TOTAL VOM SAMPLING SYSTEM

SECTION TWO Testing and Analytical Procedures

Calibration gases were introduced at the calibration tee located at the exit end of the sample probe. A pre-test calibration error test and post-test calibration drift test were performed using methane in air gas standards. The results of the initial system calibration error test were within ±5% of the injected concentration. The zero and upscale calibration gas values obtained after each run were within the allowable drift of ±3% of span. The average zero and upscale calibration gas values obtained during each test run were used to correct the data for that test run.

The analyzer was calibrated with applicable zero, low, mid and high-range gases as specified in the USEPA methods. The gases met the calibration gas protocols as specified in USEPA Method 7E, Section 7.1. An Environics gas dilution system was used to prepare the calibration gases. The system was verified on site following USEPA Method 205 procedures.

Results from the sample runs were collected at 15-second intervals, and one-minute averages were calculated by ARI's data acquisition system consisting of an Omega OMB-DAQ-56 datalogger connected to a computer for digital data storage and reduction.

2.2.8 Lead Determination (USEPA Method 29)

Sampling and analysis for lead was performed in accordance with USEPA Method 29 using an Apex Instruments, Inc. sampling train (see Figure 2-2) with sampling for PM conducted simultaneously in the same train.

The samples were withdrawn from the exhaust and collected in a heated sample probe, heated filter (front-half catch) and a series of ice-cooled impingers containing an acid/peroxide solution (back-half catch). The probe and filter were heated to 248°F ±25°F.

2.2.8.1 Sampling Apparatus

The sampling train consisted of the following:

Nozzle - Borosilicate glass with sharp, tapered leading edge.

Probe - Borosilicate glass with a heating system capable of maintaining a probe exit temperature of 248°F ±25°F.

Pitot Tube - Type-S, attached to probe for monitoring stack gas velocity.

Filter Media - A 4-in. quartz-fiber filter that met the requirements of Method 29.

Filter Holder - Borosilicate glass with a 4-in. Teflon frit filter support and a Viton O-ring gasket. The holder design provides a positive seal against leakage from the outside or around the filter. The filter holder was heated to 248°F ±25°F during sampling. A thermocouple was placed in the back-half of the filter holder for direct measurement of the sample stream temperature.

SECTION TWO Testing and Analytical Procedures

Draft Gauge - Inclined manometer with a readability of 0.01-in. H_2O in the 0 to 1-in. range and 0.1-in. H_2O in the 1 to 10-in. range.

Impingers - Four impingers connected in series with glass ball joints. The first and second impingers contained 100 mL of dilute nitric acid/hydrogen peroxide mixture. The third impinger was empty. The fourth impinger contained approximately 200 grams of silica gel.

Metering System - Apex Model 522. Vacuum gauge, leak-free pump, thermometers capable of measuring temperature to within 5°F, dry gas meter with ±2 percent accuracy and related equipment as required to maintain an isokinetic sampling rate and to determine sample volume.

Barometer - Mercury barometer capable of measuring atmospheric pressure to within ±0.1-in. Hg.

2.2.8.2 Sampling Procedures

After the minimum number of traverse points was selected, the stack pressure, temperature, moisture and range of velocity head were measured according to procedures described in USEPA Methods 1 through 4.

The sampling train was leak-checked at the sampling site by plugging the inlet to the nozzle and pulling a vacuum of 15-in. Hg. Leak rates of less than 0.02 ft^3/min at a vacuum of 15-in. Hg are considered acceptable. At the completion of each test run, the sampling train was again leak-checked by the same procedure, but at the highest vacuum attained during the test run. Both pre and post-test leak checks of the pitot tube were made for each test run. Ice was placed around the impingers to keep the temperature of the gases leaving the last impinger at less than 68°F.

During sampling, stack gas and sampling train data were recorded at specified intervals. Isokinetic sampling rates were set throughout the sampling period with the aid of a programmable calculator.

2.2.8.3 Sample Recovery Procedures

After sampling was completed and the final leak checks were performed, the sampling train was moved carefully from the test site to the recovery area. The sample fractions were recovered as follows:

Container 1 - The filter was removed from the filter holder, placed in a clean petri dish and labeled.

Container 2 - A brush and acetone were used to clean the probe and other fittings as required. The washings from the inner surfaces of the nozzle and upstream portions of the filter holder were collected in a bottle and labeled.

Container 3 - A brush and 0.1 N nitric acid (HNO_3) were used to rinse the probe and other fittings as required. The washings from the inner surfaces of the nozzle and upstream portions of the filter holder were collected in a bottle and labeled. The liquid level was marked after the container was sealed.

Container 4 - The contents of the first and second impingers were placed in a graduated cylinder to measure the total volume collected, rinsed with 0.1N HNO_3, transferred to a bottle and labeled.

Container 5A - The contents of the third impinger were placed in a graduated cylinder to measure the total volume collected, rinsed with 0.1N HNO_3, transferred to a bottle and labeled.

Container 6 - The contents of the fourth impinger were transferred to a clean bottle and labeled. The weight of the silica gel was then determined. The difference between this final weight and the initial weight was the total moisture collected by the silica gel.

2.2.8.4 Analytical Procedures

Containers 1 and 2 were processed for Method 5 PM following the procedures in Subsection 2.2.5.4. Upon completion, the filter and probe wash PM, along with Containers 3 through 5A (lead only), including blanks, were transported to Data Analysis Technologies, Inc. in Plain City, Ohio for lead analysis.

2.2.9 Gas Dilution System Verification (USEPA Method 205)

All diluted calibration standards were prepared using an Environics Model 4040 Gas Dilution System that was verified by a field evaluation following the requirements of USEPA Method 205.

ARI's Servomex Model 1440C O_2 analyzer was initially calibrated following USEPA Method 3A procedures. After the calibration procedure was complete, two diluted standards and a mid-range EPA Protocol 1 standard were alternately introduced in triplicate, and an average instrument response was calculated for each standard. No single response differed by more than ±2% from the average response for each standard. The difference between the instrument average and the predicted concentration was less than ±2% for each diluted standard. The difference between the certified gas concentration and the average instrument response for the mid-range EPA Protocol 1 standard was less than ±2%.

SECTION THREE Process Description

A fresh BOF charge usually begins with scrap metal. The scrap is charged into the BOF vessel. Molten iron is then charged into the vessel. A secondary hood is utilized to capture emissions during the charge. During periods of reduced molten iron availability, scrap may be preheated with a natural gas-fired lance in order to increase the temperature and reduce the amount of molten iron required to produce a heat of steel. This preheating process typically lasts 15 minutes but could last longer. The BOF is then closed off and an oxygen lance is inserted to begin the melting and refining process. In this process, the injected oxygen reacts exothermically with the carbon in iron generating heat which melts the scrap and reduces the amount of carbon in the bath thus converting the iron to steel. When the refining process is completed, the molten steel is poured into a steel transfer ladle. Materials such as aluminum, zinc, silica and manganese are added, as required, depending upon the particular steel alloy being produced. After the molten steel is tapped, the remaining slag is then dumped into a slag ladle. Emissions from these operations are captured and passed through ESPs prior to being emitted to the atmosphere. Steam is used to condition the gases prior to their introduction to the ESP. Water is also sprayed into the gases for cooling.

SECTION FOUR Test Results

The results of the compliance emission test are presented in Table 4-1.

Appendix A presents the calculation summaries. Appendix B presents all raw field data. ARI reference method monitoring data are included in Appendix C. Laboratory data are presented in Appendix D. The process data are included in Appendix E. All calibration data are presented in Appendix F. The test program qualifications are presented in Appendix G.

SECTIONFOUR Test Results

TABLE 4-1. BOF ESP EXHAUST COMPLIANCE EMISSION TEST RESULTS

TEST RUN NO.	1	2	3	4	
TEST DATE	11/11/2014	11/11/2014	11/12/14	11/13/14	
TEST TIME	10:15-12:42	13:46-16:23	09:43-12:39	09:28-12:58	Average
Steel Production Data					
Total tons produced	920.50	725.15	722.20	721.20	772.26
Stack Gas Parameters					
Temperature, av. °F	295.3	313.5	234.9	233.6	269.31
Velocity, av. ft/sec	101.78	103.33	94.39	98.67	99.54
Volume flow, acfm	729,594	740,695	676,626	707,246	713,540
Volume flow, scfm	501,804	497,420	511,586	534,756	511,391
Volume flow, scfh	30,108,226	29,845,181	30,695,163	32,085,340	30,683,478
Volume flow, dscfh	25,182,098	25,032,099	27,071,024	28,602,009	26,471,807
Moisture, av. % vol	16.36	16.13	11.81	10.86	13.79
CO_2, av. % vol, db	4.92	5.08	2.66	3.44	4.02
O_2, av. % vol, db	17.91	17.71	18.96	18.86	18.36
PM/Metals Sample					
Time, min.	120.0	120.0	120.0	120.0	
Volume, dscf	85.685	85.339	88.110	91.020	
Volume, dscm	2.427	2.417	2.495	2.578	
Isokinetic ratio, %	106.6	106.8	101.9	99.7	
Particulate Matter (PM)					
Concentration					
gr/dscf	0.0016	0.0009	0.0015	0.0024	0.0016
lb/dscf x 10^{-6}	0.2331	0.1269	0.2155	0.3450	0.2301
Emission rate					
lb/hr	5.87	3.17	5.83	9.86	6.18
ton/year	25.71	13.91	25.54	43.20	27.09
lb/ton steel	0.0156	0.0115	0.0237	0.0479	0.0247
Lead (Pb)					
Concentration					
lb/dscf x 10^{-9}	1.267	0.574	0.719	1.468	1.007
µg/dscm	20.29	9.19	11.52	23.51	16.12
Emission rate					
lb/hr	0.032	0.014	0.019	0.042	0.027
tons/year	0.140	0.063	0.085	0.184	0.118
Nitrogen Oxides (NO_x) as NO_2					
Concentration					
ppmv db	10.85	17.48	9.34	10.69	12.09
lb/dscf x 10^{-6}	1.295	2.087	1.115	1.276	1.443
Emission rate					
lb/hr	32.61	52.23	30.19	36.51	37.89
tons/year	142.85	228.78	132.23	159.89	165.94
lb/ton of steel	0.0868	0.8255	0.1226	0.1772	0.3030

SECTION FOUR

Test Results

TABLE 4-1 (CONTINUED). BOF ESP EXHAUST COMPLIANCE EMISSION TEST RESULTS

TEST RUN NO. :	1	2	3	4	
TEST DATE :	11/11/2014	11/11/2014	11/12/14	11/13/14	
TEST TIME :	10:15-12:42	13:46-16:23	09:43-12:39	09:28-12:58	Average
Carbon Monoxide (CO)					
Concentration					
ppmv db	1,004.0	994.6	175.4	380.4	638.6
lb/dscf x 10^{-6}	114.66	113.60	20.03	43.44	72.93
Emission rate					
lb/hr	2,887.4	2,843.6	542.3	1,242.5	1,878.9
tons/year	12,646.8	12,454.8	2,375.2	5,442.3	8,229.8
lb/ton of steel	7.69	10.26	2.20	6.03	6.54
Total Volatile Organic Material (as Methane)					
Concentration					
ppmv wb	3.58	4.09	5.53	5.50	4.67
lb/scf x 10^{-6}	0.112	0.127	0.172	0.171	0.146
Emission rate					
lb/hr	3.36	3.80	5.29	5.49	4.49
tons/year	14.72	16.63	23.18	24.06	19.65
lb/ton of steel	0.0089	0.0137	0.0215	0.0267	0.0177

R

SEND

REVIEW

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

ID No.:	119813AAI	Test Date:	November 11-13, 2014
Source Name:	U.S. Steel, Granite City Works		
Location	20th & State Steel, Granite City, Illinois 62040		
Permit No.	96030056	TYPE OF TEST PROGRAM:	
☐ FESOP ☑ Title V ☐ Lifetime ☐ Construction		☐ Initial Performance	☑ Annual/Periodic
		☐ CEMS Certification	☐ Other:
Emission Unit(s):	Basic Oxygen Furnace (BOF)		
Control Equipment:	Electrostatic Precipitator (ESP)		
APPLICABLE RULE:	☑ 35 IAC PART 212 ☐ 40 CFR PART 60, SUBPART ____ ☑ 40 CFR PART 63, SUBPART FFFFF		
TESTING COMPANY	Company Name	ARI Environmental Inc.	
	Contact	Jeff Goldfine	
	Phone Number	847-487-4580 x 113	
	Report No.	436-287 Revision 2	

PARAMETERS	USEPA REFERENCE METHODS	Yes	No
☑ PM ☑ PM_{10} ☐ SO_2 ☑ NO_X ☐ Opacity ☑ CO ☑ VOM ☐ HCl ☐ DE ☐ CE ☑ Lead ☐ Dioxins/Furans	☑ 1 ☑ 2 ☑ 3_ ☑ 4 ☑ 5_ ☐ 6_ ☑ 7E ☐ 9 ☑ 10 ☐ 12 ☐ 18 ☐ 19 ☐ 20 ☐ 23 ☐ 24 ☐ 25 ☑ 25A ☐ 26 ☑ 29 ☐ 201_ ☐ 202 ☐ 204 ☐ 204_ ☐ ____ ☐ ____		
Alternative method(s)	NONE		
Did Permittee propose or use proper method(s)?		✓	

PROCESS INFORMATION		Yes	No
Process rate allowed in permit or unit capacity:	PC 7.5.6 - Total combined production of liquid steel from the affected BOFs shall not exceed 11,000 net tons per day, averaged over any calendar month		
Process rate during stack test:	See Table Below		
Was the process rate during stack test within 90 or 100% of allowable? (i.e. was stack test done under conditions representative of maximum emissions?)		✓	

COMPLIANCE DEMONSTRATION			Yes	No
Protocol	Submitted?	Date October 20, 2014	✓	
	Submitted timely?	60 days prior to test	✓	
	Approved?	Not Reviewed Prior to Test	N/A	
Did testing follow the approved protocol?			✓	
Were raw field & laboratory sheets included with the final report?			✓	
Were three test runs performed?			✓	
Were runs performed for appropriate length of time?			✓	

U.S. Steel, Granite City Works
ID No.: 119813AAI
Application No.: 96030056
Test Date: November 11-13, 2014

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

	Pollutant	Emission	Limit	
Emissions:	PM/PM$_{10}$	0.0016	0.02 gr/dscf	NESHAP FFFFF, Table 1
		0.0247	0.16 lbs/Ton	Clean Air Act Permit Program Condition 7.5.6(c)
	CO	6.54	8.993 lbs/Ton	
	NO_X	Revised / Original: 0.1438 / 0.3030	0.0389 lbs/Ton	
	VOM	0.0177	0.006 lbs/Ton	
	Lead	0.027	0.1934 lbs/hr	

		Run 1	Run 2	Run 3	Average
Process Data	Steel Produced during Test Run	920.5	725.15	722.2	789.3

Control Device Data	ESP	No data of ESP was contained in report
		ESP is equipped with COMS. Subpart FFFFF, indicates the ESP needs to be operate in a manner to keep opacity below 10%. It does not specify the need to document other ESP parameters.

Are test results in compliance with applicable requirements, permit special conditions, and Agency averaging policy/rule?	Yes	No
	✓	✓

Comments:

ARI Environmental was contracted by U.S. Steel to perform the above-noted emissions testing. No deviations from the test methods were found in the test report.

The emissions of NO_X were originally reported to be 0.3030 lbs/ton. The Illinois EPA performed a spot check of the calculations concluded that the reported NO_X emissions number was in error. U.S. Steel was contacted to discuss the reporting error; U.S. Steel subsequently submitted a revised final report. The revised final report indicated NO_X emissions of 0.1438 lbs/hour. Illinois EPA's calculations matched the reported emission data in this revised final report.

The permit requires PM and PM$_{10}$ emissions to be measured. CAAPP Condition 7.5.7(b)(i) states, "as an alternative to measurements for PM$_{10}$ emissions, the measured results for PM, as determined in accordance with the NESHAP, shall be considered PM$_{10}$, as provided by 35 IAC 212.108." 40 CFR §63.7822(b)(1)(v) provides that to determine compliance with the applicable emission limit for particulate matter, Method 5, 5D, or 17, as applicable, should be used to determine the concentration of particulate matter (front half filterable catch only). Therefore, USEPA Method 202 was not performed to measure condensable PM to be included in the PM$_{10}$ results.

The author contacted ARI to determine if the stack gaseous emissions were stratified, as the final test report did not contain a discussion of this point. ARI stated that a stratification test was performed based on the three traverse points during the first sampling run. The stratification test indicated that the stack was slightly stratified and therefore, required the performance of a three point traverse during each gaseous emissions test.

It should be noted that the tons/hour of steel is based on the amount of streel produced during the emissions test run and not the batch/heat time. U.S. Steel was contacted to discuss the difference in reporting data. U.S. Steel indicated that the report documented emissions in the manner in which they have historically reported data and have report data elsewhere.

U.S. Steel, Granite City Works
ID No.: 119813AAI
Application No.: 96030056
Test Date: November 11-13, 2014
Page 3

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

PM, CO and Pb emissions tested in compliance with the permit, while NO_x and VOM emissions were measured above the permit limit.

I recommend Illinois EPA accept the revised final report.

If you have any questions, please contact the undersigned.

				Yes	No
Kevin J. Mattison		August 11, 2015	Test Report Approved	✓	
REVIEWED BY:	Kevin J. Mattison	Date	Compliance Demonstrated? (See comments above)	✓	✓

e-mail: BOA/FOS/Collinsville Regional Office
Kevin Mattison
Miriam Zentz
Chris Romaine, BOA/Permit Section
Sally Carter, DLC/BOA
Chris Pressnall, DLC/BOA

Attachment:
1. IEPA Calculations

Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 99030056

PM-Metals

Date	11/11/2015	11/11/2015
Run #	Run 1	Run 2
Vl (ml)	350.1	348.5
Y	0.99	0.99
Vm (ft³)	83.902	83.568
Tm (°F)	48.375	48.64166667
PB (°Hg)	29.59	29.59
ΔH (°WC)	1.745833333	1.70625
Cp	0.84	0.84
Ts (°F)	291.0833333	313.7083333
Static P (°H_2O)	-2.1	-2.1
Ps (°Hg)	29.43558824	29.43558824
√ΔP	1.444231271	1.476391861
%CO_2	4.917669513	4.993695652
%O_2	17.92606378	17.51143424
%CO	0	0
Stack L (in)		
Stack W (in)		
Stack Dia (in)	148	148
As (sq ft)	119.4677873	119.4677873
PM Weight (g)	0.00906	0.00491
Cond PM (g)		
Blank (g)		
Nozzle Dia (in)	0.187	0.187
An (sq ft)	0.000190726	0.000190726
Min.	120	120
Hour	2	2

Vwc = Vl*0.04707

Run 1	Vwc =	16.76	SCF
Run 2	Vwc =	16.41	SCF

VmStd = Y*Vm*(TsStd/Tm)*(Pb+DH/13.6)/PsStd

Run 1	VmStd =	85.69	SCF
Run 2	VmStd =	85.33	SCF

Isokinetic = (VmStd*As)/(An*time: min*QsStd)

Run 1	I =	108.2301	%
Run 2	I =	106.7551	%
Average	I =	107.4926	%

dscm = Vmstd * 0.028317

Run 1	2.426430652
Run 2	2.416320909

Flow Calculations

Bwo = Vwc/(VmStd+Vwc) 1 - Bwo

Run 1	Bwo =	0.1636	0.8364
Run 2	Bwo =	0.1613	0.8387

MD=.44(CO2) +.32(O2) +.28(CO) +.26(N2)

Run 1	MD =	29.50	lb/lb-mole
Run 2	MD =	29.50	lb/lb-mole

Ms = MD(1-Bwo) + 18(Bwo)

Run 1	Ms =	27.82	lb/lb-mole
Run 2	Ms =	27.84	lb/lb-mole

Vs = 85.48*Cp*(Ts/Ps*Ms)^.5*Dp

Run 1	Vs =	99.67	ft/second
Run 2	Vs =	103.37	ft/second

Qs = As*Vs*60

Run 1	Qs =	714438.4	ACFM
Run 2	Qs =	740956.9	ACFM

QsStd = Qs*(Ps/PsStd)*(TsStd/Ts)*(1-Bwo)

Run 1	QsStd =	413267.7	DSCFM
Run 2	QsStd =	417232.0	DSCFM

Cs = (Wt * 15.43)/VmStd

Run 1	Cs =	0.0016	grains/dscf
Run 2	Cs =	0.0009	grains/dscf
Average	Cs =	0.00126	grains/dscf

E = (Cs*Qstd*60)/7000

Run 1	E =	5.77907	lbs/hour
Run 2	E =	3.17520	lbs/hour
Average	E =	4.47714	lbs/hour

Cs @ 7%O2 = Cs*(14/(21-O2))

Run 1	Cs@7%O2=	0.00743	grains/dscf
Run 2	Cs@7%O2=	0.003563	grains/dscf
Average	Cs@7%O2=	0.005497	grains/dscf

Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 96030056

Cs @ 12% CO2 = Cs*(12% / %CO2)

grain/lb * 2.28E5 = gr/dscf * 1000mg/g

Run 1	Cs@12%CO2	0.003961029 grains/dscf	3.7033291 mg/scm
Run 2	Cs@12%CO2	0.002133532 grains/dscf	2.031710844 mg/scm
Average		0.003057281 grains/dscf	2.867510801 mg/scm

PM

	#/Ton	Tons	Time (min)	Tons/hr	#/Ton
Run 1		920.5	147	375.7142857	0.016381562
Run 2		725.15	157	277.1273885	0.011457541

Pb

	#/Ton	Tons	Time (min)	Tons/hr	#/hr	#/Ton
Run 1		920.5	147	376.7142857	0.031402178	8.35799E-05
Run 2		725.15	157	277.1273885	0.014386294	5.1804E-05

RM 5 DGM Calibration		
Pre Test	0.99	
Allowable %5	0.9405	1.0395
Post Test	0.985	Pass

Alt - 009

$$Y_{qa} = \frac{\theta}{V_w} \sqrt{\frac{0.0319\,T_m}{\Delta H_@ \left(P_b + \frac{H_{avg}}{13.6}\right)} \frac{\theta}{M_d}} \left(\sqrt{\Delta H}\right)_{avg}$$

	Run 1	Run 2		Average	
Original Y	0.99	0.99		0.99	
ΔH @	1.92	1.92		1.92	
Yqa	0.983	0.981	#####	0.982	
% Change =	-1%	-1%	#####	-1%	
Allowable Range %5	0.9405	to	1.04	Pass / Fail	PASS

Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 56030056

Run 1			
Point No.	ΔP	√ΔP	Ts
1	0.75	0.866025	265
2	2.6	1.612452	269
3	2.5	1.581139	268
4	2.6	1.612452	271
5	2.8	1.67332	284
6	2.6	1.612452	315
7	0.85	0.921954	265
8	2.5	1.581139	364
9	2.8	1.67332	240
10	2.8	1.67332	277
11	3	1.732051	311
12	2.4	1.549193	323
13	1.8	1.341641	279
14	2.3	1.516575	256
15	2.6	1.612452	312
16	2.5	1.581139	316
17	2.5	1.581139	334
18	0.9	0.948683	304
19	2	1.414214	285
20	2.4	1.549193	272
21	2.4	1.549193	302
22	2.5	1.581139	326
23	0.9	0.948683	340
24	0.9	0.948683	307
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
Average		1.444231	291.0833

Run 1	
Tm	
48	
46	
46	
46	
47	
47	
46	
48	
48	
48	
48	
48	
48	
46	
46	
49	
49	
49	
49	
50	
51	
51	
52	

Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 96030056

Run 1		VM
Start	656.065	83.902
Stop	739.967	
Start		0
Stop		
Start		0
Stop		
Start		0
Stop		
	Total	83.902

Run 1			VL
Impinger 1	Initial	0	124
	End	124	
Impinger 2	Initial	100	150
	End	250	
Impinger 3	Initial	100	58
	End	158	
Impinger 4	Initial	0	10
	End	10	
Impinger 5	Initial		0
	End		
Impinger 6	Initial		0
	End		
Silica Gel	Initial	200	14.1
	End	214.1	
		Total	356.1

Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 96030055

Run 2			
Point No	ΔP	$\sqrt{\Delta P}$	Ts
1	0.9	0.948683	309
2	2.1	1.449138	294
3	2.5	1.581139	314
4	2.3	1.516575	316
5	1.9	1.378405	334
6	2.6	1.612452	348
7	2.3	1.516575	300
8	2.7	1.643168	280
9	2.4	1.549193	306
10	2.2	1.48324	328
11	2.5	1.581139	343
12	2.4	1.549193	352
13	2.3	1.516575	267
14	2.6	1.612452	288
15	2.5	1.581139	304
16	2.4	1.549193	321
17	2.5	1.581139	338
18	0.89	0.943398	309
19	2.6	1.612452	285
20	2.7	1.643168	294
21	2.4	1.549193	315
22	2.3	1.516575	331
23	2.5	1.581139	343
24	0.88	0.938083	308
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
Average		1.476392	313.7083

Run 2	
Tm	
47	
47	
48	
48	
49	
49	
49	
49	
50	
50	
50	
50	
48	
48	
48	
48	
48	
48	
48	
48	
48	
49	
49	
49	

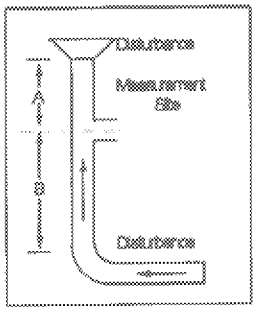
Company Name: U.S. Steel, Granite City Works
Location: Granite City
Test Date: November 11-13, 2014
Source: BOF-ESP
Identification Number: 119813AAI
Application Number: 96030056

Run 2		Vol
Start	740.905	83.588
Stop	824.093	
Start		0
Stop		
Start		0
Stop		
Start		0
Stop		
	Total	83.588

Run 2			VL
Impinger 1	Initial	0	150
	End	150	
Impinger 2	Initial	100	140
	End	246	
Impinger 3	Initial	100	38
	End	138	
Impinger 4	Initial	0	4
	End	4	
Impinger 5	Initial		0
	End		
Impinger 6	Initial		0
	End		
Silica Gel	Initial	200	10.6
	End	210.6	
		Total	346.6

RM 1

A = UP



B = Down 288 "

NOTE:
Previous testing on this stack was performed in accodance with USEPA Method 1, Section 11.5 validating this testing location as an Alternative Measurement Site.

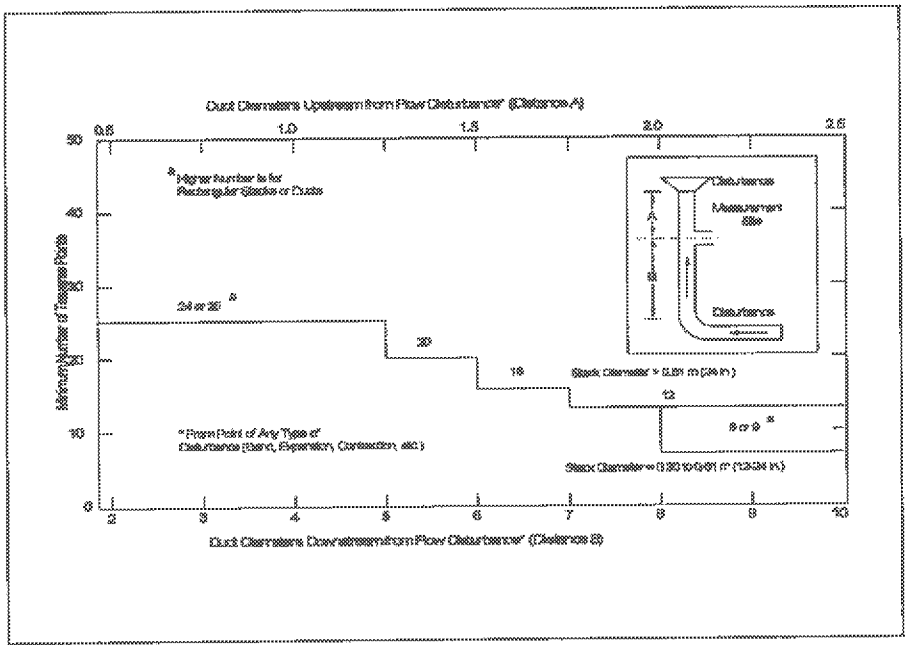
Eq Dia = 2(LxW)/(L+W)

L "		Square Stack
W "		
Stack Dia	148	Circular Stack
As (sq ft)	119.4678	
Eq Dia		Square Stack

Flow Disturbance, Duct Dia.		
	Actual	Minimum
up	1.135135	0.5
down	1.945946	2.0

Minimum Number of sampling points per Method 1 (fig. 1-1): 24

If min disturbance dist not met, verify location complies with section 11.5, alternative location



Traverse Point	Angel			Ri
	α	Pitch (P)	Yaw (Y)	
1	0			
2	0			
3	4			
4	7			
5	8			
6	10			
7	0			
8	1			
9	3			
10	5			
11	9			
12	9			
13	0			
14	0			
15	2			
16	3			
17	7			
18	8			
19	0			
20	3			
21	5			
22	7			
23	9			
24	10			
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
Average	4.58333		Ravg	#DIV/0!

USEPA Methond 1 Section 11.5
Sample minimum of:
40 pts circular
42 pts rectangle
Ravg=Sum(Ri/n)
<20
Standard Deviation
<10

sld Dev #DIV/0!

Metals

Lead (Pb)	Measured Wt. (ug)	IEPA Calcuation ug/dscm@7%O2
Run 1	49.23	94.82985832
Run 2	22.2	37.68749267
	Average	66.25867549

O2

Instrument span = 21

Analyzer Calibration Error ≤ 2% of Span

alt ≤ 0.5 ppm

ACE = ((Direct analyzer response - cal gas value)/span)*100

	Calibration Value	Direct Respons	Calibration Error	Alt
Low/(zero)	0	-0.04	✓ 0.19%	n/a
Mid-Level	10	10.03	✓ 0.14%	n/a
High-Level	21	21.03	✓ 0.14%	n/a

System Bias

95% or .05 ppm

SB = ((system - direct)/span)*100

	Direct Response	System Response	Bias
zero	-0.04	0.02	✓ 0.3%
mid	10.03	9.96	✓ 0.3%

System Calibration Drift ≤ 3% of the span value

Drift = ((post cal response - pre cal response)/span)*100

	calibration value		response	drift	Co or Cm
pre 1	Low/(zero)	-0.04	0.02		
	Mid-Level	10.03	9.96		
post 1	Low/(zero)	-0.04	-0.01	-0.14%	0.005
	Mid-Level	10.03	10.12	0.76%	10.04
pre 2	Low/(zero)	-0.04	-0.01		
	Mid-Level	10.03	10.12		
post 2	Low/(zero)	-0.04	0.15	0.76%	0.07
	Mid-Level	10.03	10.17	0.24%	10.145
pre 3	Low/(zero)	-0.04	0.15		
	Mid-Level	10.03	10.17		
post 3	Low/(zero)	-0.04		-0.71%	0.15
	Mid-Level	10.03		-48.43%	10.17

Cgas(wet) = (C - Co)*(Cma/(Cm - Co))

Where:

Cgas = Effluent gas conc, dry basis, ppm

C = Ave gas conc by analyzer, dry basis, ppm

Co = Ave of initial and final system cal bias, zero

Cm = Ave of initial and final system cal bias, mid

Cma = Actual conc of mid scale cal gas, ppm

Run	Cma	C	Cgas
Run 1	10.03	17.04	17.92606
Run 2	10.03	17.66	17.51143
0	10.03		-0.15015

Stratification Test

Pt	Value	3 pt % difference	6 pt % difference	12 pt % difference
1	18.66	4%		
2	18.94	6%		
3	18.24	✓ 2%		
4				
5				
6				
7				
8				
9				
10				
11				
12				

3 pt mean 17.95333

6 pt mean

12 pt mean

✓	Unstratified	± 5% of mean for 1-point sampling
!	minimally stratified	± 10% of mean for 3-point sampling
×	stratified	Sample all points

Cal Gas	Serial No	Exp. Date	Conc.
Low-Level			
Mid-Level			
High-Level			

CO2

Instrument span = 20.8

Analyzer Calibration Error ≤ 2% of Span

all ≤ 0.5 ppm

ACE = ((Direct analyzer response - cal gas value)/Span)*100

	Calibration Value	Direct Respons	Calibration Error	Alt
Low(zero)	0	-0.01	✓ 0.05%	n/a
Mid-Level	9.91	9.88	✓ 0.14%	n/a
High-Level	20.8	20.82	✓ 0.10%	n/a

System Bias

95% or .05 ppm

SB = ((sytem - direct)/span)*100

	Direct Response	System Response	Bias
zero/low	-0.01	-0.01	✓ 0.0%
mid	9.88	9.99	✓ 0.5%
high			✓ 0.0%

System Calibration Drift ± 3% of the span value

Drift = ((post cal response - pre cal response)/span)*100

	calibration value		response	drift	Co or Cm
pre 1	Low(zero)	-0.01	-0.01		
	Mid-Level	9.88	9.99		
post 1	Low(zero)	-0.01	0.06	0.34%	0.025
	Mid-Level	9.88	9.97	-0.10%	9.98
pre 2	Low(zero)	-0.01	0.06		
	Mid-Level	9.88	9.97		
post 2	Low(zero)	-0.01	0.07	0.05%	0.065
	Mid-Level	9.88	10.4	2.07%	10.185
pre 3	Low(zero)	-0.01	0.07		
	Mid-Level	9.88	10.4		
post 3	Low(zero)	-0.01		-0.34%	0.07
	Mid-Level	9.88		-60.00%	10.4

Cgas(wet) = (C - Co)*(Cma/(Cm - Co))

Where:

Cgas = Effluent gas conc. dry basis, ppm
C = Ave gas conc by analyzer, dry basis, ppm
Co = Ave of initial and final system cal bias, zero
Cm = Ave of initial and final system cal bias, mid
Cma = Actual conc of mid scale cal gas, ppm

Run	Cma	C	Cgas
Run 1	9.88	4.98	4.91767
Run 2	9.88	5.18	4.993596
0	9.88		-0.06695

Stratification Test

Pt	Value	3 pt % difference	6 pt % difference	12 pt % difference
1	3.73	10%		
2	4.22	2%		
3	4.40	8%		
4				
5				
6				
7				
8				
9				
10				
11				
12				

3 pt mean 4.136667
6 pt mean
12 pt mean

✓	Unstratified	± 5% of mean for 1-point sampling
!	minimally stratified	± 10% of mean for 3-point sampling
×	stratified	Sample all points

Cal Gas	Serial No.	Exp. Date	Conc.
Low-Level			
Mid-Level			
High-Level			

CO

Instrument span = 8000

Analyzer Calibration Error ≤ 2% of Span

all ≤ 0.5 ppm

ACE = ((Direct analyzer response - cal gas value)/span)*100

	Calibration Value	Direct Respons	Calibration Error	Alt
Low/(zero)	0	1.68	✓ 0.02%	n/a
Mid-Level	4000	4006.77	✓ 0.08%	n/a
High-Level	8000	7994.94	✓ 0.06%	n/a

System Bias

95% or .05 ppm

SB = ((sytem - direct)/span)*100

or

	Direct Response	System Response	Bias
Low	1.68	-0.75	✓ 0.0%
mid	4006.77	4015.25	✓ 0.1%
high			✓ 0.0%

System Calibration Drift ± 3% of the span value

Drift = ((post cal response - pre cal response)/span)*100

		cal value	responsse	drift	Co or Cm
pre	Low/(zero)	1.68	-0.75		
	Mid-Level	4006.77	4015.25		
post 1	Low/(zero)	1.68	-2.01	-0.02%	-1.38
	Mid-Level	4006.77	4016.79	0.02%	4016.02
pre 2	Low/(zero)	1.68	-2.01		
	Mid-Level	4006.77	4016.79		
post 2	Low/(zero)	1.68	-1.76	0.00%	-1.885
	Mid-Level	4006.77	4015.73	-0.01%	4016.26
Pre	Low/(zero)	1.68	-1.76		
	Mid-Level	4006.77	4015.73		
post 3	Low/(zero)	1.68		0.02%	-1.76
	Mid-Level	4006.77		-50.20%	4015.73

Cgas(wet) = (C - Co)*(Cma/(Cm - Co))

Where:

Cgas = Effluent gas conc, dry basis, ppm

C = Ave gas conc by analyzer, dry basis, ppm

Co = Ave of initial and final system cal bias, zero

Cm = Ave of initial and final system cal bias, mid

Cma = Actual conc of mid scale cal gas, ppm

Run	Cma	C	Cgas
Run 1	4006.77	1005.24	1003.956
Run 2	4006.77	995.58	994.6413
		Average	999.2989

Run	lbs/hr	Cgas @ 15% O2
Run 1	1809.263	1991.752
Run 2	1809.67	1731.819
Average	1809.467	1861.786

Stratification Test (RM 7E § 8.1.2)

NOTE:
Stratification was based on O2 and CO2
emissions data due the the viability in CO

Pt	Value	3 pt % difference	6 pt % difference	12 pt % difference
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

3 pt mean _____
6 pt mean _____
12 pt mean _____

✓	Unstratified	each traverse point ± 5% of mean for 1-point sampling
!	minimally stratified	each traverse point ± 10% of mean for 3-point sampling
x	stratified	Sample all points

Cal Gas	Serial No.	Exp. Date	Conc.
Low-Level			
Mid-Level			
High-Level			

NOX

Instrument span = 100

Analyzer Calibration Error < 2% of Span

alt ≤ 0 5 ppm

ACE = ((Direct analyxer response - cal gas value)/span)*100

	Calibration Value	Direct Respons	Caliboration Error	Alt
Low(zero)	0	0.05	0.05%	n/a
Mid-Level	50	50.04	0.04%	n/a
High-Level	100	100 9	0.90%	n/a

System Bias

95% or .05 ppm

SB = ((sytem - direct)/span)*100

or

	Direct Response	System Response	Bias
Low	-0.05	0.62	0.7%
mid	50.04	50.34	0.3%
high			0.0%

System Calibration Drift ± 3% of the span value

Drift = ((post cal response - pre cal response)/span)*100

	calibration value		response	drift	Co or Cm
pre 1	Low(zero)	-0.05	0.62		
	Mid-Level	50.04	50.34		
post 1	Low(zero)	-0.05	0.2	-0.42%	0.41
	Mid-Level	50.04	50.53	0.19%	50.435
pre 2	Low(zero)	-0.05	0.2		
	Mid-Level	50.04	50.53		
post 2	Low(zero)	-0.05	0.45	0.25%	0.325
	Mid-Level	50.04	49.81	-0.72%	50.17
pre 3	Low(zero)	-0.05	0.45		
	Mid-Level	50.04	49.81		
post 3	Low(zero)	-0.05		-0.45%	0.45
	Mid-Level	50.04		-49.61%	49.81

Cgas = (C - Co)*(Cma/(Cm - Co))

Where:

Cgas = Effluent gas conc, ppm

C = Ave gas conc by analyzer, ppm

Co = Ave of initial and final system cal bias, zero

Cm = Ave of initial and final system cal bias, mid

Cma = Actual conc of mid scale cal gas, ppm

lbs/mmBtu = (Cs*1.194e-7Fd*20.9)/(20.9-O2)

Run	Cma	C	Cgas
Run 1	50.04	11.26	10.85325
Run 2	50.04	17.73	17.47309
0	50.04		-0.4562

lbs/hr	lbs/mmBtu	Fd
32.13265	0.001339	147
52.22789	0.00202	157
0	0	0

	Tons	Time (min)	#/T
Run 1	920.5	147	0.085524
Run 2	725.15	157	0.188462

Stratification Test (RM 7E § 8.1.2)

NOTE:
Stratification was baed on O2 and CO2
emissions data due the the vaiability in CO

ducts < 4' exempt

Pt	Value	3 pt % difference	6 pt % difference	12 pt % difference
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

3 pt mean _____
6 pt mean _____
12 pt mean _____

✓	Unstratified	each traverse point ± 5% of mean for 1-point sampling
!	minimally stratified	each traverse point ± 10% of mean for 3-point sampling
×	stratified	Sample all points

NO2-NO Converter Efficiency ≥ 90%

	NO2 Cal Gas
	Response

Eff_{NOx} #DIV/0! %

Cal Gas	Serial No	Exp. Date	Conc
Low-Level			
Mid-Level			
High-Level			

CO-50%EA

Pollutant concentration corrected to 50% Excess Air

C50%EX = CM*((1+R)/1.5) (ppm)

R = (%O2-0.5%CO)/(0.264*%N2-%O2+0.5%CO)

Excess Air Ratio
CM = measured CO concentration (ppm)
%O2 = % oxygen in flue gas
%CO2 = % carbon dioxide in flue gas
%N2 = % nitrogen in flue gas
%CO = % carbon monoxide in flue gas (ppm/10,000)

	%O2	%CO2	%N2	%CO	R	CM	C50%EX
Run 1	17.92600	4.91767	77.15627	0	7.3372	1003.956	5580.09
Run 2	17.51143	4.983696	77.49487	0	5.9417	994.6413	4603.00

Average 5091.55

Revised September 15, 2006

VOM Calibration

Instrument span = 100

Calibration Error ≤ 5% of cal gas

Zero Range — Cal error = (analyzer response - cal gas value)/span)* 100

Low-Mid-Hi Range — Cal error = (analyzer response - cal gas value)/cal gas conc.)* 100

% of Span		Cal Value	Response	cal error
0-1	zero	0	0.04	0.04%
25-35	low	25	25.06	0.24%
45-55	mid	50	50.07	0.14%
80-90	high	84	84.15	0.18%

Cal Gas Cert No.	Exp. Date

Calibration Drift ± 3% of the span value

Drift = ((post cal response - pre cal response)/span)* 100

calibration value			response	drift	Co or Cm
pre 1	zero	0.04	0.04		
	mid	50.07	50.07		
post 1	zero	0.04	0.02	-0.02%	0.03
	mid	50.07	50.15	0.08%	50.11
pre 2	zero	0.04	0.02		
	mid	50.07	50.15		
post 2	zero	0.04	0.04	0.02%	0.03
	mid	50.07	50.26	0.11%	50.205
pre 3	zero	0.04	0.04		
	mid	50.07	50.26		
post 3	zero	0.04		-0.04%	0.04
	mid	50.07		-50.26%	50.26

Cgas = (C - Co)*(Cma/(Cm - Co))

Where:

Cgas = Effluent gas conc. ppm

C = Ave gas conc by analyzer, ppm

Co = Ave of initial and final system cal bias, zero

Cm = Ave of initial and final system cal bias, mid

Cma = Actual conc of mid scale cal gas, ppm

	Cma	C (wet)	Cgas (wet)	Methane (dry)
Run 1	50.07	3.62	3.5892831	
Run 2	50.07	4.13	4.09142	
Run 3	50.07		-0.039881	

VOM Emissions

Cgas = Cgas(wet) (1-Bws)

Run 1	4.291139006	ppm dry
Run 2	4.878817279	ppm dry

Cgas(cmm) * 12/385.4e6 (lbs/dscf)

Run 1	1.33621E-07	lbs/dscf
Run 2	1.51891E-07	lbs/dscf

E = (lbs/dscf * dscf/hr)

Run 1	3.313219651	lbs/hr
Run 2	3.802385152	lbs/hr

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: October 7, 2020

TO: Minesh Patel, Construction Unit, Permits/BOA

FROM: Sarah Ray and Cari Rutherford, Modeling Unit, AQPS/BOA

SUBJECT: U.S. Steel Corporation - Granite City Works (ID 119813AAI), Application for Revisions to Permit 95010001, Air Quality Analysis for Carbon Monoxide

This memorandum addresses the Air Quality Planning Section's (AQPS) review of the Air Quality Analysis for carbon monoxide (CO) submitted by U.S. Steel - Granite City Works (US Steel) as part of an application for revisions to Construction Permit/PSD Approval 95010001. In this application, among other requested revisions to this permit, US Steel requests increases in the allowable CO emissions as provided by this permit. As discussed in this memo, the air quality analysis fulfills the applicable requirements of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. Air quality analysis results show that the revised limits for CO emissions will not cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS) for CO. The additional impact analysis shows that the requested CO emissions increase will not adversely affect soils and vegetation near the Granite City Works.

The Granite City Works are located in Granite City, Madison County, Illinois. Madison County was designated as attainment for CO air quality in 1996, when Permit 95010001 was originally issued. It continues to be an attainment area for CO. Permit 95010001 was originally issued January 25, 1996. It authorized an increase in iron and steel production at the Granite City Works. The project was a major modification for CO under the PSD rules.[1]

As related to CO emissions, the application for revisions to Permit 95010001 does not involve any proposed physical changes to the Granite City Works. Rather, the application reflects new data for the CO emissions of units powered by natural gas and by blast furnace gas (BFG) – a byproduct of blast furnace operation. Updated emissions information is based on the availability of new emission factors and unit testing results which indicate that CO emissions are substantially greater than were originally represented.

The 1996 application used a natural gas emission factor from Chapter 1.4 of AP-42, as updated in August 1982. A USEPA revision in July 1998 updated the CO emission factor for natural gas combustion from 40 lb per million cubic feet to 84 lb per million cubic feet. The original BFG emission factor of 13.7 lb per million cubic feet that was used in the 1996 application was based on USEPA's AIRS 1990 database (WebFIRE). Blast furnace gas emission factors included in the

[1] The expansion of the Granite City Works addressed by Permit 95010001 was also a major modification for sulfur dioxide (SO_2) under PSD. However, in the current application, US Steel has not requested increases in its permitted annual SO_2 emissions, as authorized by Permit 95010001.

application for revisions are based upon engineering evaluations and stack testing performed at the Granite City Works.

CO limitations under the 1996 permit were 22.90 tpy for natural gas and 1,267.46 tpy for BFG. In its application for revisions, US Steel is proposing new CO limits of 83 tpy for natural gas and 19,260 tpy for BFG. The emission units affected by emission factor updates are BFG stoves, BFG flares, boilers, ladle preheaters and dryers, and basic oxygen furnaces. The application included an air quality analysis for CO as the expansion project addressed by Permit 95010001 would continue to be significant for CO under the PSD rules, with an increase in annual CO emissions of 100 tons or more.

Air Quality Planning Section (AQPS) Review

The air quality analysis and additional impacts analysis for CO were performed for US Steel by a consultant, RTP Environmental Associates, Inc. (RTP). RTP submitted its analyses to the Illinois EPA in February 2020. By an email dated July 28, 2020, RTP submitted supplementary information for the additional impacts analysis. The air quality analysis for CO and the additional impacts analysis have each been reviewed by the AQPS and are described in the following sections.

CO Air Quality Analysis

Proposed changes to CO emission factors for gaseous fuels will result in higher short-term emission rates for natural gas- and BFG-burning emission units at the Granite City Works. RTP performed an air quality analysis to ensure that the CO concentrations resulting from proposed CO limits listed in the application for revisions would not cause or contribute to a NAAQS violation. Below is a summary of the modeling tools and inputs used by RTP to conduct the air quality analysis for 1-hour and 8-hour CO averaging times:

- RTP used AERMOD (AMS/EPA Regulatory Model), version 19191. AERMOD is a state and federally approved regulatory model described in 40 CFR Appendix W to Part 51 as appropriate for use in regulatory applications. The audit runs conducted by AQPS also used the same version of AERMOD.

- AERMOD modeling files used AQPS and USEPA recommended regulatory options, which simulate phenomena such as atmospheric stability, plume rise, and downwash.

- Five years of meteorology, representative of the local area, was applied to the modeling. National Weather Service meteorological data files for years 2014 through 2018 were obtained from the National Centers for Environmental Information (NCEI) and consisted of surface data collected at the St. Louis Lambert International Airport in St. Louis, Missouri and upper air data collected at the National Weather Service Office in Lincoln, Illinois. RTP processed the meteorological data with AERMET, version 19191. AQPS audit runs used meteorological data from the same surface and upper air stations and were also processed with AERMET, version 19191.

- National Elevation Data (NED) terrain elevations from USGS were processed using the most recent version of AERMAP (v. 18081) to develop the receptor terrain elevations and hill height scales required by AERMOD.

- RTP made use of multiple Cartesian grids in their distribution of receptors. The following receptor grid densities were used:

    - 50 meter spacing of receptors along the facility's fence line

    - 100 meter spacing of receptors from the facility's fence line out to 3 kilometers

    - 250 meter spacing of receptors from 3 kilometers out to 7.5 kilometers

    - 500 meter spacing of receptors from 7.5 kilometers out to 15 kilometers

- During its review, AQPS determined that the receptor grid used by RTP was sufficient to characterize the impacts of the facility on CO air quality as the grid accounts for modeled impacts up to 15 km away from the facility. RTP-modeled significant impacts for the 8-hour CO averaging time did not extend beyond 1.5 km away from the facility. RTP modeling did not show any significant impacts for the 1-hour CO averaging time.

- The approximate site elevation at the Granite City Works is 126.5 meters above mean sea level and the surrounding terrain is largely uniform.

- RTP used USEPA's Building Profile Input Program (BPIPPRM) to determine good engineering practice (GEP) stack heights and the appropriate building downwash parameters to model building wake effects.

- RTP considered the region to be rural, and accordingly, sources were modeled without implementing the AERMOD urban option. AQPS confirmed the acceptability of this classification with an independent Auer's analysis. The results of this analysis indicated that the area is 60.6% rural and 39.4% urban, with much of the rural area comprised of developed, low intensity land cover, 30.64%.

- The significant impact modeling analysis included emissions units affected by the proposed revisions to the modification permitted under the 1996 permit.

- The cumulative modeling analysis included all CO emitting operations at the Granite City Works, including units constructed after the 1996 permit was issued. The analysis also included CO-emitting offsite sources up to 50 km away from the facility. Results from the modeling analysis were added to regional background concentrations and compared to either the 1-hour or 8-hour CO NAAQS, as appropriate.

Significant Impact Analysis

RTP performed a significant impact analysis to determine whether more detailed modeling would be required for CO. Results from this analysis are listed in Table 1. The maximum 1-hour and 8-hour CO impacts shown in the table reflect the net change in air quality that would result from proposed revisions to the modification permitted under the 1996 permit. Modeled results for the 8-hour CO averaging period exceeded the significant impact level (SIL) threshold of 500 $\mu g/m^3$ and required a cumulative analysis.

Table 1
Significant Impact Analysis Results

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Cumulative Impact Analysis Required?
CO	1-Hour	1,087	2,000	No
	8-Hour	669	500	Yes

AQPs-modeled results were similar to those reported by RTP in its air quality analysis. AQPS' maximum modeled impacts for CO were 1,087 $\mu g/m^3$ for the 1-hour averaging period and 672 $\mu g/m^3$ for the 8-hour averaging period.[2]

Cumulative Impact Analysis for the NAAQS

RTP included all CO emitting operations at the Granite City Works – even units constructed after the 1996 permit was issued – in its cumulative impact analysis. RTP also included background emission inventories for CO furnished by AQPS and the Missouri Department of Natural Resources (MDNR). These background inventories conservatively included all nearby sources within 50 km of the Granite City Works. Additionally, RTP used background data (for years 2016-2018) obtained from a nearby Illinois EPA ambient air monitoring station in East St. Louis (AQS Site # 17-163-0010) in its cumulative analysis. RTP selected this monitoring site because of its proximity to the facility (9.22 km to the south). An Auer's analysis performed by AQPS shows that this monitor also has a similar landcover profile (43.7% urban and 56.3% rural, with approximately 30% of its landcover associated with developed, low intensity structures).

Based on significant impact analysis results, only the 8-hour CO averaging period required a cumulative analysis. However, RTP conducted NAAQS modeling runs for both the 1-hour and 8-hour CO averaging periods. Table 2 summarizes the results from RTP's cumulative impact analysis. Modeled concentrations represent the maximum highest-second-high value over the five-year meteorological data set (years 2014-2018). As shown, maximum total concentrations from

[2] Differences in AQPS and consultant data pre-processing activities may yield similar, but not identical modeled impacts in AERMOD. As one example, AQPS provides PSD applicants with stage 3 surface parameters, but applicants are expected to independently develop their own meteorology files for use in AERMOD.

the RTP cumulative analysis – which reflect combined modeled and background concentrations – fall below the NAAQS values for 1-hour and 8-hour CO.

Table 2
Cumulative Impact Analysis Results

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Maximum Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1-Hour	3,414(1)	2,286(a)	5,700	40,000
	8-Hour	1,941(2)	1,349(b)	3,290	10,000

(1) Highest 2nd high value over 5 years of meteorological data
(2) Highest 2nd high value over 5 years of meteorological data

(a) Highest 2nd high concentration over 3 years of monitoring data
(b) Highest 2nd high concentration over 3 years of monitoring data

AQPS conducted its own cumulative analysis for 1-hour and 8-hour CO. Maximum highest-second-high values from the AQPS CO modeling runs were 3,418 $\mu g/m^3$ for the 1-hour averaging period and 1,969 $\mu g/m^3$ for the 8-hour averaging period. The AQPS maximum total concentrations of 5,704 $\mu g/m^3$ for 1-hour CO and 3,318 $\mu g/m^3$ for 8-hour CO do not exceed the NAAQS for the 1-hour and 8-hour CO averaging periods. Because both RTP and AQPS CO modeling results do not exceed 1-hour and 8-hour NAAQS values shown in Table 2, AQPS determined that no adverse impacts will occur to the CO NAAQS as a result of the proposed permit revision.

CO Additional Impacts Analysis

US Steel is proposing revisions to existing CO limits for some of its emission units. Because the proposed net increase of CO exceeds the CO significant emission rate, RTP developed an additional impacts analysis for CO. In this analysis, RTP assessed whether any additional impacts to soils and vegetation would occur as a result of the requested CO emissions' increase.

The Granite City Works is an existing facility, and the 1996 project did not generate any growth impacts. Subsequently, RTP does not expect any industrial, commercial, or residential growth to result from the proposed revisions. The scope of RTP's analysis was to assess the impacts of proposed revisions to CO limits. Carbon monoxide does not impact visibility. Likewise, CO emissions are not included in visibility screening tools such as USEPA's VISCREEN model. [3] As such, no visibility analysis was deemed necessary by AQPS.

[3] Visibility screening tools consider the effects of aerosol species such as sulfates and nitrates — and the gaseous species that interact to form these aerosols. Level-1 analyses conducted with the USEPA VISCREEN model use particulate and NOx emissions to assess visibility impacts for Class I areas. The CALPUFF photochemical model uses emissions from the gaseous species SO_2, NOx, and HNO_3, as well as emissions from SO_4 and NO_3 particulates to assess Class I area visibility impacts.

Soil and Vegetation Impacts

As part of its additional impacts analysis, RTP conducted soil and vegetation surveys for the over 66,000 acres surrounding the Granite City Works. For its soils analysis, RTP used the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service Web Soil Survey application. Results from the soils analysis show that the primary soil types in the area are varieties of silt clay, sandy loam, and silty clay loams with pH values ranging between 5.0 and 7.0.[4]

Soils from the study have a cation exchange capacity (CEC) between 8 and 31 milliequivalents (meq) per 100 g of soil. CECs refer to the total amount of extractable cations, – or positively charged ions such as calcium, magnesium, potassium and ammonium – that a soil can hold. For reference, higher-CEC soil refers to soil with a CEC larger than 10 meqs per 100 g of soil. Low-CEC soil refers to soil with CECs less than 5 meq per 2000 g of soil. Higher CEC values coincide with a reduced potential for groundwater pollution as these soils will require fewer fertilizer applications. The CEC range provided by RTP during its analysis indicates that soils around the Granite City Works trend toward the higher-CEC classification and, consequently, are less prone to groundwater pollution.[5]

A 2017 vegetation survey conducted by the USDA's Forest Service group indicates that 21% of Madison County is forest land occupied by oaks, hickory, eastern white and red pine, ash and cottonwood trees.[6,7] Separate 2012 USDA Census reports for Illinois list 60% of Madison County as cropland dedicated to the production of commercially significant crops, including corn and soybeans.[8]

Potential CO impacts to vegetation include epinasty, chlorosis, and abscission. Epinasty affects plant growth rates such that the tops of plants grow faster than their bottom portions can support.[9] Chlorosis occurs when a lack of chlorophyll causes leaf tissues to turn yellow.[10] Abscission occurs when plants lose components like leaves, seeds, or petals.[11] To assess how proposed revisions to CO limits would impact the soils and vegetation surrounding the Granite

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[4] U.S. Department of Agriculture, Natural Resource Conservation Service, Custom Soil Resource Report. February 18, 2020.
[5] Purdue University Cooperative Extension Service (2020). Fundamentals of Soil Cation Exchange Capacity (CEC). Retrieved from: https://www.extension.purdue.edu/extmedia/ay/ay-238.html.
[6] Forest Inventory and Analysis. Design and Analysis Toolkit for Inventory and Monitoring Web Application, Version November 30, 2018 10.0 c9ded9d. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. Available only on internet: https://www.fs.fed.us/emc/rig/DATIM/index.shtml (last accessed October 1, 2020).
[7] Forests of Illinois 2017, https://www.nrs.fs.fed.us/pubs/55799 (last accessed on October 1, 2020).
[8] 2017 Census of Agriculture, Illinois State and County Data, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Illinois/cp17119.pdf (last accessed on October 1, 2020).
[9] The Daily Garden (2017). Epinasty. Retrieved from: https://www.thedailygarden.us/garden-word-of-the-day/epinasty.
[10] University of Illinois Extension (2020). Chlorosis. Retrieved from: https://web.extension.illinois.edu/focus/index.cfm?problem=chlorosis.
[11] The Daily Garden (2017). Abscission. Retrieved from: https://www.thedailygarden.us/garden-word-of-the-day/abscission.

City Works, RTP first compared available CO thresholds with the 1-hour and 8-hour CO concentrations described in the modeling analysis. Cumulative impact analysis results from RTP, listed in Table 2, show that maximum modeled concentrations are well below the primary CO NAAQS for both averaging periods.

Primary NAAQS are designed to protect human health, while secondary NAAQS are designed to protect public welfare, including providing protections against damage to crops and vegetation. On September 13, 1985, USEPA announced a final decision to revoke secondary standards for CO because "no adverse welfare effects were reported at or near ambient CO levels."[12] In the absence of secondary NAAQS values for CO, — and as a supplement to the additional impacts analysis provided in the US Steel application — RTP considered other CO thresholds that may be more conservative than primary NAAQS values. RTP also conducted an Ecological Compliance Assessment Tool (EcoCAT) review to identify any threatened or sensitive plant species in the immediate area surrounding the Granite City Works. RTP communicated its findings to AQPS via email correspondence.

USEPA lists primary NAAQS values for 1-hour and 8-hour CO in units of $\mu g/m^3$. Other reference documents provide CO thresholds in units of parts per million (ppm). Converting 1-hour and 8-hour CO NAAQS values from units of $\mu g/m^3$ to units of ppm yields values of approximately 35 ppm for 1-hour CO and 9 ppm for 8-hour CO.[13] By comparison, RTP-modeled CO impacts are approximately 5 ppm and 3 ppm for the 1-hour and 8-hour averaging periods, respectively.

A directive passed in the European Union in 2008 sets a CO threshold exposure limit for primary and secondary receptors between 5,000 and 7,000 $\mu g/m^3$, or between approximately 4 and 6 ppm for an 8-hour averaging period.[14] This range is lower than the primary 8-hour NAAQS for CO — but remains above the 3 ppm 8-hour CO impact modeled by RTP. Still other research indicates that CO concentrations below 100 ppm for exposure periods between one and three weeks have not been found to produce detrimental impacts on plants.[15]

As NAAQS have not been established at levels designed to be protective of sensitive vegetation species, particularly threatened and endangered species, AQPS requested that US Steel provide additional analysis in its application to ensure that the area surrounding the facility remains protected following the revisions to the 1996 Permit. In response, RTP completed an EcoCAT review for US Steel's location on the IDNR website. Results from this analysis determined that there were no threatened or endangered species listed in the vicinity of the Granite City Works. Based on RTP's comparison of its modeling results with available CO thresholds and EcoCAT review results, AQPS does not anticipate that proposed revisions to CO limits will adversely impact the surrounding environment.

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[12] 50 Fed. Reg. 37484, September 13, 1985

[13] USEPA (2016). NAAQS Table. Retrieved from: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

[14] Directive 2008/50/EC of the European Parliament and of the Council of the European Union: On ambient air quality and cleaner air for Europe, 21 May 2008.

[15] Additional Impact Assessment for Plants and Soils from the Sunflower Station, Sunflower Electric Power Corporation.

US Steel's discussion regarding soils, vegetation, and local growth is acceptable. Based upon US Steel's submittal and AQPS review, the air quality analysis for CO for US Steel's application for permit revision, as this application relates to CO emissions, satisfies PSD requirements.

cc: Chris Romaine, Construction Unit Manager, Permits/BOA
David Bloomberg, Section Manager, AQPS/BOA
Jeff Sprague, Modeling Unit Manager, AQPS/BOA
Sally Carter, Assistant Counsel, Division of Legal Counsel

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 – (217) 782-2113

ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

217/782-2113

OPERATING PERMIT

PERMITTEE

U.S. Steel Granite City
Attn: Larry Siebenberger
Route 203 and 20th Street
Granite City, Illinois 62040

Application No.: 72080034 I.D. No.: 119813AAI
Applicant's Designation: BF0992450 Date Received: November 13, 2007
Subject: Blast Furnace A
Date Issued: January 25, 2008 Expiration Date: January 25, 2013
Location: Route 203, Edwardsville Road, Granite City

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of Blast Furnace A, including casthouse with casthouse and iron spout baghouses, and stoves, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1a. Total combined production of hot metal (iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

2a. Except during periods of runner maintenance, the hot metal runners and the short slag runner shall be covered with permanent type runner covers.

b. Overlapping casting of A and B Blast Furnaces is allowed at casting rates not to exceed 6 tons per minute per furnace.

3a. Emissions from Blast Furnace A shall comply with requirements established by the Second Amendment to Consent Decree (Consent Decree 81-3009), filed in the U.S. District Court, Southern District of Illinois, on November 1, 1984. In particular:

i. Emissions from the iron spout baghouse shall not exceed 0.010 gr/dscf of particulate and 10 percent opacity on a six minute running average.

ii. Fugitive emissions from the blast furnace casthouse shall not exceed 20 percent opacity on a six minute running average.

iii. Particulate emissions from the blast furnace gas cleaning device shall not exceed 0.010 gr/dscf.

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iv. Visible emissions from blast furnace gas cleaning devices shall not exceed 10 percent opacity on a six minute running average.

4. Blast Furnace A is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities (40 CFR 63 Subpart FFFFF) and Blast Furnace A and the Permittee shall comply with the all applicable requirements of the NESHAP, including applicable emissions and opacity limits, operating limits, operation and maintenance requirements, and requirements for testing, monitoring, recordkeeping and reporting, as set forth in 40 CFR 63 Subparts A and FFFFF.

5a. Operation in excess of the applicable emission standards in 35 IAC Title 35, Subtitle B, Chapter I, Subchapter c during startup of Blast Furnace A is allowed as provided by 35 IAC 201.149 and 201.265, subject to the following terms and conditions:

i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

ii. The Permittee shall conduct startup in accordance with formal procedures prepared by the Permittee that are specifically developed to minimize emissions from startups.

iii. The Permittee shall keep records documenting its actions to minimize emissions during startups.

iv. As provided by 35 IAC 201.265, this authorization for excess emissions during startup does not shield the Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

Note: This condition supersedes Standard Condition 9 as it would apply to startup.

6a. Operation in excess of the applicable emission standards in 35 IAC Title 35, Subtitle B, Chapter I, Subchapter c during malfunction and breakdown is allowed for Blast Furnace A, the casthouse or associated baghouses as provided by 35 IAC 201.149 and 201.265, subject to the following terms and conditions:

i. In the event of a malfunction or breakdown, the Permittee shall make all reasonable attempts to correct the problem in a timely manner including but not limited to calling in off shift, overtime and independent labor.

ii. Use of the auxiliary tapholes is allowed during periods of malfunction and breakdown.

b. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours upon the occurrence of excess emissions due to malfunctions, or breakdowns.

c. The Permittee shall comply with all reasonable and safe directives of the Illinois EPA regarding such malfunctions and breakdowns, as provided by 35 IAC 201.263.

d. The Permittee shall maintain records for each malfunction and breakdown that was accompanied by excess emissions. As a minimum, these records shall include:

i. A full and detailed explanation of why such excess emissions occurred.

ii. The date and length of time during which operation continued under such conditions.

iii. The measures used to reduce the quantity of emissions and length of time during which such operations occurred.

iv. The steps the Permittee will take to prevent similar malfunctions or breakdowns in the future.

e. The Permittee shall submit quarterly reports to the Illinois EPA providing an explanation of each occurrence of a malfunction or breakdown that resulted in excess emissions, which reports shall include the information specified in Condition 6(d).

Note: This condition supersedes Standard Condition 9 as it would apply to malfunction or breakdown.

7a. Beaching of iron from Blast Furnace A may occur in the following circumstances provided that beaching shall only occur as receptacles are not available for molten iron; all reasonable measures are taken to minimize the quantity of beached iron, the frequency and duration of events that necessitate beaching, and the emissions resulting from beaching; and beaching occurs at a controlled pour rate of no more than 20 tons per minute:

i. In the event that the furnace must be shut down in order to cast the furnace dry.

ii. In the event that an interruption in the Basic Oxygen Furnace (BOF) steelmaking and/or casting operations will result in a temporary surplus of iron, beyond the capacity of the system to hold, necessitating beaching in order to cast the furnace dry and provide the ability to safely shut down.

iii. In the event that the furnace produces unusable iron such as high silica or low temperature iron. High silica iron will be blended and used to the extent possible at the BOF in order to reduce beaching. Low temperature iron will be used at the BOF to the extent possible until solidification in the car becomes imminent. In other cases of unusable iron, such iron will be used when possible to minimize the quantity beached.

b. The Permittee shall maintain records for each event in which iron is beached that, as a minimum, shall include:

i. An explanation why beaching occurred.

ii. The date, time and duration of beaching.

iii. The measures used to reduce the amount of beaching.

iv. The maximum rate of beaching, tons/minute, (or information showing that the beaching rate did not exceed 20 tons/minute).

8a. Recycled oil may be burned in Blast Furnace A at a rate not to exceed 260 gallons per hours provided that:

i. Only recycled oil generated from the Permittee's own used oils may be burned.

ii. The used oils shall not constitute hazardous waste.

b. The Permittee shall keep records of the amount of recycled oil burned on a monthly basis (gallons) and records of the following information for each lot of recycled oil:

i. Amount of recycled oil in the shipment (gallons).

ii. Ash and sulfur contents (each, percent by weight).

iii. Halogen, chromium, arsenic, lead and cadmium contents (each, ppm by weight).

c. The Permittee shall notify the Illinois EPA at least 5 days in advance of beginning to burn used oil in Blast Furnace A. This notification shall include information confirming compliance with Condition 8(a) and the results of an analysis of the oil to be burned for constituents in accordance with Condition 8(b).

9a. The Permittee shall operate and maintain a continuous monitoring system (including automatic data recording) on the casthouse baghouse for pressure drop across the baghouse. The recorded data from this system shall be retained for a period of at least six months.

b. The Permittee shall maintain and operate a continuous monitoring system (including automated recording of data) on the iron spout baghouse for pressure drop across the baghouse.

10a. The Permittee shall keep records of the following items and such other items which may be appropriate to enable the Illinois EPA to review compliance with applicable emission standards and the requirements of this permit:

i. Total production of molten iron at the blast furnaces (daily, monthly, and annual production in tons).

11a. The Permittee shall retain all records required by this permit for at least three years, unless otherwise specified, and shall make those records readily available for inspection and copying by the Illinois EPA upon request.

b. i. Two copies of any required reports and notifications shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/524-4710

ii. A copy of all required reports and notifications, except the Annual Emission Report required by 35 IAC Part 254, shall also be sent to the Illinois EPA at the following address:

Illinois Environmental Protection Agency
Air Pollution Control, Regional Office
2009 Mall Street
Collinsville, Illinois 62234

If you have any questions on this, please contact Christopher Romaine at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: January 25, 2008

ECB:KLS:CPR:psj

cc: Region 3

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR OPERATING PERMITS

May, 1993

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special permit conditions(s).

1. The issuance of this permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statues and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.

2. The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.

3. a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Illinois EPA and unless a new permit or revision of the existing permit(s) is issued for such modification.

   b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA, upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit;

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. To obtain and remove samples of any discharge or emission of pollutants; and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located;

b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities;

c. Does not take into consideration or attest to the structural stability of any unit or part of the project; and

d. In no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

7. The Permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereuner.

8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the Permittee shall:

a. Immediately report the incident to the Illinois EPA's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Illinois EPA with respect to the incident;

b. Maintain the following records for a period of no less than two (2) years:

i. Date and duration of malfunction, breakdown, or startup,

ii. Full and detailed explanation of the cause,

iii. Contaminants emitted and an estimate of quantity of emissions,

iv. Measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and

v. Measures taken to reduce future occurrences and frequency of incidents.

10. If the permit application contains a compliance program and project completion schedule, the Permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.

11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

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May, 1993

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The following conditions are applicable unless superseded by special permit conditions(s).

1. The issuance of this permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statues and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.

2. The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.

3. a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Illinois EPA and unless a new permit or revision of the existing permit(s) is issued for such modification.

   b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA, upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit;

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. To obtain and remove samples of any discharge or emission of pollutants; and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located;

b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities;

c. Does not take into consideration or attest to the structural stability of any unit or part of the project; and

d. In no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

7. The Permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereuner.

8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the Permittee shall:

a. Immediately report the incident to the Illinois EPA's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Illinois EPA with respect to the incident;

b. Maintain the following records for a period of no less than two (2) years:

i. Date and duration of malfunction, breakdown, or startup,

ii. Full and detailed explanation of the cause,

iii. Contaminants emitted and an estimate of quantity of emissions,

iv. Measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and

v. Measures taken to reduce future occurrences and frequency of incidents.

10. If the permit application contains a compliance program and project completion schedule, the Permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.

11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 – (217) 782-2113

ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

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OPERATING PERMIT

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PERMITTEE

U.S. Steel Granite City
Attn: Larry Siebenberger
Route 203 and 20th Street
Granite City, Illinois 62040

Application No.: 72080036 I.D. No.: 119813AAI
Applicant's Designation: BF0992450 Date Received: November 13, 2007
Subject: Blast Furnace B
Date Issued: January 25, 2008 Expiration Date: January 24, 2013
Location: Route 203, Edwardsville Road, Granite City

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of B Blast Furnace, including casthouse with casthouse and iron spout baghouses, and stoves, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1a. Total combined production of hot metal (iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over a calendar month.

b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.

2a. Except during periods of runner maintenance, the hot metal runners and the short slag runner shall be covered with permanent type runner covers.

b. Overlapping casting of A and B Blast Furnaces is allowed at casting rates not to exceed 6 tons per minute per furnace.

3a. Emissions from Blast Furnace B shall comply with requirements established by the Second Amendment to Consent Decree (Consent Decree 81-3009), filed in the U.S. District Court, Southern District of Illinois, on November 1, 1984. In particular:

i. Emissions from the iron spout baghouse shall not exceed 0.010 gr/dscf of particulate and 10 percent opacity on a six minute running average.

ii. Visible emissions from blast furnace gas cleaning devices shall not exceed 10 percent opacity on a six minute running average.

iii. Fugitive emissions from the blast furnace casthouse shall not exceed 20 percent opacity on a six minute running average.

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iv. Particulate emissions from the blast furnace gas cleaning device shall not exceed 0.010 gr/dscf.

4. Blast Furnace B is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities (40 CFR 63 Subpart FFFFF) and Blast Furnace B and the Permittee shall comply with the all applicable requirements of the NESHAP, including applicable emissions and opacity limits, operating limits, operation and maintenance requirements, and requirements for testing, monitoring, recordkeeping and reporting, as set forth in 40 CFR 63 Subparts A and FFFFF.

5a. Operation in excess of the applicable emission standards in 35 IAC Title 35, Subtitle B, Chapter I, Subchapter c during startup of Blast Furnace B is allowed as provided by 35 IAC 201.149 and 201.265, subject to the following terms and conditions:

i. This authorization does not relieve the Permittee from the continuing obligation to demonstrate that all reasonable efforts are made to minimize startup emissions, duration of individual startups and frequency of startups.

ii. The Permittee shall conduct startup in accordance with formal procedures prepared by the Permittee that are specifically developed to minimize emissions from startups.

iii. The Permittee shall keep records documenting its actions to minimize emissions during startups.

iv. As provided by 35 IAC 201.265, this authorization for excess emissions during startup does not shield the Permittee from enforcement for any violation of applicable emission standard(s) that occurs during startup and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

Note: This condition supersedes Standard Condition 9 as it would apply to startup.

6a. Operation in excess of the applicable emission standards in 35 IAC Title 35, Subtitle B, Chapter I, Subchapter c during malfunction and breakdown is allowed for Blast Furnace B, the casthouse and the casthouse and iron spout baghouses as provided by 35 IAC 201.149 and 201.265, subject to the following terms and conditions:

i. In the event of a malfunction or breakdown, the Permittee shall make all reasonable attempts to correct the problem in a timely manner including but not limited to calling in off shift, overtime and independent labor.

ii. Use of the auxiliary tapholes is allowed during periods of malfunction and breakdown.

b. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours upon the occurrence of excess emissions due to malfunctions, or breakdowns.

c. The Permittee shall comply with all reasonable and safe directives of the Illinois EPA regarding such malfunctions and breakdowns, as provided by 35 IAC 201.263.

d. The Permittee shall maintain records for each malfunction and breakdown that was accompanied by excess emissions. As a minimum, these records shall include:

i. A full and detailed explanation of why such excess emissions occurred.

ii. The date and length of time during which operation continued under such conditions.

iii. The measures used to reduce the quantity of emissions and length of time during which such operations occurred.

iv. The steps the Permittee will take to prevent similar malfunctions or breakdowns in the future.

e. The Permittee shall submit quarterly reports to the Illinois EPA providing an explanation of each occurrence of a malfunction or breakdown that resulted in excess emissions, which reports shall include the information specified in Condition 6(d).

Note: This condition supersedes Standard Condition 9 as it would apply to malfunction or breakdown.

7a. Beaching of iron from Blast Furnace B may occur in the following circumstances provided that beaching shall only occur as receptacles are not available for molten iron; all reasonable measures are taken to minimize the quantity of beached iron, the frequency and duration of events that necessitate beaching, and the emissions resulting from beaching; and beaching occurs at a controlled pour rate of no more than 20 tons per minute:

i. In the event that the furnace must be shut down in order to cast the furnace dry.

ii. In the event that an interruption in the Basic Oxygen Furnace (BOF) steelmaking and/or casting operations will result in a temporary surplus of iron, beyond the capacity of the system to hold, necessitating beaching in order to cast the furnace dry and provide the ability to safely shut down.

iii. In the event that the furnace produces unusable iron such as high silica or low temperature iron. High silica iron will be blended and used to the extent possible at the BOF in order to reduce

beaching. Low temperature iron will be used at the BOF to the extent possible until solidification in the car becomes imminent. In other cases of unuseable iron, such iron will be used when possible to minimize the quantity beached.

b. The Permittee shall maintain records for each event in which iron is beached that, as a minimum, shall include:

i. An explanation why beaching occurred.

ii. The date, time and duration of beaching.

iii. The measures used to reduce the amount of beaching.

iv. The maximum rate of beaching, tons/minute, (or information showing that the beaching rate did not exceed 20 tons/minute).

8a. Recycled oil may be burned in Blast Furnace B at a rate not to exceed 260 gallons per hours provided that:

i. Only recycled oil generated from the Permittee's own used oils may be burned.

ii. The used oils shall not constitute hazardous waste.

b. The Permittee shall keep records of the amount of recycled oil burned on a monthly basis (gallons) and records of the following information for each lot of recycled oil:

i. Amount of recycled oil in the shipment (gallons).

ii. Ash and sulfur contents (each, percent by weight).

iii. Halogen, chromium, arsenic, lead and cadmium contents (each, ppm by weight).

c. The Permittee shall notify the Illinois EPA at least 5 days in advance of beginning to burn used oil in Blast Furnace B. This notification shall include information confirming compliance with Condition 8(a) and the results of an analysis of the oil to be burned for constituents in accordance with Condition 8(b).

9a. The Permittee shall operate and maintain a continuous monitoring system (including automatic data recording) on the casthouse baghouse for pressure drop across the baghouse. The recorded data from this system shall be retained for a period of at least six months.

b. The Permittee shall maintain and operate a continuous monitoring system (including automated recording of data) on the iron spout baghouse for pressure drop across the baghouse.

10a. The Permittee shall keep records of the following items and such other items which may be appropriate to enable the Illinois EPA to review

compliance with applicable emission standards and the requirements of this permit:

i. Total production of molten iron at the blast furnaces (daily, monthly, and annual production in tons)

11a. The Permittee shall retain all records required by this permit for at least three years, unless otherwise specified, and shall make those records readily available for inspection and copying by the Illinois EPA upon request.

b. i. Two copies of any required reports and notifications shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/524-4710

ii. A copy of all required reports and notifications, except the Annual Emission Report required by 35 IAC Part 254, shall also be sent to the Illinois EPA at the following address:

Illinois Environmental Protection Agency
Air Pollution Control, Regional Office
2009 Mall Street
Collinsville, Illinois 62234

If you have any questions on this, please contact Christopher Romaine at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: January 25, 2008

ECB:CPR:jws 1/25/08

Attachment

cc: Region 3

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P.O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR OPERATING PERMITS

May, 1993

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special permit conditions(s).

1. The issuance of this permit does not release the Permittee from compliance with state and federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statues and regulations of the United States or the State of Illinois or with applicable local laws, ordinances and regulations.

2. The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be ground for revocation under 35 Ill. Adm. Code 201.166.

3. a. The Permittee shall not authorize, cause, direct or allow any modification, as defined in 35 Ill. Adm. Code 201.102, of equipment, operations or practices which are reflected in the permit application as submitted unless a new application or request for revision of the existing permit is filed with the Illinois EPA and unless a new permit or revision of the existing permit(s) is issued for such modification.

   b. This permit only covers emission sources and control equipment while physically present at the indicated plant location(s). Unless the permit specifically provides for equipment relocation, this permit is void for an item of equipment on the day it is removed from the permitted location(s) or if all equipment is removed, notwithstanding the expiration date specified on the permit.

4. The Permittee shall allow any duly authorized agent of the Illinois EPA, upon the presentation of credentials, at reasonable times:

   a. To enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. To have access to and to copy any records required to be kept under the terms and conditions of this permit;

   c. To inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. To obtain and remove samples of any discharge or emission of pollutants; and

   e. To enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring or recording any activity, discharge or emission authorized by this permit.

5. The issuance of this permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are located;

b. Does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the facilities;

c. Does not take into consideration or attest to the structural stability of any unit or part of the project; and

d. In no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. The facilities covered by this permit shall be operated in such a manner that the disposal of air contaminants collected by the equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereunder.

7. The Permittee shall maintain all equipment covered under this permit in such a manner that the performance of such equipment shall not cause a violation of the Environmental Protection Act or regulations promulgated thereuner.

8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. This records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9. No person shall cause or allow continued operation during malfunction, breakdown or startup of any emission source or related air pollution control equipment if such operation would cause a violation of an applicable emission standard or permit limitation. Should a malfunction, breakdown or startup occur which results in emissions in excess of any applicable standard or permit limitation, the Permittee shall:

a. Immediately report the incident to the Illinois EPA's Regional Field Operations Section Office by telephone, telegraph, or other method as constitutes the fastest available alternative, and shall comply with all reasonable directives of the Illinois EPA with respect to the incident;

b. Maintain the following records for a period of no less than two (2) years:

i. Date and duration of malfunction, breakdown, or startup,

ii. Full and detailed explanation of the cause,

iii. Contaminants emitted and an estimate of quantity of emissions,

iv. Measures taken to minimize the amount of emissions during the malfunction, breakdown or startup, and

v. Measures taken to reduce future occurrences and frequency of incidents.

10. If the permit application contains a compliance program and project completion schedule, the Permittee shall submit a project completion status report within thirty (30) days of any date specified in the compliance program and project completion schedule or at six month intervals, whichever is more frequent.

11. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.

Wednesday
June 28, 1989

Federal Register

Part II

Environmental Protection Agency

40 CFR Parts 51 and 52
Requirements for the Preparation, Adoption, and Submittal of Implementation Plans; Air Quality, New Source Review; Final Rules

R007891

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[AD-FRL 3603-7]

Requirements for the Preparation, Adoption, and Submittal of Implementation Plans; Approval and Promulgation of Implementation Plans

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On August 25, 1983, EPA proposed amendments to its regulations addressing the construction of new and modified stationary sources of air pollution (48 FR 38742). The EPA proposed changes in eight areas of those regulations and provided additional guidance in three other areas. Today's notice announces final action on that part of the August 25 proposal dealing with "Federal enforceability" of emissions controls and limitations at a source. Essentially, EPA is retaining the existing Federal enforceability requirement. However, EPA is clarifying its regulation to specify that stationary source operating permits issued by a State may be treated as federally enforceable in certain situations, provided that the State's operating permit program has been approved by EPA and incorporated into the State implementation plan (SIP) under section 110 of the Clean Air Act (Act).

DATES: This action is effective on June 28, 1989.

ADDRESS: The public docket for this rulemaking, A-82-23, is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday, at EPA's Central Docket Section (LE-131), Room M-1500, Waterside Mall, 401 M Street, SW., Washington, DC. A reasonable fee may be charged for copying, as provided by the Act.

FOR FURTHER INFORMATION CONTACT: For Federal enforceability issues (except operating permits), Mr. David Solomon, EPA, New Source Review Section, Office of Air Quality Planning and Standards (MD-15), Research Triangle Park, North Carolina 27711; (919) 541-5375, (FTS) 629-5375. For operating permit issues, Mr. Kirt Cox, EPA, Air Quality Management Division, Office of Air Quality Planning and Standards (MD-15), Research Triangle Park, North Carolina 27711: (919) 541-5399, (FTS) 629-5399.

SUPPLEMENTARY INFORMATION:

I. Introduction

In August 1980, EPA extensively revised its regulations concerning the preconstruction review of new and modified stationary sources under the Act, 42 U.S.C. 7401-7642, in response to *Alabama Power Company* v. *Costle*, (the *Alabama Power* case) 636 F.2d 323 (D.C. Cir. 1979) (see 45 FR 52676, August 7, 1980). Five sets of regulations resulted from those revisions. One set, 40 CFR 51.166 (formerly 40 CFR 51.24), specifies the minimum requirements that a prevention of significant deterioration (PSD) [1] program must contain in order to warrant approval by EPA as a revision to a SIP under section 110 of the Act. Another set, 40 CFR 52.21, establishes the Federal PSD program, which is currently applied in many States as part of the SIP. Another set, consisting of two regulations, 40 CFR 51.165 (a) and (b) (formerly 40 CFR 51.18 (j) and (k)), specifies the elements of an approvable State permit program for preconstruction review in, or affecting, nonattainment areas. The fourth set, 40 CFR Part 51, Appendix S, embodies the nonattainment area Emissions Offset Interpretative Ruling (Offset Ruling), previously revised in January 1979 (44 FR 3274). The fifth set, 40 CFR 52.24, embodies the construction moratorium which applies in certain nonattainment areas.

In the fall of 1980, numerous organizations petitioned the U.S. Court of Appeals for the D.C. Circuit to review various provisions of those PSD and nonattainment preconstruction regulations. The court consolidated those petitions with a collection of challenges to the 1979 revisions to the Offset Ruling in *Chemical Manufacturers Association (CMA)* v. *EPA*, No. 79-1112 (D.C. Cir.). In June 1981, EPA began negotiations with the industry petitioners to settle the *CMA* case. The EPA entered into a comprehensive settlement agreement with the *CMA* petitioners in February 1982. Subsequently, the court granted a stay of the case pending implementation of the settlement agreement.

In the settlement agreement, EPA committed to propose certain amendments set forth in Exhibit A to eight parts of the regulations pertaining to new source review (NSR or preconstruction review) [2], to provide guidance in three additional areas, and to take final action on the proposals. On August 25, 1983, EPA published a notice of proposed rulemaking in accordance with that agreement (48 FR 38742). Among other things, EPA proposed to delete from certain provisions the requirement that controls or limitations on a source's emissions must be "federally enforceable" (i.e., enforceable by EPA) in order to be considered in determining whether a new or modified source will be "major" and therefore subject to PSD or nonattainment permitting requirements (applicability determination). The EPA also proposed to delete the requirement in § 51.18(j)(3)(ii)(e) (now § 51.165(a)(3)(ii)(e)) that emissions reductions obtained by one source from another (offsets) in order to obtain a nonattainment permit be federally enforceable.[3]

In the August 25, 1983 notice of proposed rulemaking, the Administrator stated that EPA would review comments on the proposed amendments carefully and with an open mind in order to make an independent judgment on their merits prior to taking any final action. The EPA has since received extensive public comment, including that presented at a public hearing held on September 29, 1983.

Today EPA is taking final action on the proposed changes to the "Federal enforceability" provisions. Essentially, as discussed in detail below, EPA is retaining the existing "Federal enforceability" requirements without change. However, EPA is amending the definition of "federally enforceable" and 40 CFR 52.23 to specify that State-issued operating permits are federally enforceable under certain circumstances. In another notice being published today, EPA is also taking final action on the remaining August 25, 1983 rulemaking proposals. Accordingly,

[1] A PSD program refers to requirements that must be met in an area designated as being in attainment of a national ambient air quality standard (NAAQS) or unclassifiable (see 40 CFR 51.166 and 52.21). Areas that are designated as nonattainment for a NAAQS must meet certain other requirements aimed at ultimate attainment of the NAAQS (see, e.g., 40 CFR 51.165(a) (formerly 40 CFR 51.18(j)) and 52.24).

[2] An NSR, or preconstruction review, is required as part of a SIP under 40 CFR Part 51, Subpart I (formerly 40 CFR 51.18 and 51.24) to ensure that construction or modification of a source will not cause violations of the State's control strategy or interfere with attainment or maintenance of a NAAQS. An NSR program includes permit programs satisfying the Act's requirements for review of major stationary sources in nonattainment and PSD areas (40 CFR 51.165(a) and 51.166) under circumstances described in more detail later in this notice. In addition to the major source NSR provisions, which are the focus of this rulemaking, virtually all States have a general NSR program applying to most minor sources.

[3] A basic requirement of nonattainment NSR of a potential major source is that the applicant for a nonattainment construction permit must show that its new emissions will be offset by emission reductions elsewhere (42 U.S.C. 7503(1)).

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today's final actions fulfill EPA's commitments under Exhibit A of the *CMA* settlement agreement.

II. Background of Federal Enforceability Requirements

The five sets of PSD and nonattainment regulations promulgated in 1980 aim their substantive preconstruction review requirements at new "major stationary sources." Each set of rules defines a "major stationary source" as any stationary source that would have the potential to emit certain specified amounts of air pollutants (e.g., 40 CFR 51.165(a)(1)(iv) and 52.21(b)(1)). In each case, "potential to emit" is then defined as the "maximum capacity of a stationary source to emit a pollutant under its physical and operational design," but any limitation [4] on the capacity of a source to emit a pollutant is treated as part of its design only if the control or limitation is federally enforceable (e.g., id. at §§ 51.165(a)(1)(iii) and 52.21(b)(4)). The regulations then define "federally enforceable" as "enforceable by the Administrator" (e.g., id. at § 52.21(b)(17)).[5] The definition of "federally enforceable" adds that limitations that are enforceable by the Administrator include (but are not limited to) limitations imposed by: (1) The SIP itself, (2) a Federal PSD construction permit issued under 40 CFR 52.21 or any construction permit issued under regulations approved by EPA in accordance with Subpart I of 40 CFR Part 51 or 40 CFR 51.166, (3) a new source performance standard (NSPS) promulgated under section 111 of the Act (see 40 CFR Part 60), or (4) a national emission standard for hazardous air pollutants (NESHAP) promulgated under section 112 (see 40 CFR Part 61). In practice, EPA previously has declined to consider most other types of limitations as being "federally enforceable," including limitations that are enforceable by the Administrator under statutes other than the Clean Air Act.

In effect, those definitions require EPA and State authorities, in calculating the potential to emit of a proposed new source for a particular pollutant, to assume that the source would emit the pollutant at the maximum rate that the source could physically emit it, unless the source were subject to a limitation on its operation that EPA could enforce directly.

Each of the five sets of regulations also aims its substantive NSR requirements at "major modifications," a term which includes any significant net emissions increase at a major stationary source. The accounting system for determining such significant increases closely parallels the one described above for determining whether new sources exceed specific emission thresholds [6] (e.g., id. at § 52.21(b)(2)). Specifically, the regulations define a "net emissions increase" as the amount by which the sum of: (1) The increase in "actual" emissions from the proposed change, and (2) any contemporaneous and otherwise "creditable" increases and decreases in "actual" emissions at the source would exceed zero (e.g., id. at § 52.21(b)(3)(i)). The regulations then provide that a contemporaneous decrease in emissions is creditable only to the extent that it "is federally enforceable at and after the time that actual construction on the particular change begins" (e.g., id. at § 52.21(b)(3)(vi)(b) (emphasis added)).

Since a proposed new unit at an existing source has yet to produce emissions, each set of regulations also defines the actual emissions of any such change as its potential to emit (e.g., id. at § 52.21(b)(21)(iv)). The definition of "potential to emit," as noted above, contains a requirement for Federal enforceability of controls and limits.

Finally, for sources already in operation, each set of regulations provides that actual emissions, when they cannot be determined, may be presumed to equal any source-specific allowable emissions for the unit (e.g., id. at § 52.21(b)(21)(iii)). The definition of allowable emissions, like the definition of potential to emit, also requires, in many cases, Federal enforceability of any applicable limitations (e.g., id. at § 52.21(b)(16)).

The general purposes of the Federal enforceability requirements were: (1) To corroborate, through the procedures for obtaining SIP revisions or federally approved construction permits, that any voluntarily imposed limits on a source's capacity to emit are, in fact, part of its physical and operational design, and that any claimed limitations will be observed; (2) to ensure that an entity with strong enforcement capability has legal and practical means to make sure that such commitments are actually carried out; and, generally, (3) to support the goal of the Act that EPA be able to enforce all relevant features of SIP's that are necessary for attainment and maintenance of NAAQS and PSD increments (see 48 FR 38748, August 25, 1983).

III. Proposed Amendments to the Federal Enforceability Requirements

Shortly after the Federal enforceability requirements were promulgated, several parties to the *CMA* settlement agreement, representing industry, challenged requirements for Federal enforceability in the "potential to emit" and "net emissions increase" definitions, in court and in administrative petitions for reconsideration. They claimed that the Federal enforceability requirements were unnecessary and unduly burdensome. Specifically, they claimed that each approved SIP already prohibits construction of a new major stationary source or major modification without a PSD or nonattainment construction permit. Accordingly, any company that builds a project that emits, or has the potential to emit, pollution in excess of the applicable thresholds for classification as "major," without first obtaining such a permit, would be in violation of the law and therefore subject to subsequent enforcement action by EPA. Thus, they argued, EPA does not need the Federal enforceability requirement to deter a source operator from using a non-Federal control or limit to escape PSD or nonattainment NSR and then violating those controls or limits since, even if EPA could not enforce the limitations, it could enforce the prohibition against construction or modification without a PSD or nonattainment permit and shut down the source.[7]

The petitioners also pointed out that, to obtain a federally enforceable limitation, a company would have to apply to the State agency for the change

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[4] As used in the rules and throughout this notice, "limitations" on a source's capacity to emit include such things as pollution control equipment, restrictions on operating hours, and restrictions on types or quantity of fuels to be used (see 40 CFR 51.165(a)(1)(iii)).

[5] The EPA's primary enforcement authority in such cases derives from section 113 of the Act, which authorizes EPA, under certain conditions, to enforce violations of a SIP and of certain orders and emissions standards. The EPA may also enforce, under section 304(a) of the Act, against any person: (1) Who violates any emissions standard or limitation (or order issued) under such standards or limitations, (2) or who constructs any new or modified major stationary source without a proper PSD or nonattainment construction permit, or (3) who violates any conditions of such a permit.

[6] For PSD purposes, pollutants currently included in this review are: (1) The pollutants for which a NAAQS, NSPS, or NESHAP exists; and (2) their precursors (e.g., 40 CFR 52.21(b)(23)(i) and (b)(23)(ii)). For nonattainment purposes, they are the pollutants for which NAAQS exist and their precursors (see 45 FR 52271 (August 7, 1980)(col. 3); 40 CFR 51.165(a)(1)(v)(A)).

[7] The industry parties apparently assumed EPA would be aware of any actual violations of limitations and thresholds, but did not elaborate on that or on how monitoring of actual emissions would be as effective in preventing violations as the current regulations.

and then await whatever public procedures and EPA scrutiny were required. As a result, industry contended, a company could experience substantial expense and delay just in obtaining the necessary limitation.

In the August 25, 1983 notice of proposed rulemaking, EPA stated preliminarily that the Federal enforceability requirement might be unnecessary to some extent and that it would consider deleting it. The proposal was based on the possibility of delay and consequent expense that could arise from processing certain construction permit limitations or revising the SIP to make the applicable limitations federally enforceable. However, EPA emphasized that it still intended to achieve the purposes for which Federal enforceability was originally designed (48 FR 38748, August 25, 1983). Nonetheless, EPA was inclined at that time to think that the purposes of the Federal enforceability requirements could also be served by a requirement that limitations be enforceable by State or local governments, provided that such limitations were discoverable by EPA and the public (*Id*). Accordingly, EPA proposed to: (1) Delete the word "federally" from the term "federally enforceable" in the definitions of "potential to emit," "net emissions increase," "allowable emissions," and "major modification,"[8] and from § 51.18(j)(3)(ii)(e) (now § 51.165(a)(3)(ii)(e)) (regarding offsets);[9] and (2) to replace the definition of "federally enforceable" with an expanded definition of "enforceable" (including discoverable limitations enforceable under State or local law).

IV. Summary of Comments on August 1983 Proposal[10]

A. Comments Generally Supporting the Proposal

As expected, many industry representatives expressed strong support for the proposed deletion of the Federal enforceability requirements. Most of these comments also supported the proposed new definition of "enforceable," although two industry associations suggested that no definition of "enforceable" was necessary.

In addition to the arguments discussed in the preceding section, the industry commenters made several general assertions in support of the proposal. First, they argued that since State and local operating permits and other requirements are still enforceable by the non-Federal authorities, source operators would comply with the State and local limitations even without Federal enforcement. Second, several commenters claimed that Federal enforceability requirements are inconsistent with the requirement in section 101 of the Act that State and local authorities be given primary responsibility for preventing and controlling air pollution. Third, all the industry commenters asserted that elimination of the Federal enforceability requirement would substantially reduce red tape and the delays and costs of obtaining a federally enforceable permit or SIP limitation. Fourth, several commenters claimed that Federal enforceability in the definition of "potential to emit" is inconsistent with the decision of the D.C. Circuit Court of Appeals in the *Alabama Power* case, 636 F.2d 323 (1979). In that case, the court clarified that a source's potential to emit must be based on actual emissions or "design capacity" for emissions of a source, including the effects of pollution control equipment required by law to be included in the design. The commenters argued that this focus on actual emissions or design implicitly requires EPA to give credit, in calculating a source's emission potential, for any controls or limitations required by State or local law or permits, even if they are not federally enforceable.

Fifth, several commenters argued that citizen enforcement of State and local permit limitations under the citizen suit provisions of section 304 of the Act would be preserved, even without the additional requirement of Federal enforceability, provided that the State/local permit processes are "coherent" and the permits themselves remain on file.[11]

One commenter also suggested, contrary to the position EPA took in the proposal, that offset credits should be considered enforceable (by a State, if not by EPA) even if the source providing the offset is not bound to reduce its emissions by a permit or other State limitation, provided that the offset source stipulates to the State that it will reduce its emissions and that the SIP allows such stipulations. The commenter argued that a State could enforce such a stipulation under its authority to prevent violations of the SIP.

B. Comments Opposing the Proposal

Several State air quality programs and environmental groups strongly opposed the proposed deletion of the Federal enforceability requirements on several grounds. First, the association of State and Territorial Air Pollution Program Administrators (STAPPA) commented that even though State and local governments have primary pollution control responsibility, they need the support of a credible Federal enforcement program to be most effective.

Two commenters asserted that Federal enforceability is the only effective means of assuring, during applicability determinations, that limitations are really intended to be observed and for assuring that offsets and limits are actually implemented. These commenters apparently felt that State and local enforcement is often less vigorous and effective than Federal enforcement, especially in light of the economic and other pressures some businesses can exert on State and local enforcement authorities. One commenter felt that the procedures involved in obtaining a federally enforceable limitation or offset are the only effective means of assuring that EPA and the public have a chance to identify and evaluate the intended limitation in advance.

With regard to offsets, one commenter pointed out that section 173 of the Act requires offset commitments to be "legally binding" and that when Congress enacted section 173, in 1977, it implicitly ratified EPA's Offset Ruling[12] which required Federal enforceability. Thus, the commenter concluded, legally binding commitments probably refer to federally enforceable commitments.

Finally, the same commenter argued that citizen enforcement of offset transactions under section 304 would only be effective, as a practical matter, if the records of all such transactions are centrally located (i.e., at EPA's Regional Offices) in a standardized system, as they are under the existing

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[8] The definitions of "major modification" exempt from applicability determinations certain increases in operating hours and switches in fuel or material used, unless the increase or switch is barred by a federally enforceable limit (e.g., 40 CFR 52.21(b)(2)(iii)(e)(1)).

[9] Although external offsets are not used to avoid nonattainment NSR, the purposes of requiring Federal enforceability of such offsets are essentially the same as for requiring Federal enforceability of limitations used to avoid such review.

[10] A more detailed "Summary of Comments" has been placed in the public docket for this rulemaking.

[11] Two industry commenters also alleged that the 1980 Federal enforceability requirements were procedurally invalid because, in their view, EPA did not provide adequate prior notice or opportunity to comment on the concept and lacked adequate record support for the requirement. The EPA disagrees with these comments and believes that the 1980 requirements were a logical outgrowth of the preceding proposal (44 FR 51924, September 5, 1979) and were amply supported by the rulemaking record at the time. However, these comments are now moot. Any possible procedural defects in the 1980 rules regarding Federal enforceability have been cured by this rulemaking.

Federal enforceability regulations. This commenter also criticized the proposal as it would affect Federal enforcement efforts, since enforcement actions against sources already constructed could be more difficult than action taken prior to construction.

V. Decision and Response to Comments

After consideration of the comments and reevaluation of the preliminary statements made in the August 1983 proposal, EPA has decided to retain the Federal enforceability requirement in all the provisions discussed above. In addition, to provide full internal consistency within the Federal enforceability provisions of 40 CFR Part 51, Appendix S (known as the "Offset Ruling"), EPA is, in a separate document also being published in today's Federal Register, amending section IV.C.3. of the Offset Ruling to clarify that emissions offsets involving reduced operating hours or source shutdowns must, like all emissions offsets, be federally enforceable (see Appendix S, section II.A.6.(v)(b)). In light of today's decision, EPA will not add the proposed new definition of "enforceable" to the regulations. However, as discussed below, EPA is clarifying that State operating permits may be treated as federally enforceable under certain conditions. This clarification will reduce any problems which may arise from the Federal enforceability requirements. The clarification is formally indicated by slight amendments to the definition of "federally enforceable" and to 40 CFR 52.23.

A. Federal Enforceability Is Necessary to Ensure That Limitations and Reductions Are Implemented

Since sources may avoid the protective requirements of PSD and nonattainment NSR by relying on State or local limitations or reductions, it is essential to the integrity of the PSD and nonattainment program that such State or local limitations be actually and effectively implemented.[18] The EPA continues to believe, as it did in 1980 (45 FR 52693–93), that Federal enforceability is both necessary and appropriate to ensure that such limitations and reductions are actually incorporated into a source's design and followed in practice.

The EPA agrees with those commenters, including STAPPA, who asserted that Federal enforceability is necessary to support State and local enforcement efforts. Although EPA believes that most State and local governments are committed to effective enforcement of their permit programs, it is true—as STAPPA and some environmental commenters pointed out—that the level of State and local enforcement is uneven, and that some States and localities have been unwilling or unable to enforce their programs effectively. It follows that, in the absence of a Federal enforcement capability to back up State and local efforts, there would be somewhat less incentive for sources to actually observe non-Federal limitations or, in the case of offsets, to make the reductions for which credit has already been given. The EPA cannot agree, contrary to the suggestions of some source operators, that State and local enforcement alone would always provide enough incentive to source operators to ensure adequate compliance.

The EPA also believes, as suggested by some environmental commenters, that, absent Federal enforcement capability, some State and local governments would be more susceptible to economic and other pressures from industry that could actually make State and local enforcement less effective than it currently is.[18] Conversely, the presence of a Federal ability to enforce limitations and reductions can give State and local bodies more leverage in dealing with sources to ensure compliance and should make such bodies more effective in their enforcement efforts.

The EPA also agrees with those commenters who pointed out that the processes by which federally enforceable limits or offset reductions are imposed (e.g., public notice and comments, notification to EPA) are the best and most reliable ways to ensure, in advance, that a source actually intends to observe a limitation or make a reduction in the future. Whether the limitation is contained in a SIP revision or a State permit issued under regulations approved by EPA and included in the SIP, public notice and opportunity for participation prior to construction is virtually guaranteed. At that point, EPA, or anyone else, can analyze the record to determine: (1) Whether a proposed limitation or reduction will produce the benefits claimed, (2) whether the applicant is seriously committed to the limitation, and (3) whether practical means to monitor compliance exist. Even though EPA has confidence that most State and local procedures would allow for some sort of public scrutiny even if Federal enforceability were deleted and the proposed expanded definition of "enforceable" adopted, there would be no assurance that every permit or limitation would receive effective scrutiny.

Similarly, as one environmental group pointed out, the current Federal enforceability requirement facilitates citizen enforcement of offsets (and, implicitly, other limitations) under section 304 of the Act, since all permits and commitments meeting the definition of Federal enforceability must undergo some public scrutiny and are kept in standardized files in EPA's Regional Offices. By contrast, without such a requirement, as under the proposed definition of "enforceable," the only records of many such transactions would be scattered around various State and local offices and would be more difficult to obtain. At a minimum, this could make citizen enforcement more difficult and costly and, therefore, less effective as a means of ensuring that limitations and reductions are actually implemented.[19]

For the reasons discussed above, EPA disagrees with those industry commenters who claimed that nonfederally enforceable State and local permits, if discoverable, would be an adequate substitute for Federal enforceability. The absence of potential Federal enforcement could result in: (1) Less incentive for sources to observe limitations; (2) more pressure on, and incentive for, State and local authorities to relax enforcement; and (3) decreased opportunities for effective citizen enforcement. Mere discoverability of permit limitations would not necessarily correct any of these problems, although it could create somewhat greater

[18] Similarly, it is important to the statutory goals of the nonattainment permit program (e.g., that all new construction is accompanied by offsets to assure "reasonable further progress" toward attainment, section 173(1)(A)) that external offsets from outside sources be actually implemented.

[18] The EPA also recognizes, as pointed out by the California Air Resources Board, that absent a nationwide, Federal enforcement presence, industry would be inclined to build, or move, sources to States with the least effective enforcement efforts. Such a possibility would give businesses more leverage over the State governments and could foster a competition among the States to actually relax enforcement efforts. The legislative history of the 1977 Act confirms that Congress intended the PSD requirements (by setting minimum criteria to be met in all States) to reduce such competition (H.R. Rep. No. 95-294, 95th Cong., 1st Sess. 140 (1977)).

[19] In addition, it is not certain that nonfederally enforceable State permit limitations or other commitments could be enforced under section 304 at all. That section allows citizen suits against any person who violates any limitation under the Act or any order issued by a State with respect to such a limitation, or who proposes to construct or does construct a major new source without a PSD or nonattainment construction permit (42 U.S.C. 7604(a)(1)). While violations of federally enforceable permit limitations may be subject to section 304 citizen suits, violations of nonfederal limitations or offsets arguably might not be.

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incentives for compliance than would exist without it. Moreover, discoverability could itself pose practical problems, for both EPA and citizens, in those situations where the State or local permit process is incomplete or poorly organized or recorded.

The EPA also believes, contrary to some commenters' suggestions, that EPA's authority to enforce the prohibitions in most SIP's and in the Act (see sections 110(a)(2)(I), 165(a)(1), 167, and 304(a)(3)) against construction of major sources without a PSD or nonattainment permit (see also sections 113 and 167 of the Act) is not a completely satisfactory substitute for the current Federal enforceability requirements.[15] The commenters claimed that if any sources escaped PSD or nonattainment permit requirements solely because of a nonfederally enforceable State or local limitation, and later violated that limitation, then EPA could treat that source as major and enforce the construction prohibitions to maintain the integrity of the PSD and nonattainment programs (see 40 CFR 51.166(r)(2)) (formerly 40 CFR 51.24(r)(2)).[16] However, the exercise of this authority depends in large part on EPA's ability to show that the new source or modification is actually emitting a pollutant at levels above the relevant annual threshold. This is much more difficult in practice than showing that an instantaneous emissions limitation in a federally enforceable permit has been exceeded. This is often difficult to do as a practical matter and may be even more difficult in situations involving nonfederally enforceable permits or limitations where EPA had little or no notice of, or opportunity to participate in, that process. In addition, courts may be less willing to order strict compliance with the PSD and nonattainment construction prohibitions in those situations (e.g., to shut down the major source until the appropriate permit is obtained), given the impact that such an order could have on the source operator's investment and operation. In short, EPA does not believe that the ability to enforce PSD and nonattainment construction prohibitions, in these cases, in the absence of current Federal enforceability, would be a sufficient deterrent to prevent violation of nonfederally enforceable limitations or to maintain the integrity of the PSD and nonattainment programs.[17]

In summary, EPA has concluded that the specific purposes for which the Federal enforceability requirement was originally intended, and to which EPA recommitted itself in the August 1963 proposal, cannot be fully or adequately achieved in the absence of Federal enforceability. The EPA recognizes that those purposes—i.e., corroboration prior to construction or modification that limitations will be included in a source's design and observed in operation, and the presence of a strong enforcement authority capable of holding a company to its commitments—can sometimes be achieved by State or local authorities implementing nonfederal limitations. However, in general, State and local enforceability alone will not fully assure that those purposes are met across the nation. Rather, State and local enforcement, supplemented by potential Federal enforcement of limitations, is a much more effective and efficient method of achieving those goals and protecting the integrity of the PSD and nonattainment NSR programs.

The EPA also recognizes, however, as several commenters pointed out, that the Federal enforceability requirements could result in some lengthy and expensive delays in obtaining federally enforceable permits or SIP revisions. However, some delays can be minimized by streamlined processes for certain SIP revisions, including the direct final rulemaking process (47 FR 27073, June 23, 1982). The latter procedure can often be used by EPA to process and publish noncontroversial SIP revisions in less than 6 months. More significantly, today's action clarifies that States have the option of implementing a program pursuant to which State operating permits could be treated as federally enforceable. Pursuant to this approach, States have the option of adopting certain permit processing procedures such that operating permits issued under them would be considered federally enforceable, with no need for the individual permits to be submitted as SIP revisions. Such a program can reduce the potential for delay which exists in the present system, while serving to enhance the permitting process generally.

B. Federal Enforceability Is Consistent With the Requirements of the Act and the Alabama Power Case

Several industry commenters claimed that Federal enforceability is inconsistent with various provisions of the Act and with the decision in the *Alabama Power* case. The EPA disagrees.

First, EPA disagrees with those commenters who claimed that Federal enforceability is inconsistent with section 101(a)(2) of the Act, which states that regulation of air pollution sources is the primary responsibility of States and local governments. The EPA has always recognized this and encouraged and assisted the States in exercising their responsibility. The fact is, however, that the Federal enforceability requirements do not supersede or interfere with State and local governments' responsibility or their ability to take the primary role in regulating sources. Rather, as STAPPA recognized, the Federal enforceability requirements supplement and provide necessary support to State/local enforcement efforts. Indeed, as discussed above, Federal enforceability may promote more effective State/local enforcement by giving sources more incentive to comply and providing the States and localities more leverage over industrial sources. In any case, consistent with the primary role of State/local governments, EPA generally would not get involved in enforcing limitations unless those other bodies failed to enforce adequately.

Moreover, the Act itself, far from requiring EPA to remove itself from the enforcement of limitations or offsets, expressly authorizes EPA to enforce violations of SIP's by any person (which includes many source limitations under the definition of federally enforceable), with due deference to State/local primacy (see sections 113 and 167 of the Act). Thus, Congress intended that EPA play an important role in the enforcement of SIP requirements, and the Federal enforceability requirements are consistent with that intent.

The EPA also disagrees with those commenters who claimed that the Federal enforceability of limitations in the potential to emit definition is inconsistent with Congress' intent in using that term in section 169 of the Act.[18] Those commenters pointed out

[15] The EPA did suggest in the August 1982 proposal that that authority would help make the Federal enforceability requirements unnecessary (48 FR 38747). However, EPA did not suggest that this could be a complete substitute for the existing requirements.

[16] In some such cases, the State probably could enforce the PSD and nonattainment construction prohibitions as well. However, as discussed above, States may be less willing or able to do so in the absence of potential EPA enforcement than they now are.

[17] The comment of one industry source that stipulations by a source to reduce emissions for offset purposes should be considered enforceable by a State is now moot, since EPA has decided to retain the Federal enforceability requirement.

[18] The definition of "major emitting facility" in section 169, which is based on a source's potential to emit, on its face applies only to the PSD program.

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that the court in the *Alabama Power* case found that a source's potential to emit must be based on its design capacity. Including pollution control equipment required by law to be installed and used at the source (838 F.2d at 354). However, the court declined to express any opinion on whether, and to what extent, legal limitations on the operation of a source should be included in a source's design capacity (id. at 355 n.73). The industry commenters suggested, nonetheless, that Congress intended any legal limitations, including operational limits, whether or not enforceable by EPA, to be included in a source's design capacity.

However, EPA does not believe that anything in the court's opinion, or in the language, or in the legislative history, of section 169 requires that every legal limitation, of any type, be included in a source's design capacity. In fact, the court implicitly left it to EPA's discretion (in the first instance) to determine what type of operational limits, if any, should be credited to a source (id.). The EPA believes that it is within its discretion in requiring Federal enforceability of an operational limit before including it in a source's design, consistent with the court's analysis of "potential to emit" (see 45 FR 52688, August 7, 1980).

In the *Alabama Power* case, the court concluded that whether a source is major depends on its maximum actual emissions or its design capacity, which includes anticipated functioning of pollution controls (838 F.2d at 353). It then referred to pollution controls required by law as examples where the functioning of such controls can be anticipated. Essentially, the court said that EPA must predict a source's future maximum emissions in determining design capacity and that pollution controls required by law are a reasonable means of predicting such future emissions. Although the court did not otherwise indicate how EPA should make such predictions, the court was evidently referring to predictions of actual emissions (id.). The EPA believes, therefore, that Congress (and the court) intended, or would have intended, such predictions to be reliable and reasonably accurate projections of future emissions.[18] As discussed above, EPA does not believe that nonfederally enforceable limitations are as likely to be as uniformly observed as federally enforceable limits and that requiring Federal enforceability is the best and most effective way to ensure maximum compliance by sources with limits. Thus, EPA believes that the Federal enforceability requirement is the most appropriate and reliable way to predict maximum future emissions and that it is, therefore, consistent with section 169 to define "potential to emit" to include that requirement (see 45 FR 52688).[19]

Similarly, EPA believes (as one commenter pointed out) that the Federal enforceability requirement in 40 CFR 51.165(a)(3)(ii)(e), requiring all emissions offsets used to satisfy the nonattainment preconstruction review requirements to be federally enforceable, is consistent with the requirement of section 173 that such offsets must be "legally binding." The 1977 legislative history of the Act supports that interpretation of section 173. It is clear that Congress was well aware at the time that EPA was then operating under an early (1976) version of an Offset Ruling (41 FR 55524, December 21, 1976) (see, e.g., 42 U.S.C. 7502 note (1982) H.R. Rep. No. 95-294, supra, at 13–14, 208). Congress implicitly ratified the 1976 Offset Ruling approach by giving each nonattainment State the option of choosing to remain under that Offset Ruling indefinitely, and by requiring that that Offset Ruling remain in effect[21] in every State, unless and until the State revised its SIP to comply with the nonattainment provisions in sections 172–173 (See 42 U.S.C. 7502 note; H.R. Rep. No. 95–294, supra, at 208; H.R. Rep. No. 95–564 (Conf. Rep.), 95th Cong., 1st Sess. 150 (1977)). The 1976 Offset Ruling, in turn, required that offsets be enforceable by EPA as well as by States and private parties (41 FR 55530). As one commenter correctly observed, since there is no indication in the legislative history that Congress intended to revise that early Federal enforceability requirement in the Offset Ruling, it is likely that the reference to legally binding offsets in section 173 was based on that same concept. Thus, 40 CFR 51.160(a)(3)(ii)(e) is consistent with section 173.[22]

Moreover, Federal enforceability is often even more appropriate and more important for offsets in nonattainment permits than it is for limitations that are used by a source to avoid nonattainment permits. In the latter situations, even if the limitations were not federally enforceable, EPA would still have potential power to enforce construction prohibitions against sources that subsequently become major by virtue of their failure to observe such limitations. By contrast, without Federal enforceability of offsets, EPA would have no such leverage against an external offset source where that source fails to make the promised emissions reduction. For the same reasons that State and local enforcement are not, in general, an adequate substitute for Federal enforceability in the context of making applicability determinations, they are even less satisfactory in the context of offsets.

C. Response to Other Comments

One industry commenter, although urging EPA to drop the Federal enforceability requirement in general, argued that EPA should retain Federal enforceability in the definition of "major modification." That definition exempts certain fuel switches and increases in operating hours from being considered as modifications, even if they would increase emissions from the source.

However, those terms are equally applicable to NSR under the Offset Ruling, nonattainment requirements under Part D of Title I of the Act, and the construction prohibitions of sections 110(a)(2)(I) and 173(4) (see 45 FR 52680, August 7, 1980). Therefore, EPA's "potential to emit" definition is the same in all the PSD and nonattainment regulations, and EPA's analysis of what Congress (and the court) meant by potential to emit applies to all those regulations.

[18] In fact, the two examples the court gave (838 F.2d at 353) of controls required by law—i.e., NSPS and SIP provisions—are included in EPA's definition of "federally enforceable." Moreover, as the court indicated, Congress meant for major sources to be those that actually emit certain amounts of a pollutant, either at present or in the future (id.). It would not make sense for a source to be given credit for future emission limitations if there is no reasonable expectation that those limitations will actually be observed.

[19] For essentially the same reasons Federal enforceability is an appropriate part of the definition of allowable emissions," which may be used to define a new unit's actual emissions in applicability determinations (e.g., 40 CFR 52.21 (b)(21)(ii)). Since Congress meant for the statutory PSD and nonattainment requirements to apply only to sources actually emitting major quantities of pollutants, (see the *Alabama Power* case, 838 F.2d at 352–53), it follows that any method used to estimate actual emissions (other than direct measurement) should be as reliable and accurate as possible. Federal enforceability of emissions limitations is the best available means of estimating actual emissions for a new unit which has yet to produce any emissions.

[21] Congress intended that EPA have authority to amend the Offset Ruling (see 42 U.S.C. 7502; H.R. Rep. No. 95–294, supra, at 211), as EPA did in 1979 and 1980. A few areas are subject to that Offset Ruling.

[22] For essentially the same reasons that Federal enforceability of external offsets is consistent with the Act, Federal enforceability of internal emission reductions as an element of avoiding nonattainment or PSD permits is also consistent with the Act. Under the definition of "net emissions increase" (e.g. 40 CFR 52.21(b)(3)), a modification of a source may escape classification as "major" if its creditable (i.e., federally enforceable) emission decreases are large enough. If emission offsets in nonattainment permits must be federally enforceable, it makes sense that internal reductions used to escape such permit requirements should be no less enforceable.

unless those changes were prohibited by a federally enforceable (construction) permit condition. The industry commenter apparently feared that deletion of the requirement for Federal enforceability of such prohibitions in that definition, as proposed in the 1983 notice of proposed rulemaking, would work against industry since it would require many more fuel switches and operating hour changes to be counted as modifications than under the current rules. In fact, the commenter suggested that EPA increase the number of changes exempt from the modification definition by completely eliminating any reference to prohibited changes.

The EPA has decided not to amend the definition of major modification. The EPA believes that all NSR definitions should be as consistent as possible and that deleting the requirement for Federal enforceability in the definition of major modification would be inconsistent with its decision to retain Federal enforceability elsewhere. Moreover, the proposed revision of that definition could have created confusion and uncertainty as to which State and local prohibitions were enforceable. The EPA also agrees with the commenter that deletion of the word "federally" potentially could increase the number of prohibited fuel switches and other changes dramatically and could largely defeat the purpose for which the exemption was originally intended.

On the other hand, EPA must reject the commenter's suggestion that the definition be revised to exclude all fuel switches and operating hour changes from being considered modifications. One of the purposes of the Federal enforceability provision in the current definition is to support the prohibitions against such changes in SIP construction permits by making a violation of such a prohibition grounds, if the modification is major, for requiring a new PSD or nonattainment permit. The EPA believes this provision provides valuable added incentive to sources to comply with their permit limitations, and EPA is not persuaded that it should give up that leverage.

Another industry commenter suggested that if EPA deleted the Federal enforceability requirements and substituted a broader definition of "enforceable," as proposed, that the definition be narrowed to include only enforceability under Federal, State, or local air pollution control laws. Since EPA has decided not to adopt the proposed definition of enforceable, that comment is now moot.

D. General Enforcement Issues

Although EPA today concludes that it is appropriate to retain the Federal enforceability requirement, EPA agrees with the suggestions of some commenters that its authority to enforce prohibitions against construction of major sources which lack PSD or nonattainment permits through the "source obligation" regulations (e.g. 40 CFR 52.21(r) (1)–(4)) is an important deterrent to sources which might otherwise construct without a PSD or nonattainment NSR permit. Moreover, EPA believes that these regulations are significantly enhanced by the presence of the Federal enforceability requirement. If the permit obtained by a source is to be given status as federally enforceable in order to avoid NSR, it must have met the notice, source information, practical enforceability, and other strictures set forth in this document.

These same qualities of a federally enforceable permit make it much easier to determine, at a later date, whether the terms or intent of the permit have been violated and, if so, what enforcement action is appropriate. There are three options available to EPA for when a federally enforceable State permit has been or will be violated.

One option is simply to enforce, under section 113, the limitations in the permit which enabled the source to avoid NSR in the first instance, with the result that the source retains its minor status. This is appropriate where, despite the permit violations, it appears that the source intends to adhere to the emissions limitations in the future. However, EPA retains the right to enforce the PSD or nonattainment NSR violation as well.

The second option is to invoke the "source obligation" regulations, e.g., 40 CFR 52.21(r)(4), and treat the source as major by requiring it to obtain a PSD or nonattainment major source permit. This course is appropriate where the source, through a change in business plans, or through the belated realization that its original plans cannot accommodate the design or operational limitations reflected in its minor source permit, can no longer adhere to the limitations in that permit, and so exceeds them. As discussed in the preamble to the 1980 regulations, this option is also appropriate where the source (after receipt of its minor source permit) notifies the permitting authority in advance of its changed plans or expectations and the need for a future relaxation of the limitations in its current permit, without actually violating those limitations before obtaining a major source permit (see 45 FR 52689). Under either set of circumstances, pursuant to the "source obligation" regulations, EPA treats the source "as though construction had not yet commenced" for PSD and nonattainment permitting purposes.

The EPA believes that the exceedance or relaxation of a minor source permit, and the subsequent obtaining of a major source permit through compliance with the "source obligation" regulation, may not routinely involve penalties or additional sanctions other than those provided in section 113 for any period in which the source actually exceeded the limitations in its minor source permit. The EPA today clarifies, though, that a third general enforcement option is necessary and available under the Act and EPA's regulations in certain situations.

This third enforcement option is appropriate where EPA determines that a source obtained a permit containing limitations allowing it to escape preconstruction review as a major new source or major modification, not for the purpose of adhering to those limitations for an appreciable period of time in accordance with some legitimate business plan, but primarily with an intent to construct, and possibly begin operation of, a major new source or major modification without first obtaining a PSD or nonattainment permit. In such circumstances, EPA enforces the "source obligation" regulations, as in option two above, and requires the source to obtain a PSD or nonattainment permit "as though construction had not yet commenced." In keeping with the retrospective orientation of the "source obligation" regulations, however, EPA also looks to the beginning of actual construction on the new source or modification for purposes of additional enforcement action under sections 113 and 167 as well. Thus, under these circumstances, EPA treats the original permit obtained by the source, which previously allowed it to enjoy minor status, as not "federally enforceable" from the time construction begins on the new source or modification in question. It follows that EPA also treats the source's "potential to emit," as defined in 40 CFR 52.21(b)(4), as not being limited by the restrictions in the original permit. The net result is that EPA deems the new source or modification to have been major ab initio, and EPA considers seeking injunctive relief, civil penalties, and criminal sanctions, as appropriate, against the source under sections 113 and 167 from the beginning of actual construction.

The EPA today also wishes to briefly discuss the need and appropriate circumstances for resort to the third enforcement option. As a general matter, it is abundantly clear that Congress intended the NSR provisions in Parts C and D to require preconstruction review of major new sources and modifications. See, e.g., sections 160(5), 165(a), 165(e)(1) and (2), 110(a)(2)(I), 172(a)(1), 172(b)(6), and 173. The evident air quality planning and technology-forcing purposes of the Act's NSR provisions make the reasons for Congress' choice of statutory framework equally obvious. It is much easier, both in technical and practical terms, to consider the air quality impacts and pollution control requirements of a major new source of air pollution before it has been constructed and has begun operation rather than after. Nevertheless, there is a need to accommodate sources which, for legitimate business reasons, have constructed and begun operation as minor sources, but later discover that they now do, or in the future will, emit air pollutants at levels that will require them to be treated as major. In those circumstances, postconstruction review is unavoidable, and the "source obligation" regulations in 40 CFR 52.21(r)(4) and elsewhere are designed to fulfill this need.

At the same time, in keeping with the general legislative purpose, it is necessary that EPA take steps to prevent owners or operators from turning the statutory scheme on its head by using federally enforceable minor source permits in a manner inconsistent with the statute and with EPA's intention. In particular, EPA must discourage sources that would manipulate the NSR system by improperly obtaining minor status for a new source or modification. This could occur, for example, where the owner or operator's purpose is, from the start, to construct a new source or modification that would not be economically viable for any appreciable period of time if it were restricted to emitting at minor levels. If the source could construct, and even begin operation, under a minor source permit, and shortly thereafter obtain a postconstruction PSD or nonattainment permit when it is convenient to exceed minor emissions levels, with no possibility of other sanctions, it might encourage many owners or operators to proceed in this fashion. The result would be that the exception—postconstruction review in narrow, unavoidable circumstances—could swallow the general rule of preconstruction review. This result was not intended by Congress or EPA, and cannot be allowed.

It is not possible to set forth, in detail, the circumstances in which EPA considers an owner or operator to have evaded preconstruction review in this way, and thus subjected itself to enforcement sanctions under sections 113 and 167 from the beginning of construction. This is ultimately a question of intent. However, EPA will look to objective indicia to establish that intent. For example, if an application for a Federal PSD permit is filed at or near the same time as a State minor source permit, EPA will carefully scrutinize the transaction. The EPA will also look carefully at the economic realities surrounding a transaction. For instance, where it appears obvious that a proposed source or modification, by its physical and operational design characteristics, could not economically be run at minor source levels for an appreciable length of time, EPA will take notice. Examples include the construction of an electric power generating unit, which by its nature can only be economical if it is used as a base-load facility, that is proposed to be operated as a peaking unit, and the construction of a manufacturing facility with a physical capacity far greater than the limits specified in a minor source permit. The EPA may consider how a project's projected level of operation was portrayed to lending institutions, and may examine other records concerning projected demand or output. Significant discrepancies between operating levels as portrayed in these documents and operating restrictions in a minor source permit would justify consideration of enforcement action.

The EPA wants to emphasize, that under the third enforcement option, it does not generally seek monetary penalties, or any remedies other than those provided in the "source obligation" regulations, except in those cases where it believes it could show to the satisfaction of a court that a source owner or operator had obtained a minor source permit with the purpose of obtaining, after construction, a major source permit, so as to evade preconstruction review. The EPA in no way seeks to discourage or intends to penalize those owners or operators who accept emissions limitations in pursuit of legitimate business purposes, and who in good faith later seek a relaxation of those limitations. As discussed above, the "source obligation" regulations and section 113 enforcement sanctions (for any period in which minor source permit limits are actually exceeded) provide a complete remedy in those situations.

There is no need to revise the text of the NSR rules to explicitly provide for this third enforcement option. The "source obligation" regulations do not by their terms preclude—or even address—the issue of civil penalties or other enforcement action under sections 113 and 167. Similarly, it is not necessary to specify in the definitional provisions that a minor source permit obtained in order to evade the Act's preconstruction review requirements is invalid for the purpose of "federally enforceable" limitations on a source's "potential to emit," and cannot be used as a shield against enforcement action. Implicit in any regulatory scheme is the unwillingness to countenance fraud, misrepresentation, or other misuse, particularly where the result would contravene the underlying statutory or regulatory purposes. Today's action clarifies the purposes served by the EPA regulations in question and outlines the circumstances in which their misuse may lead to enforcement action.[**]

VI. State Operating Permit Program

A. Introduction

As noted above, today's final action includes clarification of EPA's policy on implementing its definition of Federal enforceability. Under this policy clarification, all terms and conditions contained in State operating permits will be considered federally enforceable, provided that the State's operating permit program is approved by EPA and incorporated into the applicable SIP under section 110 of the Act, and provided that the operating permit meets certain requirements.[**] This clarification of the Federal enforceability definition can minimize the time and expense required to obtain federally enforceable limitations. The EPA believes that by encouraging States to adopt federally enforceable operating permit programs, EPA has largely satisfied certain objections to the current definition of "federally enforceable" voiced by industry commenters.

[**] Today's action also serves to clarify that EPA never intended that the source obligation regulations would serve to insulate a source owner or operator from penalties or other enforcement sanctions in cases of fraud or other misuse involving minor source permits. Any contrary interpretation that might be drawn from the preamble to the 1980 regulations (see 45 FR 52690) is thus inaccurate, and is hereby rejected.

[**] Various local air pollution programs operate air quality programs under their own regulations, which are approved into the SIP. The reader should understand that "State" operating permit programs encompass those local programs with jurisdiction over only part of a State as well as to statewide programs.

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As discussed above, EPA recognizes that its previous application of the definition of "federally enforceable" could sometimes cause delay or expense in obtaining a limitation or control that EPA considers federally enforceable. That application of the definition treats, as federally enforceable, PSD construction permits issued under 40 CFR 51.166 (formerly 40 CFR 51.24) or 52.21, as well as all construction permits issued under regulations approved pursuant to 40 CFR 51.160–165 (formerly 40 CFR 51.18).[55] Under § 52.23, "[f]ailure to comply with * * * any permit condition or permit denial issued pursuant to approved or promulgated regulations for the review of new or modified stationary or indirect sources" is a violation of the implementation plan and may result in enforcement action under section 113 of the Act.

The EPA has always been concerned with the prompt processing of SIP revisions and permits. For example, to minimize delay in processing certain types of SIP revisions, EPA previously set up a streamlined process called direct final rulemaking (47 FR 27073 (June 23, 1982)). That process can shorten EPA's time for processing SIP revisions, in noncontroversial cases, to less than 6 months. The EPA will continue to use that procedure to process source-specific SIP limitations whenever possible.

The EPA is today emphasizing a more fundamental way to minimize delay and expense. Specifically, EPA is expressly expanding its definition of "federally enforceable" to include limitations and controls imposed in State operating permits, provided that the applicable State operating permit program has been approved by EPA as meeting certain conditions and has been incorporated in an appropriate SIP, and that the permit in fact conforms to the requirements of the approved program.

B. Discussion

State operating permit programs, although in common use in many States, have not been required to be included in the SIP,[56] although some States have voluntarily submitted various types of operating permit programs to EPA for approval and inclusion in a SIP. The EPA has authority to approve such programs into SIP's under section 110(a)(2) (B) and (D) of the Act. A few of these programs (e.g., Oregon's, 49 FR 38643 (September 20, 1984) and 51 FR 12324 (April 10, 1986) and Idaho's, 51 FR 22811 (June 23, 1986)) provide for sophisticated permit review and procedural safeguards. The EPA has already concluded that permits issued under those programs are federally enforceable. In addition, some States have operating permit programs that are not included in a SIP.

Traditionally, with a few exceptions such as Oregon and Idaho, EPA has not considered State operating permits, per se, to be federally enforceable.[57] However, EPA believes it has the authority to enforce limitations in certain types of operating permits and to consider operating permits as federally enforceable if they are issued pursuant to permitting programs (approved into the SIP) that meet the following criteria:

(1) The State operating permit program (i.e., the regulations or other administrative framework describing how such permits are issued) is submitted to and approved by EPA into the SIP,[58]

(2) The SIP imposes a legal obligation that operating permit holders adhere to the terms and limitations of such permits (or subsequent revisions of the permit made in accordance with the approved operating permit program) and provides that permits which do not conform to the operating permit program requirements and the requirements of EPA's underlying regulations may be deemed not "federally enforceable" by EPA.

(3) The State operating permit program requires that all emissions limitations, controls, and other requirements imposed by such permits will be at least as stringent as any other applicable limitations and requirements contained in the SIP or enforceable under the SIP, and that the program may not issue permits that waive, or make less stringent, any limitations or requirements contained in or issued pursuant to the SIP, or that are otherwise "federally enforceable" (e.g. standards established under sections 111 and 112 of The Act).

(4) The limitations, controls, and requirements in the operating permits are permanent, quantifiable, and otherwise enforceable as a practical matter.

(5) The permits are issued subject to public participation. This means that the State agrees, as part of its program, to provide EPA and the public with timely notice of the proposal and issuance of such permits, and to provide EPA, on a timely basis, with a copy of each proposed (or draft) and final permit intended to be federally enforceable. This process must also provide for an opportunity for public comment on the permit applications prior to issuance of the final permit.

States are free to continue issuing operating permits that do not meet the above requirements. However, such permits would not be "federally enforceable" for NSR and other SIP purposes. The EPA anticipates that some States may choose to continue current practices rather than alter their permit programs so as to render operating permits federally enforceable, particularly with respect to small sources. Other States may wish to subject only certain types or classes of permits to these requirements. For example, a State may decide to not follow public participation procedures for, and not submit to EPA, large numbers of permits for very small sources, because the State has no intention of using such permits as external emissions offsets, to qualify as a minor source or "net out" of NSR, or to demonstrate attainment of the NAAQS. The EPA expects that States will, for purposes of clarity and administrative efficiency, indicate within the federally enforceable permits that they are being accorded such status.

The above five criteria are modeled on the requirements for issuance of federally enforceable construction

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[55] Sections 51.160–163 (formerly § 51.18 (a)–(i)) specify criteria for all new sources under section 110 (a)(2)(D) and (a)(4) of the Act that NSR programs must meet to be included in a SIP. Sections 51.165 (a) and (b) (formerly § 51.18 (j) and (k), respectively, establish additional criteria that must be met for approval of construction permit programs under Part D of the Act for major new sources in nonattainment areas. However, EPA may also approve construction permit programs meeting §§ 51.160–51.163 that do not satisfy § 51.165(a) or (b), including construction permit programs for nonmajor sources. Permits issued under programs approved pursuant to §§ 51.160–51.163 are federally enforceable.

[56] Section 110(a)(2)(D) of the Act does require that a SIP include a "program to provide for * * * regulation of the modification, construction, and operation of any stationary source including" permitting programs for major sources. Similarly, section 172(b)(6) requires that a nonattainment SIP "require permits for the construction and operation of new or modified major stationary sources." However, those statutory provisions regarding operation of a source are satisfied by the requirement in EPA's rules that the terms of a PSD or nonattainment construction permit remain in effect throughout the life of the source [unless modified lawfully] (40 CFR 52.21(w)(1)) (see also section 173 of the Act (treats nonattainment permits to construct and operate as if they were one)).

[57] Although certain operating permits have not been considered federally enforceable, some of the terms and conditions appearing in such permits may be federally enforceable through other means. For example, if the terms of an operating permit are the same as those in a federally enforceable construction permit or the same as the limitations in a SIP or an NSPS, those terms are federally enforceable by virtue of EPA's authority to enforce the construction permit, the SIP, and the NSPS, but not the operating permit.

[58] EPA wishes to make it clear that no State is required to include operating permit programs in its SIP. Participation is voluntary.

permits. The first two general requirements outlined above are necessary so that EPA can invoke sections 113 and 167 of the Act and 40 CFR 52.23 to enforce the terms of the operating permit. These provisions essentially allow EPA to enforce against violations of an applicable SIP. By making the operating permit program part of the SIP and legally requiring, in the SIP, that permittees comply with such permits, any violation of such a permit will be enforceable under the SIP and subject to EPA enforcement;[88] in addition, by providing that an operating permit which does not conform to a SIP-approved program and EPA's underlying regulations may be deemed not "federally enforceable" by EPA, sources and States are placed on notice that EPA may find that such nonconforming permits cannot be used as external emissions offsets or to "net out" of PSD or nonattainment permitting requirements, or be considered as part of a State's demonstration of reasonable further progress toward attainment and maintenance of the NAAQS. Thus, for example, a State may issue an operating permit placing emissions limitations on an existing emissions unit at a source for the purpose of accommodating a new emissions unit at the source without triggering PSD review of the new emissions unit. If EPA later determines that permit conditions do not comport with EPA standards for enforceability, it may notify the permit-issuing agency and the source that EPA intends to enforce against the source for violations of PSD requirements regarding the new emissions unit if the operating permit conditions for the existing unit are not changed to EPA's satisfaction. For example, should EPA find that the limitations on the existing unit are not, in practical terms, enforceable (e.g., because of excessively long averaging times), EPA may deem those limitations not federally enforceable for purposes of the netting transaction, thereby triggering PSD review of the new unit.

The third condition is appropriate for two reasons. First, operating permit conditions that are at least as tight as existing SIP limitations will be consistent with, and promote the purposes of, section 110(a)(2)(B) of the Act, which requires all approvable SIP's to include "such * * * measures as may be necessary to ensure attainment and maintenance" of national ambient standards.[89] Moreover, section 116 provides that where an emissions limitation is in effect under an applicable SIP, a State "may not adopt or enforce any emissions standard or limitation which is less stringent."

The permitting process may not be used to create exemptions from any requirement contained in the SIP. Any such waiver or variance must be created through a formal SIP revision. The EPA also recognizes that, in some cases, individuals could differ as to whether a particular limitation is "as stringent as" another limitation. The EPA encourages review authorities to express new limitations in terms similar to those in the SIP (e.g., with respect to averaging times) to facilitate comparison with the existing SIP limitation. Where compelling reasons weigh heavily in favor of expressing the new limitation in different terms than the current SIP limit, the burden to demonstrate the equal or greater stringency of the new limit rests with the State. Such demonstrations must accompany the proposed and final versions of any applicable permit action.

The fourth condition for Federal enforceability—that the permit limitations be enforceable as a practical matter—is an essential element in EPA's implementation of the existing Federal enforceability requirement. If permit limitations, whether in operating or construction permits, were not practical to enforce, the purposes for which Federal enforceability was intended could not be met. Thus, all emissions units must be reasonably described, and verifiable, enforceable emissions limits must be assigned to them. For example, an emissions limit expressed only in tons of pollution per year would not be considered practically enforceable. Useful guidance as to what makes a permit condition enforceable is, however, contained in a document issued by EPA on September 23, 1987 entitled "Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency." That guidance contains a checklist which lists key areas to consider in determining enforceability. These areas include applicability, compliance date, specificity of conduct, any incorporation by reference, recordkeeping requirements, and exemptions and exceptions.

Similarly, the fifth condition—that EPA and the public be notified and given opportunity to comment on the issuance of operating permits—is consistent with EPA's current practice for construction permits (e.g., 40 CFR 51.161 (formerly 40 CFR 51.18(h))) and would make enforcement by EPA and private citizens much more effective and practical. Public notice and opportunity for comment are important parts of an operating permit program, but the form of such notice is subject to debate. Some States regard individual newspaper notices for permit applications as needlessly expensive and time consuming, especially since they process many permit applications but few are controversial. Several States have addressed these concerns through the use of State administrative registers, notice and distribution mailing lists, or monthly multiple application notices. In reviewing SIP submittals for operating permit programs, EPA will consider these and other techniques for meeting the twin goals of procedural completeness and administrative efficiency as long as ample opportunity is provided for comment on permits prior to their final issuance.

It is important that EPA maintain an effective oversight of permit decisions made pursuant to these programs. The EPA is not now implementing a formal review program with procedural tools such as a veto provision to address inappropriate permitting actions (see, e.g., 40 CFR 123.44 with respect to certain permits issued under the Clean Water Act). However, EPA will comment on proposed permits as may be reasonable. The EPA stresses that, in order to implement this review, States will be required to provide draft permits to EPA for comment. In addition, the State must provide EPA with copies of all final permits upon their issuance. If permits are issued inconsistent with the SIP as discussed above, EPA will consider those permits to be invalid and will pursue such enforcement action as may be appropriate. It should be noted that EPA's intent is to review these permitting actions in parallel with, and within the same schedule as, routine State procedural steps. The EPA intends to work with State programs to minimize any delay or intrusiveness from this activity.

The EPA realizes that the above five program criteria are general and do not address many details of implementation. This is, in part, desirable: the EPA invites States to develop programs that are consistent with their program needs and resources. The EPA will consult with States on the approvability of their

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[88] Section 52.23 also provides that a violation of a condition in a permit issued pursuant to an approved regulation for review of new or modified sources is also a violation of the SIP.

[89] Requiring federally enforceable permit limitations to be at least as stringent as other SIP limitations is also consistent with the existing rules for NSR construction permits which require that such permits not result in violations of the SIP control strategy or interfere with attainment or maintenance of the ambient standards (e.g., 40 CFR 51.160(e) (formerly 40 CFR 51.18(e))).

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particular plan proposals. (It should be noted that an operating permit program will not become effective for the purposes described in this document until it is specifically so approved.) The EPA plans to issue further, more detailed, guidance as needed to assist States in developing and implementing approvable programs.

C. Policy and Regulation

The EPA believes that the definition of "federally enforceable" is broad enough to include operating permit limitations under the conditions discussed above, since it includes "all limitations and conditions which are enforceable by the Administrator" (id.). However, for the sake of clarity, EPA is amending the definition of federally enforceable to specify that operating permits issued under programs approved by EPA and incorporated into a SIP are federally enforceable.[31]

Similarly, even though 40 CFR 52.23—confirming that violations of SIP regulatory provisions and certain permits are subject to enforcement by EPA under section 113 of the Act—is broad enough to cover operating permit violations (under the previous conditions), EPA is also amending that section to clarify its applicability to operating permits. On the other hand, EPA does not believe that it is necessary to amend the "source obligation" regulations at 40 CFR 51.165(a)(2) (formerly 40 CFR 51.24(f)(2)) and 52.21(r)(4). As discussed previously, those sections require any source that was not subject to PSD permit requirements because of any enforceable limitation, and that later becomes "major" solely because of a relaxation in such a limitation, to undergo NSR as if it had not yet been constructed. This is in addition to possible enforcement action for violation of federally enforceable permit terms or circumvention of the preconstruction review requirements of the NSR program. The source obligation regulations extend, as written, to any source that used a federally enforceable operating permit limitation to avoid PSD NSR and later obtained a rescission or relaxation of that limitation. However, EPA will review each existing PSD SIP for any State seeking EPA approval of its operating permit program to ensure that the SIP contains a provision meeting the requirements of 40 CFR 51.166(r)(2) with respect to operating permits. In such cases, if the current SIP provision does not extend to operating permits, EPA would require an appropriate SIP revision as a prerequisite to approval of the operating permit program.

The EPA will respond to questions from the public on all of the operating permit issues discussed in this notice. In particular, EPA will respond to views on the need for further guidance specifying in greater detail the substantive and procedural elements that should be contained in an approvable operating permits program. In this regard, EPA points out that any State program that contains essentially the same provisions indicated above as conditions "1"–"8" would almost certainly be approved by EPA. Useful examples of a State operating permit program are offered by Oregon and Idaho. Those programs provide that the proposed source and its projected emissions and pollution control techniques must be described in detail. The programs also provide for notice to the public of permit applications and an opportunity to comment prior to permit issuance. The process is not available for permits that would constitute relaxations of the SIP. Copies of each permit are submitted to EPA (e.g., Oregon Administrative Rules, Chapter 340–20). The EPA is not now suggesting that every State program would need to be substantially the same as Oregon's or Idaho's, only that those programs could be used as models for an operating permit program that EPA likely will approve for federal enforceability purposes.

The EPA will also consult with States on methods by which existing operating permits could be made federally enforceable under a subsequently approved State operating permits program. The EPA suggests that in those cases, where a State can show that the existing operating permits were issued pursuant to a program later approved by EPA, the State could also submit such permits in bulk as revisions to the SIP. Such revisions could be processed in much less time than if each permit were processed separately.[32]

VII. Miscellaneous

A. Under Executive Order 12291, EPA must determine whether a regulatory action would be a major rule and therefore subject to the requirement for preparation of a Regulatory Impact Analysis. This action is not a major rule because it merely retains the current regulatory requirements, while offering States a more efficient means of complying with those requirements. It, thus, will not have any significant new economic impacts.

As required by Executive Order 12291, this action has been submitted to the Office of Management and Budget (OMB) for review. Any written comments from OMB on this action and any EPA written responses have been placed in the docket for this proceeding.

B. Since today's action merely retains or clarifies the existing regulations and does not promulgate significant changes to any rules, section 317 of the Act regarding an economic impact assessment does not apply.

C. In accordance with the Regulatory Flexibility Act, 5 U.S.C. 605(b), I hereby certify that this action will not have a significant adverse impact on a substantial number of small entities, primarily because it retains the existing rules and creates no new burdens. Accordingly, no regulatory flexibility analysis is required.

D. The EPA has determined that this final EPA action has nationwide applicability. Accordingly, under section 307(b) of the Act, judicial review of this final action may be obtained only by filing a petition for review in the U.S. D.C. Circuit Court of Appeals within 60 days from the date of this notice. This action is not subject to judicial review in any subsequent civil or criminal proceedings for enforcement.

E. As provided by section 307(d)(1) of the Act, this rule is not subject to section 553(d) of the Administrative Procedure Act. Section 553(d) requires that substantive rules not take effect until 30 days after their publication unless they relieve a restriction or an agency finds good cause to make them effective sooner. Nevertheless, there is good cause to make this action effective immediately since it merely retains existing regulations while offering a more efficient means of implementation. Persons affected by the "Federal enforceability" requirements need not change their activities or plans in any way as a result of today's action, and a 30-day waiting period would serve no purpose.

F. Under Executive Order 12612, EPA must determine if a rule has federalism implications. Federalism implications refer to substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels

[31] The subject proposal of August 25, 1988, although not specifically addressing this particular regulatory language, described the subjects and issues involved in detail. Today's regulatory clarification to reflect the policy on Federal enforceability is a logical outgrowth of the 1988 proposal for which EPA concludes that further notice and comment are unnecessary.

[32] Alternatively, a State might simply choose to wait until it has an approved operating permit program included in its SIP and then either renew or reissue existing permits under the approved program.

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of government. For those rules which have federalism implications, a Federalism Assessment is to be made.

The Executive Order also requires that agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when there is clear constitutional authority and the presence of a problem of national scope. The Executive order provides for preemption of State law, however, if there is a clear congressional intent for the agency to do so. Any such preemption, however, is to be limited to the extent possible.

This final rule essentially retains the current rule as written. The action provides an opportunity for certain State operating permits to be considered federally enforceable, thus increasing State options for addressing the applicability of NSR rules to modified existing sources. Previously, the federally enforceable limits recognized by EPA for existing sources generally consisted of more time-consuming SIP revisions.

List of Subjects in 40 CFR

Part 51

Administrative practice and procedures, air pollution control, intergovernmental relations, reporting and recordkeeping requirements, ozone, sulfur oxides, nitrogen dioxide, lead, particulate matter, hydrocarbons, carbon monoxide.

Part 52

Air pollution control, ozone, sulfur oxides, nitrogen dioxide, lead, particulate matter, carbon monoxide, hydrocarbons.

Date: June 12, 1989.

William K. Reilly,

Administrator.

For reasons set forth in the preamble, Parts 51 and 52 of Chapter I of Title 40 of the Code of Federal Regulations are amended as follows:

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

1. The authority citation for Part 51 continues to read as follows:

Authority: Secs. 101(b)(1), 160–169, 171–179, and 301(a) of the Clean Air Act, 42 U.S.C. 7401(b)(1), 7410, 7470–7479, 7501–7508, and 7601(a).

2. Section 51.165 is amended by revising paragraph (a)(1)(xiv) to read as follows:

§ 51.165 Permit requirements.

(a) * * *

(1) * * *

(xiv) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.

* * * * *

3. Section 51.166 is amended by revising paragraph (b)(17) to read as follows:

§ 51.166 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.

* * * * *

4. Appendix S is amended by revising paragraph II.A.12 to read as follows:

APPENDIX S—EMISSION OFFSET INTERPRETATIVE RULING

* * * * *

II. * * *

A. * * *

12. "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.

* * * * *

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for Part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7642.

2. Section 52.21 is amended by revising paragraph (b)(17) to read as follows:

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(17) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.

* * * * *

3. Section 52.23 is amended by revising the first sentence to read as follows:

§ 52.23 Violation and enforcement.

Failure to comply with any provisions of this part, or with any approved regulatory provision of a State implementation plan, or with any permit condition or permit denial issued pursuant to approved or promulgated regulations for the review of new or modified stationary or indirect sources, or with any permit limitation or condition contained within an operating permit issued under an EPA-approved program that is incorporated into the State implementation plan, shall render the person or governmental entity so failing to comply in violation of a requirement of an applicable implementation plan and subject to enforcement action under section 113 of the Clean Air Act. * * *

4. Section 52.24 is amended by revising paragraph (f)(12) to read as follows:

§ 52.24 Statutory restriction on new sources.

* * * * *

(f) * * *

(12) "Federally enforceable" means all limitations and conditions which are enforceable by the Administrator, including those requirements developed

pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.

* * * * *

[FR Doc. 89-14681 Filed 6-27-89; 8:45am]

BILLING CODE 6560-50-M

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40 CFR Parts 51 and 52

[AD-FRL-3511-2a]

Requirements for Implementation Plans;Air Quality New Source Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On August 25, 1983, EPA proposed amendments to its regulations addressing the construction of new and modified stationary sources of air pollution which appear at 40 CFR 51.24 (now 40 CFR 51.166), 52.21, Appendix S to Part 51, 51.18(j) (now 51.165(a)) and 52.24 (see 48 FR 38742). That document presented eight areas of proposed rulemaking and additional guidance in three other areas. The EPA proposed those amendments and provided guidance in order to meet the terms of a settlement agreement between EPA and various industries and trade associations challenging the particular regulations in *Chemical Manufacturers Association (CMA)* v. *EPA*, D.C. Cir. No. 79-1112 (settlement agreement entered into February 22, 1982).

On October 26, 1984 (49 FR 43202), EPA took action on the component of the August 25, 1983 proposal dealing with fugitive emissions. This document constitutes final action on six of the seven other remaining issues in the August 25 proposal: (1) The definition of "significant" as it affects Class I area protection, (2) the innovative control technology waiver for sources which would impact Class I areas, (3) secondary emissions, (4) the crediting of source shutdowns and curtailments as emissions offsets in nonattainment areas, (5) banking of emissions offsets under 40 CFR Part 51, Appendix S, and (6) the requirement for health and welfare equivalence for netting. In addition, final action with respect to the other remaining issue, the Federal enforceability requirement, is being published in parallel with this document.

DATES: This rule takes effect on June 28, 1989. Under section 307(b)(1) of the Clean Air Act (Act), 42 U.S.C. 7607(b)(1), petitions for judicial review must be filed on or before August 28, 1989, in the U.S. Court of Appeals for the D.C. Circuit.

ADDRESSES: Material relevant to this rulemaking may be found in Public Docket A-82-23. This docket is located in U.S. EPA's Central Docket Section (LE-131), Waterside Mall, M-1500, 401 M Street, SW., Washington, DC 20460. The docket may be inspected between 8:00 a.m. and 3:00 p.m. on weekdays and a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. David Solomon, New Source Review Section, Office of Air Quality Planning and Standards (MD-15), Research Triangle Park, North Carolina 27711; (919) 541-5375; FTS 629-5375.

SUPPLEMENTARY INFORMATION:

I. Introduction

On August 7, 1980, EPA extensively revised its regulations concerning the preconstruction review of new and modified stationary sources "new source review" (NSR)) under the Act, 42 U.S.C. 7401-7642. In response to *Alabama Power Company* v. *Costle*, 636 F.2d 323 (D.C. Cir. 1979) (see 45 FR 52676). Five sets of regulations resulted from those revisions. The first set, 40 CFR 51.166 (formerly 40 CFR 51.24), specifies the minimum requirements that a prevention of significant deterioration (PSD) air quality permit program under Part C of the Act must contain in order to warrant approval by EPA as a revision to a State implementation plan (SIP). The second set, 40 CFR 52.21, delineates the Federal PSD permit program, which currently applies, as part of the SIP, in the roughly 20 States that have not submitted a PSD program meeting the requirements of 40 CFR 51.166. The third set, 40 CFR 51.165(a) and (b) (formerly 40 CFR 51.18 (j) and (k)), specifies the elements of an approvable State permit program for preconstruction review for nonattainment purposes under Part D of the Act. It elaborates on section 173 of the Act, 42 U.S.C. 7503. The fourth set, 40 CFR Part 51, Appendix S, embodies the "Emissions Offset Interpretative Ruling" (Offset Ruling), which EPA revised previously in January 1979 (44 FR 3274). The fifth set, 40 CFR 52.24, embodies the construction moratorium which EPA implements in certain nonattainment areas.

In the fall of 1980, numerous organizations petitioned the U.S. Court of Appeals for the D.C. Circuit to review various provisions of those PSD and nonattainment preconstruction regulations. Subsequently, the court consolidated those petitions into *CMA*, a collection of challenges to the 1978 revisions to the Offset Ruling. In June 1981, EPA began negotiations with the industry petitioners to settle the *CMA* case. The EPA entered into a comprehensive settlement agreement with those petitioners in February 1982. Subsequently, the court granted a stay of the case pending implementation of the agreement.

In the settlement agreement, EPA committed to propose certain amendments (set forth as Exhibit A of the agreement) to eight portions of the NSR regulations and to provide guidance in three additional areas, and to take final action on those proposals. Accordingly, EPA published a notice of proposed rulemaking in the August 25, 1983 Federal Register (48 FR 38742). The EPA noted that it would review the comments carefully and with an open mind and that it would take a new look at the proposals in order to make an independent judgment on the merits. The EPA received extensive public comment regarding the August 25, 1983 document, including that presented at a public hearing. In light of the public comments and on the basis of further evaluation, EPA has determined that it is appropriate to retain various portions of the regulations that had been proposed for deletion or revision, while making final certain other portions of the proposed changes.

The EPA addressed fugitive emissions in a separate Federal Register notice that was published on October 26, 1984 (49 FR 43202). This document constitutes final action on six of the remaining seven issues in the August 25, 1983 proposal.

With respect to the other remaining issue, Federal enforceability, EPA is today announcing, in a separate Federal Register item published in conjunction with this one, its decision to retain the Federal enforceability requirement.

Accordingly, today's final actions fulfill EPA's commitments under Exhibit A of the *CMA* settlement agreement.

II. Final Action on Proposal

A. Definition of "Significant"

1. Background

In revising the NSR regulations on August 7, 1980, EPA introduced provisions which use the term "significant." One of those provisions

defines a "major modification" subject to the PSD requirements as any change at a major stationary source that would result in a "significant net emissions increase" in any one of certain pollutants (e.g., § 52.21(b)(2)(i) (45 FR 52735)). The other provisions require an applicant for a PSD permit to meet certain requirements for control technology and air quality impact assessment for each pollutant regulated under the Act that the proposed project would emit in a "significant" amount (e.g., § 52.21(j) (45 FR 52740)).

In revising the PSD regulations, EPA also introduced a definition of "significant" (e.g., § 52.21(b)(23) (45 FR 52739)). The first paragraph of that provision defines "significant" in terms of rates of emissions. For example, a rate of 40 tons per year (tpy) or more is "significant" for sulfur dioxide (SO_2). Another paragraph of the definition, however, also defines "significant" in terms of ambient air impacts in Class I areas:

> Notwithstanding (the first paragraph), significant one means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area, and have an impact on such an area equal to or greater than 1 microgram per cubic meter (μg/m³), (24-hour average). * * *

(e.g., Section §2.21(b)(23)(iii) (45 FR 52739)).

In the *CMA* case, certain industry petitioners challenged the ambient-based threshold for "significant" emissions embodied in the paragraph quoted above. They contend that EPA, in promulgating it, violated section 165(e)(3)(A) of the Act, which prohibits EPA from requiring "the use of any automatic or uniform buffer zone or zones" respecting the assessment an applicant must perform of existing air quality within the impact area of it proposed project (42 U.S.C. 7475(e)(3)(A)—*see* Brief for Industry Petitioners on Fugitive Emissions (February 11, 1981) at 54; American Mining Congress Petition for Reconsideration, at 35–36).

In the August 25, 1983 rulemaking proposal, EPA proposed deletion of the ambient-based portion of the definition of "significant." It did so roughly on the grounds advocated by industry: That the definition constitutes a sufficiently low threshold for review as to arguably create a virtually uniform buffer zone with respect to air quality analyses (48 FR 38749).

2. Public Comment

a. *Comments Generally Favoring the EPA Proposal.* Various industry commenters agreed with the basis of the proposal that the 10 kilometer provision in the existing rules violates the section 165(e)(3)(A) proscription of buffer zones. Several industry commenters also stated that the general significance levels provide adequate protection, and that their use would be more workable and appropriate. An industry trade group stated that field instruments cannot detect changes in SO_2 or particulate matter as small as 1 microgram per cubic meter (μg/m³) and that a threshold that small would prompt NSR over very broad areas in the west. Another commenter observed that sources subject to NSR would be required to analyze the impact of smaller sources that had avoided review.

b. *Comments Generally Opposing the EPA Proposal.* A Federal agency opposed the proposal since it would remove a requirement for analysis of potential adverse impacts on air quality related values in Class I areas, which Congress intended to receive the highest protection. These comments were supported by environmental groups. The Federal agency stated that applicability thresholds keyed to significant emissions rates do not provide adequate protection. First, they are based on tpy, and do not specify a maximum hourly or daily rate. Second, the agency stated it can be easily shown that sources with total emissions less than the significant rates can contribute to ambient concentrations greater than 1 μg/m³ and, in cases of SO_2, may cause exceedances of the short-term Class I increment.

Third, that commenter noted further that, under the proposal, new source growth and modifications having emissions of total particulate matter or SO_2 less than the significance levels would neither establish baselines in affected Class I areas, nor consume PSD increments in areas where baselines had not been previously established. Conceivably, increases in particulate and sulfur oxides concentrations could reach national ambient air quality standards (NAAQS) levels in Class I areas from the cumulative effect of such sources without any review of the contributing sources under the PSD program.

With regard to industry's buffer zone argument, that commenter stated that the 10 kilometer distance in the definition of "significant" is really a technical analysis zone, not a prohibited no-growth buffer zone. Other commenters agreed that the 10 kilometer criterion was not a proscribed buffer zone, since it does not prohibit construction of a major source or determine in any automatic or uniform manner whether a proposed source may be permitted.

This commenter noted that if the 10 kilometer distance criterion were deleted, the 1 μg/m³ impact criterion should be retained for sources at any distance from a Class I area, since it will assure establishment of a baseline when such impacts occur. Other commenters also urged that the 10 kilometer provision be dropped, but the 1 μg/m³ threshold be retained, on the grounds that a source's distance from a Class I area is irrelevant to achieving the stated purposes of the Act and protecting air quality in Class I areas.

Two State air quality programs agreed that the general tpy significance levels will not protect a Class I area. One stated that, using EPA's recommended modeling criteria, a major source within 2 kilometers of a Class I area with complex terrain could probably consume the entire Class I 24-hour SO_2 increment by increasing SO_2 emissions 39 tpy. That program added that it is important to remember that 1 μg/m³ is a 20 percent consumption of the 24-hour PSD increment for SO_2. An environmental group noted that an impact on air quality related values in a Class I area is a function of the amount of the pollution actually reaching an area rather than amount of pollution emitted from a source, and whether pollutants reach an area is influenced by the mode of emissions (stack versus fugitive) as much as by the amount of pollution. This group stated further that small changes as low as 1 μg/m³ in ambient concentrations can have very significant affects on the acidity of water and on visibility in an area and that the 1 μg/m³ threshold could be easily reached by a relatively modest shift of ground level fugitive emissions to stack plumes. In all of this, it is important to remember, the group concluded, that the Act's purposes focus on protecting and remedying the actual adverse effects of air pollution in Class I areas.

Finally, another commenter expressed concern that in unusual terrain the significance levels would not provide adequate protection for Class I areas, and a private commenter stated that his modeling showed that an existing 10 tpy emissions rate from a source within 10 kilometers of a national park exceeded the 1 μg/m³ threshold.

3. EPA Analysis

Public comments and reconsideration of the legal issues have persuaded EPA to retain the current definition of "significant." A review of legislative

history indicates that Congress was concerned only about the potential for a "mandatory no-growth buffer zone" around Class I areas. The subject regulation does not violate this congressional directive. Rather, it merely triggers the requirement to get a PSD permit before constructing, so as to provide for additional protection for Class I areas. The commenting government agency adequately refuted the argument that the current requirement establishes a "no-growth" buffer zone by supplying several examples of sources which were permitted for locations within 10 kilometers of a Class I area.

The EPA concludes that the subject provision is a useful tool in implementing the important congressional purpose of protection of Class I areas. The general significant emissions rates do not assure this and EPA reaffirms that, standing alone, they are adequate only for Class II and III areas. It should be noted that the substantive comments favoring deletion of the requirement rely on the questionable premise that the tpy significance numbers would provide adequate Class I protection. Even one of those comments, from a State air quality program, indicates that this might not be enough under some circumstances and recommends a screening procedure based on increment consumption. Finally, promulgation of the proposal could prompt pressure to lower the tpy significance numbers, since those values would then have to protect Class I increments as well as the less stringent Class II values.

B. Innovative Control Technology Waiver

1. Background

When revising the PSD regulations in August 1980, EPA established, for the first time, a procedure for granting [1] innovative control technology waivers of certain PSD requirements (see 45 FR 52735, 52741). The EPA patterned this procedure after the innovative control technology waiver in section 111 of the Act 42 U.S.C. 7411, for new source performance standards (NSPS). The regulations, however, entirely disallow such a waiver if a proposed project would impact any Class I area (e.g., 40 CFR 52.21(v)(2)(iv)(*b*)).

In the *CMA* case, certain industry petitioners challenged that disallowance provision. They contend primarily that the provision is arbitrary because it disallows the waiver even if an impact is insignificant or temporary (Fugitive Emissions Brief, at 55).

In the August 1988 rulemaking proposal, EPA preliminarily agreed with industry that the current formulation of the waiver is overly stringent with respect to Class I areas. Accordingly, EPA proposed to delete the current disallowance provision and to insert a new provision authorizing a waiver only if the requirements relating to Class I areas have been satisfied as to all periods during the life of the source or modification (48 FR 38750).

2. Public Comment

This part of the proposal attracted relatively little interest, with those commenting generally supporting the proposal. One commenter stated that it would be beneficial to allow this waiver, since it would provide an opportunity to achieve greater emission reductions at the same or lower cost. A State air quality program supported the proposal but would modify it to ensure that sources receiving waivers would not cause a violation of the air quality increment and would not be eligible for any special variance procedures for Class I areas provided by 40 CFR 52.21(p) (4)–(7). A local air pollution control agency opposed the proposal generally, stating that Congress intended that Class I areas receive maximum protection.

3. EPA Analysis

The EPA has decided to promulgate the deletion of this restriction as proposed. The EPA concludes that the limitation on the innovative control technology waiver is not necessary. As stated in the proposal, any applicant whose project would affect a Class I area can nevertheless obtain a PSD permit, if the applicant shows that the project would not cause or contribute to a violation of an increment for the area and the Federal land manager (FLM) fails to show that the project would adversely impact any air quality related values of the area (e.g., 40 CFR 52.21(p)(3)). In fact, even an applicant whose project would violate a Class I increment might be able to obtain a permit through special variance procedures under paragraphs (p)(4)–(7) of the regulations. In contrast, an applicant whose project would merely affect a Class I area cannot get the innovative control technology waiver under any circumstances. It is, therefore, inappropriate to deny an innovative control technology waiver to a source merely because it would affect a Class I area.

The EPA, in creating the original disallowance, sought to counter-balance an exemption that the waiver provision extends to applicants. Under paragraph (v)(2)(iii), an applicant does not have to show that the proposed project would not cause or contribute to an increment violation while operating under the waiver (45 FR 52727). As a result, but for the disallowance, a project under a waiver could violate a Class I increment or adversely affect an air quality related value. The EPA agrees, however, that the waiver provision can be refined to exempt an applicant from providing most of the air quality impact analysis that it would otherwise have to provide with respect to the waiver period and still protect Class I areas fully.

To assure adequate protection of Class I areas, EPA is inserting a provision that allows the permitting authority to grant a waiver only if the provisions relating to Class I areas (i.e., subsection (p)) have been satisfied with respect to all periods during the life of the source or modification. This provision expands the circumstances in which a waiver is available, but with additional demonstrations for some applicants.

C. Secondary Emissions

1. Background

The 1978 version of the Part 52 PSD regulations provided in 40 CFR 52.21(1) that, to obtain a permit, an applicant had to show, among other things, that the proposed project would neither cause nor contribute to a violation of a PSD increment or NAAQS (43 FR 26407). The preamble to the regulations added that an applicant, in making that showing, generally had to include any quantifiable "secondary emissions" of the proposed project (43 FR 26403).[1] The 1978 Part 51 PSD regulations echoed those requirements: it required any State PSD program to contain a provision equivalent to § 52.21(1). A definition of "secondary emissions" did not appear in the Part 51 or Part 52 regulations or in the preambles to them at that time.

In revising the PSD regulations in August 1980, EPA retained, in the form of new §§ 52.21(k) and 51.24(k) (now § 51.166(k)), the requirement for a demonstration that a proposed project would neither cause nor contribute to a violation of a PSD increment or NAAQS (45 FR 52741, 51784). The EPA, however, added a parenthetical clarification to those provisions which expressly

[1] In view of the restrictions on indirect source review in section 110(a)(5) of the Act, EPA added that the applicant could exclude any "secondary emissions" from motor vehicles or aircraft (43 FR 26403 n.8). The EPA added vessels to the list so that emissions from vessels going to and from marine terminals are now to be excluded as well (see 47 FR 27544 (June 25, 1982)). See also *NRDC* v. *EPA*, 725 F.2d 761 (D.C. Cir. 1984).

required the inclusion of "secondary emissions." It also put a definition of that term into both sets of regulations. Now, "secondary emissions" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions include emissions from any off-site support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. For the purpose of PSD, secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification. Secondary emissions do not include any emissions from any off-site support facility which would be constructed or increase its emissions for some reason other than the construction or operation of the major stationary source or major modification. Secondary emissions also do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle or from the propulsion unit of a train or a vessel (e.g., 40 CFR 52.21(b)(18) (1981), as amended 47 FR 27554 (June 25, 1982)).

An example of an off-site support facility included in the ambient impact demonstration is a strip mine owned by one company that would be located next to a proposed power plant owned by another and that would supply the power plant. Another example is a quarry owned by one company that would be located next to a proposed cement plant owned by another and that would supply the cement plant.

Certain of the industry petitioners in the *CMA* case challenged this requirement on the grounds that EPA exceeded its authority in creating it (see Fugitive Emissions Brief, at 48–50; American Mining Congress Petition for Reconsideration, at 29–32). They assert that a relevant statutory provision (section 166(a)(3)) requires only that an applicant include those emissions that would come from the proposed project, since that section refers only to "emissions from the construction or operation *of such facility*" (42 U.S.C. 7475(a)(3) (emphasis added)).[8]

The August 1980 Federal Register document proposed deletion of the requirement, but did so on the grounds that secondary emissions are not quantifiable unless the source is already permitted or in operation. The EPA noted that section 165(a)(3) also provides that an applicant must show that the proposed project "will not cause *or contribute to* air pollution" in violation of a PSD increment or NAAQS ((id.) (emphasis added)). This "contribute" language persuaded EPA that Congress intended "secondary emissions" to be taken into account for this limited purpose. Consequently, EPA based the proposed deletion of this requirement upon the premise that secondary emissions are "arguably not reasonably quantifiable" unless from sources already permitted or in operation (45 FR 52676–61).

2. Public Comment

a. *Comments Generally Favoring the Proposal.* Commenters in support of the proposal generally claimed that permit applicants have little control over secondary emissions and that their quantification is complex and burdensome. As a result, such emissions should be reviewed and controlled directly. One commenter observed that secondary emissions review is superfluous in those cases in which the secondary emitter is major, since that source would be subject to PSD review in any case.

Some of these commenters suggested legal interpretations of section 165. Several noted that section 165(a)(3) requires that the applicant demonstrate "that emissions from construction or operation" of the facility will not endanger ambient values. Consequently, emissions from support facilities cannot be included in secondary emissions review since the word "from" implies a direct connection. An industry trade group contended that section 165(a)(6), which requires "an analysis of any air quality impacts projected for the area as a result of growth associated with the facility," does not preclude the proposed regulatory deletion since it does not equate such analyses with ambient standards or increment assessments.

Mining industry commenters asserted that EPA has no authority to regulate fugitive dust from coal strip mining operations *unless* EPA complies with the rulemaking requirements of section 302(j). This section provides that fugitive emissions may be included in determining whether a proposed new source is "major" and subject to review only "as determined by rule by the Administrator." (See Alabama Power Co. v. Costle, 636 F.2d 323, 398 (D.C. Cir. 1979)). These commenters were particularly concerned with the inclusion of fugitive dust emissions from strip mines in the ambient air quality analyses of co-located, coal-fired electric generating facilities.

b. *Comments Generally Opposing the Proposal.* The provisions of section 165(a) (3) and (6) were also interpreted by commenters opposing the proposal. They stated that the industry interpretation of section 165(a)(3) is too narrow since, in using the words "contribute to," Congress indicated that the sum of the emissions of the proposed source and other projects affected by it be taken into account in the ambient demonstration. They concluded that it was reasonable for EPA to have determined in the existing regulations that secondary emissions, which would not be produced "but for" the new facility, should be included as part of the emissions from the facility's construction or operation. Commenters also pointed out that section 165(a)(6) requires an analysis of associated growth and that this cannot be complied with unless secondary emissions are considered. An environmental group cited section 165(a)(6) and concluded that it would be anomalous to suggest that the air quality analysis must be performed, but that a finding that secondary emissions would violate increments or standards must be ignored in the permitting decision.

Several commenters challenged the proposal's conclusion that secondary emissions are not quantifiable. A Federal agency noted that secondary emissions have been quantified in numerous environmental impact statements. They added that there is no major difference between quantifying emissions from a source that does not have a permit and one that does, since many operating parameters are known before a source is constructed and, conversely, many permits are issued on the basis of preliminary design information. A State air quality program reported that it disagrees with the contention that secondary emissions are significantly more difficult to measure.

Commenters also noted that secondary emissions can be important. One commenter reported that, as the result of a proposed oil shale processing facility, an entire town was planned with all the quantifiable emissions sources associated with major urban areas, such as space heaters and incinerators. Another commenter stated

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[8] Section 165(a)(3) provides, in relevant part, as follows:

(a) No major emitting facility on which construction is commenced after the date of enactment of this part may be constructed in any area to which this part applies unless * * *.

* * * * *

(3) * * * the owner or operator of such facility demonstrates * * * that emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of * * * (42 U.S.C. 7475(a)).

that EPA should not exempt all sources from assessing secondary emissions simply because of a few cases in which such emissions are not reasonably quantifiable.

3. EPA Analysis

After review of the public comments and further analysis of the subject provision, EPA has decided to retain the current regulation. Evaluation of secondary emissions is consistent with section 165 of the Act. Section 165(a)(6), in particular, indicates strong congressional concern that secondary emissions be reviewed as part of the applicant's ambient impact assessment. The regulation also furthers the broader purposes of an NSR program that emphasizes prospective review of all the consequences of growth so as to minimize the risk of future ambient air quality problems. The EPA acknowledges that there may be situations in which quantification of secondary emissions may be unduly speculative or complex. The "reasonably quantifiable" condition in this requirement provides an appropriate response to those problems.

The EPA disagrees with the comments of mining industry representatives that it must conduct a separate rulemaking under section 302(j) before it can consider secondary emissions from strip mines or any other industrial category. Section 302(j) only addresses whether fugitive emissions should be included in threshold applicability determinations. Once a source is found to be major, section 302(j) is irrelevant to the application of substantive NSR requirements. Thus, in Alabama Power, the D.C. Circuit upheld EPA's position that section 302(j) has no bearing whatsoever on the applicability of substantive PSD requirements under section 165 after a source is determined to be major. 636 F.2d at 389 ("[t]he terms of section 165 * * * apply with equal force to fugitive emissions and emissions from industrial point sources").

D. Offset Credit for Source Shutdowns and Curtailments

1. Background

The concept of "offsetting" is the core of nonattainment NSR permitting. An applicant (for a permit for a "major" project that would be located in an area that is nonattainment for a pollutant for which the project is major) must show that the emissions of the pollutant from the project will be offset by sufficient creditable reductions in emissions elsewhere so as to assure reasonable further progress (RFP) toward attainment and a net air quality benefit (see section 173(1) of the Act; 40 CFR 51.165(a)(2) (formerly 40 CFR 51.18(j)(2)), 40 CFR Part 51, Appendix S (known as the "Offset Ruling"), Section IV.A).[3] The relevant regulations (40 CFR 51.165(a) (formerly 40 CFR 51.18(j)) and the Offset Ruling contain detailed criteria for determining the creditability of emissions reductions that come from the permanent shutdown or curtailment of a source. They allow a reduction from a shutdown or curtailment that occurred before the date of the preconstruction permit application to be creditable only if: (1) The curtailment occurred after August 7, 1977, and (2) the proposed source is a replacement for the productive capacity represented by the proposed offset credit [4] (40 CFR 51.165(a)(3)(ii)(c) (formerly 51.18(j)(3)(ii)(c)) and 40 CFR Part 51, Appendix S, Section IV.C.3 footnote 9).[5] The stated purpose of this restriction was "to ensure that an offset relates to the current air quality problem * * *" (see 44 FR 3280).[6]

In the *CMA* case, certain industry petitioners challenged the restriction in 40 CFR 51.18(j) (now 40 CFR 51.165(a)) and the Offset Ruling, claiming that EPA violated the intent of Congress and acted arbitrarily and capriciously (see Brief for Industry Petitioners on Source Shutdown and Curtailment, February 12, 1981).

The August 25, 1983 Federal Register document proposed deletion of the restriction. The EPA's action was based on its preliminary agreement with the *CMA* case petitioners that section 173 of the Act does not allow a restriction on the creditability of offsets. The proposal also agreed preliminarily that the restriction is unnecessary and, therefore, undesirable. The EPA also proposed to change the cutoff dates in the provisions from August 7, 1977 to "a reasonable date specified in the plan," in the case of 40 CFR 51.18 (now Subpart I) and to the date of original promulgation of the Offset Ruling (December 21, 1976). Finally, EPA proposed to delete the restriction that relates to notification of the work force (48 FR 39751–52).

2. Comments Supporting the Proposal

This issue attracted the greatest number of comments, although many were quite similar. Industry in southern California expressed special interest in this topic. Comments received on EPA's separate notice regarding the possible uses of shutdown credits for bubbles under EPA's Emissions Trading Policy Statement (ETPS) (48 FR 38500, August 31, 1983) were also taken into account in the present rulemaking. A great majority of the commenters supported the proposal in whole or in part.

a. Restriction of Credits to Replacement Facilities. Several of the commenters stated that this restriction violates section 173 of the Act and is arbitrary. One industry commenter explained that the existing rule infringes on the authority of a State to make growth management decisions, and that a State's internal growth decisions must be approved by EPA under sections 172 and 173 if RFP and attainment are assured. Moreover, this commenter claimed that the existing provision is arbitrary, since there is no rational basis to distinguish emissions reductions achieved by shutdowns and curtailments from emissions reductions achieved by other means.

The bulk of the comments stressed the practical need to allow this potential avenue for offset credits. Many of these commenters noted that industries in nonattainment areas find it difficult to obtain emissions reduction credits to use as offsets, since sources in those areas are already subject to rigorous pollution control requirements. In particular, they claimed that allowing credit for past shutdowns and curtailments is the only hope for continued growth and the replacement of older, more polluting facilities with newer, better controlled facilities in southern California. A local air pollution authority supported this contention by stating that it already requires the highest level of reasonably available control technology (RACT), and there is no reasonable opportunity for proposed sources to get credit from improved control by existing sources. Practically, therefore, all credits banked in the district are the result of shutdowns or curtailments. Thus, unless EPA's proposal is adopted, emission "banks" could be without assets available for new source offsets, which would

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[3] The Offset Ruling currently applies in only a few circumstances. In general, the construction moratorium, or preconstruction review programs approved as meeting the requirements of section 173, as set forth in 40 CFR 51.165(a), have supplanted it.

[4] This provision first appeared in the original Offset Ruling, 41 FR 55523 (December 21, 1976). The EPA repromulgated it, with some refinement, when it revised the Offset Ruling in January 1979 (44 FR 3284). It was included in 40 CFR 51.18(j) (now 40 CFR 51.165(a)) (see 45 FR 52672, August 7, 1980).

[5] The regulations also provide that a reduction from a shutdown or curtailment that occurs after the date of application is creditable only if: (1) the work force has been notified of the shutdown or curtailment, and (2) the shutdown or curtailment is federally enforceable (40 CFR 51.165(a)(3)(ii) (c) and (e), Appendix S, Section IV.C.3).

[6] In September 1980, EPA declined to revise the restriction in the Offset Ruling in response to comments opposing it (see 45 FR 59870–77).

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adversely affect even the best controlled growth, employment, and the value of the emissions reduction credits already filed by over 100 companies. Several projects were described that would be adversely affected by retention of the restriction on offset credits.

Some of the supporting commenters argued that since air pollution agencies must require a greater than one-to-one ratio in crediting past reductions to proposed increases in emissions, trading (including credit for prior shutdowns and curtailments) should be encouraged since every time there is a trade, a net air quality benefit results. In this view, the ability to trade serves the Act's air quality purposes, since it provides an incentive for industries to look for ways to reduce emissions and, in particular, to replace old polluting facilities with newer and cleaner ones.

One commenter opposed discounting of offsets from prior source shutdowns but stated that, if EPA feels it necessary to require special discounting of such credits to achieve ambient standards in severe nonattainment areas, then the definition of "shutdown" should refer to only an "entire plant," rather than to specific equipment, thus allowing sources some flexibility and consequent economic benefit.

One air pollution control agency addressed the issue of credit from prior shutdowns or curtailments in nonattainment areas without a demonstration of attainment and stated that EPA should allow such credits but set certain additional conditions on their use. These conditions should be, it continued, that such emissions reductions: (1) Not be double-counted, (2) be discounted at a greater than one-to-one ratio, and (3) not be used to "net out" of best available control technology. The EPA was also urged to define "shutdown" as removal from service of an individual piece of equipment, a process line, or an entire plant. This commenter stated further that EPA should not include replacement of an individual piece of equipment, or relocation of equipment without modification to a nearby noncontiguous property, in the definition of "shutdown." This commenter stated EPA should also not consider the motive for the shutdown, which is subjective and would be difficult to discern.

Another air pollution control agency also supported the proposal, but was concerned over potential double counting. To prevent abuses, this commenter advised that a person creating an emissions reduction credit from a shutdown of equipment later be required to offset emissions increases, at least equal to the amount of the emissions credit, from similar types of new or modified major or nonmajor equipment.

b. *Time Limitations.* Arguing that the use of shutdown credits promotes RFP toward attainment of the Act's goals by securing more reductions than increases and by facilitating the replacement of old, dirty facilities with new, clean ones, and given the great need for offsets by companies in nonattainment areas who seek to modernize or expand, several commenters stated that there should be no time limitations on the use of credits, as long as the State is not explicitly taking credit for the shutdown in its applicable air quality plan. Some of these commenters stated that, at a minimum, all credits for shutdowns and curtailments occurring after December 21, 1976 should be allowed.

Two other commenters stated they had no objection to the "reasonable date" time limitation in 40 CFR 51.18(j) (now 40 CFR 51.165(a)), or to the proposed December 21, 1976 date for offsets, since both those proposals are consistent with the *CMA* settlement agreement. Both commenters stated, however, that they favor the removal of any time limitation in order to provide flexibility, so long as a State did not take that shutdown or curtailment credit into account when formulating its attainment plan. Other commenters supported the December 21, 1976 cutoff date.

Commenters from local air pollution control agencies also suggested alternative cutoff dates, generally based on the year a State established an emissions inventory for purposes of preparing its plan for attainment. For example, one local authority stated that the proper baseline date for crediting an offset is that of the SIP base year inventory. A group of local agencies recommended: (1) That EPA specify an appropriate baseline date from which State and local agencies can compute shutdown credits on grounds that any credits from plant closings should not be open-ended, and (2) that any benefits from the shutdowns should compensate directly those citizens in the community where the shutdown occurred. Another local control group suggested that the cutoff date should be related to the date of adoption of the local NSR rule.

Another commenter, in noting that the December 21, 1979 cutoff date may be reasonable, observed that there may well be a "natural" limit to the date which can be established, since even process and fuel use records become difficult to find as one goes back in time. The best approach, the commenter stated, is for the States to determine what date is "reasonable" based on inventory information, enabling legislation, or other criteria, and then use this date for both 40 CFR 51.18(j) (now 40 CFR 51.165(a)) and the Offset Ruling.

State agencies asserted that a baseline date should be established to limit shutdown credits, but differed as to the amount of State discretion that could be used in setting such baseline dates. One State control agency agreed that EPA should allow the States to set a "reasonable" date for both the 40 CFR 51.18(j) and Offset Ruling credit determinations. This agency and an agency from another State specifically recommended that the cutoff date be a moving date, not earlier than 5 years before the application date. They noted that permitting authorities do not have unlimited time to delve into past records, if such records exist at all. A different State control agency maintained that the cutoff date should be concurrent with the date of emissions inventory, which would preclude a windfall for sources that shut down after an arbitrary date like August 7, 1977. In no event, however, should the cutoff date be before August 7, 1977, the State concluded. Another State group noted that the requirements in sections 129 and 172 of the Act (that offsets provide a net air quality benefit and not interfere with RFP toward attainment) would preclude the use of emissions reductions for shutdowns before the date of the baseline inventory on which the nonattainment plan is based.

Finally, one commenter claimed that businesses in nonattainment areas are often advised by legal counsel to delay installation of control equipment, implementation of cleaner production methods, or removal of older equipment in order to preserve credit for the company's own expansion or sale of the credits to other businesses. This, the commenter stated, is because the existing EPA rule denies offsets for any reduction in air pollution due to a shutdown or curtailment occurring before credit is applied for regarding new construction.

c. *Notification of the Work Force.* The several commenters who addressed EPA's proposed deletion of the rule regarding notification of the work force supported it on the grounds that EPA lacks statutory authority for this requirement.

3. Comment Opposing the Proposal

The primary comment in opposition to the proposal came from a coalition of several environmental groups. Their analysis is based on a fundamental distinction between emissions

reductions achieved through shutdowns and curtailments and those achieved by actually installing pollution controls. They observed that sources have a limited life and a natural cycle of operation within that span, with the older units often being used for a relatively small portion of the time. Since a company's plans regarding capacity utilization and ultimate retirement of the unit are generally not public, a SIP, of necessity, exaggerates the emissions and longevity of many sources in its emissions inventory. This means that source owners may be able to get inappropriately large "paper" credits that would lead to actual worsening of air quality when used to offset emissions from new sources that would be operating at a higher capacity utilization. These commenters also asserted that the requirement, in section 172 of the Act, that attainment of the standards be achieved "as expeditiously as practicable," disallows crediting of any noncontemporaneous shutdowns. They contended that emissions reductions due to such noncontemporaneous shutdowns are "environmental windfalls" and, as the current regulations provide, should not be creditable for offsetting purposes. Similarly, they opposed the proposed change in cutoff dates for these credits as a further expansion of windfall credits.

4. EPA Analysis

After careful consideration of the comments received and further analysis of the issues involved, EPA has decided to promulgate the proposed elimination of the restriction on the use of prior shutdown credits for offset purposes only where the SIP contains an approved attainment demonstration. The EPA is retaining the current restrictions on crediting, for offset purposes, emissions reductions attributable to the prior shutdown or curtailment of an existing source in those nonattainment areas for which there is not an approved demonstration of attainment of the NAAQS. In addition, EPA is adding certain safeguards to assure that prior shutdown credits, where they are allowed, are consistent with the area's SIP.

The EPA believes that this decision to relax the current regulations comports with congressional intent regarding the offset program. However, as a preliminary matter, it is appropriate to point out that the Act does not expressly mandate any particular treatment of shutdowns for offset crediting purposes. Rather, this question is a matter within the administrative discretion delegated to EPA under the Act. In *Chevron, U.S.A. Inc.* v. *NRDC, Inc.*, 467 U.S. 837 (1984), the Supreme Court reaffirmed that Congress intended to grant EPA broad discretionary authority in implementing the 1977 Amendments to the Act. This discretion extends to rules implementing the nonattainment plan provisions in Part D generally and, in particular, the offset program in section 173. (Indeed, Congress made an explicit delegation by incorporating the Offset Ruling, and authorizing EPA to amend it, in an uncodified provision of the 1977 Amendments o the Act (section 129 of Pub. L. 95-95), 42 U.S.C. 7502 Note.) Thus, although it is true, as noted in the proposed regulations, that section 173 requires EPA to allow the construction of new sources in nonattainment areas where such construction will be consistent with RFP toward attainment, EPA retains broad discretion to establish criteria for determining when RFP has been assured. In this regard, EPA believes that it is certainly a reasonable exercise of its discretion to distinguish between the showing necessary to represent RFP where there is an attainment demonstration and the showing needed where an attainment demonstration is lacking. In the latter situation, EPA can properly require greater assurances that offset transactions will result in the improvement of air quality. The final rules reflect this position.

The essence of the Act's offset provision is that a new source may be allowed in a nonattainment area only where its presence would be consistent with RFP toward attainment of the NAAQS. The EPA's primary concern in this regard is that State plans provide reliable assurance of steady improvement in air quality and attainment by the target dates. Thus, where a fully approved SIP demonstrates RFP and attainment, it is appropriate to grant that State maximum flexibility in its nonattainment plan, under section 173, within the constraint that the demonstration not be invalidated. By definition, any fully approved SIP has independently assured RFP and attainment. Therefore, allowing credit for the prior shutdown of sources which the SIP assumed are currently in operation generally is appropriate in this context, because it will not endanger the overall showing of RFP and attainment. Of course, this independent assurance would be lacking to the extent that the SIP has relied on such prior shutdowns in its attainment demonstration, or to the extent that the emissions reductions attributable to the prior shutdowns cannot reasonably be ascertained.

Following these principles, EPA has concluded that, so long as adequate safeguards are in place to prevent possible abuses (e.g., provisions to avoid double counting and ensure proper quantification of credits), it is no longer necessary to restrict shutdown credits under a fully approved SIP in the manner currently provided by 40 CFR 51.165(a)(3)(ii)(c) and the Offset Ruling (40 CFR Part 51, Appendix S, section IV.A). In contrast, where a SIP, at this late date, lacks an approved attainment demonstration, EPA has a responsibility under sections 110(a)(2)(I), 172(a)(1), and 173(1)(A) to disallow offset transactions that do not clearly demonstrate RFP toward timely attainment. The EPA has concluded that, where an attainment demonstration is lacking, retention of the current shutdown credit restriction on offset transactions is necessary both to assure RFP and to guarantee that a new source does not cause or contribute to a violation of the NAAQS.

At the outset, EPA should point out that the nonattainment areas requiring but lacking attainment demonstrations, which are at the center of EPA's current concern regarding the shutdown credit issue, were not specifically addressed in the proposed rule. The August 1983 proposal assumed that, in general, nonattainment areas would either be governed by a preconstruction review program approved as meeting the requirements of section 173 (i.e., where there was an approved demonstration of attainment), or be subject to a construction moratorium under section 110(a)(2)(I) (i.e., where there was no such demonstration) (see 48 FR 38742, 38751 and n. 23). In fact, there are currently several categories of SIP's, listed below, which have neither fully demonstrated attainment nor are currently subject to a construction moratorium. It is these areas which, for the reasons detailed below, must remain subject to the shutdown credit restriction.

As noted previously, the essence of the offset program is to ensure that additional emissions from a new source will be offset by corresponding reductions elsewhere so as to result in RFP toward attainment. Although neither the Act itself nor the legislative history is explicit regarding the source of these offsetting emissions reductions, it seems clear that Congress contemplated a relatively well-defined transactional relationship between the existing offsetting source(s) and the new source. Thus, the Senate Report on the 1977 Amendments emphasized that the offset program was meant to entail a case-by-case review, in which a new

source would obtain "matching reductions from existing sources" (S. Rep. No. 127, 95th Cong., 1st. Sess. 55, reprinted in "3 Legislative History of the Clean Air Act Amendments of 1977," at 1429). Certainly, this transactional approach has been followed since EPA's original 1976 Offset Ruling, which Congress did not alter in pertinent part when it enacted Part D. At one extreme under the current rules, the new source may actively and directly induce specific emissions reductions, such as by causing an existing source to install control equipment not otherwise required under the Act, or by replacing its own existing facilities with newer, cleaner facilities. A somewhat more attenuated market relationship is present when an existing source voluntarily installs pollution controls to reduce emissions below legally required levels and places the surplus in a "bank" from which that surplus is later purchased by a prospective new source needing offsets. Toward the other extreme, there is a temporal relationship between a new source which applies for a construction permit on a certain date, and unrelated existing sources which shut down or curtail operations after that date.

The 1977 Amendments sought to reconcile the need for economic growth in nonattainment areas and the environmental interest in improving air quality in those same areas by granting States greater flexibility in accommodating these often conflicting goals (see H. R. Rep. No. 294, 95th Cong., 1st Sess. 211, reprinted in "4 Legislative History of the Clean Air Act Amendments of 1977," at 2678). Recognizing this congressional direction, EPA has taken affirmative steps to encourage early replacement of existing, dirtier sources with newer, cleaner ones without requiring NSR when there would be no significant net increase in emissions as a result of that change. Examples include EPA's decision to allow States to adopt a "plantwide" definition of "source" for purposes of the preconstruction review program in nonattainment areas where it is consistent with RFP and attainment (see 46 FR 5078 (1981)). The Supreme Court upheld this approach in *Chevron, U.S.A., Inc.* v. *NRDC, Inc.*, 467 U.S. 837 (1984).

As noted above, several industry commenters likewise favored elimination of the prior shutdown offset credit restriction on grounds that the present rules discourage early replacement of older, dirtier facilities. The EPA agrees with the general thrust of this proposition—that the offset rules should encourage construction of new sources, so long as there is a linkage to the removal from service of older and dirtier sources, and that such removal results in progress toward attainment. Indeed, the purpose of the present offset rules is to allow offset credit for prior shutdowns in those circumstances where EPA has a reasonable assurance that the shutdown is sufficiently "matched" with the new source, such that use of the offset credit can be said to represent RFP. Similarly, for the reasons stated above, where a SIP contains an adequate demonstration of attainment—and hence an independent assurance of RFP—EPA has determined that a significantly more attenuated link between a prior shutdown and the construction of a new source may be sufficient to constitute RFP, and thus the prior shutdown credit restriction may be deleted. However, with respect to those areas without the attainment demonstration mandated by section 172(a)(1), and therefore no independent assurance of RFP, EPA has concluded that it remains inappropriate, under the present NSR structure, to attribute preapplication shutdowns to the construction of an unrelated new source for offset purposes. The EPA believes that this is a reasonable basis upon which to distinguish the creditability of prior shutdowns and offsets generated by other means.

The restriction on crediting of prior shutdowns for NSR offset purposes in areas without adequate plans rests on logic similar to the logic reflected in EPA's Emissions Trading Policy Statement, which governs trades between existing sources (i.e., bubbles) (see generally 51 FR 43814–43860, December 4, 1986). In the ETPS, EPA decided to allow, with stringent qualitative safeguards, the use of shutdown credits for bubbles with case-by-case EPA approval as a SIP revision, or under generically approved State programs in areas lacking approved attainment demonstrations, so long as the shutdown of a source occurred after its application to bank or trade, special baseline and extra reduction requirements were met, and the State gave assurances of noninterference with future SIP planning. The EPA concluded that it was plausible to presume that such a source's decision to shut down was elicited "at least in part" by an opportunity to trade or bank emissions reduction credits (see 51 FR 43822). Thus, in the ETPS, EPA did not pretend that it had divined an unvarying, dominant economic motive behind all existing source trades involving shutdowns, but rather that it had resolved a close question in a generic fashion as a practical necessity (see 51 FR 43811). Applying a presumption as to transactional relationship under both NSR and the ETPS is a reasonable accommodation, administratively necessary to avoid extraordinarily difficult, case-by-case determinations of subjective motive.

However, EPA also believes it is reasonable to continue on somewhat different paths to these common goals of NSR and emissions trading given the longstanding distinctions between the two programs. For example, in emissions trading, EPA presumes that even shutdowns occurring before an application to trade were elicited by an opportunity to trade if they occurred after an application to bank. Any doubts about that presumption are compensated for by other program-wide safeguards. These include the requirements that all trades under generic programs in nonattainment areas without adequate plans—not just those trades involving banking or shutdowns—use a very stringent baseline, produce a net reduction in actual emissions of at least 20 percent, and be accompanied by State assurances that a trade is consistent with ambient progress and future air quality planning goals (see 51 FR 43832). For NSR offset purposes, EPA has presumed that shutdowns banked prior to a new source application are not transactionally related to the new source, but EPA historically has not required a lower-of-actual-or-allowable baseline, an across-the-board minimum offset ratio, or State assurances for offset transactions generally.

Nothing in the Act requires that emissions trading and NSR programs treat shutdown credits or other credits in precisely the same way. Moreover, revamping the longstanding NSR offsets system to incorporate all of the provisions of the ETPS would be a time-consuming and burdensome process.

Accordingly, issuance of the ETPS does not, as the ETPS itself indicated, force EPA to abandon the longstanding restriction on use of shutdown offset credits in areas without adequate plans.[7] Likewise, the ETPS does not independently require EPA to adopt a uniformly tighter baseline, a minimum 20 percent reduction in emissions, or a State assurance provision in its NSR program as a general matter. The end result is that EPA has rationally chosen different administrative mechanisms which it believes will serve equally well

[7] In adopting the ETPS, EPA noted that nothing therein altered existing NSR requirements or the need for compliance with them (see 51 FR 43831).

the statutory goals of RFP and attainment.

An additional consideration in this regard is EPA's developing program to address the failure of many metropolitan areas to meet the December 31, 1987 attainment date for ozone and carbon monoxide, which is the latest one specified in the Act. On November 24, 1987, EPA published a comprehensive proposed policy that spells out, in detail, the planning requirements that EPA expects to impose on areas that still lack adequate plans for attainment, or have otherwise failed to meet the NAAQS (see 52 FR 45044). Although EPA has not yet issued a final policy, in May 1988, the Agency issued notices that the SIP's for numerous areas are "substantially inadequate" within the meaning of section 110(a)(2)(H) of the Act. The notices call for SIP revisions in those areas, so that States will begin the fundamental activities necessary to make progress toward attainment of the ozone and carbon monoxide NAAQS (see 53 FR 20722, 20724 (June 6, 1988)). Although the final contours of EPA's post-1987 policy have not been drawn, it is clear that many States will face substantial planning burdens and the need to adopt additional control measures for the areas in question. Under these circumstances, EPA believes it would be inappropriate even to hold out the possibility that States could obtain approval at this time for expanded use of shutdown offset credits in areas with inadequate plans. In light of the continued severe ozone and CO nonattainment in many metropolitan areas beyond the 1987 statutory deadline, any such approval would need to be conditioned on the adoption of safeguards at least as stringent as those now required for approval of generic bubble rules under the ETPS.[8] But it is doubtful that affected States could provide, for example, the necessary assurances that prior shutdown offset credits would be consistent with ambient progress and future air quality planning goals. In particular, EPA could not approve a general relaxation on the current restriction on the use of prior shutdown offsets until, at a minimum, a State has completed a draft emissions inventory, which is required within 12 months of the SIP call (see 52 FR 45056). This is so because, if the State lacks an approved attainment plan, the absence of an emissions inventory means that EPA has no assurance that use of prior shutdown offset credits for an indefinite period of time, without further review by EPA, would be consistent with further SIP planning for attainment. (For the same reason, the State would be unable to determine whether a 20 percent net reduction in emissions or some larger percent reduction would be consistent with that needed to attain in the area.)[9]

The final factor in today's decision is that the possibility that elimination of the shutdown credit restriction would serve to encourage economic growth and early cleanup is insufficient to justify a radical departure from the present NSR offset rules in nonattainment areas lacking adequate attainment demonstrations. In contrast to situations where a new source is responsible for the installation of additional control equipment by an existing source, or where an existing source replaces an old item of process equipment with a newer one, the relationship between the prior shutdown of an existing source and the later construction of an unrelated new source is not obvious. In an August 31, 1983, Federal Register notice, EPA solicited comments on the issue of whether the restriction on shutdown crediting induced sources to keep older, dirtier facilities on line beyond their economically optimum period of use in order to preserve potential emissions reduction credits (48 FR 39585). No definitive evidence that such is the case was received. In the absence of such evidence, EPA is not compelled to adopt this change in areas lacking adequate attainment demonstrations.

Accordingly, at this time EPA is retaining the offset restrictions on shutdowns which occurred prior to the date of the construction permit application where there is no adequate attainment demonstration. The EPA believes it is reasonable to deem that postapplication shutdowns may be transactionally linked to the new source for purposes of demonstrating RFP under the NSR offset requirement. Conversely, a preapplication shutdown (other than a replacement) can reasonably be viewed as insufficiently related to the new source, and therefore unavailable for purposes of demonstrating that the net result of construction of the new source is RFP, in those nonattainment areas lacking an adequate independent demonstration of RFP and timely attainment.

The EPA believes that this position comports with congressional intent regarding the proper role of the offset program. Moreover, EPA believes that this position is generally consistent with requirements for bubbles under the ETPS, taking into account the different history and functions of these programs. It is also consistent with EPA's emerging post-1987 nonattainment policy. Finally, EPA's position follows the recommendation of many pollution control agencies by avoiding the difficult and intrusive task of determining a source's subjective motive for shutting down or curtailing production.

The EPA wishes to clarify the four types of planning circumstances in which EPA considers the SIP to be inadequate and will continue to restrict offset credits for prior shutdowns. In all but the following situations, EPA will consider the SIP to contain an acceptable attainment demonstration and will allow the general offsetting use of prior source shutdowns, provided all other criteria regarding creditable emissions reductions are met:

a. The total suspended particulates (TSP) areas that are designated nonattainment under section 107 in States which failed to submit a 1979 Part D attainment demonstration or submitted one that did not receive full EPA approval. This also includes both primary and secondary TSP nonattainment areas that submitted a SIP that did not include an actual demonstration of attainment but still received EPA approval (e.g., a "RACT plus studies" SIP). Although EPA has changed the NAAQS indicator for particulate matter from TSP to particulate matter nominally 10 microns and less (PM_{10}), the TSP nonattainment designations will remain in place at least until a State receives EPA approval of its PM_{10} attainment plan. Until such time, State NSR provisions requiring compliance with the old TSP requirements—including offsets—remain in effect (see 52 FR 24672, 24682, and 24684).

b. Nonattainment areas that have received a final notice of disapproval of their current SIP.

c. Nonattainment areas that have received either a section 110(a)(2)(H) notice of deficiency based on failure to attain or maintain the primary NAAQS, or a notice of failure to implement an approved SIP. This includes newly

[8] State generic bubble rules under the ETPS and State offset rules under NSR are structurally similar because, in both programs, EPA reviews and approves the rules governing the overall conduct of such programs by the States indefinitely into the future but does not pass judgment on individual transactions which these programs share.

[9] It should be noted that State rules may at the present time allow sources to preserve prior shutdown credits for future use at such time as an attainment demonstration has been approved by EPA, provided that the emissions inventory used in the development of the approved attainment demonstration explicitly includes as current "existing" emissions the emissions from the previously shutdown sources. In addition, the emissions reductions from such shutdown sources must be permanent, quantifiable, and federally enforceable at the time of use.

designated primary nonattainment areas that do not yet have an EPA-approved attainment demonstration to address the new-found nonattainment problem.

d. Nonattainment areas that received notice from EPA that they have failed to meet conditions in their EPA-approved SIP's, including commitments to adopt particular regulations by specified dates.

There may be circumstances where, subsequent to the submittal of a complete permit application which relies on a specific prior shutdown or curtailment which is otherwise creditable, the SIP's attainment demonstration is no longer considered adequate for one of the four reasons outlined above. In such cases, the criteria for crediting prior source shutdowns in areas with an acceptable demonstration will continue to apply to the processing of the permit.

Regarding the comments pertaining to the proper definition of shutdown for offsetting purposes, EPA wishes to clarify that where the prior shutdown restrictions remain in place, "source shutdown" refers to the permanent withdrawal from productive capacity of any building, structure, facility, installation, item of process equipment, or combination thereof. This nontechnical definition of the potential sources of offset credits has been followed by EPA since adoption of the original Offset Ruling, and clearly comports with the purpose of the offset program. The EPA did not intend to alter its policy in October 1981 (see 46 FR 50766), when EPA adopted a "plantwide" definition of "source" for determining the overall applicability of the NSR requirements.

With respect to the question of discounting of shutdown offsets, EPA's position is that where offset credit for shutdowns is appropriate, such credits may be treated in the same fashion as any other type of emissions reduction. Thus, shutdown offset credits continue to be subject to any general offset ratio specified in an applicable SIP unless the State in its discretion establishes a different ratio for such credits, and are not subject to the special baseline, across-the-board 20 percent net emissions reduction, or State assurance requirements applicable to "progress" bubbles under EPA's ETPS.

Regarding time limitations, the EPA agrees with the reasoning of those commenters who favored removal of inflexible nationwide time limitations on the crediting of prior shutdowns. However, EPA does not concur that time limitations are wholly unnecessary, so long as a State has not explicitly taken credit for the shutdown in its SIP. Rather, some limitations must be retained to provide adequate assurance for air quality planning and administrative reasons that shutdown credits are allowed only where they will, in fact, result in RFP.

As noted by several States and local air pollution control agencies, shutdowns which occurred prior to a State's establishment of the emissions inventory used in its attainment demonstration should not be available as credit. In general, States have at least implicitly taken account of all such preinventory shutdowns and curtailments in their nonattainment plans. It would constitute "double counting" of these emissions reductions to allow their unrestricted use as shutdown offset credits by potential new sources. Accordingly, emissions from a new source whose construction is premised upon such shutdowns cannot reliably be said to be consistent with RFP, unless the emissions inventory explicitly treats the emissions from the shutdown source as current actual emissions.

The EPA believes that the final rule should also reflect the concerns of State commenters who pointed to a range of practical difficulties in verifying the existence and extent of past emissions reductions. Accordingly, in order to afford individual States maximum flexibility, while ensuring that prior shutdown credits will result in RFP, the final rule in Subpart I provides that the time limit for use of shutdown credits may be any reasonable cutoff date after August 7, 1977, as specified in the SIP, so long as that date is on or after the date of the most recent emissions inventory used in the plan's EPA-approved demonstration of attainment. In addition, where the emissions inventory explicitly lists the emissions from a previously shut down or curtailed source as still existing, the State may choose to allow such emissions for offset credit purposes. The Offset Ruling has been revised to contain the same cutoff date provisions as Subpart I. In addition, the final rules provide that, in order to be creditable, prior shutdowns must be permanent, quantifiable, and federally enforceable when used.

The final rules also promulgate the proposed deletion of the work force notification provision. This requirement served no purpose in assuring attainment of the NAAQS and, thus, its retention would be inappropriate.

E. Banking of Offsets

1. Background

The current Offset Ruling contains a provision, subparagraph IV.C.5., which affirms that a permitting authority may give credit under the Offset Ruling for past "banked" reductions and which sets some boundaries on the circumstances under which it may grant this credit. The third and last sentences of that subparagraph also contain guidance on the approvability, under section 173, of a permit program that would give credit for "banked" offsets. Since adding that guidance to the Offset Ruling in January 1979, EPA has issued regulatory guidance on banking for purposes of nonattainment NSR in the form of § 51.165(a)(3) (formerly § 51.18(j)(3)) and policy guidance in the form of the ETPS (51 FR 43814, December 4, 1986). This newer guidance renders the guidance in the Offset Ruling superfluous. To avoid confusion, EPA proposed to delete the third and last sentences.

2. Public Comments

Comment on this issue was limited but generally favorable. Several commenters supported what they termed "the removal of artificial distinctions against the use of shutdown emissions," noting that crediting of such emissions was very important, especially in California, where shutdowns are the only area source of emissions credit. Others agreed with EPA's proposal to eliminate the banking guidance in the Offset Ruling in favor of more recent guidance in the ETPS.

One State agency opposed the proposed deletion of the two provisions in the Offset Ruling because, until the final ETPS is promulgated, there would be no official regulatory replacement of these limitations on abuse of emissions reduction credits. Finally, one commenter stated that the ETPS should be combined with a formal emissions banking and trading program, subject to notice and public comment, in order to reduce confusion and provide the maximum flexibility in the use of credits.

3. EPA Analysis

The EPA is today deleting the subject provisions, as proposed. They are unnecessary in view of the ETPS.

F. Health and Welfare Equivalence

1. Background

The five sets of PSD and nonattainment NSR regulations define "major modification," roughly, as any change at a major source that would result in a "significant net emissions increase" in any one of certain pollutants. "Net emissions increase," in turn, is defined as the amount by which the sum of: (1) The increase in emissions from the proposed change, and (2) any

creditable increases and decreases elsewhere at the source would exceed zero (e.g., 40 CFR 52.21(b)(3)(i)). This process of summing increases and decreases in emissions in order to avoid NSR is commonly referred to as "netting." The regulations restrict the creditability of some decreases in emissions. One provision, in particular, allows credit for a reduction only to the extent that it has approximately the same qualitative significance for public health and welfare as the increase from the proposed change (e.g., id. § 52.21(b)(3)(vi)(c)). Examples of specific concerns are variations in pollutant carcinogenicity and volatile organic compounds (VOC) reactivity, and in air quality impact as a result of different stack heights.

Several of the industry petitioners in the *CMA* case have challenged that restriction on the creditability of emissions reductions. The basis of this argument is that the relevant statutory definition of "modification," section 111(a)(4) of the Act, includes any change "which increases the amount of any air pollutant emitted. * * *" This reference to "amount" is argued to mean that the definition only applies to the quantity of air pollutants, by weight, rather than to any qualitative criteria regarding amount of impact, such as toxicity or impact area. The EPA proposed to delete this requirement on those grounds, stating that NSR of modifications primarily is triggered by quantitative increases in emissions and, therefore, it lacks authority to limit netting credits based on purely qualitative reasons. In addition, the proposal concluded that, even if EPA did have authority to impose this restriction, it could not do so because the wording is unlawfully vague.

In conjunction with the issue of health and welfare equivalence, EPA proposed to exclude certain compounds from the term VOC's as that term is used in the PSD and nonattainment regulations, because EPA has determined them to be negligibly photochemically reactive and, hence, not precursors of ozone.

2. Public Comment on Health and Welfare Equivalence

a. *Comments Generally Favoring the Proposal.* Industry commenters generally supported the proposal. Some stated that there is no reason to differentiate between types of emissions which contribute to ambient levels of a criteria pollutant. For example, all reductions in particulate matter emissions help to attain the TSP standard. Consequently, if EPA's concern is with fine particulates, it should directly address them in a rulemaking. Similarly, these commenters stated, mechanisms from other programs—such as RACT, NSPS, and national emission standards for hazardous air pollutants (NESHAP)—exist to address toxic pollutants directly. Some commenters also criticized the restriction as vague and potentially burdensome if case-by-case analyses were required. One State air quality program added that it has authority to ban netting in any case where such could cause hazardous emissions problems.

b. *Comments Generally Opposing the Proposal.* Several commenters representing State air quality programs opposed the proposal, arguing that it should be the quality, not merely the quantity, of emissions that determine creditability for netting purposes. If this were not the case, trades could proceed that allowed increases in toxic pollutants in place of criteria pollutants, or between large and small particulate emissions, even though there would be a significantly greater adverse effect on public health and welfare.

A Federal agency noted that the rerouting of fugitive emissions through a stack to achieve a net decrease in emissions could still cause greater ambient concentrations of a pollutant further downwind, such as at a national park. Since a PSD applicant would thereby avoid having to demonstrate a lack of adverse impact on such a downwind Class I area, the FLM's ability to exercise his affirmative responsibility to protect air quality-related values would be impaired. Therefore, the only creditable emissions decreases should be those for which points of emissions have the same emissions characteristics, and the FLM should be notified if a Class I area would be potentially affected by emissions from a source modified through such netting.

An environmental group stated that the *Alabama Power Company* v. *Costle* case, contrary to EPA's assertion in the proposal, provides no authority against a health and welfare equivalency criterion since no party raised this question in the litigation, and the court had no occasion to address it. The language from the court opinion which EPA quotes is, therefore, simply not relevant.

3. Public Comment on Exclusion of Nonreactive VOCs.

a. *Comments Generally Favoring the EPA Proposal.* Several commenters supported EPA's decision to exclude certain compounds from the term VOC's as that term is used in the PSD and nonattainment regulations. A petroleum company urged EPA to also delete propane, acetone, methanol, acetylene, and tertiary alkyl alcohols from the definition, arguing that these compounds are also nonreactive. A manufacturing company urged EPA to delete fluorinated organic compounds (citing an EPA letter that such substances were negligibly photochemically reactive); a chemical company urged EPA to delete tetrachloroethylene (citing an EPA report); and a trade association urged EPA to clarify that other nonreactive VOC's may, in the future, be added to the present list as soon as they are shown not to be precursors of ozone.

One commenter, although supporting the EPA proposal, urged that the new definition of VOC not be retroactive to previous applicability determinations or emissions banking determinations, since this would create an administrative nightmare and change the basic principles under which industry has been operating.

b. *Comments Generally Opposing the EPA Proposal.* A local air quality program opposed the proposed definition of VOC unless EPA institutes measures to consider the compounds deleted from the definition under separate provisions of the Act. That commenter noted that these compounds are a potential public health hazard.

Another commenter stated that the proposed exclusions from the VOC definition were shortsighted since a number of the substances to be deleted are candidates for listing under section 112. The commenter stated that the effect of the proposal would be to encourage greater use of these substances which may in the future have to be regulated more tightly than the average hydrocarbon.

4. EPA Analysis

Upon consideration of the public comments and of its duties and authority under the Act, EPA has decided to retain the current regulation allowing netting credit for a reduction in emissions only to the extent that the reduction has "approximately the same qualitative significance for public health and welfare" as the proposed emissions increase. However, as explained below, today's action clarifies that the implementation of this regulation is temporarily limited in certain ways, described below, pending further improvements in EPA's ability to assess qualitative differences in the effects, including toxic effects, of pollutants that are similar in quantity.

In view of substantial arguments on both sides of the health and welfare issue, EPA has reassessed the question

of EPA's authority to promulgate this regulation. The EPA has concluded that congressional intent behind the adoption of section 111(a)(4) to guide the definition of "modification" for NSR purposes is ambiguous, and that EPA possesses adequate authority to maintain the health and welfare requirement.

Industry commenters have urged EPA to strictly construe the operative phrase "* * * which increases the amount of any air pollutant emitted * * *" so as to exclude consideration of qualitative impacts. However, although strict construction might require exclusive focus on the amount of pollution, it would also demand close adherence to the "any air pollutant" portion of the definition. This could lead to anomalous results that no party has sought, and which would not further the statutory purposes of the Act. This is because section 302(g) defines "air pollutant" very broadly to include:

> Any air pollutant agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and by-product material) substance or matter which is emitted into or otherwise enters the ambient air.

However, under the PSD program, EPA, to date, has equated "any air pollutant" with pollutants "subject to regulation under (the Act)" as that term is used in section 165(a)(3). In contrast, in the "NSPS" program from which the definition is borrowed, EPA has consistently treated "any air pollutant" as referring only to those pollutants for which a performance standard has been promulgated under section 111 for the specific source category in question.

Thus, a strict reading of section 111(a)(4), together with section 302(g), might require vastly expanded regulation, under both the NSPS and NSR provisions of the Act, of any air pollutant, including discrete subspecies of criteria pollutants, regardless of whether such pollutant is otherwise regulated under the Act or the program in question. In the context of NSR netting calculations, such a reading would require that netting be strictly quantitative by focusing on the amounts of individual air pollutant agents, yet be qualitative in nature by allowing only netting of air pollutant agents of the same type.

There is no indication that Congress required EPA to administer the Act in this fashion. Rather, EPA believes that there is an inherent tension between the statutory terms "amount" and "any air pollutant," and that congressional intent is thus ambiguous. Where a clear expression of legislative purpose is lacking, EPA may interpret statutory language reasonably so as to further the general legislative purposes (see *Chevron, U.S.A., Inc.* v. *NRDC*, 467 U.S. 837 (1984)). Here, EPA believes that the central purposes of the Act, to protect public health and welfare (see sections 101(b)(1) and 160(1)), and to allow increases in pollution only after careful evaluation of all the consequences (see section 160(3)), will be served by retaining this regulatory requirement, because it helps ensure that modified sources that would otherwise "net out" of review do not inadvertently cause a significant adverse health or welfare impact. This position is also supported by *Alabama Power Co.* v. *Castle*, wherein the court recognized that EPA retains substantial discretion in applying the bubble concept (see 636 F.2d at 402).

Some commenters have argued that these goals should be pursued exclusively through the NSPS and NESHAP programs, not through NSR. The EPA's response to these commenters is two-fold. First, the Act clearly does not limit control of these problems to only those two programs. Indeed, the Act provides for complementary, but distinctly different, roles for all three programs. Section 112 addresses "hazardous air pollutants," defined as those which

> * * * cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness (section 112(a)(1)).

This program provides for the identification of these hazardous air pollutants and control of emissions from source categories designated by EPA. The PSD provisions of the Act provide a very different focus and standard for regulation. For example, the PSD program addresses all major sources and is designed "to protect public health and welfare from any actual or potential adverse effect" from any air pollutant (section 160(1)).

Second, NSR possesses an inherent speed and flexibility in its ability to protect public health and welfare that those other programs lack. The NSR programs provide timely and focused responses to health and welfare issues arising from specific sources. These responses complement the type of long-range and general studies performed pursuant to sections 111 and 112. The NSR programs also address all pollutants from each source in every source category, while the NSPS and NESHAP programs do not.

Although EPA believes it has adequate authority to consider differences in the toxicity of various subspecies of pollutants in netting calculations, EPA has not yet set forth criteria by which to delineate these differences so as to ensure reasonable and nationally consistent implementation. Thus, while EPA believes that sources should not trade decreases in compounds of lesser toxicity (considered in terms of acute or carcinogenic effects) if this results in adverse health or welfare consequences, specific limitations on sources' ability to net must await further development of objective criteria by which to judge these differences.

Toward this goal, EPA now solicits comments to be used in the development of guidance for implementing this provision. Certainly, an exact and detailed approach to ranking all toxics is impossible; there are 4,500,000 chemicals listed by the American Chemical Society, with 70,000 chemicals in commercial use and 1,000 new ones added each year. Furthermore, toxicity is an art, as well as a science, with the level of knowledge constantly evolving. It would be irresponsible and contrary to the Act, however, to ignore potential public health problems because of the inability to precisely discriminate among all chemicals. Prudent regulatory strategy entails the broad examination and classification of toxic air pollutants in such a way as to provide for reasonable and predictable implementation of the NSR program while preventing appreciable increases in public health risk.

There are a variety of sources of information to assist permitting authorities and affected industry in assessing relative risk of toxic air pollutants. For example, the American Conference of Governmental Industrial Hygienists publishes "Threshold Limit Values," indicating safe worker exposure concentrations for numerous pollutants. The Carcinogen Assessment Group provides a broad classification system for carcinogens, as well as unit risk factors for carcinogenic potency. Such sources of information on toxicity could well serve as the basis for classifications of pollutants for purposes of determining appropriateness of netting transactions. One initial approach might be to group the toxic air pollutants likely to be encountered into four or five classifications based on variances in toxicity, with netting credits being allowed for reductions in any other chemical contained in the same group.

In the meantime, section 116 allows, and EPA encourages, the States to continue development and implementation of their own air toxics programs, including case-by-case analysis of proposed netting transactions. The EPA will continue to closely monitor these State efforts, and will consider the approaches being used by the various States (such as prohibiting netting between certain groups of toxic subspecies, or establishing netting ratios between certain groups of toxic pollutants) in developing specific Federal regulatory requirements in this area.

The EPA also agrees with those commenters who pointed out a vagueness problem with the area impact aspect of the health and welfare equivalence regulation. Specifically, industry comments criticizing netting restrictions determined by area or concentration of pollutant impact, such as stack height, plume temperature, and impact on visibility or vegetation, are well taken. Absent more specific guidance on the reach of this provision, it is unduly vague and, hence, difficult to implement in a consistent manner. Consequently, EPA policy will be to limit this aspect of the health and welfare provision unless, and until, specific guidance on how to address these comparisons is issued.

Accordingly, the area impacts aspect of the regulation will apply only where the State has reason to believe that the reduction in ambient concentrations from the emissions decrease will not be sufficient to prevent the proposed emissions increase from causing or contributing to a violation of any NAAQS or PSD increment, despite the absence of a significant net increase in emissions. In such cases, an applicant for a federally enforceable permit must demonstrate that the proposed netting transaction will not cause or contribute to an air quality violation before the emissions reduction may be credited. This requirement serves as a "safety valve" for circumstances not contemplated by the calculation of significance values in the NSR regulations, and is amply specific to allow consistent application. This requirement is also appropriate because it provides, as to sources that would be considered major but for their ability to net out of NSR review, air quality protection equivalent to that mandated under section 165(a)(3) of the Act.

As indicated above, the concerns addressed by this regulation relate to differences in the toxicity and impact areas of emissions subject to a netting calculation. However, many common types of emissions can be considered the same pollutant in terms of health and welfare impacts. In addition, many industrial processes are sufficiently similar that they can be considered as having an equivalent impact on health and welfare. Therefore, where netting takes place between the same or similar combustion units, fuels, or processes, equivalency may, in most cases, be assumed. As is the case with all other criteria for the crediting of emissions reductions, it is the responsibility of the source attempting to net emissions to support, where necessary, a finding of equivalence of health and welfare equivalence. Nevertheless, EPA has no evidence to indicate that the requisite health and welfare equivalency demonstration has been burdensome or has resulted in any undue delay or prohibition in the construction of a major modification to a major source. Furthermore, any burdens that currently exist would be reduced as a result of today's action.

The EPA is also promulgating a new definitional provision that, in general, excludes certain organic compounds from the term "VOC" as that term is used in the PSD and nonattainment regulations.[18] The compounds are those that EPA has determined to be negligibly photochemically reactive and, hence, not important precursors of ozone (see 42 FR 35314, July 8, 1977; 44 FR 32043, June 4, 1979; 45 FR 32424, May 15, 1980; 45 FR 48941, July 22, 1980; 54 FR 1987, January 18, 1989). They are, therefore, not considered to be VOC's within the meaning of the PSD and nonattainment regulations. The purpose of the revision is to clarify that increases and decreases in emissions of those compounds are to be ignored completely in any applicability determination with respect to VOC's. Although this is a new provision for the NSR regulations, it does not change the chemicals on EPA's list of organic compounds determined to be negligibly photochemically reactive. Thus, it does not change any EPA applicability determinations, since this list has already been relied on in those transactions.

III. Miscellaneous

A. Executive Order 12291

Under Executive Order 12291, EPA must judge whether a regulation is a "major rule" and therefore subject to the requirement for preparation of a Regulatory Impact Analysis. The EPA has determined that this regulation is not a "major rule," because it either relaxes a regulatory requirement or retains existing provisions and will not have any significant effects on the economy.

This regulation has been submitted to the Office of Management and Budget for review under Executive Order 12291. Any written comments from that office, and EPA's written responses to any such comments, have been placed in the docket for this proceeding and are available for public inspection at the times and place described earlier in this preamble.

B. Paperwork Reduction Act

The information collection requirements contained in this rule have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and have been assigned OMB control number 2060-0003.

The public reporting burden resulting from this rulemaking is estimated to decrease 2,920 hours overall as a result of today's rulemaking. This estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

C. Economic Impact Assessment

The requirement for performing an Economic Impact Assessment under section 317 of the Act (42 U.S.C. 7617), does not apply, because this regulation does not make "substantial revisions" to existing regulations. These revisions are not "substantial," because they either relieve a current regulatory burden or retain existing provisions.

D. Regulatory Flexibility Act Certification

As required by section 3(a) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), I certify that this regulation will not have a significant adverse impact on any small entities, because it relieves an existing regulatory burden and imposes no significant new burdens.

[18] It would not exclude a compound if it were subject to an NSPS or NESHAP.

R007916

E. Effective Date

As stated earlier in this notice, this rule is effective immediately upon publication in the Federal Register. The EPA has concluded that, under section 307(d)(1) of the Act, the requirement of section 4(d) of the Administrative Procedures Act, 5 U.S.C. 553(d), for a 30-day waiting period before making a rule effective is not applicable.

F. Federalism Implications

Under Executive Order 12612, EPA must determine if a rule has federalism implications, i.e., substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. For those rules which have federalism implications, a Federalism Assessment is to be made.

The Executive order also requires that agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when there is clear constitutional authority and the presence of a problem of national scope. The Executive order provides for preemption of State law, however, if there is a clear congressional intent for the agency to do so. Any such preemption, however, is to be limited to the extent possible.

This final rule either retains the current rules or provides increased State policy options. The only change with federalism implications is the action which allows use of certain emissions reductions (e.g., prior shutdowns) in certain areas for offsets. Previously, such reductions could not be used. The change increases State policy options, allowing them to prohibit, use, or partially use these reductions as a part of their air quality management plans.

List of Subjects

40 CFR Part 51

Administrative practices and procedures, air pollution control, intergovernmental relations, reporting and recordkeeping requirements, ozone, sulfur oxides, nitrogen dioxide, lead, particulate matter, hydrocarbons, carbon monoxide.

40 CFR Part 52

Air pollution control, ozone, sulfur oxides, nitrogen dioxide, lead, particulate matter, carbon monoxide, hydrocarbons.

Date: June 12, 1989.

William K. Reilly,

Administrator.

For reasons set forth in the preamble, Parts 51 and 52 of Chapter I of the Title 40 of the Code of Federal Regulations are amended as follows:

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

1. The authority citation for Part 51 continues to read as follows:

Authority: Secs. 101(b)(1), 110, 160–169, 171–178, and 301(a) of the Clean Air Act, 42 USC 7401(b)(1), 7410, 7470–7479, 7501–7508, and 7601(a).

2. Section 51.165 is amended by adding paragraph (a)(1)(xix) and revising paragraph (a)(3)(ii)(C) to read as follows:

51.165 Permit requirements.

(a) * * *

(1) * * *

(xix) "Volatile organic compounds" excludes: methane; ethane; methylene chloride; 1,1,1 trichloroethane (methyl chloroform); trichlorotrifluoroethane (CFC–113) (Freon 113); trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); trifluoromethane (FC–23); dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); dichlorotrifluoroethane (HCFC–123); tetrafluoroethane (HFC–134a); dichlorofluoroethane (HCFC–141b); and chlorodifluoroethane (HCFC–142b).

* * * * *

(3) * * *

(ii) * * *

(C)(*1*) Emissions reductions achieved by shutting down an existing source or curtailing production or operating hours below baseline levels may be generally credited if such reductions are permanent, quantifiable, and federally enforceable, and if the area has an EPA-approved attainment plan. In addition, the shutdown or curtailment is creditable only if it occurred on or after the date specified for this purpose in the plan, and if such date is on or after the date of the most recent emissions inventory used in the plan's demonstration of attainment. Where the plan does not specify a cutoff date for shutdown credits, the date of the most recent emissions inventory or attainment demonstration, as the case may be, shall apply. However, in no event may credit be given for shutdowns which occurred prior to August 7, 1977. For purposes of this paragraph, a permitting authority may choose to consider a prior shutdown or curtailment to have occurred after the date of its most recent emissions inventory, if the inventory explicitly includes as current "existing" emissions the emissions from such previously shutdown or curtailed sources.

(*2*) Such reductions may be credited in the absence of an approved attainment demonstration only if the shutdown or curtailment occurred on or after the date the new source permit application is filed, or, if the applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source, and the cutoff date provisions of § 51.165(a)(3)(ii)(C)(*1*) are observed.

* * * * *

3. Section 51.166 is amended by adding paragraphs (b)(29) and (s)(2)(vi) to read as follows:

§ 51.166 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(29) "Volatile organic compounds" excludes each of the following compounds, unless the compound is subject to an emissions standard under sections 111 or 112 of the Act: methane; ethane; methylene chloride; 1,1,1 trichloroethane (methyl chloroform); trichlorotrifluoroethane (CFC–113) (Freon 113); trichlorofluoromethane (CFC–11); dichlorodifluouromethane (CFC–12); chlorodifluoromethane (CFC–22); trifluoromethane (FC–23); dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); dichlorotrifluoroethane (HCFC–123); tetrafluoroethane (HCFC–134a); dichlorofluoroethane (HCFC–141b); and chlorodifluoroethane (HCFC–142b).

* * * * *

(s) * * *

(2) * * *

(vi) The provisions of paragraph (p) of this section (relating to Class I areas) have been satisfied with respect to all periods during the life of the source or modification.

* * * * *

4. Section 51.166 is amended by removing paragraph (s)(2)(iv)(*b*) and redesignating paragraph (s)(2)(iv)(*c*) as (s)(2)(iv)(*b*).

5. Appendix S is amended by adding paragraph II.A.20 and revising paragraph IV.C.3. to read as follows:

Appendix S—Emission Offset Interpretative Ruling

* * * * *

II. * * *

A. * * *

20. "Volatile organic compounds" excludes: methane; ethane; methylene chloride; 1,1,1

trichloroethane (methyl chloroform); trichlorotrifluoroethane (CFC–113) (Freon 113); trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); trifluoromethane (FC–23); dichlorotetrafluoroethane (CFC–114); and chloropentafluoroethane (CFC–115); dichlorotrifluoroethane (HCFC–123); tetrafluoroethane (HFC–134a); dichlorofluoroethane (HCFC–141b); and chlorodifluoroethane (HCFC–142b).

* * * * *

IV. * * *

C. * * *

3. (i) *Operating hours and source shutdown.*

A source may generally be credited with emissions reductions achieved by shutting down an existing source or permanently curtailing production or operating hours below baseline levels (see initial discussion in this Section IV.C). If such reductions are permanent, quantifiable, and federally enforceable, and if the area has an EPA-approved attainment plan: In addition, the shutdown or curtailment is creditable only if it occurred on or after the date specified for this purpose in the plan, and if such date is on or after the date of the most recent emissions inventory used in the plan's demonstration of attainment. Where the plan does not specify a cutoff date for shutdown credits, the date of the most recent emissions inventory or attainment demonstration, as the case may be, shall apply. However, in no event may credit be given for shutdowns which occurred prior to August 7, 1977. For purposes of this paragraph, in permitting authority may choose to consider a prior shutdown or curtailment to have occurred after the date of its most recent emissions inventory, if the inventory explicitly includes as current "existing" emissions the emissions from each previously shutdown or curtailed sources.

(ii) Such reductions may be credited in the absence of an approved attainment demonstration only if the shutdown or curtailment occurred on or after the date the new source application is filed, or, if the applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source and the cutoff date provisions of section IV.C.3.(i) are observed.

* * * * *

6. Appendix S, paragraph IV.D. is amended by redesignating footnote 10 as footnote 9 and paragraph V.A.(1) is amended by redesignating footnote 11 as footnote 10.

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for Part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7642.

2. Section 52.21 is amended by adding paragraphs (b)(30) and (v)(2)(vi) to read as follows:

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(30) "Volatile organic compounds" excludes each of the following compounds, unless the compound is subject to an emissions standard under sections 111 or 112 of the Act: methane; ethane; methylene chloride; 1,1,1 trichloroethane (methyl chloroform); trichlorotrifluoroethane (CFC–113) (Freon 113); trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); trifluoromethane (FC–23); dichlorotetrafluoroethane (CFC–114); and chloropentafluoroethane (CFC–115); dichlorotrifluoroethane (HCFC–123); tetrafluoroethane (HFC–134a); dichlorofluoroethane (HCFC–141b); and chlorodifluoroethane (HCFC–142b).

* * * * *

(v) * * *

(2) * * *

(vi) The provisions of paragraph (p) of this section (relating to Class I areas) have been satisfied with respect to all periods during the life of the source or modification.

* * * * *

3. Section 52.21 is amended by removing paragraph (v)(2)(iv)(*b*) and redesignating paragraph (v)(2)(iv)(*c*) as (v)(2)(iv)(*b*).

4. Section 52.24 is amended by adding paragraph (f)(18) to read as follows:

§ 52.24 Statutory restriction on new sources.

* * * * *

(f) * * *

(18) "Volatile organic compounds" excludes: methane; ethane; methylene chloride; 1,1,1 trichloroethane (methyl chloroform); trichlorotrifluoroethane (CFC–113) (Freon 113); trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); trifluoromethane (FC–23); dichlorotetrafluoroethane (CFC–114); and chloropentafluoroethane (CFC–115); dichlorotrifluoroethane (HCFC–123); tetrafluoroethane (HFC–134a); dichlorofluoroethane (HCFC–141b); and chlorodifluoroethane (HCFC–142b).

* * * * *

[FR Doc. 89–14881 Filed 6–27–89; 8:45 am]
BILLING CODE 6560–50–M

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF ORANGE RECYCLING AND ETHANOL PRODUCTION FACILITY, PENCOR-MASADA OXYNOL, LLC Permit ID: 3-3309-00101/00003 Facility NYSDEC ID: 3330900101 Issued by the New York State Department of Environmental Conservation	ORDER RESPONDING TO PETITIONERS' REQUEST THAT THE ADMINISTRATOR OBJECT TO ISSUANCE OF A STATE OPERATING PERMIT Petition No.: II-2001-05

ORDER DENYING PETITIONS FOR OBJECTION TO PERMIT

The New York State Department of Environmental Conservation, Region 3 (NYSDEC) issued a modified state operating permit to Pencor-Masada Oxynol, LLC (Masada[1]) on October 1, 2001, incorporating changes made pursuant to the Order of the Environmental Protection Agency (EPA) Administrator, dated May 2, 2001 (May 2001 Order). *See* 66 FR 30904, June 8, 2001.[2] This Order was in response to petitions received regarding the initial permit issued to authorize construction and operation of the Orange Recycling and Ethanol Production Facility in Middletown, NY. The modified Masada permit was issued pursuant to title V of the Clean Air Act (CAA or the Act), 42 U.S.C. §§ 7661-7661f, CAA §§ 501-507, the federal implementing regulations, 40 CFR Part 70, and the New York State permitting regulations.

In October and November 2001, the EPA received four petitions from 14 different petitioners, requesting that EPA object to the issuance of the modified Masada permit. Specifically, we received separate petitions from Jeanette Nebus, Robert C. LaFleur, president of Spectra Environmental Group, Inc. (Spectra), and Deborah Glover. We also received a fourth petition with 11 signatories: Talkini Alves, Vidal Milland, Kristine Hannon, Bridget Coppola, Nicole Young, Kathleen House, Campbell House, Susan Cohen, Debbie Carlisle, Roberta Constantino, and Elizabeth Collard.

Under section 505(b)(1) of the Act, EPA may object to the issuance of a permit on its

[1] Pencor-Masada Oxynol, LLC is the corporate owner of the Orange Recycling and Ethanol Production Facility to be built in Middletown, New York. In the interests of clarity, this Order uses the term "Masada" to encompass both the corporate owner and the Middletown facility at issue here. The phrase "the Masada permit" refers to the permit issued by NYSDEC for the Middletown facility.

[2] The full text of the Administrator's May 2001 Order is available at http://www.epa.gov/region07/programs/artd/air/title5/petitiondb/petitions/masada_decision2000.pdf.

own initiative if the Administrator finds that it is "not in compliance with the applicable requirements of the [Act], including the requirements of an applicable [state] implementation plan." *See also* 40 CFR 70.8(c). The Act and EPA's implementing regulations provide that, if the Administrator does not object in writing, "any person" may petition the Administrator to object to the permit. CAA § 505(b)(2); 40 CFR § 70.8(d).

In the May 2001 Order, I granted petitions from Spectra Environmental Group Inc. and Ms. Jeanette Nebus to object to the NYSDEC permit on two grounds: inadequate public notice with respect to the limits on the facility's potential to emit (PTE) - specifically permit conditions 36 and 41 - and the applicability of the record keeping requirements of the Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS) Subpart Db. The remaining petitions were denied. Pursuant to the Order, NYSDEC reopened the comment period and, ultimately, issued the revised permit on October 1, 2001. NYSDEC's new permitting action with respect to these narrow issues, namely its consideration of the PTE limits and NSPS Db record keeping requirements, is an appropriate subject matter for petitions under section 505(b)(2) of the Act.

The new petitions with respect to this facility raise a number of claims. Some relate to the October 2001 NYSDEC permit decision and some repeat issues previously addressed in the May 2001 Order. With respect to the NYSDEC revised permit decision, the petitioners allege that (1) the permit fails to include the physical or operational limits necessary to properly limit the source's PTE, (2) the permit limits actual emissions instead of potential emissions, (3) the annual emissions limits are set too close to major thresholds, (4) the hourly emissions limits have too long an averaging period, (5) the consequences of deviations from or exceedances of permit limits are not severe enough, and (6) the inspection and maintenance measures for data from continuous emissions monitors (CEM) should be clarified. Additionally, the petitioners raise two issues with respect to the applicable requirements of the NSPS, suggesting that the requirement to calculate the annual capacity factor needs clarification, and the criteria and implications of the use of an emerging technology should be specified. The petitioners request that EPA object to the issuance of the Masada permit pursuant to section 505(b)(2) of the Act and 40 CFR § 70.8(d) for these reasons.

The petitioners also reassert several of the claims from previous petitions, including the applicability of the major New Source Review and Prevention of Significant Deterioration programs, and the emissions of toxic air pollutants. These issues, which were addressed in great detail in the May 2001 Order, were not part of NYSDEC's October 2001 permit decision and are thus beyond the scope of this title V petition process. Accordingly, EPA denies all such claims that do not relate to the defined scope of the NYSDEC October 2001 permitting decision.

Finally, one of the petitions raises concerns about environmental justice. While the May 2001 Order addressed issues regarding NYSDEC's compliance with Executive Order 12898, the new petition questions EPA's compliance with the Executive Order. This issue will be discussed below in section II.C.

In sum, EPA has performed an independent review of the petitioners' claims. Based on

review of all the information before me, including the initial Masada permit of July 25, 2000, the modified permit of October 1, 2001, my previous Order of May 2, 2001, and the information provided by the petitioners in the petitions, I hereby deny the petitions for the reasons set forth in this Order.

I. STATUTORY AND REGULATORY FRAMEWORK

Major stationary sources of air pollution and other sources covered by title V are required to obtain an operating permit that includes emission limitations and such other conditions as are necessary to assure compliance with applicable requirements of the Act. See CAA §§ 502(a) and 504(a). Section 502(d)(1) of the Act calls upon each State to develop and submit to EPA an operating permit program to meet the requirements of title V. EPA granted interim approval to the title V operating permit program submitted by the State of New York effective December 9, 1996. 61 Fed. Reg. 57589 (Nov. 7, 1996); see also 61 Fed. Reg. 63928 (Dec. 2, 1996) (correction); 40 CFR Part 70, Appendix A. EPA subsequently granted full approval to New York's program effective November 30, 2001. 66 Fed. Reg. 63180 (Dec. 5, 2001).

The title V operating permit program does not generally impose new substantive air quality control requirements (which are referred to as "applicable requirements"), but does require permits to contain monitoring, record keeping, reporting, and other compliance requirements to assure compliance by sources with existing applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992). One purpose of the title V program is to enable the source, EPA, States, and the public to clearly understand the regulatory requirements applicable to the source and whether the source is meeting those requirements. Thus, the title V operating permits program is a vehicle for assuring that existing air quality control requirements are appropriately applied to facility emission units in a single document and assuring compliance with these requirements.

Under section 505(a) of the Act and 40 CFR § 70.8(a), States are required to submit to EPA for review all operating permits proposed for issuance, following the close of the public comment period. EPA is authorized under section 505(b)(1) of the Act and 40 CFR § 70.8(c) to review proposed permits, and object to permits that fail to comply with applicable requirements of the Act, including the State's implementation plan (and the associated public participation requirements), or the requirements of 40 CFR Part 70.

If EPA does not object to a permit on its own initiative, section 505(b)(2) of the Act and 40 CFR § 70.8(d) provide that any person may petition the Administrator, within 60 days of the expiration of EPA's 45-day review period, to object to the permit. Petitions must, in general, be based on objections to the permit that were raised with reasonable specificity during the public comment period. When a petitioner asks EPA to object to a title V permit, a petitioner must provide enough information for EPA to discern the basis for its petition. The statute provides that a petition for review does not stay the effectiveness of the permit or its requirements if the permit was issued after the expiration of EPA's 45-day review period and prior to an EPA objection. If EPA objects to a permit in response to a petition and the permit has been issued, the permitting authority or EPA will modify, terminate, or revoke and reissue such a permit

consistent with the procedures in 40 CFR §§ 70.7(g)(4) or (5)(i) and (ii) for reopening a permit for cause.

II. ISSUES RAISED BY THE PETITIONERS

The Administrator's Order of May 2, 2001, directed the NYSDEC to reopen the Masada permit to allow additional public comments on the methodology for limiting the potential emissions of the facility. Also, EPA directed NYSDEC to incorporate the portions of the NSPS Subpart Db applicable to the gasifier. The NYSDEC took the necessary steps to remedy these deficiencies. The petitioners have now requested that EPA object to Masada's modified permit based on a variety of alleged flaws in the PTE-limiting strategy and the supporting permit terms. Petitioners also have concerns with the NSPS requirements and EPA's compliance with the Executive Order 12898 on environmental justice.

A. Adequacy of Permit Provisions Limiting Masada's Potential To Emit (PTE)

1. Need for Physical or Operational PTE Limits

Several of the petitioners argue that the PTE limits in Masada's permit are inadequate because they are not based on physical or operational limitations. Petitioners Nebus and Glover, quoting from EPA's June 13, 1989 *Guidance on Limiting Potential to Emit in New Source Permitting*,[3] (hereinafter "1989 Guidance"), argue that "short term limits are the most useful and reasonable way to restrict and thereby verify limits on potential to emit." Petitioner Nebus demands that the permit contain operational constraints, including "hours of operations, controls, amounts of materials and fuels, input and throughput, limits on what the source does and how much capacity they have." Petitioners Alves et al. also argue in favor of strictly enforced hourly limits and limitations on hours of operation and production rates. Petitioner LaFleur claims that the NYSDEC and EPA have employed unenforceable blanket emissions limitations in the permit, and that Masada is unable to correlate process feedstock and ethanol production with emissions. We are addressing these claims under a common heading, since all of these claims relate to the need for physical or operational restrictions on the facility's PTE.

The Clean Air Act does not specifically address how to calculate a facility's PTE. EPA's regulatory definition of "potential to emit"[4] refers generally to physical and operational

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[3] This memorandum was transmitted from Terrell E. Hunt, Associate Enforcement Counsel, Air Enforcement Division, Office of Enforcement and Compliance Monitoring and John S. Seitz, Director, Stationary Source Compliance Division, Office of Air Quality Panning and Standards, to EPA Regional air directors, EPA Regional Counsels, other EPA headquarters offices and the Chief of the Environmental Enforcement Section at the Department of Justice.

[4] EPA regulations define "potential to emit" as "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as

(continued...)

constraints, but leaves room for interpretation about what forms of practically enforceable limitations may be appropriate in particular circumstances. Thus, in addition to the 1989 Guidance cited by the petitioners, which discusses strategies for limiting potential emissions from newly constructed facilities, EPA has issued several subsequent guidance documents on these issues.[5] These documents illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits. The key consideration throughout these policy and guidance documents is whether the terms and conditions that limit the potential emissions are, in fact, enforceable as a practical matter.

Masada's permit relies on a 365-day "rolling cumulative total" emissions limit for nitrogen oxides (NO_X) and sulfur dioxide (SO_2), with emissions recorded each day and added to the total from the previous 364 days to determine an annual emissions total each day. To support this approach, the permit requires extensive data collection procedures and quality assurance measures, including stack testing and direct real-time continuous emissions measurements (CEM) to track the total daily emissions from the facility. As discussed below, EPA finds that this rolling cumulative methodology is a practically enforceable and effective means of limiting PTE in this case.

The 1989 Guidance cited by some of the petitioners specifically contemplates PTE limits based solely on an emissions limit in particular circumstances. For example, the 1989 Guidance recognizes that emissions limits, coupled with the requirement to install, maintain and operate a CEM system to determine compliance, may be appropriate where setting operating parameters for control equipment is infeasible. 1989 Guidance, at 8. Likewise, the 1989 Guidance notes that "emissions limits are more easily enforceable than operating or production limits" in volatile organic compound surface coating operations where the emissions limit is combined with a requirement to calculate daily emissions. *Id.*

Petitioners have not demonstrated that NYSDEC erred in determining that it was appropriate to employ such emissions limits, coupled with a CEMs system, in this permit.

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[4](...continued)
part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source." 40 CFR 52.21(b)(4).

[5] See, e.g., Memorandum entitled "Guidance an[d] Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits," from Kathie A. Stein, Director, Air Enforcement Division, Office of Enforcement and Compliance Assurance, to Regional Air Directors, dated January 25, 1995; Memorandum entitled "3M Tape Manufacturing Division Plant, St. Paul, Minnesota," from John B. Rasnic, Director, Stationary Source Compliance Division, EPA's Office of Air Quality Planning and Standards, to David Kee, Director, EPA Region V Air and Radiation Division, dated July 14, 1992; Memorandum entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company Clean Fuels Project," from John Rasnic to David Kee, dated March 13, 1992; Memorandum entitled "Use of Long Term Rolling Averages to Limit Potential to Emit," from John Rasnic to David Kee, dated February 24, 1992. These memos are available on EPA's Title V Policy and Guidance Database, at http://www.epa.gov/region07/programs/artd/air/policy/search.htm.

Masada's operations will have significant fluctuations due the variability of the processed waste, making an operating parameter-based PTE limit less appropriate. The emissions-based PTE limit discussed below recognizes this fact, and provides Masada with operational flexibility accordingly. Moreover, Masada will be measuring its emissions on a real-time basis using CEMs, thus obviating the need to limit and monitor operating parameters as a surrogate for emissions.[6] Thus, the petitioners have not demonstrated that it was inappropriate for NYSDEC to use the PTE limit to restrict Masada's emissions directly, rather than its operations or production.

Although it is generally preferred that PTE limitations be as short-term as possible (e.g., not to exceed one month), EPA guidance also allows permits to be written with longer term limits if they are rolled (meaning recalculated periodically with updated data) on a frequent basis (e.g., daily or monthly). The 1989 Guidance recognizes that such longer rolling limits may be appropriate for sources with "substantial and unpredictable annual variation in production." 1989 Guidance, at 9. Similarly, the Agency explained in a 1995 guidance document that "EPA policy allows for rolling limits not to exceed 12 months or 365 days where the permitting authority finds that the limit provides an assurance that compliance can be readily determined and verified."[7] Annual limits rolled on a daily basis are entirely appropriate where, as here, the operations of the facility will fluctuate throughout the year and CEMs are used to ensure practical enforceability. Thus, contrary to petitioners' assertions, shorter term limits are not always essential to a practically enforceable limit.

Thus, EPA finds that the permit is consistent with the Clean Air Act, EPA's implementing regulations, and Agency policy and guidance. EPA denies the petitions with regard to this issue.

2. Actual emissions vs. PTE

Petitioners Nebus and Glover assert that the permit constrains the actual emissions, rather than potential emissions, of the facility. Ms. Nebus claims that "the issued Masada permit limits actual emissions, but not PTE." She then elaborates that the permit only warns the facility when it is getting close to the limit, and does not effectively limit the facility because there are no

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[6] This is consistent with prior EPA practice in appropriate circumstances. See e.g., Memorandum entitled "3M Tape Manufacturing Division Plant, St. Paul, Minnesota," from John Rasnic to David Kee, dated July 14, 1992 ("a federally enforceable emissions limit may be used ... to limit the potential to emit as long as a continuous emissions monitor (CEM) or an acceptable alternative is used."); and Memorandum entitled "Policy Determination on Limiting Potential to Emit for Koch Refining Company Clean Fuels Project," from John Rasnic to David Kee, dated March 13, 1992 ("Use of an emission limit to restrict potential to emit ... is acceptable provided that emissions can be and are required to be readily and periodically determined or calculated.")

[7] Memorandum entitled "Guidance and Enforceability Requirements for Limiting Potential to Emit through SIP and §112 Rules and General Permits," from Kathie A. Stein, Director, Air Enforcement Division, Office of Enforcement and Compliance Assurance, to Regional Air Directors, dated January 25, 1995.

operational constraints. Petitioner Glover states that, "this permit disregards PTE and is based on actual emissions."

In order to be considered practically enforceable, an emissions limit must be accompanied by terms and conditions that require a source to effectively constrain its operations so as to not exceed the relevant emissions threshold. These terms and conditions must also be sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action. In other words, a source may not lawfully exceed that limit. Therefore, under EPA's regulatory framework, the source does not have the "potential to emit" above that limit. This is true whether the limit restricts emissions directly or restricts specific operating parameters, as petitioners would prefer. As discussed above in #1, EPA believes that Masada's permit limits are practically enforceable. Therefore, they effectively limit Masada's potential emissions and EPA denies the petitions on this basis.

3. Annual limits too close to major thresholds

Petitioners LaFleur, Nebus and Alves et al. each remark on either the unreliability of the emissions estimates, or the level at which the annual limits were set for NO_X and SO_2. Petitioner LaFleur states that, "Masada has not provided adequate data nor substantiation of its emissions estimates." Petitioners Alves et al. claim that "the emissions calculations are simply not reliable or realistic." Petitioner Nebus states that the SO_2 annual emissions should be limited to less than 246 tpy and NO_X should be limited to less than 99.5 tpy[8]. EPA finds that these individual claims relate to each other, and is reading them to mean that petitioners request the annual limits to be lowered to provide a greater margin of compliance, due to the uncertainty in the facility's emissions estimates.

This issue was addressed in great detail in the May 2001 Order, and EPA continues to disagree that there is a need for a greater margin of compliance between Masada's PTE limits and the applicable major source thresholds. Although EPA agrees that there is some uncertainty in Masada's estimates, it is unrealistic to expect precise emission factors prior to construction in cases where the process involves new technology and the facility is the first of its kind. The fact that there is some uncertainty regarding the estimates, however, is yet another reason to require careful monitoring of actual emissions.

I already concluded in the May 2001 Order that, based on the Agency's review of the best information currently available, the source's emissions estimates are sufficiently credible to serve as a reasonable basis for determining that the PTE limits can be met by the source operating as planned. May 2001 Order, at 24. I also determined that the CEM system, operated properly as required by the permit, provides reliable data to assure that Masada's emissions stay

[8] Notwithstanding the determination that the Masada facility falls within a 250 tpy source category, the Clean Air Act and NYSDEC regulations (6 NYCRR 231) establish a 100 tpy major source cutoff for NO_X for attainment areas that fall within the Ozone Transport Region, as is the case here.

below the major source thresholds. In addition, stringent measures are included in the permit for conservative treatment of missing CEM data, as well as limits on how much data can be missing.

As noted in the previous Order, a strength of the rolling cumulative total approach is that it accounts for the variability in the data. It does so by limiting the source's operational constraints to the actual measured emissions, not the emissions factor, which itself often contains inherent uncertainty when applied to an individual case. May 2001 Order, at 23. Indeed, Masada bears the risk if it has underestimated emissions in that the source would be required under the permit to constrain facility operations to keep emissions below the permit limits. Therefore, there is no need for additional margins of compliance, and EPA denies the petitions on this issue.

4. Averaging of hourly emissions limits

Petitioner LaFleur claims that, "although pounds-per-hour mass limits are expressed in the permit, those limits are meaningless because compliance with those short term limits is to be demonstrated on a 30-day rolling average." Many traditional PTE limits are constructed using limitations on hourly emissions rates along with restrictions on hours of operation. Since this comment could be read broadly as relating to NYSDEC's October permitting decision regarding PTE, I am exercising my discretion to consider this comment as a valid petition issue.

Petitioner LaFleur is correct that Masada's PTE limits generally do not rely on the hourly mass limits to establish the facility as a minor source. Instead, as discussed above, they rely on a 365-day rolling total emissions limit, supported with stack testing and direct, real time data from CEM. The hourly limits are not directly related to the annual emissions limits specified in conditions 36 and 41.

EPA disagrees with petitioner that the hourly limits on mass emissions of NO_X and SO_2 (see condition 81) are meaningless. They serve two important purposes. First, they provide a maximum operating level for the facility, which is used in calculating a fallback PTE if CEM data availability falls below 75% (see permit conditions 36.2 (I)(3) and 41.2 (I)(4)). Second, Masada is required to control its SO_2 emissions by 97% under 6 NYCRR 212.9(b), and the hourly limit of 61.2 lb/hr represents the level to which Masada must control. Therefore, the hourly limit serves to help make the 97% control limit practically enforceable. For the purposes described here, it is reasonable for the permit to allow the collected CEM data to be compiled and averaged every 24 hours, incorporating data from the most recent 30 days. EPA denies Mr. LaFleur's petition on this issue.

5. Consequences

Petitioners Nebus and Glover both claim that there should be severe consequences to Masada for exceeding any emissions limit. They each have similar statements in their respective petitions, claiming that in all instances of excess emissions, the facility must immediately submit a major source permit application. Ms. Nebus goes a step further and contends that, in the case of an exceedance, the facility should be shut down until all requirements are met.

EPA believes the permit has sufficiently strong language about some of the possible consequences of exceeding a PTE limit or any permit violation. However, the permit does not, nor should it, list comprehensively all the potential enforcement ramifications of noncompliance. The permit describes varying degrees of consequences, depending on the nature of the violation. Conditions 36.2 (I)(4) and 41.2 (I)(5) specify that if the CEM data availability drops below 95%, a record keeping violation will be cited, after the first year of operation. Conditions 36.2 (I)(3) and 41.2 (I)(4) specify that if the CEM data availability drops below 75%, then a new methodology for calculating PTE is to be used. The maximum hourly emission rate is to be multiplied by 8,760 hours (365 days x 24 hours), resulting in PTE above major source thresholds, and Masada must promptly submit the appropriate permit applications for review under major NSR and/or PSD. Conditions 36.2 (I)(1) and (III)(1) and 41.2 (I)(1) & (III)(1) specify that any exceedance of the annual limit (99.5 tpy NO_X or 246 tpy SO_2) shall constitute 365 days of violation. Conditions 36.2 (I)(2) and 41.2 (I)(2) specify that if the facility exceeds 100 tpy NO_X or 250 tpy SO_2, then the facility shall be subject to major NSR and/or PSD as though construction had not yet commenced, and Masada must promptly submit the appropriate permit applications. It is important to note that if the facility exceeds these limits, not only does it need to get a major source permit, but it may be considered to have been in violation of PSD and/or NSR from the time it was initially constructed. Finally, condition 41.2 (I)(3), relating to SO_2, specifies that if Masada applies to relax any permit restrictions and thus becomes a major source, then the facility must undergo PSD review as though construction had not yet commenced.

Petitioner Nebus also claims that Masada should shut down in the case of an exceedance. EPA disagrees that the permit needs to be revised to include such a statement. The CAA provides sufficient enforcement authority for EPA to enforce this permit and all other CAA requirements. *See e.g.* § CAA 113, 303, 502(b)(5)(E). States have similar authority. EPA and the state must retain discretion to determine what remedy is appropriate in any given situation. There may be occasions where NYSDEC or EPA may see a need to shut down a facility. As expressed in Condition 1 of the Facility Level section of the permit, NYSDEC has authority under 6 NYCRR 200.5 to seal access to any air contamination source.[9] EPA has authority to address similar compliance problems, including seeking an immediate injunction to cease operation. The authority to enforce this permit can not be expanded by this permit and it is not appropriate to attempt to specify or limit the response that will be taken in the case of a violation.

If EPA or NYSDEC requires Masada to submit a permit application because of a permit violation, a prompt submittal is sufficient, and there is no need to require an immediate application. NYSDEC has the authority to determine if an application is delayed beyond reason,

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[9] The commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the commissioner issued in the case of the violation. Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source. (6 NYCRR 200.5, page 5 of permit, Item 1.1(a))

and take appropriate action. In conclusion, EPA believes the permit is sufficient, and denies the petitions on this issue.

6. CEM Inspection and Maintenance

Petitioner Nebus expresses concerns that there are not enough backup measures or safeguards for times when the CEM are not operational. She also believes the permit should specify the schedule for inspecting and performing maintenance on the CEM.

EPA believes the permit is clear about what Masada should do in case of problems with the CEM. Conditions 36.2 (I)(3-4), (II)(5) and 41.2 (I)(4-5), 41.2 (II)(5) specify measures to take when CEM are not available. Calculations are to be made, substituting data according to 40 CFR §§ 75.31 or 75.33 (c)(1) (if availability above 95%) or permit-specific procedures (if availability below 95%). If CEM data availability ever falls below 75%, the facility is to use its maximum permitted hourly rate multiplied by 8,760 hours. Regarding maintenance of the systems, the terms at conditions 36.2 (II)(2-4) and 41.2 (II)(2-4) say to install, maintain and operate NO_X and SO_2 CEM systems. Although these terms are not specific in how frequently to perform maintenance on the CEM, the permit specifies elsewhere that Masada will comply with 40 CFR Part 75 regarding the maintenance of CEM systems. Also, condition 76.2 (10) specifies that daily CEM drift tests and quarterly accuracy assessments must be performed on CEM measuring NO_X from the package boiler (40 CFR 60 Appx. F, Procedure 1).

In conclusion, it should be noted that the burden is on the petitioners to demonstrate how the safeguards and related provisions in the permit are not adequate. The petitioners in this case have not met this burden to justify an objection to the permit. Finally, EPA believes that the permit is structured to provide a powerful incentive for Masada to maintain its CEM in optimum operating condition, because of the consequences associated with loss of data. EPA believes the permit is satisfactory in this regard, and denies the petitions on this issue.

B. New Source Performance Standards

1. Annual Capacity Factor

Petitioners Nebus and Glover request clarification of what Masada's obligations are regarding some of the terms in the permit addressing Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. The notification requirement at 40 CFR 60.49b (a) in Subpart Db, listed in permit condition 1-4, specifies four items that must be reported at the time the facility begins to operate. Specifically, sources are required to report (1) the design heat input capacity and identification of the fuels to be combusted, (2) a copy of any federally enforceable requirement that limits the annual capacity factor, (3) a calculation of the annual capacity factor at which the facility expects to operate, and (4) notification of any emerging technology that will be used for controlling emissions of sulfur dioxide. These factors are to be reported for each fuel that the facility expects to fire. In addition, permit condition 1-5 cites the record keeping requirement at 40 CFR § 60.49b(d), which requires calculation of the annual capacity factor using a rolling 12-month average. Petitioners Nebus and Glover believe

the permit should specify what fuels Masada uses, which fuel is most polluting, and how emissions are controlled.

Both the 124 mmBtu/hr natural gas-fired package boiler and the 245 mmBtu/hr fluidized bed gasifier are subject to 40 CFR 60.49b (d). Permit condition 75 incorporates this requirement for the package boiler, and is identical to permit condition 1-5 relating to the gasifier. In accordance with EPA's May 2001 Order, NYSDEC's October 2001 permitting decision reopened the permit to apply the NSPS to the gasifier, as the regulation was properly applied to the package boiler in the July 2000 permit. Therefore today's response addresses this comment as it relates to the gasifier.

EPA disagrees that the permit needs to be revised. The facility description states that the gasifier will combust only natural gas, lignin, processed biosolids and digester gas and the permit properly requires the facility to identify the fuels that are being combusted as part of the initial start-up notification. However, the issue of which fuel is most polluting and how the emissions from the firing of these fuels are controlled is not germane because the substantive emissions limitations of NSPS Db apply only to coal-fired and oil-fired steam generating units and thus do not apply to the gasifier.

Petitioner Nebus expresses a concern that the annual capacity factor is only calculated on a 12-month rolling average, instead of a daily average. She refers to the 365-day rolling total that exists elsewhere in the permit. EPA wishes to clarify that the annual capacity factor (ACF) is a ratio of how much energy a steam generating unit actually produces in a year divided by the maximum energy it could produce if it ran 8,760 hours (365 days x 24 hours) at its maximum heat input capacity. This factor is generally useful because some of the requirements in the NSPS vary depending on the ACF for a facility. In Masada's case, there are no applicable requirements that depend on the unit's calculated ACF, and Masada has no restrictions on how high its ACF can be. Therefore, EPA believes there would be no value if Masada were to calculate its ACF on a more frequent basis than required by the NSPS as stated. EPA denies the petitions on this issue.

2. Emerging Technologies

Petitioner Nebus expresses a concern that the permit is ambiguous as to whether Masada will use an emerging technology. Permit condition 1-4.2 (4), in applying the NSPS at Subpart Db (Industrial-Commercial-Institutional Steam Generating Units) to the gasifier, specifies that Masada must report whether it intends to use an emerging technology to control SO_2 emissions as part of the notification of startup. The regulations also specify that EPA must review and approve a determination of whether a technology qualifies as emerging for purposes of this rule. If the EPA determines that a technology qualifies as "emerging", then the regulation at 40 CFR 60.42b allows facilities using emerging technology to have more lenient control requirements for SO_2 than facilities using conventional technology.

Ms. Nebus claims the emerging technology should be named in the permit, and the public has a right to know whether the Administrator makes such a determination in a given case. EPA

agrees that in a case where the Administrator does determine that a technology qualifies as emerging, and the facility receives more lenient permit limits as a result, the public should be informed. However, as noted previously, the standards regulating emissions of SO_2 at 40 CFR 60.42b only apply to facilities that combust coal or oil. Because the gasifier does not combust these fuels, it is not subject to this standard.

EPA understands why there may be some confusion on the part of the petitioner regarding whether Masada will use an emerging technology. As it happens, the dry lime injection and spray dryer absorber to be used by Masada to control SO_2 emissions from the gasifier are conventional technologies. EPA denies the petitions on this issue.

C. Environmental Justice - Executive Order 12898

EPA also received a petition arguing that EPA failed to evaluate the "environmental disparate impacts" on minority and low-income communities under Executive Order 12898.[10] The petition asserts that the proposed plant site is in the vicinity of a day care center, nursery, retirement home, senior citizen apartments, three public schools and three low-income housing projects. The petitioners state that EPA had extensive involvement in reviewing the NYSDEC permit, which now "carries EPA's imprimatur." Petitioners cite, by way of example, letters and meetings between EPA and the NYSDEC on the adequacy of the state's proposed and draft permit, meetings and letters between Senator Richard Shelby (R-AL), Masada CEO Daryl Harms and Administrator Browner, and the Administrator's May 2, 2001 Order.

Executive Order 12898, signed on February 11, 1994, focuses federal attention on the environmental and human health conditions of minority populations and low-income populations with the goal of achieving environmental protection for all communities. The Executive Order also is intended to promote non-discrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment. It generally directs federal agencies to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. I recently reaffirmed EPA's commitment to ensuring that environmental justice is secured for all communities in a memorandum to senior Agency officials dated August 9, 2001.

Environmental justice issues can be raised and considered in a variety of actions carried out under the Clean Air Act, as for example when EPA or a delegated state issues a PSD or NSR

[10] The petition was signed by the following people: Talkini Alves, Vidal Milland, Kristine Hannon, Bridget Coppola, Nicole Young, Kathleen House, Campbell House, Susan Cohen, Debbie Carlisle, Roberta Constantino, and Elizabeth Collard.

permit.[11] Unlike PSD or NSR permits, however, title V generally does not impose new, substantive emission control requirements, but rather requires that all underlying applicable requirements be included in the operating permit. Title V also includes important public participation provisions as well as monitoring, compliance certification and reporting obligations intended to assure compliance with the applicable requirements.

In this particular case, petitioners have not demonstrated that the Masada title V permit fails to properly identify and comply with the applicable underlying requirements of the Act, the approved state implementation plan, or the requirements of title V itself; thus, the petition to object to the permit must be denied. In addition, the record does not indicate that concerns about environmental justice and the application of the Executive Order were raised to NYSDEC during the comment period on the revised permit which ended on June 25, 2001. EPA's title V regulations provide that issues may not be raised for the first time in the context of a petition to the Administrator. 40 CFR §70.8(d). This issue is, therefore, not one which provides grounds for me to object to NYSDEC's issuance of the Masada permit.

However, as explained in the May 2001 Order, as a recipient of EPA financial assistance, the programs and activities of NYSDEC, including its issuance of the Masada permit, are subject to the requirements of title VI of the Civil Rights Act of 1964, as amended, and EPA's implementing regulations, which prohibit discrimination by recipients of EPA assistance on the basis of race, color, or national origin. 42 U.S.C. § 2000d et seq.; 40 CFR Part 7. The petitioners may file a complaint under title VI and EPA's title VI regulations if they believe that the state discriminated against them in violation of those laws by issuing the permit to Masada. The complaint, however, must meet the jurisdictional criteria that are described in EPA's title VI regulations in order for EPA to accept it for investigation.[12]

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[11] Indeed, as indicated in the response to another Title V permit petition, section 173(a)(5) of the Clean Air Act requires that a permit for a "major source" subject to the NSR program may be issued only if an analysis of alternative sites concludes that "the benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction or modification." See Borden Chemical, Inc., Title V petition No. 6-01-01 (Dec. 22, 2000), pp. 34-44, available at http://www.epa.gov/region07/programs/artd/air/title5/petitiondb/petitions/borden_response1999.pdf.

[12] Under Title VI, a recipient of federal financial assistance may not discriminate on the basis of race, color, or national origin. Pursuant to EPA's Title VI administrative regulations, EPA's Office of Civil Rights conducts a preliminary review of Title VI complaints for acceptance, rejection, or referral. 40 CFR § 7.120(d)(1). A complaint should meet jurisdictional requirements as described in EPA's Title VI regulations. First, it must be in writing. Second, it must describe alleged discriminatory acts that may violate EPA's Title VI regulations. Title VI does not cover discrimination on the grounds of income or economic status. Third, it must be timely filed. Under EPA's Title VI regulations, a complaint must be filed within 180 calendar days of the alleged discriminatory act. 40 CFR § 7.120(b)(2). Fourth, because EPA's Title VI regulations only apply to recipients of EPA financial assistance, it must identify an EPA recipient that allegedly committed a discriminatory act. 40 CFR § 7.15.

III. CONCLUSION

For the reasons set forth above and pursuant to sections 505(b) and 505(e) of the Act, 42 U.S.C. §§ 7661d(b) and (e), and 40 CFR §§ 70.7(g)(4) or (5) and 70.8(d), I deny the petitions submitted by Jeanette Nebus, Robert LaFleur, Deborah Glover, Talkini Alves, Vidal Milland, Kristine Hannon, Bridget Coppola, Nicole Young, Kathleen House, Campbell House, Susan Cohen, Debbie Carlisle, Roberta Constantino, and Elizabeth Collard.

April 8, 2002 — Dated:

/ S /
Christine Todd Whitman,
Administrator

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF ORANGE RECYCLING AND ETHANOL PRODUCTION FACILITY, PENCOR-MASADA OXYNOL, LLC Permit ID: 3-3309-00101/00001 Facility NYSDEC ID: 3330900101 Issued by the New York State Department of Environmental Conservation	ORDER RESPONDING TO PETITIONER'S REQUEST THAT THE ADMINISTRATOR OBJECT TO ISSUANCE OF A STATE OPERATING PERMIT Petition No.: II-2000-07

ORDER PARTIALLY GRANTING AND PARTIALLY DENYING
PETITION FOR OBJECTION TO PERMIT

The New York State Department of Environmental Conservation, Region 3 (NYSDEC) issued a state operating permit to Pencor-Masada Oxynol, LLC on July 25, 2000, authorizing construction of the Orange Recycling and Ethanol Production Facility (Masada).[1] The Masada permit was issued pursuant to title V of the Clean Air Act (CAA or the Act), 42 U.S.C. §§ 7661-7661f, CAA §§ 501-507, the federal implementing regulations, 40 CFR Part 70, and the New York State permitting regulations. Between June and September, 2000, the Environmental Protection Agency (EPA) received 35 petitions from 29 different petitioners, requesting that EPA object to the issuance of the Masada permit.

Under section 505(b) of the Act, EPA may object to the issuance of a permit if the Administrator finds that it is "not in compliance with the applicable requirements of the [Act], including the requirements of an applicable [state] implementation plan." The Act and EPA's implementing regulations provide that, if the Administrator does not object in writing, "any person" may petition the Administrator to object to the permit. CAA § 505(b)(2); 40 CFR 70.8(d).

[1] Pencor-Masada Oxynol, LLC is the corporate owner of the Orange Recycling and Ethanol Production Facility to be built in Middletown, New York. In the interests of clarity, this Order uses the term "Masada" to encompass both the corporate owner and the Middletown facility at issue here. The phrase "the Masada permit" refers to the permit issued by NYSDEC for the Middletown facility.

The petitions with respect to this facility raise a number of distinct claims.[2] For organizational purposes, these claims have been divided into two categories, the first addressing administrative/public participation issues and the second addressing technical/regulatory issues. More specifically, the petitioners allege that the NYSDEC did not comply with the applicable public participation requirements in issuing the Masada permit because NYSDEC did not: (1) notify the public of the extended opportunity for comment; (2) make available to the public requisite information necessary to review the permit; (3) offer the public an opportunity to comment on significant changes to the draft permit; (4) properly inform the public of its right to petition to the EPA Administrator; (5) substantively review public comments; (6) grant requests for a second public hearing, and (7) translate the public notices and key documents for the non-English speaking members of the community.

The petitioners also assert that the Masada permit did not comply with the applicable technical/regulatory requirements in that the permit: (1) fails to assure compliance with major source preconstruction permitting requirements under the Act; (2) does not assure compliance with several allegedly applicable federal emissions standards, (3) omits required provisions governing chemical accident prevention requirements, namely section 112(r) of the Act and EPA's implementing regulations at 40 CFR Part 68, and (4) does not comply with the Executive Order 12898 on environmental justice. The petitioners have requested that EPA object to the issuance of the Masada permit pursuant to § 505(b)(2) of the Act and 40 CFR 70.8(c) for these reasons.

EPA has performed an independent review of the petitioners' claims. Based on review of all the information before me, including the Masada permit of July 25, 2000, the permit application, and the information provided by the petitioners in the petitions, I hereby grant the petitions in part, and deny in part. In sum, I am granting the petitions insofar as they claim that (1) NYSDEC must provide an opportunity for public review of selected portions of the final operating permit issued to Masada, and (2) that applicable reporting and recordkeeping requirements of NSPS Subpart Db (governing Industrial, Commercial and Institutional Steam Generating Units) should be included in the permit. The petitioners' other requests are denied for the reasons set forth in this Order.

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[2] Robert C. LaFleur, president of Spectra Environmental Group, Inc. (Spectra), submitted the most detailed petition. Spectra's petition raised many of the same issues posed by other petitioners. For purposes of this Order, unless specified otherwise, the term "petitioner" refers to the petition received from Spectra. However, this Order also responds to the petitions submitted by Lois Broughton, Wanda Brown, Louisa and George Centeno with Leslie Mongilia, Maria Dellasandro, R. Dimieri, Lori Dimieri, Dawn Evesfield, Marvin Feman, Deborah Glover, Anne Jacobs, Barbara Javalli-Lesiuk, Marie Karr, June Lee, Ruth MacDonald, Bernice Mapes, Donald Maurizzio, Alice Meola, Daniel Nebus, Jeanette Nebus , Mr. and Mrs. Hillary Ragin, M. Schoonover and Mildred Sherlock, LaVinnie Sprague, Matthew Sprague, Hubert van Meurs, Alfred and Catherine Viggiani, Paul Weimer and Leonard Wodka. EPA has been unable to verify the correct name and address for Dawn Evesfield, R. Dimieri and Lori Dimieri.

I. STATUTORY AND REGULATORY FRAMEWORK

Major stationary sources of air pollution and other sources covered by title V are required to obtain an operating permit that includes emission limitations and such other conditions as are necessary to assure compliance with applicable requirements of the Act. See CAA §§ 502(a) and 504(a). Section 502(d)(1) of the Act calls upon each State to develop and submit to EPA an operating permit program to meet the requirements of title V. EPA granted interim approval to the title V operating permit program submitted by the State of New York effective December 9, 1996. 61 Fed. Reg. 57589 (Nov. 7, 1996); see also 61 Fed. Reg. 63928 (Dec. 2, 1996) (correction); 40 CFR Part 70, Appendix A.

The title V operating permit program does not generally impose new substantive air quality control requirements (which are referred to as "applicable requirements"), but does require permits to contain monitoring, recordkeeping, reporting, and other compliance requirements to assure compliance by sources with existing applicable requirements. 57 Fed. Reg. 32250, 32251 (July 21, 1992). One purpose of the title V program is to enable the source, EPA, States, and the public to clearly understand the regulatory requirements applicable to the source and whether the source is meeting those requirements. Thus, the title V operating permits program is a vehicle for assuring that existing air quality control requirements are appropriately applied to facility emission units in a single document and assuring compliance with these requirements.

In New York State, title V operating permits are issued to new sources through the same process which authorizes them to construct the facility. The procedures for issuing construction permits, the State's New Source Review (NSR) program, were in place prior to approval of the title V program, and have been combined with the State's title V program, so that this program meets the combined requirements of both NSR and title V. While combining the programs offers simultaneous review of the NSR requirements and the title V requirements, it does not alter the underlying requirements of these two programs: NSR establishes case-by-case control requirements for certain new sources, while title V assures (through permitting, monitoring, certification, etc.), compliance with all Clean Air Act requirements (including NSR, where applicable).

Under section 505(a) of the Act and 40 CFR § 70.8(a), States are required to submit to EPA for review all operating permits proposed for issuance, following the close of the public comment period. EPA is authorized under section 505(b) of the Act and 40 CFR § 70.8(c) to review proposed permits, and object to permits that fail to comply with applicable requirements of the Act, including the State's implementation plan (and the associated public participation requirements), or the requirements of 40 CFR Part 70.

If EPA does not object to a permit on its own initiative, section 505(b)(2) of the Act and 40 CFR 70.8(d) provide that any person may petition the Administrator, within 60 days of the expiration of EPA's 45-day review period, to object to the permit. When a petitioner asks EPA to object to a

title V permit, a petitioner must provide enough information for EPA to discern the basis for its petition. Under section 505(b)(2) of the Act and 40 CFR § 70.8(c), EPA can only object to a title V permit in response to a citizen petition based on the same grounds on which EPA could have objected on its own initiative. The statute provides that a petition for review does not stay the effectiveness of the permit or its requirements if the permit was issued after the expiration of EPA's 45-day review period and prior to an EPA objection. If EPA objects to a permit in response to a petition and the permit has been issued, EPA or the permitting authority will modify, terminate, or revoke and reissue such a permit consistent with the procedures in 40 CFR §§ 70.7(g)(4) or (5)(i) and (ii) for reopening a permit for cause.

II. ISSUES RAISED BY THE PETITIONERS

As discussed above, this Order divides the issues raised into two categories: administrative/public participation issues, and technical/regulatory issues. This is solely for clarity, and should not be read as conferring different legal status to the issues in either category.

A. Administrative Issues

The petitioners have requested that EPA object to Masada=s permit based on a number of alleged flaws in the administrative processing of the permit. These administrative issues each relate to whether the NYSDEC provided adequate procedures for public notice pursuant to 40 CFR § 70.7(h) and 6 NYCRR part 621. Spectra's petition identified five such issues. Ms. Nebus and Ms. Glover raised some of the same issues, as well as two others. Public participation is an important part of the title V process, and is an appropriate subject of an objection by EPA pursuant to 40 CFR § 70.8(c)(3)(iii). Each of the administrative allegations are discussed below.

1. Extended Comment Period

Petitioner Spectra asserts that the NYSDEC never explicitly advised members of the public of their right to submit written comments up until the close of the public hearing. The issue raised in this claim points to NYSDEC's failure to explicitly advise the public of the right to submit written comments after the NYSDEC public comment period closed on October 22, 1999, and prior to the public hearing of December 29, 1999.

Both New York state and EPA regulations provide for reasonable public notice of title V permits. 6 NYCRR 621.6(a)(2), 40 CFR 70.7(h). Where a public hearing is scheduled, NYSDEC needs to give a 30-day notice to the public prior to the hearing. 40 CFR 70.7(h). NYSDEC satisfied this requirement by publishing a hearing announcement notice on November 24, 1999. Neither the part 70 regulations nor the State rules require NYSDEC to explicitly advise the public that comments may be submitted up until the close of the hearing. See 40 CFR part 70.7(h); NYCRR §§ 621.6 and 621.7. Given that comments were solicited for the day of hearing, it is implicit that comments submitted

up to that date would also be accepted without prejudice. Indeed, no party has informed EPA of any specific comments that were not considered by NYSDEC due to untimeliness and there has been no allegation that any of the petitioners suffered harm. Accordingly, EPA denies the petition on this point.

2. Unavailability of Certain Documents

Spectra claims that certain important documents were not made available to the public. Spectra lists EPA letters of October 20, 1999, December 6, 1999, and December 22, 1999 among those not available. Spectra also names a submittal from Masada to NYSDEC on November 2, 1999 as not available. Spectra further alleges that the revised applications (August 1999) and support documents (Masada's June 1999 pilot plant emissions testing data) were not made available to the public or EPA during the public comment period. Spectra claims that the public was completely unaware of these documents during the public comment period, and this was "information necessary to meaningfully review the proposed project," therefore NYSDEC violated 40 CFR 70.7(h)(2).

As the Administrator stated in the Borden Chemical Inc. petition response, petition VI-01-01, available at http://www.epa.gov/region07/programs/artd/air/title5/petitiondb/petitions (under Borden_response1999), "access to information is a necessary prerequisite to meaningful public participation." Public involvement is required throughout the CAA title V permit process (see, e.g., CAA section 502(b), 503)(e) and 505(b)), EPA's implementing regulations (see 40 CFR §§ 70.7 and 70.8) and New York regulations (6 NYCRR 621). However, EPA disagrees with Spectra, finding that the documents in questions were neither legally nor technically necessary for the public to meaningfully review and comment on the draft permit. NYSDEC made available Masada's complete permit application, including July and August 1999 amendments, the draft permit, and the State Environmental Quality Review Determination. As explained below, based on our review of the information provided by NYSDEC in this case, I find that the public had access to sufficient documentation to formulate comments and meaningfully participate in the permit process.

The documents named by Spectra fall in two categories: those that were generated prior to the public comment period, and those that were generated later. Regarding the pre-comment period documents, NYSDEC informed EPA that it believes that the application revisions of July 26 and August 6, 1999, were part of the permit application that was placed in the Middletown library at the beginning of the comment period and that the draft permit reflected all the last minute revisions.[3] The September 22, 1999, Notice of Complete Application, published in the State's Environmental News Bulletin, notes that "the draft permit and permit applications are available for review during normal business hours at the DEC Region 3 Office." It further notes that "[t]he application consists of a two volume part 360 solid waste engineering report/plan dated July 1999; an air emissions estimate dated

[3] EPA confirmed this via a telephone conversation between L. Steele, EPA Region 2, and T. Miller, NYSDEC Region 3, on January 5, 2001, and a subsequent conversation between L. Steele and M. Merriman, NYSDEC Region 3, on January 8, 2001.

December 1998, revised July 1999; and an air quality modeling report, dated March 1999, amended August 1999."

The other early document Spectra names is the June 1999 report of the pilot plant emission testing data. NYSDEC states that this document was not in the public docket because their staff never requested the actual pilot testing data as part of the Part 70 permit application review. They explain that it was not necessary for Part 70 purposes as they relied on Masada's summaries of the data for permit review purposes. EPA finds that the information in this report was adequately summarized by the documents provided by Masada, and therefore there was no need for NYSDEC to obtain the raw data. *Cf.* Akpan v. Koch, 75 N.Y.2d 561, 573-74 (1986) (holding that "[t]here is no requirement that [an environmental impact statement] contain all the raw data supporting its analysis so long as that analysis is sufficient to allow informed consideration and comment on the issues raised").

The other documents cited by Spectra were generated between October 20, 1999 and December 22, 1999, spanning the time between the public comment period and the public hearing. On October 20, EPA Region 2 commented to NYSDEC on the draft permit. On November 2, Masada responded to NYSDEC, addressing many of EPA's comments. On December 6, EPA Region 2 made additional comments to NYSDEC, as part of the regular process of permit review. This response relied on information provided by Masada as well as EPA headquarters. On December 22, EPA Region 2 responded to Mayor DeStefano's letter of October 22, 1999.

None of these documents introduced new information that was material to the design or operation of the Masada project. Although some of the information in the November 2, 1999 letter was ultimately useful in clarifying the applicability of some requirements (see II.B1c below), it did not amend the permit application. These documents reflect the on-going dialogue between EPA and NYSDEC that is envisioned in section 505 of the Clean Air Act. The Act provides the public an opportunity to review and comment upon the draft permit, but does not require that the public be afforded an opportunity to respond to EPA's comments or NYSDEC's response. *Cf.* Rybachek v. EPA, 904 F.2d 1276, 1286 (9th Cir. 1990) (denying claims of notice and comment violations because the petitioners' "unviolated right was to comment on the proposed regulations, not to comment in a never-ending way on EPA's responses to their comments."). In addition, the December 22, 1999 letter from EPA Region 2 to Mayor DeStefano was not relied upon by NYSDEC in making its permitting decision and NYSDEC did not violate the notice and comment procedures by failing to make EPA's letter publicly available.

When NYSDEC transmitted the proposed permit to EPA, it updated the Middletown library docket with several additional documents, including many of the documents discussed above. NYSDEC's June 2, 2000, letter to concerned citizens announced that EPA's October 20, 1999 letter, Masada's November 2, 1999 response, EPA's December 6, 1999 comments, and several other documents had been sent to the Middletown library. Spectra indeed acknowledges that it received and

"subsequently commented on the previously unavailable EPA and Masada correspondence." Spectra petition, at 27.

EPA encourages NYSDEC to manage their files as carefully as possible, so that information requests can be met expeditiously. EPA appreciates NYSDEC's willingness to use local libraries as document repositories for certain projects. Although there is no specific federal requirement to do so, this is a resourceful way to meet citizens' needs. During the Masada project review, there may have been delays in adding new documents to the public file placed in the Middletown library as they arrived in the office, and NYSDEC's document management procedures may not be flawless. Nonetheless, the public in this instance had access to and in fact commented upon the complete draft permit, the application, and ultimately the documents at issue. Therefore, EPA finds no violation of 40 CFR 70.7(h)(2), and denies the petition with respect to this issue.

3. Opportunity for Comment on Changes to Permit

The Spectra petition claims that "[t]he public...was not provided an opportunity to review the 'latest draft title V permit' for the Project" (Spectra petition, p. 12) and "[t]he public comment period was based on a September draft permit that is a shell of what was ultimately granted to Masada." (Id. at 26). Spectra expresses the concern that NYSDEC excluded the public from meaningfully reviewing and commenting on the proposed permit sent to EPA in May 2000. Petitioner Nebus raises similar issues in her petitions of July 23 and August 7, arguing that such significant modifications of a draft permit without additional public notice violate 40 CFR § 70.7(h).

The CAA and its implementing regulations at part 70 provide for public comment on "draft" permits and generally do not require permitting authorities to conduct a second round of comments when sending the revised "proposed" permit to EPA for review.[4] It is a basic principle of administrative law that agencies are encouraged to learn from public comments and, where appropriate, make changes that are a "logical outgrowth" of the original proposal. See, e.g., Sierra Club v. Costle, 657 F.2d 298, 352 (DC Cir. 1981). However, there are well recognized limits to the concept of "logical outgrowth" in the context of Agency rulemaking that, by analogy, apply to title V permits as well. As the US Court of Appeals for the DC Circuit has explained, "if the final rule deviates too sharply from the proposal, affected parties will be deprived of notice and an opportunity to respond to the proposal." Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 547 (DC Cir. 1983) (vacating portion of final CAA rule governing leaded gasoline because agency notice was "too general" and did not apprise interested parties "with reasonable specificity" of the range of alternatives

[4] The CAA in part 502 (b)(6) specifies that one required element of a title V permit program is "adequate, streamlined, and reasonable procedures...for public notice, including offering an opportunity for public comment and a hearing." 40 CFR 70.7 (h) mirrors this language of the Act, stating that, "...all permit proceedings...shall provide adequate procedures for public notice including offering an opportunity for public comment and a hearing on the draft permit."

being considered). See also Shell Oil Company v. EPA, 950 F.2d 741 (DC Cir. 1991) (remanding final RCRA "mixture and derived from" rule because "interested parties cannot be expected to divine the EPA's unspoken thoughts"); Ober v. EPA, 84 F.3d 304, 312 (9th Cir. 1996) (requiring an additional round of public comment on EPA's approval of Arizona's PM-10 Implementation Plan because public never had an opportunity to comment on state's post-comment period justifications which were critical to EPA's approval decision). Courts have noted that providing the public meaningful notice improves the quality of agency decisionmaking, promotes fairness to affected parties, and enhances the quality of judicial review. Small Refiner, 705 F.2d at 547. I find that these fundamental principles apply with equal force in the context of title V permitting. Otherwise, if a final permit no longer resembled the permit that the public commented upon, then the public would be deprived of the opportunity to comment guaranteed by the CAA and EPA's rules.

Determining how much notice is sufficient is inherently a matter of judgment. In this case, however, the operational constraints imposed on the facility in the proposed permit were so significantly different from those in the draft permit that I find that additional public notice on this particular aspect of the permit is required. The NYSDEC's reason for including operational constraints in Masada's draft permit was to effectively limit the potential to emit (PTE) and prevent this source from being a "major source"[5] of air emissions for PSD and/or NSR purposes. The PTE is a critical factor in determining the applicability of the CAA major source permitting requirements. Many large facilities are potentially subject to major source preconstruction requirements, unless they install pollution control equipment and/or accept operational constraints, such as limitations in the hours of operation, raw material throughput or production rate, that limit the facility's PTE below major source thresholds.

Masada's title V application and permit do not list the major source preconstruction requirements as applicable requirements. Therefore, for pollutants where the source's unconstrained capacity exceeds major source thresholds, the permit must constrain the facility to emit air pollution only at levels that would not trigger major source applicable requirements. In order to be cognizable as limits on the source's PTE, such constraints must always be stated in a practically enforceable form in a source's construction permit as well as its operating permit(s). Since the source is subject to title V permitting, any preconstruction permit requirements, including PTE limits, qualify as applicable requirements under part 70, and must be set forth in the source's operating permit.

Generally, applicable requirements in permits are subject to many degrees of technical and legal review before and during rulemaking or permitting procedures. However, in the case of PTE limits, the

[5] A major source is defined under 40 CFR ' 52.21 as any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same (or persons under common control)) belonging to a single major industrial grouping that emits or has the potential to emit: 1) 250 tons per year (tpy) or more of any air pollutant regulated under title I of the Act; or 2) 100 tpy of any regulated air pollutant if the source belongs to one of the categories of stationary sources as listed under title I of the Act.

State generally fashions the necessary operational constraints and subjects them to review for the first time during the permitting process. In the case of the Masada facility, the PTE-limiting terms were originally drafted by NYSDEC, as is normally done. When EPA staff commented on the draft permit, they raised several concerns with the enforceability of the PTE limits. Subsequent comments from citizens raised similar concerns.

After the close of the public comment period, NYSDEC revised the PTE limits with input from EPA and Masada, in order to better define the operational constraints and associated method for verifying the source's emissions. While the need to improve the PTE limits was identified by the concerns raised in the comment period, the final permit ultimately adopts a fundamentally different approach to limit the source's PTE than the one found in the draft permit. It is for this reason that I am requiring a new review period for these new PTE limits. As explained further in section II.B.1.c below, it is EPA's judgment that this new approach is a valid and enforceable way to limit PTE in certain cases, but additional public notice is required to finally determine whether it is appropriate to apply this approach to this facility and whether the permit does so in an appropriate manner.

Masada's draft permit expressed annual emissions limits on sulfur dioxide (SO_2) and nitrogen oxides (NOx) in terms of a 12-month rolling average. These limits, under EPA policy, would have to rely on short term (e.g., pounds/hour) emissions rates, coupled with restrictions on the source's hours of operation (e.g., hours/year). Indeed, much of EPA Region 2's comments, as well as the public comments filed on the draft permit, focused on the specifics of these short-term emissions rates and operational limitations. In contrast, the permit ultimately issued by NYSDEC does not rely on short term emissions rates as the basis for calculating an operational limit to restrict the source's PTE. Instead, it relies on real time data from continuous emissions monitors (CEMs). Short-term emissions rates are still in the permit, but the issued permit reflects a change to indicate that these limits are no longer used for PTE-limiting purposes.

EPA observes that the approach used in the issued permit is a relatively new (and more flexible) approach that takes advantage of continuous emissions monitoring systems. While the draft permit calculated emissions as a function of two factors – short-term emissions rate and hours of operation – the issued permit directly measures emissions with real-time accurate emissions measurements. Furthermore, whereas the draft permit relied on a 12-month rolling average, the final permit instead relies on a 365-day rolling total, resulting in a different reporting and recordkeeping regime, and effectively enabling more frequent compliance checks. To support this approach, the final permit requires extensive data collection procedures and quality assurance measures. Similarly, rather than impose exact limits on the hours of operation, the proposed permit allows the source to operate as long as its 365-day measured total is below the major source cutoff. Thus, specific limits on hours of operation were excluded from the PTE limiting language.

EPA finds that, as to the terms of the permit which were intended to express operational constraints on this facility that effectively limit Masada's PTE below major source thresholds,

specifically permit conditions 36 and 41, there has not been adequate adherence to the applicable public participation requirements. The draft permit gave no indication that such a different and relatively new approach might ultimately be contained in the issued permit. In fact, it suggested that the PTE limit would be a typical limit based on short-term emissions rates and limits on hours of operation. EPA's and the public's comments are clearly based on this understanding. As such, EPA finds that it is unreasonable to conclude that the public had an opportunity to comment on whether the PTE limit ultimately found in Masada's permit assures compliance with applicable requirements. Therefore, EPA is granting the request to object to the permit according to 40 CFR 70.8(c)(3)(iii), with respect to this issue.

Pursuant to Sections 505(b) and 505(e) of the Act, 42 U.S.C. §§ 7661d(b) and (e), and 40 C.F.R. §§ 70.7(g)(4) or (5) and 70.8(d), EPA objects to the title V operating permit issued to Masada by the NYSDEC on July 25, 2000. NYSDEC shall modify the permit by re-opening the above cited portion of the permit to provide for public participation based on the changes made after the initial public comment period. This process includes a new 30-day comment period for the public, a new review period for EPA, and a new petition period for commenters. Only the portions that speak to the monitoring, recordkeeping, and operational requirements that cap the facility's PTE need to be renoticed, and comments do not need to be accepted on other aspects of the permit. In this new public notice, NYSDEC should clarify that only conditions 36 and 41, and at least pages 3, 5, and 10-15 of the facility description, are being reopened pursuant to this Order.

4. Notification of Petition Period

Petitions received from Spectra and from Ms. Nebus claim that NYSDEC failed to properly inform the public with respect to the commencement of the public's 60-day period for petitioning the EPA Administrator to object to the issuance of the Masada title V permit. NYSDEC sent a letter to all concerned citizens dated June 2, 2000, announcing that EPA has completed its review and found the proposed permit to be acceptable. NYSDEC further stated, regarding the opportunity for citizens to petition, "[y]ou will be notified when this (the 60-day) period begins." When the final permit was issued on July 25, 2000, NYSDEC then advised the public that their June 2, 2000 letter erred in its statement about the commencement of the 60-day petition period. The July 25, 2000, letter indicated that the 60-day petition period began on June 19, 2000 and would end on August 21, 2000. Spectra and Ms. Nebus claim that NYSDEC shortened the statutory 60-day petition period as a result of their error and seeks an EPA objection to the issuance of the final permit on the basis that NYSDEC failed to properly inform the public of its right to petition.

Section 505(b) of the Act provides those who commented during the public review period have 60 days to petition the EPA Administrator to object to the issuance of a title V permit if EPA did not so object during its 45-day review period. This 60-day petition period immediately follows EPA's 45-day review period. Neither the Act nor the current part 70 regulations require the State to inform the public of the commencement of EPA's 45-day review period and of the citizen's 60-day petition period.

Nonetheless, NYSDEC took it upon itself to notify the public when the petition period began. However, NYSDEC misread the part 70 regulations and misinformed the public. NYSDEC's mistake may have caused confusion regarding the time period in which the public may petition the EPA Administrator. Spectra alleges a violation of 40 CFR 70.8(d) as a result of NYSDEC's error which may have, in effect, shortened the public's petition period for those who relied solely on NYSDEC's advice and not the rules themselves. NYSDEC did not and could not shorten the statutory period for public petitions. Its inaccurate statement may have misled the public. However, as discussed below, I find this to be a harmless error that did not cost any petitioner the opportunity to file a title V petition. *See e.g.* Massachusetts Trustees of Eastern Gas & Fuel Associates v. United States, 377 U.S. 235, 248 (1964) (an error can be dismissed as harmless "when a mistake of the administrative body is one that clearly had no bearing on the procedure used or the substance of the decision reached").

NYSDEC's notice would not have mattered to those who were aware of the statutory requirement since they knew when the 60-day petition period commenced. However, those who relied on NYSDEC's notification had 36 fewer days to prepare and file their petitions. Despite NYSDEC's error, many members of the community were aware of the proper filing deadline and submitted timely petitions to the Administrator. While EPA acknowledges that NYSDEC's error may have caused some confusion to the public, it was unintentional and inadvertent. Nevertheless, this error may have contributed to the filing of a petition on September 11, 2000 (21 days late) from Louisa Centeno, George Centeno, and Leslie Mongilia of New Hampton, New York. To ensure that NYSDEC's error does not frustrate the public participation process, I am exercising my discretion to consider their letter as a petition to reopen the permit for cause under 40 CFR 70.7(f) and (g). I therefore address their concerns on their merits in the below Order. On the basis that NYSDEC's error resulted in no harm being done to the public's opportunity to file petitions concerning the Masada project, I decline to object to the permit on these grounds.

5. Lack of Substantive Review of Comments

Spectra claims that "petitioners' comments have not been substantively reviewed or responded to by NYSDEC or EPA as they post-dated EPA's conclusions and findings on the matters raised." Spectra petition, at 13. In particular, the petition claims that NYSDEC's responsiveness summary did not fully address such fundamental issues as PSD/NSR applicability raised during the public comment period. Spectra argues that this is an indication that these fundamental issues and questions were not yet resolved prior to the issuance of the final permit. In responding to the PSD and NSPS applicability issues, NYSDEC referred to EPA's letters of December 6, 1999 and March 29, 2000 letters addressing PSD and NSPS applicability without any additional explanation of NYSDEC's position or justification. The petitioner alleges that NYSDEC did not perform a substantive review of all comments received, and therefore did not intend to consider public comments in its final permit decision.

EPA recognizes the importance of public scrutiny in the permitting process as evidenced in the public review and administrative petition opportunities offered in title V of the CAA and its

implementing regulations. The law requires that the public be allowed to review proposed projects and offer comments relevant to requirements applicable to the source. Such comments would most certainly assist the State in making a sound permit decision. The law also requires the State to consider comments received, but it does not require that all comments be incorporated into the final permit. It also does not indicate how much detail must be included in a permitting authority's response to any comment received. As a general matter, EPA recognizes that governmental bodies are entitled to a "presumption of regularity." *See e.g.* Citizens to Preserve Overton Park, Inc., et al. v. Volpe, Secretary of Transportation, 401 U.S. 402, 415 (1971). In the absence of specific evidence, EPA will not speculate that NYSDEC has failed to consider all comments. As a result, EPA finds that NYSDEC did not violate either the part 70 regulations or the State code at 6 NYCRR 621.9(e)(1) in referring to EPA's analyses of December 6, 1999, and March 29, 2000, to respond to the PSD and NSPS issues raised by commenters. EPA denies the petition on this issue.

6. Improper Denial of Request for a Second Public Hearing

Ms. Nebus claims NYSDEC violated the public participation requirements of 40 CFR §70.7(h) by not responding to her numerous requests, during and after the public comment period, for a second public hearing. The second hearing request denial was given to her verbally by NYSDEC after her numerous written and telephone requests to NYSDEC. Ms. Glover similarly complained that the December 29th public hearing "did not provide the opportunity for all affected parties to formally submit comments on the proposed facility ... to ask questions and share concerns for their health and safety." Ms. Glover also stated that another public hearing was requested on December 29, 1999 and on several subsequent occasions. The petitioners alleged that NYSDEC acted inappropriately in not granting their requests for a second public hearing.

EPA disagrees that DEC's failure to grant a second hearing request is a violation of the applicable public participation requirements. Although NYSDEC could have been more responsive to the petitioners' requests for a second hearing (e.g., responded by telephone or mail), neither 40 CFR §70.7(h) nor 6 NYCRR Part 621.6 and 621.7 require NYSDEC to honor requests for a second public hearing. The New York regulations at 6 NYCRR Part 621 list criteria for determining whether a public hearing will be held on an application. NYSDEC utilized those criteria and determined to hold a public hearing on December 29, 1999. New York regulations do not require multiple hearings, and thus the state can exercise its discretion whether to conduct a second hearing. In this case, the public had an opportunity to participate in the title V permit process by submitting written comments to NYSDEC and by speaking during the December 29th hearing. Many concerned citizens, including Ms. Nebus and Ms. Glover, availed themselves of these opportunities. Thus, NYSDEC was able to hear the community's views about the proposed facility and incorporate their concerns into the State's decisionmaking process. As a result, the decision whether to hold a second public hearing rested with NYSDEC and EPA denies the petitioners' allegations that NYSDEC violated the applicable public participation requirements by not granting requests for additional public hearings.

7. Failure to Translate Public Documents for Spanish Speaking Community

Ms. Nebus and Mrs. Glover allege that Spanish speaking members of the Middletown community were not aware of the proposed Masada project and its potential impacts on health and other issues and could not voice their concerns in the form of written comments or at the hearing. I interpret this complaint to broadly suggest that NYSDEC violated the public participation procedures by failing to translate the public notices or the key documents related to the Masada facility into Spanish. Similarly, they suggest that translators should have been made available at the December 29th hearing.

EPA disagrees with petitioners that NYSDEC violated the federal or State public participation procedures required by title V of the Act by not providing Spanish translation for the public notices, certain documents, and during the December 29th, 1999 hearing. First, there is no record of this concern being raised to NYSDEC during the comment period, and thus, under 40 CFR 70.8(d), it is inappropriate to raise the issue for the first time in a petition to the Administrator. Second, the record shows there was ample public participation on the Masada permit. The public comment period started on September 22, 1999 and comments were received up until the December 29, 1999 hearing. During this 3-month period, the public was afforded the opportunity to review records held in the NYSDEC regional office, to submit comments on the project, and to express concerns at the hearing. NYSDEC developed a mailing list including over eighty citizens and interested parties, received eighteen letters on the draft permit and estimates that at least 500 people attended the public hearing. Finally, neither the part 70 regulations nor the State rules require NYSDEC to provide translation of these permit documents or during this public hearing. See 40 CFR part 70.7(h); NYCRR ' ' 621.6 and 621.7. Therefore, the petitioners have not demonstrated that the lack of translations during the comment period or translators at the public hearing violated the public participation provisions of either the State or federal rules implementing the Act.[6]

B. Technical Issues

1. Prevention of Significant Deterioration (PSD) Program Applicability

Part C of the Clean Air Act establishes the prevention of significant deterioration ("PSD") program, a preconstruction review program that applies to areas of the country that have attained the NAAQS. 42 U.S.C. §§ 7470-7479. In such areas, a major stationary source may not begin construction or undertake certain modifications without first obtaining a PSD permit. 42 U.S.C. §§ 7475(a)(1), 7479(1) & (2)(C). The PSD program includes two central requirements that must be satisfied before the permitting authority may issue a PSD permit. In broad overview, the program limits

[6] As discussed in section C.1 below, the petitioners may file a complaint under Title VI of the Civil Rights Act of 1964, as amended, and EPA's Title VI regulations if they believe that the state discriminated against them in violation of those laws by issuing the permit to Masada.

the impact of new or modified major stationary sources on ambient air quality and requires the application of the best available control technology (BACT). 42 U.S.C. § 7475.

NYSDEC determined that Masada was not subject to the preconstruction permitting requirements of the PSD program.[3] This determination was based on NYSDEC's finding that the facility would not emit any pollutant in major amounts, above which PSD applicability would be triggered. Specifically, the PSD program applies to the construction of major new stationary sources and modifications of existing stationary sources. Under the Act and EPA's implementing regulations, sources in certain identified categories are considered major if they have the potential to emit 100 tons per year (tpy) or more of a regulated pollutant. 42 U.S.C. § 7479, 40 CFR 52.21(b)(1)(i)(a). Sources in other categories are considered major if they have the potential to emit more than 250 tpy. In determining that the Masada facility is not a major source subject to PSD, NYSDEC looked at several key questions: (1) what is the "primary activity" of the Masada facility, which determines whether the PSD major source cutoff is 100 or 250 tpy; (2) if the major source cutoff for Masada is 250 tpy, is there an embedded source in a 100 tpy category (e.g., an embedded chemical process plant) whose emissions exceed 100 tpy; and (3) is the permit sufficient to assure that the emissions of the Masada facility will not exceed the applicable major source cutoff (either 100 or 250 tpy)? Petitioners Spectra, Ms. Glover and Ms. Nebus make several claims addressing each of these questions. Such claims are addressed separately below.

a. What is the primary activity of the Masada facility?

In determining the primary activity of a complex industrial facility, a permitting authority should consider the facility's operation as a whole. NYSDEC evaluated the Masada facility and concluded that its primary activity was refuse systems (Standard Industrial Classification (SIC) code 4953). Petitioners Spectra, Glover and Nebus challenge this conclusion, suggesting that the facility is primarily a chemical plant designed to manufacture ethanol, and should be identified as an industrial chemical processing facility (SIC Code 2869). Because under 40 CFR 52.21(b)(1)(i)(a), the 100 tpy major source threshold applies to "chemical process plants," but not to refuse processing facilities, this claim must be evaluated to determine if NYSDEC properly classified the source, and came to the appropriate conclusion that PSD did not apply to the Masada facility.

EPA finds that the petitioners have not demonstrated that the primary activity of the facility is chemical manufacturing. While certain factors tend to support the petitioners' claims, an examination of the facility's operations as a whole results in the opposite conclusion. As discussed below, this conclusion rests on a number of factors, including the relative share of the value of services rendered compared to the products sold, and the contractual relationship between the facility and Middletown and the neighboring communities.

[3] The federal PSD regulations are codified at 40 CFR 52.21. Pursuant to 40 CFR 52.21(u), EPA has delegated NYSDEC the authority to run this program in New York.

Spectra asserts that the facility is a chemical process plant because it makes ethanol and carbon dioxide as products, and that numerous chemical processes such as acid hydrolysis, ion exchange, etc. occur at the facility. They point out that the original permit application submitted by Masada listed both SIC codes 4953 and 2869. Spectra also asserts that the facility uses municipal solid waste (MSW) only as an ingredient, and uses it in a different manner than traditional refuse systems. Spectra asserts that Masada will not "dispose" of waste, but rather will "convert" it to products, and argues that disposal is necessary for a facility to be classified as a refuse system. Finally, Spectra argues that most of the personnel and payroll at Masada will be dedicated to chemical processes.

For its part, Masada has argued that its principal product is a service rendered: the service of waste disposal. In support of this argument, Masada provided revenue estimates that over 70 percent of the revenue from the Middletown facility will come from tipping fees paid by the municipalities, and only 30 percent from the production of products like ethanol and carbon dioxide. However, Spectra calls these figures "suppositious," "not binding," and "speculative at best."

As the entity delegated authority to run the federal PSD program in New York, NYSDEC must rely on EPA regulations in assigning a primary activity to the Masada facility. EPA has long applied the "primary activity" test to categorize complex industrial sources for PSD. In cases where more than one activity is present at a source, the primary activity is determined by the source's "principal product (or group of products) produced or distributed, or services rendered."[8] In determining the principal products or services rendered, EPA considers, on a case-by-case basis, the particular circumstances at the source. The Standard Industrial Classification (SIC) Manual (published by the U.S. Government Printing Office, most recently in 1987) contains similar language to that used by EPA, and provides further discussion that, for its purposes, the principal product is to be determined by the relative share of value added, including the value of production for manufacturing, and the value of receipts for services. Generally, EPA believes that this is an approach appropriate for determining the principal product or service, and therefore, in establishing the primary activity for the source.[9]

Thus, in applying the primary activity test to the Masada facility, EPA believes it is appropriate to consider the revenue from refuse processing, in addition to the revenue from sale of chemical products. EPA expressed this view in a December 6, 1999 letter from Kathleen Callahan, Director, Division of Environmental Planning and Protection, EPA Region II, to Robert Warland, Director, Division of Air Resources, NYSDEC, ("December 6 letter"), which stated that "Masada's information indicates that more than 70 percent of the revenue generated by the project results from tipping fees associated with the collection of municipal solid waste and sewage sludge." The December 6 letter also

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[8] 45 Fed. Reg. 52695 (Aug. 7, 1980). See also U.S. EPA Office of Air Quality Planning and Standards, *New Source Review Workshop Manual*, Draft, 1990, page A-3.

[9] EPA further notes that there is no dispute in this case that the various interrelated activities at the Masada facility constitute a single source for PSD purposes.

indicated that EPA believes that the presence of a contractual relationship between Masada, the city of Middletown, and the surrounding towns to dispose of waste is itself evidence that the primary activity of the facility is refuse systems. In the original request for proposals to which Masada responded, the city sought an agreement with a facility to dispose of its waste, not to produce any product.[10] Although the production of ethanol may be integrated into the disposal facility to make the waste disposal more cost-effective, it is EPA's judgment that the facility is being built primarily to fulfill these municipalities' need to dispose of solid waste.

EPA Region 2's December 6 letter concluded that "the proposed facility is primarily a municipal waste collection and processing plant." NYSDEC relied in part on this letter in confirming its determination that PSD did not apply. Nothing in the Spectra petition refutes this conclusion. Neither the mere presence of chemical processing activity nor the mere production of chemical by-products is sufficient to determine the source's primary activity. The arguments set forth in the December 6 letter, and further discussed here represent an appropriate basis for NYSDEC to make a determination that the facility is a refuse system, and therefore subject to a 250 tpy PSD cutoff.

Furthermore, Spectra's statements about the speculative nature of Masada's revenue claims do not provide sufficient evidence to overturn NYSDEC's primary activity determination. Masada is legally obligated to provide NYSDEC with the information needed to make a PSD applicability determination, and to provide the best information available. While Masada acknowledges that the tipping agreements are not yet in effect, EPA does not find that NYSDEC erred in accepting Masada's revenue projections, which appear to be based on the best available information. Indeed, the rather large 70-30 dominance of tipping fees in the revenue estimate, in EPA's judgment, provides reasonable certainty that the majority of revenue from Masada will come from tipping fees. In addition, as noted above, this was only one factor of several that supported NYSDEC's determination. I also reject a related claim by Spectra that payroll or personnel activity should take precedence over revenue in establishing the primary activity, as Spectra's approach would ignore the facility's operations as a whole and Spectra has not demonstrated that such an approach is necessary based on the applicable requirements.

EPA also rejects the remaining arguments by the Spectra petitioners on the primary activity. EPA does not find conclusive the fact that the original permit application listed both SIC codes 4953 and 2869. Regardless of the number of SIC codes listed in the application, NYSDEC must make a primary activity determination, and ultimately did so, choosing refuse systems. The arguments that this source is different from traditional refuse systems, that the source uses MSW as an ingredient, and that it will not "dispose" of MSW, but rather "convert" it to products are insufficient to demonstrate that the facility is not appropriately classified as a refuse system. EPA observes that, while the Masada process is technologically innovative, and differs from many traditional types of waste processing facilities, it is

[10] Request for Solid Waste Facility Development and Management Proposals, issued by the city of Middletown on September 1, 1994.

still primarily engaged in waste minimization. The semantic difference between "disposal" and "conversion" has no regulatory consequence, because both are methods of minimizing solid waste, and both occur at the Masada facility.

For these reasons, EPA finds that NYSDEC acted appropriately in classifying the Masada facility as a refuse system.

b. Is there an embedded source in a 100 tpy category whose emissions exceed 100 tpy?

As discussed above, in evaluating Masada's request for a permit, NYSDEC determined that PSD did not apply. The basis for this determination was that the potential-to-emit for the facility was below the relevant PSD major source cutoffs for a source whose primary activity is refuse systems (SIC 4953). However, the PSD applicability test contains an additional step for facilities in a 250 tpy source category such as refuse systems. The additional step requires an evaluation of the facility to determine if there is a portion of the plant (which EPA calls an "embedded" or "nested" facility or source) which could be classified in one of the categories with a 100 tpy major source cutoff. If an embedded facility exists, the emissions from the embedded facility must be estimated separately, and if they exceed the 100 tpy cutoff, the embedded facility is itself considered a major source and subject to the PSD requirements.[11]

At the Masada facility, NYSDEC determined that there was no embedded facility subject to the PSD requirements. The permit record indicates that the most likely candidate for an embedded facility is a "chemical process plant," which is a source category with a 100 tpy major source cutoff under applicable EPA regulations, 40 CFR 52.21(b)(1)(i)(a). Indeed, NYSDEC noted in early discussions with EPA that there is "Industrial Organic Chemicals activity" at the source.[12] However, NYSDEC determined that, while there is an embedded chemical process plant, the emissions of any PSD pollutant from it would be below the major source size. NYSDEC reasoned that the gasifier's[13]

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[11] See, for example, EPA's New Source Review Workshop Manual, Draft, October 1990, at A.23, and the July 6, 1992, letter from Edwin Erickson, EPA Region 3 Regional Administrator, to George Freeman, Reserve Coal Properties Company (available at http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/primact.pdf).

[12] April 7, 1999 letter from Robert J. Stanton, NYSDEC Region 3 to S. Riva, EPA Region 2.

[13] Some confusion surrounds the terms "gasifier" and "boiler." For clarity, the term "gasifier" is used in this Order to refer to the unit where the gasification of lignin, and its subsequent oxidation, occurs. Energy is recovered from this process to produce steam used for other parts of the Masada process. For this reason, various parties refer to the gasifier as the gasifier/boiler. The term "package boiler" is used in this Order to refer to a separate natural gas boiler where natural gas is combusted to produce additional steam needed for the Masada process. Together, these two units are sometimes referred to as the facility's boilers. Emissions from the gasifier and the package boiler are eventually vented to the same stack, which is sometimes referred to as the gasifier/boiler stack.

emissions are best attributed to waste processing operations of the facility and that, therefore, the emissions from the embedded chemical plant would be well below the 100 tpy source cutoff, and PSD would not apply.

The Spectra petitioners argue that the emissions from the gasifier at the Masada facility should be attributed to the embedded chemical plant emissions, not waste processing. They argue that the gasifier is an essential part of the overall ethanol production operation. It gasifies the lignin,[14] combusts the gases, and recovers some of the energy produced, using it to provide steam back to the various waste and chemical processing operations. Furthermore, because virtually all of the lignin is eliminated in the gasifier, and without the gasifier the lignin would likely have to be landfilled, petitioners argue that the gasifier plays an essential waste disposal function in support of the ethanol production. As such, they believe its emissions should be attributed to ethanol manufacture.

EPA has considered the petitioners' arguments and nonetheless finds that Spectra has not demonstrated that there is a chemical process plant with emissions exceeding the PSD major source cutoff. There is little dispute that ethanol production falls within the category of a chemical process plant. EPA has determined that the source category "chemical process plant" includes activities defined within SIC major group 28.[15] This group includes "...establishments producing basic chemicals...such as acids, alkalis, salts and organic chemicals."[16] Thus, although the primary activity of the Masada facility is refuse processing, the presence of ethanol (an organic chemical) production indicates that an embedded chemical process plant is also present. However, EPA believes that the gasifier emissions do not belong with the embedded chemical plant because the gasifier is essential to the Masada facility's primary activity - waste processing.[17]

The key determinations in assessing the embedded chemical plant's emissions are (1) the primary activity of the facility, and (2) the activities at the facility which are principally devoted to activities other than this primary activity. Activities not principally devoted to the primary activity may be considered part of an embedded source. In the case of the Masada, as stated above, the primary activity of the facility as a whole is refuse processing. Determination of this primary activity is always

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[14] "Lignin" is the term Masada uses to describe the general process residue that remains after the hydrolysis of the municipal waste -- residue that is eventually combusted in the gasifier. Lignin is not a technical term and has no meaning within the context of EPA or NYSDEC regulations.

[15] Memo from Ed Reich, Director, Division of Stationary Source Enforcement, EPA Office of Air, Noise, and Radiation, to Thomas Devine, Director, Air and Hazardous Materials Division, EPA Region 4, dated August 21, 1981.

[16] "Standard Industrial Classification Manual," 1987, U.S. Government Printing Office, at p.132.

[17] As noted in the preamble to the PSD regulations, "[w]here a single unit is used to support two otherwise distinct sets of activities, the unit is to be included within the source which relies most heavily on its support." 45 Fed. Reg. 52695 (Aug. 7, 1980).

the first step in analyzing embedded facilities. Following this, activities not principally devoted to the primary activity are considered. At the Masada facility, there are a number of processes including hydrolysis and separation,[18] sulfuric acid reconcentration, and fermentation and distillation, which are principally devoted to chemical processing. Although these activities play a dual role of refuse processing (i.e., converting some of the waste to usable products), it is EPA's judgment that these activities primarily serve to produce marketable ethanol and other products — a chemical process plant. Likewise, there is a natural gas package boiler which exists primarily to supply energy needed to reconcentrate the acid for hydrolysis, and there are tanks for product storage. These activities should also be considered primarily as part of the embedded chemical plant. Emissions from these activities have been evaluated to determine whether they exceed the 100 tpy cutoff for a chemical process plant. EPA finds that Spectra has failed to demonstrate that NYSDEC was correct in finding that they do not.[19]

The remaining processes, including sorting and drying the incoming waste as well as gasification/combustion are, in EPA's judgment, primarily devoted to refuse processing. Indeed, in petitioner Spectra's own words, "the principal purpose of the supposed gasifier is to eliminate the residue from the Project's chemical processes to avoid the need for landfill disposal." Spectra petition, at 24. However, petitioners err in suggesting that because a chemical process has occurred before gasification in this instance, that the gasifier must be a "support facility" to a chemical plant. As noted above, the primary activity of the Masada facility is refuse processing, and the gasifier, by substantially reducing the volume of the lignin, is primarily performing a refuse processing function. Even if energy is recovered from gasification/combustion as a side benefit and used for ethanol production, and even if the presence of a waste stream and integrated disposal process makes ethanol production economical at this site, this does not change the determination that the primary activity is refuse processing.

On the question of "support facilities" raised by Spectra, EPA observes that the gasifier plays a dual role of waste elimination and steam generation. While both of these roles arguably "support" the chemical process plant, the question of support is not the relevant factor in deciding how to attribute the emissions of the gasifier. Questions of "support facilities" often arise in making major source

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[18] In response to the Spectra petitioners' comment about EPA Region 2's prior assessment that the hydrolysis step is part of the refuse processing function (which the December 6 letter relied upon in allocating gasifier emissions to refuse processing), EPA has reconsidered, and now believes that the hydrolysis step properly belongs with the chemical processing plant. It is EPA's judgment that the hydrolysis step is included principally to produce sugars for conversion to ethanol. While the hydrolysis step serves a limited waste reduction function, EPA finds it unlikely that the hydrolysis step would be present were it not for the production of ethanol. However, this determination does not impact the PSD determination because there are no emissions from the hydrolysis step.

[19] Emissions from the hydrolysis step, the acid concentration/recycling step, the fermentation/distillation step, the package boiler, and the storage tanks are well below the major source cutoffs. The primary emissions, according to Masada's estimates, are less than 1 tpy of VOC from the tanks, and less than 9 tpy of NO_x from the package boiler.

determinations under the PSD program when questions arise as to whether facilities are part of the same industrial grouping. Where a facility conveys, stores, or otherwise assists in the production of the principal product at another source, it may, under some circumstances, be deemed a support facility and treated as part of the same source as the facility it supports. This policy is used, for example, in determining whether two adjacent facilities should be treated as one source for PSD applicability purposes. However, the support facility test is not relevant to the Masada facility because there is no question that the chemical processing activities and the waste reduction activities at Masada facility are a single source. The boundaries of the major source have never been at issue. The support facility test is not used to evaluate embedded sources. Because both the boundary of the source and the primary activity have already been established, the Spectra petitioners' view that the gasifier "supports" the chemical process is simply not relevant. The gasifier is most appropriately associated with the primary activity – refuse processing – not the embedded chemical plant.

Another possible candidate for an embedded source in a 100 tpy PSD category is a "fuel conversion plant." Spectra mentions this in footnote 14 of their petition, but presents no elaboration on this point and no evidence to support this claim. Based on our review, EPA policy has historically defined this category as "plants which accomplish a change in state for a given fossil fuel. The large majority of these plants are likely to accomplish these changes through coal gasification, coal liquefaction or oil shale processing."[20] In this case, where fossil fuels are not involved, and where the processing involves hydrolysis, a chemical process, it is EPA's judgment that the Masada facility is not a fuel conversion plant. In any event, for reasons described above, even if a portion of the facility were determined to be a nested source in a 100 tpy category, the gasifier emissions would be associated with the primary activity, not the nested source, and the remaining emissions would not exceed 100 tpy.[21]

Therefore, EPA finds that NYSDEC acted appropriately in determining that the Masada facility does not contain an embedded source subject to PSD, and that PSD does not apply to the facility in general.

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[20] See January 20, 1976 memo from D. Kent Berry, EPA Headquarters, to Asa Foster, EPA Region IV.

[21] Yet another possible candidate for an embedded source in a 100 tpy category is a municipal waste incinerator capable of charging more than 50 tons of refuse per day. CAA section 169(1). The gasifier, and possibly certain other associated activities, may comprise an embedded incinerator because they combust a substance, lignin, which has its origin in part from municipal waste. Petitioners did not raise this issue directly, but it arises indirectly in evaluating the assertion by Spectra that the facility should be subject to the New Source Performance Standard (NSPS) for municipal waste combustors. Unless otherwise specified, EPA generally interprets the source category definition here in a similar fashion to the NSPS definition for that source category. For reasons described below (in the NSPS section discussing the municipal waste combustor standard), EPA does not believe the gasifier, or any other part of the Masada facility, meets the definition of a MWC. Thus, EPA finds that there is no embedded municipal waste incinerator at the Masada facility for PSD applicability purposes.

c. *Is the permit sufficient to assure that the emissions of the Masada facility will not exceed the applicable PSD major source cutoff for any pollutant?*

The question of whether Masada's emissions will exceed applicable PSD cutoffs focuses on the "potential-to-emit" (PTE) of the facility. PTE is a source's maximum capacity (determined on an annual basis) to emit a pollutant under its physical and operational design. 40 CFR 52.21(b)(4). In determining maximum capacity to emit, a source may consider enforceable limits on its operation and emissions, such as those in a title V permit. There is a significant amount of background information in the administrative record for the NYSDEC permit addressing and estimating Masada's PTE, including the following:

(1) a preliminary information package summarizing the proposed project, sent to NSYDEC on September 24, 1998.

(2) Masada's emissions estimate document and application for a title V permit filed with NYSDEC on December 21, 1998.

(3) A revised emissions estimate document and revised title V application, submitted in July and August 1999 (NYSDEC deemed the application "complete" on August 25, 1999).

(4) Masada's response, submitted on November 2, 1999 to EPA Region 2's October 20, 1999 request for additional details about the facility.

(5) Additional permit language developed by Masada, EPA, and NYSDEC during March 2000 to limit the source's PTE.

(6) a NYSDEC document submitted in May 2000 which addressed various public comments raised during a public hearing and written comment period, including comments about Masada's emissions estimates.

The title V permit conditions at the Masada facility are designed to ensure that the PTE at the facility will be no more than 246 tpy of sulfur dioxide, below the major source cutoff of 250 tpy. They similarly are designed to ensure that the facility will have the potential to emit 99.5 tpy of nitrogen oxides, below the major source cutoff of 100 tpy.[22]

NYSDEC sent EPA a proposed title V permit based on these limits on May 4, 2000. On May 17, 2000, EPA indicated, in a letter from Steven Riva of EPA Region 2 to Michael Merriman of

[22] Notwithstanding the above determination that the Masada facility falls within a 250 tpy source category, the Clean Air Act and NYSDEC regulations (6 NYCRR 231) establish a 100 tpy major source cutoff for NO_x for attainment areas which fall within the Ozone Transport Region, as is the case here.

NYSDEC Region 3 that the proposed permit meets all applicable title V requirements. It stated that "this proposed title V permit contains substantive permit requirements for stack testing, monitoring, and recordkeeping, as well as the rolling cumulative total methodology that will limit the "potential-to-emit" of this proposed facility. This statement indicates that EPA and NYSDEC were in agreement that the proposed Facility's emissions would not exceed the PSD major source cutoffs for any pollutant.

The Spectra petitioners raise numerous concerns that address this determination. First, they allege that Masada has not provided sufficient process and engineering information to accurately determine the Project's PTE. Similarly, they allege that the emissions estimates that are provided are not thorough enough and not reliable, claiming numerous general and specific technical defects, and providing their own estimate of NOx emissions for the gasifier and package boiler. Part of their reliability argument is based on the fact that the project is still in the design phase, and that specific contracts and vendor guarantees are not locked in sufficiently well to establish the project's operational parameters, and that the design of the project has changed during the permit process. They also allege that Masada cannot correlate process feedstock to emissions output. Ms. Nebus and Mr. van Meurs raise similar concerns about the unknown technology that will be used at the Masada facility.

Because of the alleged uncertainties and technical defects, petitioners also assert that the PTE limits in the permit are not likely to be met. They express concern that the permit appears to rely on after-the-fact monitoring, rather than engineering practices, test data, or vendor guarantees, to assure that emissions stay below major source cutoffs. They feel that Masada's allegedly inaccurate estimates of emissions are incompatible with PTE limits so close to the major source size because of the "small margin of safety." They further assert that the use of PTE limits for plantwide emissions of sulfur dioxide and nitrogen oxides is itself unlawful because it is inappropriate to use a plant-wide applicability limit (PAL) for avoiding initial PSD review of entirely new sources and because it uses post-construction monitoring as the basis for a preconstruction determination that NSR does not apply.

Before addressing Spectra's claims, it is helpful to briefly describe the PTE limit itself. The PTE limit in the Masada permit is based on what the permit record refers to as a "rolling cumulative total" methodology. Historically, many PTE limits have relied on a short-term emissions limit (e.g., pounds per hour), coupled as necessary with an operational limit (e.g., a limit on hours of operation), which, taken together, limit annual emissions below major source levels. However, in the case of Masada, the PTE limit does not rely on the short-term limit to establish the source as a minor source.[23] Instead, the limit relies on continuous emission monitors (CEMs) to track the total daily emissions from the facility. The emissions must be recorded each day, and must also be added to the total from the previous 364 days to determine an annual emissions total each day (i.e., a rolling cumulative total). If, on any day, this total exceeds the major source size, the source would be subject to a potential enforcement action (including penalties) for being in violation of its title V permit for the entire year, and would need, among

[23] There are pounds/hour mass limits in the permit, as required by the New York State Implementation Plan (SIP), but these are not used for the purposes of establishing the PTE limit.

other things, to apply for a PSD permit as a major source. Therefore, like any source with a PTE limit, complying with the limit is designed to keep the Masada facility a minor source, and a violation that exceeds the major source thresholds would require the source to obtain a major NSR permit. This serves to constrain the source's operation on a daily basis.[24] If the source has no room to operate under the PTE limiting emissions cap, it must cease operation or face a violation and a requirement to apply for PSD permitting as a major source. Contrary to petitioners claims that the PTE limit will not keep the source below major levels, EPA finds that this rolling cumulative methodology is an effective means of limiting PTE. It simply achieves practical enforceability (*e.g.* the ability to establish compliance at any given time) by relying on direct real-time measurements and calculations necessary to determine mass emissions, rather than on a mass emissions rate coupled with a limit on hours of operation.

Regarding petitioner's concern that the PTE limit relies on after the fact monitoring, EPA notes that all PTE limits rely on after the fact monitoring of some kind. Indeed, the use of CEMs in the Masada permit is a more rigorous type of monitoring than for some other kinds of PTE limits. EPA acknowledges that the emission factors for the Masada process may involve certain elements of uncertainty. However EPA believes that this CEM-based approach adequately addresses this uncertainty by requiring thorough real-time monitoring of the emissions. In cases like Masada, where the process involves new technology and the facility is the first of its kind, it is unrealistic to expect precise emission factors prior to construction. A strength of this rolling cumulative approach is that it compensates for uncertain emission factors by linking the source's operational constraints to the actual measured emissions, not the emissions factor, which itself often contains inherent uncertainty when applied to an individual case. Similarly, in response to Spectra's concerns about the lack of vendor guarantees, EPA notes that a PTE limit need not always be based on vendor guarantees. While vendor guarantees can be useful in estimating emissions, particularly when control devices are utilized, a vendor guarantee is not a necessary prerequisite to issuing a permit limiting PTE.[25] Again, the rolling cumulative approach, by using real-time emissions data, compensates for uncertain emission factors, which still contain uncertainty even if guaranteed by a vendor.

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[24] This limit also has the effect of requiring the source to employ pollution controls to reduce emissions of NO_x and SO_2, and to ensure that these controls are functioning properly in order to preserve its ability to operate below the daily PTE limit. However, the permit also specifically requires the utilization of dry lime injection and a spray dryer absorber system for SO_2 control from the gasifier, selective non-catalytic reduction (SNCR) for NO_x controls from the gasifier, and a baghouse for particulate control from the gasifier. Low-NO_x burners are required for NO_x control from the package boiler. To ensure that these control devices are being used as required and are working properly, the permit requires that operating parameters will be incorporated after testing is done to establish them.

[25] Masada has indicated, in its November 2, 2000, submittal to EPA that it intends to obtain vendor guarantees, but says they will not enter into a formal contract with a vendor until final approvals for the project are obtained. In any event, it is the permit conditions which are binding on the source, and Masada must abide by these regardless of what arrangements it makes with its vendor.

Regarding the petitioners' numerous concerns about the accuracy and reliability of the emissions estimates used in developing the PTE limit, EPA finds that the estimates are credible for the purposes of establishing a PTE limit of the type used in this permit. As noted above, EPA acknowledges that the exact emission factors for the Masada process are somewhat uncertain because the facility is the first of its kind. Although the facility must make a credible effort to project what its emissions will be, it is simply not possible for the facility, particularly in this case, to compute precisely its emissions until the facility is operational. To the extent that Masada has underestimated emissions, the PTE limit serves to constrain facility operations to keep emissions below the major source cutoff.[26] In this way, the limit itself is not critically sensitive to the accuracy of the preconstruction projections of emissions. This approach is certainly not without some risk to Masada, who must stay within these emissions limits even if they have underestimated them. However, as the Court found in United States v. Louisiana-Pacific Corp., 682 F. Supp. 1141, 1166 (D. Colo. 1988),

> "...the regulatory framework at issue may be unusually difficult to comply with because it requires a source to guess what its emissions will be prior to construction and the commencement of operations. Nonetheless, there must be no question that the burden of guessing correctly remains with the source, and that a mistake in this process can indeed result in penalty. Otherwise, future sources that are unsure of whether they will qualify as a major source will have no incentive to apply for PSD permits, which, undisputably, is a burden. Rather, they will build first and wait for the issuance of an NOV [notice of violation] before initiating the permit application process."

Having said that, EPA nonetheless understands the Spectra petitioners' comment that unreliable estimates may result in a PTE limit that cannot be actually met by the source during its planned operations. Indeed EPA has historically commented adversely on or objected to permits that have limited PTE using unreasonable underestimates of emissions factors or constraints on operation which, in reality, would constrain the source's operation so greatly that it would not be viable. EPA finds that this is not the case at this source. NYSDEC acted properly when it determined that the PTE limit is achievable, based on the best information available. The Agency has reviewed the emissions estimates relied upon in evaluating the PTE limits for NOx and SO_2 and finds that they serve as a reasonable basis for determining that the PTE limits can be met by the source operating as planned. While there may be some uncertainty in the exact calculations, as is often the case with any preconstruction estimate, the provisions of the PTE limit, as noted above, compensate for this uncertainty by constraining the source's operations as necessary to account for any underestimate. Any marginal difference between the estimates and the real emissions would not impact the source's ability to actually operate as planned. Similarly, contrary to Spectra's assertion, Masada's uncertain emissions estimates do not necessarily require that the PTE limit be set at some level below the major source size in order

[26] On the other hand, it is also possible that Masada has overestimated emissions. To the extent that their emissions are actually less than they projected, the PTE limit affords the source greater flexibility to operate while still remaining a minor source.

to provide a margin of safety. The relevant uncertainty in a limit like this is not the uncertainty in the emissions estimates; it is the uncertainty in the emissions measurement system. EPA finds that the CEM system, operated properly as required by the permit, provides reliable data to assure that Masada's emissions stay below the major source size. In addition, conservative measures are included in the permit for treatment of missing CEM data, as well as limits on how much data can be missing.

Regarding the specific technical defects alleged by Spectra, EPA finds that none of them negate EPA's basic conclusion: that the emissions estimates are sufficiently representative of the source's operation and are therefore credible for establishing permit limits on PTE. The specific defects in the emissions estimate that are alleged by Spectra, taken together, do not, in EPA's judgment, rise to the level of undermining this basic finding. The points raised by Spectra range from alleged defects with no factual basis, to legitimate points that illustrate a point which EPA has already agreed -- that there is some degree of uncertainty in Masada's estimates. However, in EPA's view, no single alleged defect, or combination of alleged defects presented by Spectra, is enough to prove that Masada has so grossly underestimated its emissions that a PTE limit using the "rolling cumulative total" methodology should not be based on the estimates.

Spectra also claims that the PTE limit itself is unlawful because it is a plantwide emissions cap. Spectra claims that this PTE limit is a special type of limit, referred to as a Plantwide Applicability Limit (PAL), and goes on to argue that a PAL is only legal for an existing major source, not a proposed source. They misconstrue the nature of the PTE limits imposed by NYSDEC in Masada's permit. The PTE limit simply assures that the source's total emissions do not exceed major source cutoffs. It does not create a PAL, which is a term of art referring to a limit that allows modifications at an existing major source without major source preconstruction review.[27] The PTE limit for the Masada facility, while covering multiple units, clearly does not authorize future changes without review. Therefore, it is not a PAL and any claims about the legality of a PAL for this kind of source are irrelevant here. The PTE limit developed here is both appropriate and authorized by applicable regulations.

In summary, EPA finds unconvincing the petitioners' assertions that the PTE limit is improper, illegal, or cannot be met. EPA believes that the emissions estimate document, as supplemented with additional information requested by various agencies, is a credible effort to estimate emissions based on the best available information, and is a legally acceptable permit application on which a PSD applicability determination may be made. Furthermore, EPA believes that the PTE limits for SO_2 and NOx are enforceable, and compliance with these limits can easily be verified at any time with real-time CEM data. As such, the limits provide assurance that the facility, operating in compliance with the permit, will not emit these pollutants in major amounts. Therefore EPA concludes that the Masada facility, as permitted, will not be a major source, and not subject to PSD.

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[27] More details about the proposed regulations addressing the operation of PALs may be found in the 1996 New Source Review Reform proposal. 58 Fed. Reg. 38250 (July 23, 1996).

2. Applicability of Federal Emissions Standards

The Spectra petitioners assert that, due to the uncertainty in emissions estimates and the alleged problems with limits on PTE, it is "not possible to determine whether or not the project is subject to various potentially applicable requirements." Spectra provides a list of requirements, consisting of federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPS), that it feels were not properly evaluated, including the following:[28]

- 40 CFR Part 60 (NSPS) Subpart Eb (Large Municipal Waste Combustors)
- 40 CFR Part 60 (NSPS) Subpart O (Sewage Sludge Incinerators)
- 40 CFR Part 60 (NSPS) Subpart VV (Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry)
- 40 CFR Part 63 (NESHAP) Subpart EEE (Hazardous Waste Combustors)
- 40 CFR Part 61 (NESHAP) Subpart E (National Emissions Standards for Mercury)

In the Appendix to their petition, the Spectra petitioners also list NSPS subparts RRR and NNN. Spectra also broadly argues that other standards not specifically identified may also have been left out of the permit. EPA addresses each of these allegations separately below, including the applicability of 40 CFR part 60, Subpart Db, the NSPS for Industrial-Commercial-Institutional Steam Generating Units, as it relates to comments raised by Spectra in its petition.

a. 40 CFR Part 60 (NSPS) Subpart Eb (Large Municipal Waste Combustors)

Masada's permit application and supporting materials assert that the gasifier combusts "lignin," which is the term they use to describe the general process residue that remains after the hydrolysis step. They distinguish lignin from municipal waste, and assert that the gasifier is not a municipal waste combustor subject to subpart Eb because it combusts lignin, not municipal solid waste (MSW). The draft permit did not incorporate subpart Eb requirements, and EPA in its December 6 letter affirmed that "NYSDEC has identified and applied the appropriate federal NSPS to this proposed facility."

Spectra argues that the lignin is simply "sugar-free MSW" because hydrolysis removes recoverable sugars from the municipal waste stream, but the remaining material is otherwise indistinguishable from MSW. They argue that simply referring to lignin as a by-product of chemical processing of MSW is not sufficient to allow lignin to avoid being classified as MSW. Spectra also

[28] Petitioners describe the list they submitted as "a starting point" but state that it is "not intended to be exhaustive." Without greater specificity, general claims about the inability to evaluate the applicability of potential requirements is not sufficiently detailed to maintain a title V count.

argues that the use of the term "gasifier/boiler" does not change the real purpose of the gasifier unit, which they describe as "heat transfer."[29]

Although petitioners do not refer to the definitions in the NSPS, these definitions are important in resolving their claims.[30] MSW means "household, commercial/retail, and/or institutional waste." The definition provides a specific exemption for "industrial process or manufacturing wastes," among others. This exemption is particularly important here because, as noted above, EPA has determined that part of the Masada facility is an embedded chemical process plant. The hydrolysis step is part of this chemical process plant, and is the step which results in the formation of lignin residue. It is EPA's judgment that the lignin residue is a process waste from the embedded chemical plant, and is therefore exempt from the definition of MSW. Although the input to the chemical process plant is itself a waste, the exemption in the NSPS definition is not restricted to wastes from processes using specific types of feedstocks. Any industrial process waste, unless specifically included in the definition, is exempt. Accordingly, the waste that results from the Masada process is exempt.

The definition of MSW does specifically include refuse derived fuel (RDF) within the meaning of "household, commercial/retail, and/or institutional waste." RDF means "a type of MSW produced by processing MSW through shredding and size classification." This aspect of the definition must also be addressed to see if it is at odds with the exemption noted above. EPA finds that the lignin is not RDF, and thus, there is no conflict with the exemption noted above. The types of material initially being collected by the Masada facility do fall within the definition of MSW, and the processing that occurs as an initial step does result in the production of RDF within the meaning of the NSPS. However, the Masada facility does not then combust the RDF. The RDF undergoes an acid hydrolysis step which significantly alters its chemical properties and creates what the parties in this case refer to as "lignin" or "lignin residue." Information provided by Masada in its November 2, 1999, response comparing the percentage (by dry weight) of various elements in MSW versus lignin residue indicates that acid hydrolysis processes like Masada's increase the sulfur content by 210 percent, the carbon content by 33 percent, and oxygen by 5 percent. Similarly there are significant decreases in hydrogen (37 percent), nitrogen (32 percent), and ash (43 percent).

These significant chemical changes, which result from the hydrolysis process, are well outside the shredding and size classification processes referenced in the RDF definition. Because the chemical separation (hydrolysis) of recoverable sugars from RDF, results in significant chemical changes to the original RDF, EPA finds that the lignin is not RDF under the NSPS. Because lignin is not RDF, and

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[29] Here, it is unclear whether Spectra believes that the purpose of the gasifier is to eliminate lignin or provide energy to the chemical process. However, regardless of Spectra's position, the relevant discussion for NSPS applicability is whether the gasifier is combusting MSW. The question of whether a combustion unit recovers energy through heat transfer is not relevant to whether the unit is covered by the NSPS for MWCs.

[30] The relevant definitions are found in 40 CFR 60.51b.

because industrial process waste is specifically exempted from the MSW definition, EPA finds that lignin does not fall within the definition of MSW.[31]

EPA does not further consider the question of whether the gasifier is a process which falls under the NSPS definition of a municipal waste combustor unit, because for reasons discussed above, the material charged to the gasifier (lignin residue) does not fall within the definition of MSW. Thus, EPA finds that NYSDEC acted properly in determining that the Masada facility is not subject to NSPS subpart Eb.

b. 40 CFR Part 60 (NSPS) Subpart O (Sewage Sludge Incinerators) and 40 CFR Part 61 (NESHAP) Subpart E (National Emissions Standards for Mercury)

The Spectra petitioners claim that Masada has "failed to expressly demonstrate that the proposed facility will not be subject to 40 CFR 60, Subpart O" and assert that it should apply unless Masada demonstrates that sewage sludge will not be incinerated (or incinerated in amounts below the NSPS cutoff of 1000 kg per day). They allege that Masada does not appear to know whether its sewage will be hydrolyzed or later combusted along with lignin. Petitioners likewise claim that Masada has failed to provide data on mercury in the incoming sewage sludge. They state that part 61 subpart E applies to any plant that dries or incinerates wastewater treatment plant sludge containing mercury.

Information from Masada indicates that, like the RDF discussed above, the sewage sludge used in the Masada process undergoes significant chemical transformation prior to gasification. According to its November 2, 1999, submittal to EPA, the sludge is blended and then hydrolyzed in sulfuric acid. Contrary to petitioner's claims, Masada has indicated in its November submittal that all of the sewage sludge, septage, and leachate undergoes this process. This process results in the formation of carbon dioxide and soluble compounds. The carbon dioxide is recovered, and the liquid containing the soluble compounds is used to facilitate hydrolysis. What remains is a dewatered material, which Masada refers to as "acidified biosolids." These biosolids are fed to the gasifier. As with the material that resulted from the hydrolysis of MSW, EPA concludes that this material, which results from the hydrolysis of blended sewage sludge, is significantly different from sewage sludge such that gasification/combustion of this material is not subject to the NSPS for sewage sludge incineration, nor is it subject to the NESHAP for mercury emissions from plants that incinerate sewage sludge.

c. 40 CFR Part 60 (NSPS) Subpart VV [Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI)]

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[31] In a footnote, the Spectra petitioners argue that Masada's lignin is hydrolyzed solid waste with no beneficial use (including as a fuel), in contrast to other types of lignin. The determination whether Masada's lignin is MSW under the NSPS has nothing to do with whether lignin has a beneficial use. Therefore, EPA is not considering this comment further in its evaluation of whether the NSPS applies.

The Spectra petitioners list subpart VV in its list of potentially applicable requirements, and argues that the standards of Subpart VV must be incorporated into any issued permit. Spectra does not allege any specific instance of the failure to properly apply subpart VV, and EPA notes that the issued permit does incorporate subpart VV standards. Therefore, EPA dismisses this claim as moot.

d. 40 CFR Part 63 (NESHAP) Subpart EEE (Hazardous Waste Combustors)

The Spectra petitioners assert that the facility is subject to the requirements applicable to sources burning hazardous waste in a combustor, 40 CFR part 63, subpart EEE. Specifically, they argue that the source has not demonstrated that the lignin or residual municipal solid waste that will be burned in the gasifier will not contain hazardous waste.

Spectra is correct that the NESHAP requirements apply to all hazardous waste combustors, defined in 40 CFR 63.1201 to include an incinerator that "burns hazardous waste at any time." However, Masada maintains that the source will not burn any hazardous waste and in fact is expressly prohibited from accepting any hazardous waste under its NY state solid waste permit. EPA has no information – nor has Spectra presented any – to suggest that the facility will accept any hazardous waste. Like all waste handlers, Masada will have to determine whether the material that it is handling is classified as a hazardous waste. More specifically, Masada will have to ensure that the waste they are processing is not hazardous at the time they accept the waste and after it has undergone the acid hydrolysis process and is placed into the combustion unit. This obligation, however, is independently applicable (subject to government oversight and potential enforcement action) and is not an applicable requirement that should be incorporated into the source's title V permit. Therefore, based on Masada's representation that the source will not burn any hazardous waste, I conclude that Spectra has not shown that the NESHAP requirements apply to this source.

e. 40 CFR Part 60 (NSPS) Subparts NNN (SOCMI Reactor Processes) and RRR (SOCMI Distillation Operations)

In the attachment to the Spectra petition, the Spectra petitioners assert that NSPS subparts for SOCMI Reactor Processes (subpart RRR) and SOCMI Distillation Operations (subpart NNN) should also apply to the Masada facility. They do not cite any more specific basis for this assertion. EPA has reviewed the applicability of these two standards, and has determined that neither of them applies to the Masada facility. EPA issued a determination on October 7, 1996, which clarified that subparts RRR and NNN do not apply to processes which produce ethanol through biological processes like Masada's process. The determination states that these two rules were developed for specific processes involving synthesis of organic chemicals using petroleum-based feedstocks and not biological fermentation processes.[32] As the October 1996 memorandum makes clear, because the Masada

[32] Memorandum regarding "Applicability Determination for Biomass Ethanol Production," dated October 7, 1996, from Reggie Cheatham, Chief, Chemical Industry Branch, EPA Office of Enforcement and

facility does not produce ethanol from a petroleum-based feedstock, it is not subject to NSPS subpart NNN nor is it subject to subpart RRR. Therefore EPA finds that the permit is not deficient with respect to these two standards.

f. 40 CFR Part 60 (NSPS) Subpart Db (Industrial-Commercial-Institutional Steam Generating Units)

EPA has examined the Spectra petitioner's broad claim that other standards not specifically identified may also have been left out of the permit. EPA found one instance of a requirement that was left out of the permit - NSPS subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units). This standard was properly applied to the package boiler, and appropriate limits were included in the permit. However, as discussed below, subpart Db also contains requirements that apply to the gasifier.

Subpart Db applies to any steam generating unit that commenced construction, modification, or reconstruction after June 19, 1984, and has a heat input capacity of greater than 100 million BTU/hour, regardless of fuel. Whereas subparts Eb and O did not apply because the fuel charged to the gasifier was not covered by the regulations, general subpart Db applicability does not depend on the type of fuel used. Clearly, the gasifier unit is used to generate steam and its capacity of 245 million BTU/hour is within the NSPS specified range.[33]

Whereas general applicability of Subpart Db does not depend on the fuel, Subpart Db imposes specific emission limits which are based on the type of fuel combusted. Standards are specified for combustion of coal, oil, natural gas, wood, and MSW. EPA finds that none of these standards, including the MSW standard, apply to the combustion of lignin. The MSW standard does not apply under subpart Db for the same reason that subpart Eb did not apply, as discussed above: the fuel combusted (lignin residue) is not MSW.[34] However, EPA notes that there are certain basic reporting and recordkeeping requirements in 40 CFR 60.49b, which apply regardless of the fuel combusted.[35]

Compliance Assistance to George Czerniak, Air Enforcement and Compliance Assurance Branch, EPA Office of Enforcement and Compliance Assistance. The determination was later amended to clarify that such biological processes are still subject to NSPS subpart VV for equipment leaks. See Memorandum dated September 8, 1998 from Reggie Cheatham, Chief, Chemical Industry Branch, EPA Office of Enforcement and Compliance Assistance to Air Branch Chiefs, EPA Regions 1-10. As noted above, subpart VV has been addressed in the Masada permit.

[33] The gasifier is also subject to NSPS subpart Dc when burning natural gas, as it does at startup. The requirements for subpart Dc are already in the issued permit, and are not at issue in any of the petitions.

[34] Although the definition of MSW used in Db differs slightly from the definitions used in Eb, it is EPA's judgment that neither covers lignin residue, for reasons discussed above..

[35] Specifically, EPA finds that the requirements of sections 60.49b(a), (d), and (o) apply.

The purpose of these requirements is to assure that facilities potentially regulated by subpart Db (some of which are capable of burning multiple fuel types) are properly subjected to the appropriate emissions standards when burning a given fuel. These reporting and recordkeeping requirements clearly apply even if the source primarily combusts a fuel that is not further regulated by subpart Db emissions standards, as is the case here. Therefore, EPA is granting the request to object to the permit with respect to this issue. Pursuant to Sections 505(b) and 505(e) of the Act, 42 U.S.C. §§ 7661d(b) and (e), and 40 CFR 70.7(g)(4) or (5) and 70.8(d), NYSDEC is required to modify the permit to incorporate the reporting and recordkeeping requirements of 40 CFR 60.49b.[36] Where possible, these requirements should be harmonized with reporting and recordkeeping requirements already contained in the permit.

g. Accidental Release Provisions (40 CFR Part 68)

In separate petitions, petitioners Daniel Nebus and Jeanette Nebus both raise concerns about the possible effects of an explosion at the Masada facility. While the petitioners raise several general questions about such effects, the relevant question for this title V petition is whether the facility has complied with the Clean Air Act requirements for accidental releases of "regulated substances," which are extremely hazardous substances listed under section 112(r)(3) of the Act. On this point, the petitioners assert that section 112(r) requirements are "missing from the plan." Mr. Nebus is particularly concerned about an explosion of ethanol, but also identifies several other substances stored in tanks at the Masada facility, including sulfuric acid, gasoline, fuel oil and ammonia.

The regulations implementing 112(r), codified at 40 CFR Part 68, apply to sources that have regulated substances present above certain thresholds. EPA has reviewed Masada's application and supporting information and has located no evidence – nor has Spectra pointed to any – that any regulated substance will be present at the Masada facility in quantities above the 112(r) thresholds. The only substance identified by Mr. Nebus that is listed in the part 68 regulations is ammonia. However, the regulation applies to ammonia in concentrations of 20 percent or greater. NYSDEC determined that part 68 did not apply because the ammonia present does not exceed the 20 percent concentration threshold.[37] Based on this information, EPA finds that Spectra has failed to show that the part 68 requirements apply to the Masada facility. Thus, the permit, as issued, is sufficient under 40 CFR 68.215.[38]

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[36] Under 40 CFR 70.7(d)(1)(iii), permit amendments that require more frequent reporting by the permittee are eligible for the administrative permit amendment process.

[37] EPA confirmed this via a telephone conversation on March 7, 2001 between Thomas Miller, NYSDEC Region 3, and Lauren Steele, EPA Region 2.

[38] Compliance with the requirements of part 68 does not, however, relieve Masada of its legal obligation to meet the general duty requirements of section 112(r)(1) of the Act to identify hazards that may result in an accidental release, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of an actual accidental release. As the Administrator

h. Additional Requirements

With respect to all other applicable requirements not specifically addressed elsewhere in this Order, none of the petitioners have presented specific information to identify any missing or improperly included requirements. In response to the Spectra petitioners' general claim that there are other potentially applicable requirements, but that there is not sufficient information to evaluate their applicability, EPA has examined the record, and has determined that sufficient information is available to conclude that, except as specifically noted above, the permit is adequate to assure compliance with all applicable requirements.[39]

C. Other Issues

1. Environmental Justice and Non-Discrimination under Title VI of the Civil Rights Act

Petitioners Deborah Glover and Jeannette Nebus allege that the permit should be denied because US EPA and NYSDEC have not complied with Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Petition of Deborah Glover, dated August 19, 2000, pp. 2 and 4. Ms. Glover notes that the City of Middletown has a large minority and low-income population and that US EPA and NYSDEC did not appropriately identify "the multiple and cumulative exposures" in this area. She also alleges that the many non-English speaking residents were precluded from meaningfully participating in the NYSDEC public process as the notices were not in Spanish nor were translators made available at the hearing. Ms. Nebus also argues that crucial public documents were not translated and that the local minority and low-income population has been "totally disregarded."

Executive Order 12898, signed on February 11, 1994, focuses federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order is intended to promote non-discrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information on, and an opportunity for

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stated in the Shintech Inc. Title V Order, Permit No. 2466-VO (Sept. 10, 1997), at 12, n.9, "section 112(r)(1) remains a self-implementing requirement of the Act, and EPA expects and requires all covered sources to comply with the general duty provisions of 112(r)(1)."

[39] Although not identified by the petitioners, this review also considered the recently-promulgated NSPS for Commercial and Industrial Solid Waste Incineration Units (40 CFR part 60, subpart CCCC). These standards do not apply to facilities that recover energy for industrial purposes. Masada recovers energy to produce steam, which is used elsewhere at the plant, and is thus not covered by this rule. I also note that EPA has listed "industrial boilers," "institutional/commercial boilers," and "process heaters" on the list of source categories for which hazardous air pollutant emission standards are being developed under section 112 of the Act. 66 Fed. Reg. 8223 (Jan. 30, 2001). However, these standards have not yet been proposed and clearly are not under consideration in this Order.

public participation in, matters relating to human health or the environment. It generally directs federal agencies to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

At issue here is whether EPA should object to the permit issued by NYSDEC because it did not implement the Order. However, the Order's provisions apply only to the actions of federal agencies. As noted in the Administrator's Order responding to the Shintech title V petition, Permit No. 2366-VO, 2467-VO, 2468-VO (Sept. 10, 1997), at p.8, n.5, "[w]hile Executive Order 12898 was intended for internal management of the executive branch and not to create legal rights, federal agencies are required to implement its provisions 'consistent with, and to the extent permitted by, existing law.'" Sections 6-608 and 6-609, 59 Fed. Reg. at 7629, 32-33 (Feb. 14, 1994). Thus, the Order does not apply to actions taken by New York State. The Masada facility received a combined permit incorporating the requirements of New York's title V program and its minor source construction program. New York's title V program received interim approval in 1996. 61 Fed. Reg. 57589 (Nov. 7, 1996); see also 61 Fed. Reg. 63928 (Dec. 2, 1996) (correction); 40 CFR Part 70, Appendix A). New York State therefore is responsible for issuing and administering Masada's permit under section 502 of the Act. Similarly, New York's minor source construction program, codified at 6 NYCRR 201, was approved by EPA in 1997 as part of the state's implementation plan. 62 Fed. Reg. 67006 (Dec. 23, 1997). As the U.S. Environmental Appeals Board recently stated, permits issued under a state's approved minor source construction program "are regarded as creatures of state law that can be challenged only under the state system of review." In re: Carlton, Inc. North Shore Power Plant, PSD Appeal No. 00-9 (Feb. 28, 2001), slip op. at 5.[40]

Consequently, Executive Order 12898 does not apply to the State's issuance of the permit at issue here. As explained above, to justify exercise of an objection by EPA to a title V permit pursuant to Section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2), the petitioner must demonstrate that the permit is not in compliance with the requirements of the Act. Since the Order by its terms does not extend to the State's issuance of permits, it is not an applicable requirement of the Act. Thus, the request to object on this ground is denied.

However, if NYSDEC is a recipient of EPA financial assistance, its programs and activities, including its issuance of the Masada permit, are subject to the requirements of Title VI of the Civil

[40] Pursuant to 40 CFR § 52.21(u), NYSDEC has been delegated authority to administer the federal PSD program. See 47 Fed. Reg. 31613 (July 21, 1982). However, New York's decision that the source does not require a PSD permit means that there is no federal PSD permit for this source. *See e.g.* In re: Carlton, Inc. North Shore Power Plant, PSD Appeal No. 00-9 (Feb. 28, 2001), slip op. at 5 (dismissing challenge to permit issued under Illinois' approved minor NSR program because "the Board's jurisdiction is limited to federal PSD permits that are *actually issued*; it does not extend to state decisions reflected in state-issued permits, even where those decisions lead to the conclusion not to require a PSD permit at all") (emphasis in original).

Rights Act of 1964, as amended, and EPA's implementing regulations, which prohibit discrimination on the basis of race, color, or national origin. 42 U.S.C. § 2000d et seq.; 40 C.F.R. Part 7. The petitioners may file a complaint under Title VI and EPA's Title VI regulations if they believe that the state discriminated against them in violation of those laws by issuing the permit to Masada. The complaint, however, must meet the jurisdictional criteria that are described in EPA's Title VI regulations in order for EPA to accept it for investigation.[41]

2. Environmental Impacts

Many petitioners, including Ms. Dellasandro, Mr. Feman, Ms. Glover, Ms. Lee, Mr. Sprague, Ms. Sprague, Mr. Weimer and Mr. Wodka, broadly criticized the location of the Masada facility, suggesting that, by locating within the city limits of Middletown, the source will be too close to children and other industrial facilities. Similarly, another widespread concern was that this facility will contaminate the community's air and water. This issue was raised by Mr. Centeno, Ms. Centeno, Ms. Dellasandro, Ms. Jacobs, Ms. Lee, Ms. Mongilia, Mr. Sprague, Ms. Sprague, and Mr. Wodka.

The Clean Air Act and NYSDEC's applicable implementing regulations require review of the types of concerns raised by these petitioners. While recognizing that new sources of air pollution will have effects on local ambient air quality, this review assures that such ambient impacts are within levels that provide adequate protection for public health. This process focuses primarily on the National Ambient Air Quality Standards (NAAQS). EPA sets these standards to protect the public health with an adequate margin of safety. See CAA §109(b). States are required to adopt plans, known as State Implementation Plans (SIPs) to attain and maintain these NAAQS for six key pollutants, known as criteria pollutants. As part of these plans, States are required to adopt rules to assure that new and modified sources do not interfere with attainment or maintenance of the NAAQS, and do not conflict with the SIP. See 40 CFR §51.160-165. NYSDEC has submitted, and EPA has approved, regulations that fulfill these requirements.[42]

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[41] Under Title VI, a recipient of federal financial assistance may not discriminate on the basis of race, color, or national origin. Pursuant to EPA's Title VI administrative regulations, EPA's Office of Civil Rights conducts a preliminary review of Title VI complaints for acceptance, rejection, or referral. 40 C.F.R. § 7.120(d)(1). A complaint should meet jurisdictional requirements as described in EPA's Title VI regulations. First, it must be in writing. Second, it must describe alleged discriminatory acts that may violate EPA's Title VI regulations. Title VI does not cover discrimination on the grounds of income or economic status. Third, it must be timely filed. Under EPA's Title VI regulations, a complaint must be filed within 180 calendar days of the alleged discriminatory act. 40 C.F.R. § 7.120(b)(2). Fourth, because EPA's Title VI regulations only apply to recipients of EPA financial assistance, it must identify an EPA recipient that allegedly committed a discriminatory act. 40 C.F.R. § 7.15.

[42] The relevant regulations are found primarily in 6 NYCCR parts 200 and 201. Additional guidance is available discussing ambient impact assessments in more detail. See NYSDEC's *Air Guide* serious of documents.

The primary requirement in the New York SIP for addressing minor sources states that, "[t]he commissioner will not issue a permit... unless he determines that... the operation of the source will not prevent the attainment or maintenance of any applicable ambient air quality standard." 6 NYCRR 201.4. None of the aforementioned petitioners raise any specific claims that, in approving construction of the Masada facility, NYSDEC failed to meet this requirement. Indeed the permitting record demonstrates that the NYSDEC commissioner did make the required determination. The NYSDEC determination was based on an air quality (*i.e.*, modeling) analysis designed to simulate the ambient impacts of the Masada facility at its planned location. The analysis was submitted by Masada, and was conducted pursuant to New York State guidelines. Under these guidelines, modeling must generally reflect worst case operating and meteorological conditions, and must consider the effects of other sources in the area. A report issued by NYSDEC concludes that:

> "The applicant's air quality analysis has met Department guidelines in assessment of criteria and non criteria pollutants in the facility vicinity. It can further be concluded that the facility should meet all criteria AAQS [Ambient Air Quality Standards]..."[43]

The findings statement included with Masada's final operating permit reiterates the results of this review. The model results themselves showed that the resulting ambient levels of pollution were well within acceptable levels and well below the NAAQS. Based on this modeling, NYSDEC determined that the Masada facility would not interfere with attainment or maintenance of the NAAQS, and issued the construction permit. In order to maintain a legitimate grounds for objection to the title V permit, the petitioners would have to raise specific allegations that this analysis, or the determination by NYSDEC, failed to comply with applicable regulations. In the absence of such allegations, and based on the actions by NYSDEC described above, EPA finds that the aforementioned petitioners' have not demonstrated that the State has failed to make the required determination, and thus I deny the petitions on this basis.

I also note that NYSDEC conducted a similar review pursuant to its State air toxics regulations and policies. While these regulations are not considered applicable requirements for purposes of title V of the Act, NYSDEC further determined that the impacts of toxic pollutants were also all well below the maximum levels defined in the State guidelines.[44]

Regarding concerns about water quality raised by some of the aforementioned petitioners, no issues were identified that point to the failure of the Masada permit to incorporate all applicable

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[43] Letter and Review from Alan Elkerton, NYSDEC Division of Air Resources, to Tom Miller, NYSDEC Region 3, April 9, 1999.

[44] Id. As distinct from criteria pollutants, State programs to review ambient impacts of other pollutants, such as the NYSDEC regulations establishing guideline concentrations for a number of toxic pollutants, are not required under the Act, and are not applicable requirements for title V operating permits. States may elect to include these requirements in a "State-only" portion of a title V permit.

requirements under the Clean Air Act. As such, the EPA dismisses these claims. The petitioners concerns may be addressed by other environmental laws, but compliance with those laws is not a proper objection issue under title V of the Clean Air Act, and is not addressed further in this Order.

3. Additional Issues

The Spectra petitioners also incorporate into their petition, by reference only, "each and every comment contained in the 2000 Supplemental Comments as a basis for objecting to the permit as if they were fully reprinted herein." Further, they argue that each issue in their original 1999 comments is also incorporated into their petition. Part of the basis for such a claim is that the issues raised have never been substantively addressed by NYSDEC. EPA disagrees with this claim, as noted above. In addition, it is inappropriate for a petitioner to simply incorporate their prior comments into their title V petition. Under section 505(b)(2), it is the responsibility of a petitioner to demonstrate to the Agency that the terms of a permit are not in compliance with the requirements of the Act. As the Administrator stated in the Shintech Inc. title V Order, Permit No. 2366-VO, 2467-VO, 2468-VO (Sept. 10, 1997), at 20, "EPA has no generalized duty to review the permit and to determine and rectify all inaccuracies and inconsistencies." Likewise, I find that wholesale incorporation of an entire set of prior comments does not provide a specific enough basis for objection to meet the petitioner's burden. For these reasons, I reject the Spectra petition with respect to any issues included in the referenced sets of comments but not specifically raised in the petition.

Finally, several of the petitioners raise additional issues which are not germane to a petition under title V because they do not pertain to applicable requirements or permitting requirements of 40 CFR part 70. For example,

- Spectra notes that Masada withdrew plans to construct a similar facility in Birmingham, Alabama and charges that various elected officials contacted EPA and NYSDEC to influence approvals for the Masada project.
- Ms. Glover alleges that NYSDEC and Masada had a "callous indifference to the concerns of the citizens of Middletown." She also mentions EPA's NO_x SIP call and NYSDEC's compliance with other environmental statutes.
- Ms. Nebus also argues that NYSDEC has been "capricious and arbitrary in their dealings" with her. She further expresses concern about the exhaust from diesel trucks associated with the facility and suggests that NYSDEC should test the nearby Monhagan Brook for contamination.

None of these claims, even if true, could form the basis of an EPA title V objection since they do not allege that Masada's permit is not in compliance with the CAA requirements applicable to this source. As such, these issues are not germane, and EPA does not address them further in this Order.

III. CONCLUSION

For the reasons set forth above and pursuant to sections 505(b) and 505(e) of the Act, 42 U.S.C. §§ 7661d(b) and (e), and 40 CFR 70.7(g)(4) or (5) and 70.8(d), I deny the petitions submitted by the following persons: Lois Broughton, Wanda Brown, Louisa and George Centeno with Leslie Mongilia, Maria Dellasandro, R. Dimieri, Lori Dimieri, Dawn Evesfield, Marvin Feman, Deborah Glover, Anne Jacobs, Barbara Javalli-Lesiuk, Marie Karr, June Lee, Ruth MacDonald, Bernice Mapes, Donald Maurizzio, Alice Meola, Daniel Nebus, Mr. and Mrs. Hillary Ragin, M. Schoonover, Mildred Sherlock, LaVinnie Sprague, Matthew Sprague, Hubert van Meurs, Alfred and Catherine Viggiani, Paul Weimer and Leonard Wodka. I grant the petitions from Spectra and Jeanette Nebus to object to the NYSDEC permit on the basis of inadequate public notice with respect to the PTE limits, and Spectra's petition with respect to the applicability of the NSPS Db recordkeeping requirements. NYSDEC shall take appropriate steps, as discussed above, to resolve these objections. I deny the remainder of Spectra's and Ms. Nebus' petitions.

May 2, 2001
Dated:

/s/
Christine Todd Whitman,
Administrator

Robert C. Lafleur, President, Spectra Environmental Group, Inc. on Behalf of Kathleen and Campbell House, in Their Individual Capacities and As Trustees of Campbell Plaza Shopping Center and Susan Cohen, Petitioners, v. Christine Todd Whitman, in Her Capacity As Administrator of the United States Environmental Protection Agency and United States Environmental Protection Agency, Respondents,pencor-masada Oxynol, Llc, Intervenor, 300 F.3d 256 (2d Cir. 2002)

US Court of Appeals for the Second Circuit - 300 F.3d 256 (2d Cir. 2002)

Argued: May 16, 2002
Decided: July 31, 2002

COPYRIGHT MATERIAL OMITTED Kevin C. Murphy, Devorsetz, Stinziano, Gilberti, Heintz & Smith, Syracuse, New York (Kevin J. Brown and Gregory M. Brown, on the brief), for Petitioners.

Thomas L. Sansonetti, Assistant Attorney General, Environment and Natural Resources Division, United States Department of Justice, Washington, D.C. (Daniel M. Flores, Environmental Defense Section, United States Department of Justice, and Malcolm Woolf, Office of General Counsel, United States Environmental Protection Agency, on the brief), for Respondents.

Jonathan S. Martel, Arnold & Porter, New York, New York (Michael B. Gerrard, Monica Jahan Bose, Aruna K. Boppana, on the brief), for Intervenor.

Before OAKES and KATZMANN, Circuit Judges, and MURTHA, Chief District Judge.*

KATZMANN, Circuit Judge.

Intervenor Pencor-Masada Oxynol, L.L.C. ("Masada") seeks to construct and operate a facility in Middletown, New York, that promises to convert municipal waste and sewage sludge into fuel-grade ethanol and carbon dioxide ("the facility" or "the Masada facility."). Petitioners Robert C. LaFleur and Susan Cohen bring the instant petition under provisions of the Clean Air Act ("CAA"), *see* 42 U.S.C. § 7401 *et seq.*, seeking review of the decision of respondent Christine Todd Whitman, as Administrator of the United States Environmental Protection Agency ("EPA"), not to object to the issuance of an operating permit to Masada by the New York State Department of Environmental Conservation ("NYSDEC"). At issue is whether the heightened permitting requirements of the CAA's Program for the Prevention of Significant Deterioration of Air Quality (the "PSD program") are applicable to the Masada facility. NYSDEC concluded that the PSD program was not applicable and the Administrator agreed. Petitioners contend that the Administrator's decision rests on (a) her improper classification of the facility's primary activity as "refuse processing" rather than "chemical processing," which has the effect of raising the threshold (in terms of the quantity of pollutant emitted per year) for the applicability of the PSD program; (b) her improper allocation of certain of the facility's emissions to the activity of refuse processing; and (c) her failure to consider important factors relevant to the facility's classification.

In September 1994, the City of Middletown, New York sought proposals for a solid waste management facility to meet its waste disposal needs following the closure of local and

county landfills, and to avoid the rising costs of disposal at private landfills. The planned facility was to be constructed on the site of the former Middletown landfill — a twenty-two acre parcel of land adjacent to the City's wastewater treatment plant. The City eventually accepted Masada's proposal to construct a first-of-its-kind facility that would convert the cellulose component of sewage sludge and municipal garbage into ethanol and carbon dioxide using concentrated sulfuric acid. Masada projected that the facility could process 230,000 tons per year ("tpy") of solid waste and 49,000 tpy of sewage sludge, producing approximately 7.1 million gallons of ethanol from these and other waste inputs.

The parties do not dispute the basic outline of the planned facility's design and operation. The waste conversion process begins with the off-loading of solid waste from garbage trucks onto the facility's "tipping floor." (Only municipalities and private companies that enter into contracts with Middletown and pay so-called "tipping fees" will be allowed to off-load their garbage.) From the "tipping floor," the garbage is put through a series of mechanical and manual steps to separate out the bulk of the recyclable materials, such as metals, glass, plastics, and paper. Other "unacceptable materials" are also removed and sent for off-site disposal. The remaining garbage is shredded and passed through a magnet to remove additional metals. This "feedstock" is then shredded once more, dried, and transported to the "process building." There, the feedstock undergoes an "acid hydrolysis" process during which it is mixed with concentrated sulfuric acid, which breaks down the cellulose in the feedstock and transforms it into a "slurry" of liquid sugar and acid. Sewage sludge is added to the slurry and the mixture is "cooked" to further convert cellulose into simple sugars. Separators divide the liquid portion of the slurry from the solids. Masada terms the remaining solid residue "lignin," which consists mainly of cellulose that cannot be hydrolized and acidified biosolids from the sewage sludge.

The lignin is sent to the facility's "gasifier," where it is burned as a fuel to produce steam energy. Most, if not all, the steam energy generated by the gasifier is used to power the steps necessary for the production of ethanol and carbon dioxide at the facility. A separate "package-boiler," fired by natural gas, is also employed to further meet the facility's energy demands.

While the lignin is separated and burned off in the gasifier, the remaining slurry is fed into an "ion exclusion unit," which separates out the liquid sugar from the sulfuric acid. After separation, the acid is reconcentrated by evaporation and reused for hydrolysis of the feedstock. The remaining sugar solution is treated with lime (calcium carbonate). This neutralizes any remaining acids and causes heavy metals in the solution to precipitate as gypsum, which can be processed and sold. The sugar solution is then fermented into ethanol and carbon dioxide. The latter is collected, processed, and sold, while the ethanol

(contained in the form of a "mash") is distilled to achieve market-grade purity. Finally, gasoline is added to the ethanol, ensuring that it is unfit for human consumption.

The CAA mandates that EPA promulgate National Ambient Air Quality Standards ("NAAQS") for certain pollutants. *See* 42 U.S.C. § 7409. State governments, in turn, have the opportunity to establish and administer permitting programs, subject to EPA oversight, that will ensure that the NAAQs are achieved and maintained. *See* 42 U.S.C. § 7410(a) (2) (C). The CAA and its implementing regulations provide a number of avenues for public participation in this regulatory process. *See, e.g.*, 42 U.S.C. § 7409(a) (1) (B) (allowing for public comment on NAAQS); 42 U.S.C. § 7410(a) (1) (providing for "reasonable notice and public hearings" on state implementation plans); 40 C.F.R. § 70.8(d) (allowing for petitions to EPA to object to issuance of permits by states).

In 1977, Congress amended the CAA and its implementing regulations to establish the PSD program, which seeks to prevent the significant deterioration of air quality in areas of the country that have achieved the NAAQS. *See* Richard L. Revesz, *Federalism and Environmental Externalities*, 144 U. Pa. L. Rev. 2341, 2347-49 (1996) (explaining the specific components of the PSD program). In such areas, the PSD program imposes stringent controls on the construction or modification of "major" stationary sources of pollution. *See* 42 U.S.C. § 7475; 40 C.F.R. § 52.21. Before a permit for construction or modification of a new "major" stationary source can issue, the applicant must conduct detailed analyses of the potential impact of the source on air quality and the surrounding environment, *see* 40 C.F.R. § 52.21(k)-(*o*), and apply the best available control technology ("BACT") for each regulated pollutant that the source "would have the potential to emit in significant amounts." 40 C.F.R. § 52.21(j) (2). The PSD program also provides for public participation. *See* 40 C.F.R. § 52.21(q).

A source of air pollution may be classified as "major" for purposes of the PSD program in one of two ways. *First*, the CAA and its implementing regulations specifically identify 28 categories of stationary sources as "major" if they have the potential to emit 100 tpy or more of a regulated pollutant. 42 U.S.C. § 7479(1); 40 C.F.R. § 52.21(b) (1) (i) (a). This set of categories includes "chemical process plants." *Id. Second*, even if a stationary pollution source does not fall under one of the aforementioned categories, it will nevertheless be deemed "major" if it emits, or has the potential to emit, 250 tpy or more of any air pollutant regulated under the CAA. *See* 42 U.S.C. § 7479(1); 40 C.F.R. § 52.21(b) (1) (i) (b).

2. The Primary Activity Test & Embedded Sources

A facility that produces air pollution may often be engaged in multiple activities that, if considered separately, would fall under different categories for purposes of the PSD program. In order to categorize such complex sources of air pollution, EPA looks to the "primary activity" of the facility in question. *See* 45 Fed.Reg. 52,676, 52,695 (Aug. 7, 1980). If the primary activity is one that falls under one of the twenty-eight kinds of "major source" specifically identified by the CAA, the lower 100 tpy threshold will apply; otherwise the "default" 250 tpy threshold obtains. *See* 40 C.F.R. § 52.21(b) (1) (i) (a), (b). In determining the primary activity of a facility, EPA's stated policy is to follow the guidelines set forth in the Office of Management and Budget's *Standard Industrial Classification Manual* ("*SIC Manual*"). *See* 45 Fed.Reg. 52,676, 52,695 (Aug. 7, 1980). ("EPA has chosen the classification code in the Standard Industrial Classification Manual, 1972, as amended in 1977 ... because it is both widely-known and widely used."); *see also* 40 C.F.R. § 52.21(b) (6) (explaining that " [p]ollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same `Major Group' (*i.e.*, which have the same first two digit code) as described in the [SIC] Manual.")

The *SIC Manual* advises that " [e]ach operating establishment is assigned an industry code on the basis of its primary activity, which is determined by its principal product or group of products produced or distributed, or services rendered." Office of Management and Budget, *SIC Manual* 15 (1987). Although the *SIC Manual* suggests that " [i]deally, the principal product or service should be determined by its relative share of value added at the establishment," it recognizes that "it is rarely possible to obtain this measure for individual products or services." *Id.* The *SIC Manual* therefore suggests other criteria that "may be expected to give approximately the same results in determining the primary activity of an establishment." *Id.* For activities involving manufacturing, the *SIC Manual* identifies the relevant "data measure" as the " [v]alue of production," whereas for services, it is the " [v]alue of receipts or revenues." *Id.* at 16.

Even where the primary activity of a multi-purpose facility places it within the default 250 tpy applicability threshold, EPA may determine that the facility contains an "embedded" source of air pollution that must be classified separately under the PSD program. *See* U.S. EPA Office of Air Quality Planning and Standards, New Source Review Workshop Manual, Draft at A 23 (October 1990). It is the policy of EPA that if the embedded source involves the kind of activity that is subject to the 100 tpy applicability threshold, and if that source emits more than 100 tpy of a regulated air pollutant, the embedded source will be subject to PSD requirements, even if the facility as a whole is not. *See, e.g.*, Letter from Edwin Erickson, EPA Region 3 Regional Administrator, to George Clemon Freeman, Jr., 4 (July 6,

1992), *available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/primact.pdf.

3. Title v. Requirements.

Title V of the CAA, *see* 42 U.S.C. §§ 7661-7661f, requires that states develop, and submit for EPA approval, operating permit programs for certain stationary sources of air pollution. *See* 42 U.S.C. § 7661a(d) (1). Although these operating permit programs do not impose new substantive air quality control requirements, the permits themselves must include limitations on emissions and other conditions (such as regular monitoring, recordkeeping, and reporting) necessary to ensure compliance with the provisions of the CAA, including the PSD program (if applicable). *See* 42 U.S.C. §§ 7661a(a), 7661c(a); 40 C.F.R. §§ 70.1(b), 70.2. As EPA has explained, " [o]perating permit programs are intended to consolidate into single federally enforceable documents all requirements of the [CAA] that apply to individual sources [of air pollution]." 66 Fed.Reg. 63,180, 63,180 (Dec. 5, 2001). EPA granted interim approval to New York's operating permit program in 1996, *see* 61 Fed. Reg. 57,589 (Nov. 7, 1996), and gave full approval in 2001. *See* 66 Fed.Reg. 63,180 (Dec. 5, 2001).

Each Title V operating permit that a state proposes to issue must be submitted to EPA for review, following the close of public commentary on the draft permit. *See* 42 U.S.C. § 7661d(a); 40 C.F.R. § 70.8(a). EPA may object to the issuance of a permit within 45 days of submission if the Administrator determines that the permit is "not in compliance with the applicable requirements of [the CAA]." 42 U.S.C. § 7661d(b) (1). If the Administrator does not object in writing, "any person" may petition the Administrator to object to the permit. 42 U.S.C. § 7661d(b) (2); 40 C.F.R. § 70.8(d). The Administrator must issue a timely objection if "the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of [the CAA], including the requirements of the applicable implementation plan." 42 U.S.C. § 7661d(b) (2). The Administrator's denial of a petition to object is subject to judicial review through a petition for review filed in the appropriate Court of Appeals. *See id.; see also* 42 U.S.C. § 7607(b) (1).

Petitioner LaFleur is the President of Spectra Environmental Group, Inc. ("Spectra"). He brings the instant petition for review "on behalf of Kathleen and Campbell House, in their individual capacities and as trustees of Campbell Plaza Shopping Center." The Houses retained Spectra, an environmental consulting firm, to assist them in challenging the construction of the Masada facility under state and federal environmental regulations. The Campbell Plaza Shopping Center lies adjacent to the proposed site of the facility. Petitioner

Susan Cohen lives a few blocks away from the proposed site and works at the Campbell Plaza Shopping Center.

It is undisputed that the Masada facility will be a new stationary source of air pollution that requires a Title V operating permit from NYSDEC. Masada applied for the required permit in December 1998.

Masada's initial permit application, dated December 15, 1998, identified the primary activity of its proposed facility with SIC codes 2869 (Industrial Organic Chemical Processes) and 4953 (Refuse Systems). In a revised application, dated August 6, 1999, Masada changed its SIC classification, dropping the chemical processing code.

NYSDEC granted Masada's application and issued a final version of the Title V permit on July 25, 2000, after consulting with EPA and receiving public commentary. NYSDEC determined that the facility should not be subject to the requirements of the PSD program. As explained by NYSDEC in responding to the public commentary it received, its decision was based on conclusions that (a) the primary purpose of the Masada facility was municipal solid waste processing, and (b) the emissions from the gasifier and package boiler were not attributable to the chemical processing activities of the facility. *See* NYSDEC, Responsiveness Summary, Response to the March 31, 2000 Spectra Comments, 1 (May 4, 2000).

2. Initial Position of EPA During NYSDEC Deliberations

During the course of its evaluation of Masada's permit application, NYSDEC conferred with various officials from EPA's Region 2 office in New York ("EPA Region 2") on the question of the applicability of the PSD program to the facility. On March 11, 1999, NYSDEC informed EPA by letter that it had determined, "based on project information and the [SIC] code provided by [Masada]," that the facility would be subject to the default 250 tpy threshold because the primary activity of the facility would be refuse processing. *See* Letter from Robert J. Stanton, Regional Air Pollution Control Engineer for NYSDEC, Division of Air Resources, Region 3, to Steven Riva, Chief of the Permitting Section, Air Programs Branch, U.S. EPA Region 2, at 1 (Mar. 11, 1999). In response, EPA Region 2 pointed out that NYSDEC had previously informed EPA (orally) that there was an embedded "chemical process plant" within the facility that was capable of producing more than 100 tpy of a regulated pollutant. *See* Letter from Steven C. Riva to Robert J. Stanton, 1 (Mar. 25, 1999). EPA Region 2 instructed NYSDEC that, under EPA's "agency-wide policy," such an embedded source would be subject to PSD program requirements "even if that source is

located within a facility for which the primary activity is subject to a 250 [tpy] applicability threshold and emits less than 250 [tpy]." *Id.* at 2.

In May 1999, before NYSDEC's final decision was announced, representatives of Masada met with EPA and NYSDEC officials to discuss the classification of the facility. Masada argued again that the primary purpose of the facility was not chemical processing, but waste processing. As Masada explained in a follow-up letter to EPA Region 2, the "tipping fees" to be generated by the facility were expected to account for more than 70 percent of the facility's expected revenue, whereas less than 30 percent of revenue would be derived from the sale of the ethanol produced from municipal waste. *See* Letter from Jonathan S. Martel, Counsel for Masada, to Steven C. Riva, 3 (May 6, 1999). With regard to EPA's specific concern about the gasifier's emissions, Masada explained that these emissions resulted from the burning (or "gasification") of the lignin remaining after the acid hydrolysis step. Masada stated that " [c]onsidering the revenue streams for this facility, the principal economic value of the lignin gasifier is to eliminate the lignin, thereby avoiding the need to pay for its landfill disposal." *Id.* at 5. Masada argued that, therefore, the gasifier and its emissions were part of the primary activity of refuse processing.

EPA Region 2 concluded that more information was necessary before a final decision could be made, and directed that NYSDEC "not release the final Title V permit to Masada unless and until significant issues regarding the applicability of the [PSD] regulations ... are resolved." Letter from Steven C. Riva to Michael Merriman, NYSDEC Division of Environmental Permits, Region 3 Office, 1 (Oct. 20, 1999). EPA sought specific information from Masada relevant not only to PSD classification, but to other technical questions. *See id.*, Attachment, EPA Comments on Pencor Masada Oxynol, L.L.C.'s Draft Title V Permit, 1-10.

On November 2, 1999, Masada responded to EPA's inquiries in a letter to NYSDEC. With regard to EPA's concerns over the applicability of the PSD program, Masada repeated its earlier claim that the facility's primary activity was not chemical processing, adding that the facility was a "unique and innovative refuse processing plant that does not fit into a regulatory foundation laid over 20 years ago." Letter from David J. Weber, Project Management, Masada, to Robert J. Stanton, NYSDEC, 2 (Nov. 2, 1999). Masada stated that because lignin is produced by the hydrolysis of municipal solid waste, it should not be considered the byproduct of the facility's ethanol production process. *See id.*, Attachment, Response to EPA Region 2 Questions Regarding the Masada Oxynol Facility, 12. Masada also repeatedly denied that lignin itself was a waste product. *See id.* at 3, 12. Other than these assertions, however, Masada did not provide any further explanation as to why the gasifier and its emissions should be considered part of the facility's refuse processing

activities, rather than its chemical processing activities, for purposes of the PSD program. *See id.* Instead, Masada asserted that because the primary activity of the facility was "clearly refuse processing," this "eliminate [d] by definition a large number of the comments contained in Region 2's October 20 letter." *Id.*, Letter of David J. Weber, at 1.

On December 6, 1999, Kathleen Callahan, the Director of EPA Region 2's Division of Environmental Planning and Protection, notified NYSDEC that EPA Region 2 had changed its initial assessment, stating that in light of Masada's letter of November 2, 1999, it now had "enough information" to make a final determination as to the classification of the facility. *See* Letter from Kathleen C. Callahan, Director of EPA Region 2 Division of Environmental Planning and Protection, to Robert K. Warland, Director, NYSDEC Division of Air Resources, 1 (Dec. 6, 1999). In supporting EPA Region 2's determination that " [the facility] is primarily a municipal waste collection and processing plant," Callahan cited the fact that " [w]aste collection and processing is the purpose of the contractual agreement between Masada, the city of Middletown and surrounding towns." *Id.* Callahan also cited the 70/30 split in projected revenue between tipping fees and sale of ethanol as further support for the determination that the primary activity was refuse processing. *Id.* at 1 2. In addition, Callahan argued that " [b]y processing the waste in the manner proposed, disposal in landfills is minimized and incineration is avoided." *Id.* at 2. As for the emissions from the gasifier and package boiler, Callahan explained that EPA policy "provides that an emission unit serving as a support facility for two activities or sources is to be considered part of the activity that relies most heavily on its support." *Id.* Callahan concluded that most of the steam produced by the gasifier and package boiler supported the "hydrolysis/cooking step, which is important for breaking down the municipal solid waste into reusable components." *Id.* Although the hydrolysis/cooking step could be considered part of the ethanol production process, Callahan stated that EPA Region 2 had determined that "the step more appropriately belongs with the waste processing aspect." *Id.* Callahan further explained that once the hydrolysis/cooking step was counted as part of the facility's waste processing activities, more than 80 percent of the steam produced by the gasifier and package boiler would have to be considered as supporting waste processing. Accordingly, under the support facility approach, the gasifier and package boiler were not "a primary part of the embedded chemical process plant." *Id.*

After NYSDEC issued its final permit to Masada, EPA did not object to the permit within the 45-day period specified by the CAA. EPA then received 35 petitions from 29 different petitioners, requesting EPA to object to the issuance of the permit. Spectra submitted the most detailed petition, under the signature of its president Robert Lafleur, but "on behalf of" Campbell Plaza, petitioners Susan Cohen and Kathleen House, as well as other,

unnamed individuals (the "Spectra petition"). The Spectra petition argued, *inter alia*, that (a) NYSDEC's decision, and EPA's change of opinion, were motivated by political, rather than scientific, considerations; (b) the primary activity of the plant was chemical processing, not waste disposal, because the plant used waste only as an ingredient in the production of ethanol, thus "converting" waste rather than "disposing" of it; (c) most of the personnel and payroll at the facility would be dedicated to chemical processes; and (d) the gasifier's emissions should be counted as part of the chemical processing activity of the facility, thereby triggering the requirements of the PSD program, because the gasifier supported the production of ethanol by eliminating the residue (lignin) that resulted from that process.

In response to the Spectra petition and others, the Administrator issued a lengthy opinion that concluded, *inter alia*, that petitioners had failed to carry their burden of showing that the requirements of the PSD program were applicable to the facility. *See* Order Responding to Petitioner's Request that the Administrator Object to Issuance of a State Operating Permit, Petition No. II-2000-07 (May 2, 2001) (hereinafter "EPA Order").

The Administrator determined that the Spectra petition did not demonstrate that the facility's primary activity was chemical processing. The Administrator explained that when determining the primary activity of a complex industrial facility, the permitting authority "should consider the facility's operation as a whole." EPA Order, at 14. In this instance, a number of factors supported a determination that the primary activity of the facility was refuse processing, "including the relative share of the value of services rendered compared to the products sold, and the contractual relationship between the facility and Middletown and neighboring communities." *Id.* The Administrator specifically referred to Masada's assertion that 70 percent of its revenue would be derived from tipping fees paid by municipalities for disposal of their waste, whereas only 30 percent would come from the production of ethanol, carbon dioxide, and other outputs. *See id.* at 16. The Administrator found these figures reliable, on the assumption that "the rather large 70-30 dominance of tipping fees in the revenue estimate ... provides reasonable certainty that the majority of the revenue from Masada will come from tipping fees." *Id.* The Administrator also concluded that " [a]lthough the production of ethanol may be integrated into the disposal facility to make the waste disposal more cost-effective ... the facility is being built primarily to fulfill these municipalities' need to dispose of solid waste." *Id.* at 15. Furthermore, the Administrator found that " [n]either the mere presence of chemical processing activity nor the mere production of chemical by-products is sufficient to determine the source's primary activity." *Id.* Finally, the Administrator rejected petitioner's argument that waste "disposal" was not accomplished by the facility, but waste "conversion." The Administrator found that

" [t]he semantic difference between `disposal' and `conversion' has no regulatory consequence, because both are methods of minimizing solid waste, and both occur at the Masada facility." *Id.* at 16.

The Administrator agreed with petitioners that there was, indeed, an embedded "chemical process plant" at the Masada facility, specifically, those components dedicated to production of ethanol. *See id.* at 18. Reversing an earlier determination by EPA Region 2, the Administrator concluded that the hydrolysis/cooking step was part of this embedded chemical process plant, which also encompassed the production steps of sugar/acid separation, acid reconcentration, fermentation, and distillation. *See id.* Furthermore, the Administrator determined that the package boiler existed "primarily to supply energy needed to reconcentrate the acid for hydrolysis." *Id.* Nevertheless, the Administrator concluded that the emissions from the gasifier should not be attributed to chemical processing, but rather to the facility's refuse system operations. In making this determination, the Administrator stated:

[T]he primary activity of the Masada facility is refuse processing, and the gasifier, by substantially reducing the volume of the lignin, is primarily performing a refuse processing function. Even if the energy is recovered from gasification/combustion as a side benefit and used for ethanol production, and even if the presence of a waste stream and integrated disposal process makes ethanol production economical at this site, this does not change the determination that the primary activity is refuse processing.

Id. at 19. The Administrator also rejected the petitioners' argument that the gasifier was a "support system" for the production of chemicals. Once again departing from an earlier determination by EPA Region 2, the Administrator concluded that "the support facility test is not relevant to the Masada facility because there is no question that the chemical processing activities and the waste reduction activities at [the] Masada facility are a single source [of air pollution]." *Id.* The support facility test, the Administrator explained, is only applicable where two separate sources of pollution are at issue, rather than a two interconnected sources co-existing within the boundary of a single facility: "The support facility test is not used to evaluate embedded sources." *Id.*

In addition to filing their administrative petition with EPA, petitioner Susan Cohen, as well as Kathleen and Campbell House, brought an Article 78 proceeding against NYSDEC and Masada in the Supreme Court of New York, Albany County. [1] That proceeding, initiated on September 22, 2000, included a claim that the permit issued by NYSDEC violated the CAA because it did not apply the PSD program requirements to the facility as a "chemical

process plant." The state court rejected this claim and no appeal was taken by the petitioners.

After the issuance of the EPA Order, Robert LaFleur and Susan Cohen filed the instant petition for review, pursuant to the judicial review provisions of the CAA. *See* 42 U.S.C. §§ 7607(b) (1); 7661d(b) (2). These provisions do not set forth a separate standard of review. *See* 42 U.S.C. § 7607. We must therefore evaluate the Administrator's actions under the standard established by the Administrative Procedure Act ("APA"). *See* 5 U.S.C. § 706. The EPA Order must be upheld if the Administrator's decision was not "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2) (A). Although our review under this standard is "narrow," the administrative agency must nevertheless "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43, 103 S. Ct. 2856, 77 L. Ed. 2d 443 (1983) (internal quotation omitted). In evaluating the agency's explanation, we cannot substitute our preferences for that of the agency, but must limit our review "to examining the administrative record to determine whether the [agency] decision was based on a consideration of the relevant factors and whether there has been a clear error in judgment." *Natural Res. Def. Council, Inc. v. Muszynski*, 268 F.3d 91, 97 (2d Cir. 2001) (internal quotation omitted). We may set aside an agency determination as arbitrary and capricious if we conclude that the agency "relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *State Farm*, 463 U.S. at 43, 103 S. Ct. 2856.

Petitioners make three main arguments for reversal of the EPA Order. *First*, they contend that the Administrator improperly weighed the evidence in determining that the "primary activity" of the facility was refuse processing rather than chemical processing. Specifically, petitioners argue that (a) the Administrator's decision had no rational connection to her findings that most of the facility's activities were devoted to the chemical processing activity of ethanol production, rather than refuse processing, (b) the Administrator's reliance on Masada's revenue projections was improper because the basis for these projections was not examined, and (c) it was not rational for the Administrator to depart from EPA's past practice of classifying ethanol-production facilities as chemical process plants simply because the Masada facility uses municipal waste, rather than corn, as its "feedstock."

Second, petitioners describe as "ill-founded" the Administrator's conclusion that, despite the presence of an "embedded" chemical process plant at the Masada facility, the PSD

requirements do not apply because emissions from this embedded source will not exceed the 100 tpy threshold. Petitioners contend that it was an abuse of discretion for the Administrator to reach this determination by excluding the gasifier's emissions from the total emissions of the embedded chemical process plant, particularly in light of the uncontested fact that most of the steam power from the gasifier will be used in ethanol production, and that the use of lignin as a fuel (as opposed to natural gas or other fuel sources) will make the ethanol production process more cost effective. Moreover, petitioners suggest that lignin cannot be considered a "waste product," but is, in reality, a saleable fuel source. According to petitioners, these factors clearly indicate that the gasifier and its use of lignin contribute to ethanol production and that the gasifier's emissions cannot be rationally allocated towards refuse processing.

Third, petitioners contend that the Administrator failed to consider important factors in making its determination not to object to the State's issuance of the Title V permit. Specifically, petitioners argue that the Administrator did not consider (a) "relative value added" in determining whether the primary activity of the facility was refuse processing or chemical processing; (b) information found in publicly available patents held by Masada; and (c) the possibility of classifying the facility as containing two separate kinds of pollution sources.

In response to petitioners' claims, EPA argues that petitioner LaFleur does not have standing to petition this Court, either on his own behalf or on behalf of Kathleen and Campbell House. Intervenor Masada challenges the standing not only of petitioner LaFleur, but petitioner Cohen as well. EPA and Masada both contend that the doctrine of collateral estoppel also bars review of the EPA Order. Finally, in the alternative, EPA and Masada argue that the Administrator did not abuse her discretion in refusing to object to NYSDEC's issuance of the Title V permit.

We must first address petitioners' standing. *See, e.g., United States v. $557,933.89, More or Less, in U.S. Funds*, 287 F.3d 66, 78 (2d Cir. 2002) ("Standing is a question that determines whether the claimant may properly invoke the jurisdiction of the federal courts to determine the merits of the underlying dispute, and it therefore logically *precedes*, not follows, that determination."). Petitioners bear the burden of alleging facts that demonstrate their standing because it is they who seek to invoke the jurisdiction of this Court. *See Thompson v. County of Franklin*, 15 F.3d 245, 249 (2d Cir. 1994).

Three elements comprise the "irreducible constitutional minimum of standing." *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S. Ct. 2130, 119 L. Ed. 2d 351 (1992). *First*, the party seeking judicial resolution of its claim "must have suffered an injury-in-fact-an

invasion of a legally protected interest which is (a) concrete and particularized, and (b) actual or imminent, not conjectural or hypothetical." *Id.* (internal quotations and citations omitted). A "particularized" injury is one that "affect [s] the plaintiff in a personal and individual way." *Id.* at 560 n. 1. *Second*, there must be "a causal connection between the injury and the conduct complained of." *Id.* at 560, 112 S. Ct. 2130. *Third*, "it must be likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision." *Id.* at 561, 112 S. Ct. 2130 (internal quotation omitted).

As noted previously, LaFleur is the President of Spectra — an environmental consulting firm that the Houses have retained for assistance in challenging the construction of the facility. LaFleur has not alleged any facts to establish that he has suffered the required injury-in-fact. Indeed, it is obvious that, as a hired consultant of the Houses, without a personal stake in the outcome of this petition, LaFleur cannot show the kind of "particularized" harm necessary to satisfy the constitutional requirements of standing.[2] We must therefore dismiss LaFleur as a petitioner. Although it may have been inadvertence that caused LaFleur to name himself as a petitioner, rather than the Houses, it is a mistake that we cannot overlook, given the jurisdictional nature of the standing requirement. As the Supreme Court has explained, " [t]he requirement that jurisdiction be established as a threshold matter `spring [s] from the nature and limits of the judicial power of the United States' and is `inflexible and without exception.'" *Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 94-95, 118 S. Ct. 1003, 140 L. Ed. 2d 210 (1998) (quoting *Mansfield, C. & L.M.R. Co. v. Swan*, 111 U.S. 379, 382, 4 S. Ct. 510, 28 L. Ed. 462 (1884)). It follows that the Houses are not parties to this proceeding because they have not filed a petition for review.[3]

Intervenor Masada challenges the standing of petitioner Cohen,[4] arguing that she has failed to allege that the increase in air pollutant emissions from the facility would affect her negatively in any way, and thus has not alleged the necessary injury-in-fact. Masada asserts that its own Air Quality Modeling Report, submitted to NYSDEC for its review, shows that even assuming a "worst case" impact of the facility, the ambient level of the regulated air pollutant to be released by the facility, namely, sulfur dioxide (SO_2), would be well below the applicable NAAQS. As Masada points out, the CAA mandates that EPA establish NAAQS that, "allowing an adequate margin of safety, are requisite to protect the public health." 42 U.S.C. § 7409(b) (1). Masada suggests that because the NAAQS will not be exceeded, petitioner Cohen cannot establish the injury requisite for Article III standing.

We disagree. Petitioner Cohen has alleged that she works in a shopping center adjacent to the proposed site of the facility, and lives a few blocks away. Although the proposed site of the facility is a former landfill and adjacent to Middletown's sewage treatment plant, and thus has doubtful recreational value to petitioner Cohen, there can be no question that

petitioner Cohen is likely to be exposed to emissions from the facility. She has no choice but to breathe the air where she lives and works-air that will undoubtedly contain increased levels of SO_2 whenever the wind blows the facility's emissions in the direction of Campbell Shopping Plaza.[5] As described by one of our sister circuits, sulfur dioxide is " [a] highly reactive colorless gas smelling like rotten eggs" that "at elevated concentrations in the ambient air ... directly impairs human health." *American Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998). Petitioner's likely exposure to additional SO_2 in the air where she works is certainly an "injury-in-fact" sufficient to confer standing. *Cf., e.g., Cantrell v. City of Long Beach*, 241 F.3d 674, 681 (9th Cir. 2001) ("To allege a legally protected, concrete aesthetic interest, a plaintiff must show merely that the challenged action affects his aesthetic or ecological surroundings."). This exposure will affect petitioner Cohen in the required "personal and individual way." *Lujan*, 504 U.S. at 560 n. 1, 112 S. Ct. 2130.

Petitioner Cohen has Article III standing even if the ambient level of SO_2 remains within the NAAQS.[6] Indeed, Congress has recognized that there are potentially adverse affects from air pollution at levels *below* the NAAQS. The CAA states specifically that one of the purposes of the PSD program is "to protect public health and welfare from any actual or potential adverse effect which ... may reasonably be anticipated to occur from air pollution or from exposures to pollutants in other media ... *notwithstanding attainment and maintenance of all national ambient air quality standards*." 42 U.S.C. § 7470(1) (emphasis added). The injury-in-fact necessary for standing "need not be large, an identifiable trifle will suffice." *Sierra Club v. Cedar Point Oil Co., Inc.*, 73 F.3d 546, 557 (5th Cir. 1996) (internal quotation omitted); *see also Conservation Council of North Carolina v. Costanzo*, 505 F.2d 498, 501 (4th Cir. 1974) ("The claimed injury need not be great or substantial; an identifiable trifle, if actual and genuine, gives rise to standing.") (internal quotation omitted). Actual exposure to increased levels of SO_2 at one's workplace is certainly something more than an "identifiable trifle," even if the ambient level of air pollution does not exceed the NAAQS.

Finally, in complaining that the requirements of the PSD program should have been applied to the Masada facility, petitioner Cohen has alleged the type of procedural injury that may confer Article III standing on certain plaintiffs. As petitioner Cohen notes, the PSD program contains provisions for additional environmental impact studies and further public commentary, over and above what is otherwise required under the CAA. The determination that the PSD program does not apply to the Masada facility means that petitioner Cohen will not have the benefit of these additional procedures. Thus she stands in a similar position to the hypothetical plaintiff described in *Lujan:* " [U]nder our case law, *one living adjacent* to the site for proposed construction of a federally licensed dam has

standing to challenge the licensing agency's failure to prepare an environmental impact statement." 504 U.S. at 573 n. 7, 112 S. Ct. 2130 (emphasis added). Although petitioner Cohen does not live next door to the proposed site of the Masada facility, the fact that she *works* next door to it confers no less standing to seek the protection of all applicable procedures and regulations. We therefore reject Masada's contention that petitioner Cohen lacks standing to invoke judicial review of the EPA Order.

As an additional argument against consideration of the instant petition for review, Masada and EPA contend that, in light of the previous Article 78 proceeding initiated by petitioner Cohen and the Houses, the doctrine of collateral estoppel bars review.

A federal court must apply the collateral estoppel rules of the state that rendered a prior judgment on the same issues currently before the court, which in this case is New York. *See, e.g., Sullivan v. Gagnier*, 225 F.3d 161, 166 (2d Cir. 2000). Under New York law, collateral estoppel "precludes a party from relitigating in a subsequent action or proceeding an issue clearly raised in a prior action or proceeding and decided against that party ... whether or not the tribunals or causes of action are the same." *Ryan v. New York Tel. Co.*, 62 N.Y.2d 494, 500, 478 N.Y.S.2d 823, 467 N.E.2d 487 (1984). New York courts apply collateral estoppel, or issue preclusion, "if the issue in the second action is identical to an issue which was raised, necessarily decided and material in the first action, and the plaintiff had a full and fair opportunity to litigate the issue in the earlier action." *Parker v. Blauvelt Volunteer Fire Co.*, 93 N.Y.2d 343, 349, 690 N.Y.S.2d 478, 712 N.E.2d 647 (1999). Additionally, the issue that was raised previously must be "decisive of the present action." *Schwartz v. Public Adm'r of Bronx*, 24 N.Y.2d 65, 71, 298 N.Y.S.2d 955, 246 N.E.2d 725 (1969). The doctrine of collateral estoppel "is grounded on concepts of fairness and should not be rigidly or mechanically applied." *D'Arata v. New York Central Mutual Fire Ins. Co.*, 76 N.Y.2d 659, 664, 563 N.Y.S.2d 24, 564 N.E.2d 634 (1990); *see also Staatsburg Water Co. v. Staatsburg Fire Dist.*, 72 N.Y.2d 147, 153, 531 N.Y.S.2d 876, 527 N.E.2d 754 (1988) ("Collateral estoppel is an elastic doctrine and the enumeration of these elements is intended as a framework, rather than a substitute, for analysis.").

2. The Previous New York State Proceeding Raised Identical Issues

The burden of proving whether an issue raised and necessarily decided in a previous proceeding is identical to one currently before the court "rests squarely on the party moving for preclusion." *Gagnier*, 225 F.3d at 166. In order to meet this burden, Masada has submitted records from the previous Article 78 proceeding in state court. A judgment pursuant to Article 78 may preclude relitigation of issues already decided in that earlier

judgment. *See Genova v. Town of Southampton*, 776 F.2d 1560, 1561 (2d Cir. 1985) (per curiam).

As a first cause of action in their Article 78 proceeding, the Houses and petitioner Cohen contended that the Masada facility was a "chemical process plant" and that NYSDEC had "failed to properly designate the primary activity of the facility as a chemical process plant in order to circumvent the PSD requirements codified in the federal Clean Air Act...." Verified Petition/Complaint, Declaration of Jonathan S. Martel in Support of Pencor-Masada Oxynol, LLC's Motion for the Court to Take Judicial Notice of State Court Record ("Martel Decl."), Exh. 1, ¶¶ 55, 56. The Article 78 proceeding also addressed the alleged failure of NYSDEC "to properly allocate internal emissions within the facility, arbitrarily and irrationally allocating emissions from the gasifier/boiler to the waste collection function of the Chemical Plant as opposed to its primary ethanol production function." *Id.* at ¶ 57. It is on precisely these grounds that petitioner Cohen now argues that the Administrator should have objected to NYSDEC's issuance of a Title V operating permit and its finding that the requirements of the PSD program did not apply to the facility.

The Houses and petitioner Cohen also advanced many of the same legal arguments in the Article 78 proceeding as they present to this Court now. For example, in support of their contention that the primary activity of the facility was chemical processing, the Houses and petitioner Cohen argued in state court, as they do here, that the principal product of the facility would be ethanol, regardless of the "feedstock" used, and that it was improper for NYSDEC to focus on projected revenue in determining the primary activity. *Compare* Memorandum of Law of Petitioners Plaintiffs, Kathleen and Campbell House, In Their Individual Capacities and As Trustees of the Campbell Plaza Shopping Center, and Susan Cohen ("Mem. in Support of Art. 78 Petition"), Martel Decl., Exh. 2, at 13-15, *with* Petitioner's Opening Brief in Support of Petition for Review, 23-30, 33. Additionally, in arguing that the gasifier's emissions had been misallocated, the Houses and petitioner Cohen complained that lignin "is a residue of the chemical manufacturing process [at the facility], so the emissions resulting from its disposal are attributable to the [Masada facility's] chemical processing." Mem. in Support of Art. 78 Petition, Martel Decl., Exh. 2, at 18. Moreover, the Houses and petitioner Cohen suggested that, by disposing of lignin, the gasifier "is an essential part of the overall ethanol production operation." *Id.* at 19. Again, these arguments are identical to those currently pressed by petitioner Cohen.

After briefing and oral argument, the New York Supreme Court found that " [t]he record plainly reveals that the conclusion of both DEC and EPA that the [Masada] facility was not a chemical processing plant was supported in the record by a rational basis." House v. Cahill, No. 5799-00 (N.Y.Sup.Ct., Feb. 2, 2001) (Decision & Judgment) (hereinafter "State

Decision"), Martel Decl., Exh. 4, at 5. The state court also found that NYSDEC "had sufficient information to determine that the EPA PSD standards did not apply." *Id.* at 6.

Petitioner Cohen argues that the issues presented in the Article 78 proceeding are not identical to those before this court. Petitioner Cohen points out that in state court, she and the Houses challenged *NYSDEC's* determination to issue the Title V permit; by contrast, in the instant case, they are challenging the failure of the *Administrator* to *object* to the permit's issuance by NYSDEC. Yet, while it is true that we are reviewing the Administrator's evaluation of NYSDEC's permitting decision, rather than NYSDEC's decision itself, this distinction is one without a meaningful difference for purposes of collateral estoppel inquiry. *See Montana v. United States*, 440 U.S. 147, 153, 99 S. Ct. 970, 59 L. Ed. 2d 210 (1979) (explaining that under the doctrine of collateral estoppel "once an *issue* is actually and necessarily determined by a court of competent jurisdiction, that determination is conclusive in subsequent suits *based on a different cause of action* involving a party to the prior litigation." (emphasis added)). Although our inquiry is one step removed from direct review of NYSDEC action, the rationality of that action is nevertheless central to our own review of petitioner's claim that it was an abuse of discretion for the Administrator not to object to the State's issuance of a Title V operating permit. Indeed, the arguments advanced by petitioner Cohen in the state court against the NYSDEC's decision — namely, that the primary activity of the facility was chemical processing and that the gasifier's emissions should be counted as part of that activity — are the same as she presents to us now as reasons for finding that the Administrator abused her discretion in not objecting to the issuance of the Title V permit. Thus we cannot grant the instant petition for review without directly contradicting the state court on issues it has previously decided at the behest of petitioner Cohen. It is precisely this kind of inconsistent result that the collateral estoppel doctrine seeks to avoid. *See Chartier v. Marlin Mgmt., LLC*, 202 F.3d 89, 94 (2d Cir. 2000). We therefore conclude that Masada has shown the identity of issues necessary for collateral estoppel to apply.

3. Other Elements of Collateral Estoppel Have Been Satisfied

As indicated by the foregoing discussion, the record of the Article 78 proceeding discloses that the state court determined the issues before us now. The state court ruled explicitly that NYSDEC's determination that the primary activity of the facility was not chemical processing was "supported in the record by a rational basis." State Decision, Martel Decl., Exh. 4, at 5. Although the state court did not rule explicitly on the issue of whether there was an "embedded chemical process plant" at the Masada facility, it nevertheless rejected petitioner's central contention that NYSDEC had mistakenly allocated the gasifier's emissions to the activity of refuse processing, thereby circumventing the PSD

requirements. *Id.* at 6. We find, therefore, that for purposes of collateral estoppel, Masada has demonstrated that the issues before us now were "necessarily decided" in the first action. *Parker*, 93 N.Y.2d at 349, 690 N.Y.S.2d 478, 712 N.E.2d 647. Moreover, it is clear that determination of the facility's primary activity and proper allocation of the gasifier emissions were "necessary to the [state] court's judgment." *Wilder v. Thomas*, 854 F.2d 605, 620 (2d Cir. 1988). Again, petitioner Cohen raised these issues in state court as the main grounds for her claim that the PSD requirements should apply to the facility. The state court was therefore required to reach these issues in order to determine the merit of petitioner's claim.

Petitioner Cohen contends that she did not have a "full and fair opportunity" to litigate the issues before us now in state court because the Administrator was not a party to the Article 78 proceeding.[7] This argument misses the point. Our inquiry with regard to the "full and fair opportunity" prong of the collateral estoppel doctrine is whether petitioner Cohen, as the petitioner-plaintiff in the previous state court proceeding, was fully able to raise the same factual or legal issues as she asserts here — *not* whether the respondent-defendants were identical in both cases. *See Republic Gear Co. v. Borg-Warner Corp.*, 381 F.2d 551, 555 n. 1 (2d Cir. 1967) (explaining that "collateral estoppel may bar relitigation of an issue even against different defendants," provided that the issue in contention was necessary to the result reached in the prior proceeding); *Israel v. Wood Dolson Co., Inc.*, 1 N.Y.2d 116, 119, 151 N.Y.S.2d 1, 134 N.E.2d 97 (1956) (" [T]he fact that a party has not had his day in court on an issue as against a particular litigant is not decisive in determining whether the defense of *res judicata* is applicable."). That the Administrator was not a party to the Article 78 proceeding is irrelevant to the question of whether petitioner Cohen was previously afforded a "full and fair opportunity" to litigate the *issues* she presents here. Petitioner Cohen has failed to carry her burden of showing that she did not have such a "full and fair" opportunity.

4. Binding Force of the State Court Decision

The CAA grants the Administrator authority to exercise independent oversight and judgment in responding to petitions challenging the adequacy of state permits issued under Title V. *See* 42 U.S.C. § 7661d. Additionally, the CAA provides for judicial review of the Administrator's decision through petitions for review to the appropriate federal Court of Appeals. *See* 42 U.S.C. § 7661d(b) (2). Petitioner Cohen therefore argues that the previous New York state court decision cannot be given preclusive effect because doing so would improperly allow the decision of NYSDEC, affirmed by a state court, to trump the oversight authority of the Administrator. Moreover, contends petitioner Cohen, such a result would confer authority on a state court to determine whether EPA acted within its authority under

Title V — effectively circumventing federal appellate review of the Administrator's decision regarding issues already considered and rejected by the state court.

In response, EPA argues that, on the particular facts and posture of this case, application of collateral estoppel is consistent with the design of the CAA. The Administrator points out that collateral estoppel is being invoked defensively to preclude petitioner Cohen, not the Administrator, from relitigating issues that she previously brought before a state court. Pointing out that the Administrator and state court reached the same decision regarding the applicability of the PSD program, the Administrator argues that there is no threat to the independent oversight capability of EPA if collateral estoppel is applied in this case. EPA also argues that had it come to a different decision from the state court and *objected* to NYSDEC's issuance of a Title V permit to Masada, EPA could not be bound by the previous state court determination.

We agree with EPA that petitioner Cohen's previous state litigation in no way constrains EPA's independent review of NYSDEC's permitting decision. At the same time, however, we find troubling the possibility that the state court's determination could limit the scope of *this Court's* authority to review the Administrator's decision merely because the Administrator reached the same conclusion on the specific issues raised by a petitioner in a previous state proceeding, particularly in light of Congress's provision for federal circuit court review of the Administrator's denial of a petition to object, *see* 42 U.S.C. § 7661d(b)(2). We need not resolve that issue here because, in any event, the interests underlying the doctrine of collateral estoppel support its invocation in the case at hand. We observe that it was petitioner Cohen's choice to first seek a judicial determination in state court regarding the applicability of the PSD program requirements to the Masada facility. *Cf. Giakoumelos v. Coughlin*, 88 F.3d 56, 61 (2d Cir. 1996) (noting that the plaintiff in that case "chose to litigate his claims by way of an Article 78 proceeding," and thereby assumed the risk of collateral estoppel in a subsequent proceeding "attendant to his decision to follow that route"). As we have explained previously, " [t]he doctrine [of collateral estoppel] promotes important goals: it allows a party only one opportunity to litigate an issue thereby conserving the time and resources of the parties and the court; promotes the finality of judgments; preserves the integrity of the judicial system by eliminating inconsistent results; and ensures that a party not be able to relitigate issues already decided against it in prior litigation." *Johnson v. Watkins*, 101 F.3d 792, 795 (2d Cir. 1996). These interests weigh strongly in favor of requiring petitioner Cohen to be bound by the consequences of her initial choice of forum. Petitioner Cohen has had her day in court on the issue of the applicability of the PSD requirements to the facility; she cannot now gain a further opportunity to litigate this same issue.

Whether or not collateral estoppel is invoked, we uphold the Administrator's decision on review of its merits. We find no reversible error in either the Administrator's determination that the primary activity of the facility is waste processing rather than chemical processing, or its conclusion that the gasifier's emissions should be allocated to that primary activity, rather than the embedded chemical process plant.

Petitioner Cohen argues that the Administrator's determination of the facility's primary activity was flawed for several reasons. We analyze each in turn.

It is undisputed that the Administrator found that most of the activities at the Masada plant were devoted to the production of ethanol, rather than the disposal of waste. Whereas the Administrator concluded that the hydrolysis, acid reconcentration, fermentation, distillation and storage activities were related to chemical processing, only the "sorting and drying" of incoming waste and "gasification" processes were devoted to refuse processing. Simple step counting, however, does not render the Administrator's "primary activity" determination an "abuse of discretion." As EPA points out, the fact that the steps involved in the sorting and combustion of waste material at the facility are less complex and involve less steam energy than ethanol production does not mean that ethanol production is the primary activity. EPA suggests that other factors must be taken into consideration, such as projected revenue from the facility's activities and the motivation behind the construction of the facility. We agree that there is nothing irrational about the Administrator's refusal to base her "primary activity" decision solely on the number of steps involved in the production of ethanol versus the sorting and combustion of waste. We therefore turn to the other factors considered by the Administrator.

Petitioner Cohen argues that the Administrator improperly relied on Masada's projection that 70% of its revenue will come from tipping fees. Petitioner Cohen finds this reliance suspect because the Administrator failed to inquire into the quality of this projection, its components, or its underlying assumptions (such as the projected price of ethanol over the next twenty years). In her decision, the Administrator justified her reliance on Masada's projections by noting that the predominance of tipping fees in the breakdown of revenue was so large that, even accounting for error, tipping fees were likely to comprise a majority of the facility's revenue. This reasoning, contends petitioner Cohen, creates incentives for permit applicants to overestimate revenue from non-chemical production components and makes the applicability of PSD safeguards subject to vagaries in the price of chemical products (such as ethanol) in the marketplace. Moreover, petitioner Cohen suggests that we owe no deference to EPA's focus on revenue projections, since this approach is not founded on any rule or regulation, but only an internal EPA policy. *See Christensen v. Harris*

County, 529 U.S. 576, 587, 120 S. Ct. 1655, 146 L. Ed. 2d 621 (2000) ("Interpretations such as those in opinion letters — like interpretations contained in policy statements, agency manuals, and enforcement guidelines, all of which lack the force of law — do not warrant *Chevron*-style deference.").

EPA argues, and we agree, that its reliance on Masada's revenue projections was proper. EPA points out that petitioners did not submit to the Administrator any alternative estimates of projected revenue, let alone provide estimates showing that the facility's ethanol revenue would predominate over money generated from tipping fees and waste disposal services. Furthermore, Masada was under a legal obligation to provide NYSDEC with the best available information. Petitioner Cohen has presented no evidence to indicate that the revenue projections submitted by Masada were exaggerated or inaccurate.

With regard to the deference we owe the Administrator's focus on revenue projections, we first note that the CAA's implementing regulations refer to the *SIC Manual* explicitly in discussing the proper classification of pollutant-emitting facilities for purposes of the PSD program. The regulations define a "facility" as "all of the pollutant-emitting activities which belong to the same industrial grouping," and further provide that " [p]ollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same `Major Group' (i.e., which have the same first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement." 40 C.F.R. § 52.21(b) (6). Petitioner Cohen suggests that this reference to the *SIC Manual* is merely "descriptive," but not determinative of the classification methodology that should be used to determine the applicable SIC code. In other words, petitioner Cohen would have the Administrator use the number codes established by the *SIC Manual*, but ignore the instructions set forth therein for determining which code to used — instructions that state that projected revenue is the key determinant of a facility's primary activity, and thus its proper classification. Petitioner's argument distorts the plain significance of the regulation's reference to the *SIC Manual*. Indeed, there is no indication whatsoever in the regulation that only the codes found in the *SIC Manual*, but not the classification methodology, should be adopted. To the extent that there is any ambiguity in the CAA regulations as to this issue, we must defer to EPA's interpretation. *See Auer v. Robbins*, 519 U.S. 452, 461, 117 S. Ct. 905, 137 L. Ed. 2d 79 (1997) (finding that an agency's interpretation of its own regulations to be "controlling unless plainly erroneous or inconsistent with the regulation.") (internal quotation omitted); *Christensen*, 529 U.S. at 588, 120 S. Ct. 1655 (explaining that *Auer* deference applies where the regulation is ambiguous); *see also Martin v. Occupational Safety & Health Review Comm'n*, 499 U.S. 144, 151, 111 S. Ct. 1171, 113 L. Ed. 2d 117 (1991) (holding that courts should "presume that the power authoritatively

to interpret its own regulations is a component of the agency's delegated lawmaking powers"). In any event, we find nothing irrational or arbitrary in EPA's use of the SIC Manual's classification methodology and its concomitant focus on revenue projections as the measure of the facility's primary activity. We therefore refuse to overturn the Administrator's determination on this ground.

Petitioner Cohen argues that EPA has historically treated ethanol plants as chemical process plants, pointing out that the Administrator stated in her decision that " [t]here is little dispute that ethanol production falls within the category of a chemical process plant." EPA Order, 17-18. Petitioner Cohen suggests that the only difference between the Masada facility and other ethanol production facilities is the kind of "feedstock" it uses, *i.e.* trash rather than corn. Petitioner Cohen further contends that it was irrational for the Administrator to refuse to classify the facility as a chemical process plant simply because Masada adds a new process to ethanol production (materials recycling) that does not alter the facility's pollutant emitting characteristics.

Once again, petitioner Cohen fails to carry her burden of showing that the Administrator's decision was irrational or relied on improper factors. The fact that ethanol is produced by a facility does not necessarily mean that the facility is to be classified as a "chemical process plant." Where a facility that produces ethanol from municipal waste derives a clear majority of its revenue from the fees charged for waste disposal, and where the motivation for the construction of the facility was to deal with a municipal waste crisis, it is not "arbitrary and capricious" for the Administrator to conclude that the primary activity of the facility is not the production of ethanol, but waste processing. The Masada facility will undoubtedly serve the purpose of waste processing, even as it transforms that waste into ethanol. While petitioner Cohen is correct to point out that over seven million gallons of ethanol will be produced by the Masada facility each year, it must also be remembered that 230,000 tpy of solid waste and 49,000 tpy of sewage sludge will be disposed of in the process. This fact cannot be discounted in the manner proposed by petitioner Cohen.

The wavering of EPA's position on the primary activity of the facility during the course of NYSDEC's deliberations on Masada's permit application does, perhaps, suggest the closeness of the question. The most that can be said in favor of petitioner Cohen's position, however, is that the record before us indicates that the proper classification of the facility's primary activity is subject to reasonable disagreement. The complexity of transforming garbage into ethanol explains why most of the activities of the plant are dedicated towards ethanol production. But, as EPA contends, this does not mean, necessarily, that the plant is not engaged primarily in processing refuse that would otherwise end up in a landfill. If one focuses on the originating purpose of the facility, and how the facility will generate revenue

(at least, according to the evidence presented to the Administrator), then it is clearly a "waste processing" facility that has the added benefit of producing ethanol. Given the closeness of the issue, there is no basis for concluding that the Administrator's choice between two plausible classifications was "arbitrary, capricious, [or] an abuse of discretion."

Although the Administrator concluded that the primary activity of the Masada facility was refuse processing, it nevertheless agreed with petitioner Cohen that "embedded" in the facility was a "chemical process plant" consisting of those processes and components necessary for the conversion of municipal waste into ethanol. The Administrator found, however, that this embedded source of pollution was not subject to PSD requirements because less than 100 tpy of sulfur dioxide would be produced by it. Key to this determination was the Administrator's exclusion of the gasifier's emissions from the total emissions of the embedded source. The Administrator justified this exclusion on the grounds that the gasifier will use lignin as a fuel to create steam, thereby obviating its landfill disposal.

Petitioner Cohen attacks this exclusion as an abuse of discretion, observing that the Administrator had previously concluded that most of the steam power from the gasifier will be used in ethanol production, and that the use of lignin as a fuel (as opposed to natural gas or other fuel sources) will make the ethanol production process more cost effective. Moreover, petitioner Cohen suggests that lignin cannot be considered a "waste product" but rather is a saleable fuel source, given its ability to power the gasifier. These factors, petitioner Cohen argues, clearly indicate that the gasifier and its use of lignin contribute to ethanol production and that its emissions should be allocated towards that chemical processing activity.

We cannot find that the Administrator's allocation of the gasifier's emissions was arbitrary or irrational. The use of lignin as a fuel has the effect of reducing a substantial amount of material drawn from the facility's waste intake. Moreover, if the gasifier did not burn the lignin, it would likely have to be disposed of as waste. The Spectra petition argued that "the principal purpose of the supposed gasifier is to eliminate the residue [lignin] from the Project's chemical processes to avoid the need for landfill disposal." The Spectra petition also stated that lignin "as a waste product, has no inherent value or use." To be sure, Masada had previously argued that lignin was *not* a waste product. Nevertheless, Petitioner Cohen cannot now argue that the Administrator abused its discretion in determining that *the Spectra petition* failed to demonstrate noncompliance with the CAA on the ground that lignin was mistakenly believed to be a waste product, when, in fact, the Spectra petition argued just the opposite. Furthermore, the fact that the lignin produced by the hydrolysis

step is combustible does not automatically render it a *marketable* fuel source, valuable in other applications. Indeed, petitioner Cohen has failed to point to any evidence in the record indicating that lignin produced at the Masada facility is a saleable commodity *for any purpose*, rather than merely a waste product whose sole value lies in the facility's ability to dispose of it in a way that also generates steam energy.

It is true that EPA took a different position on the allocation of gasifier emissions during the course of NYSDEC's deliberations. Once again, however, this change of view only indicates the closeness of the question presented, and the fact that both viewpoints are supported by evidence in the record; it does not suggest any irrationality in the Administrator's final decision. The gasifier lies at the intersection of the two main activities of the facility: waste disposal and ethanol production. Because the Administrator rationally concluded that the primary activity and purpose of the Masada facility is the disposal of waste, the gasifier, by burning and eliminating the waste-product lignin, can reasonably be said to contribute to this overall purpose. Although the energy created by this combustion powers the production of ethanol, the gasifier nevertheless supports the primary activity of the plant. Accordingly, we find no reversible error in the Administrator's decision concerning the allocation of the gasifier's emissions.

Petitioner Cohen suggests that the Administrator failed to consider factors that were important to the proper classification of the facility, specifically, (a) the relative value added to the facility's production inputs by chemical processing and refuse processing activities; (b) the patents held by Masada describing the importance of lignin combustion to the economic viability of the facility; and (c) the possibility that the facility contains two, separate pollution sources.

Value added is an economic concept defined "as the increase in the value of goods and services brought about by whatever a business does to them between the time of purchase and the time of sale." *Trinova Corp. v. Michigan Dep't of Treasury*, 498 U.S. 358, 362, 111 S. Ct. 818, 112 L. Ed. 2d 884 (1991) (internal quotation omitted). Petitioner Cohen faults the Administrator for not explicitly considering whether the chemical processing activities of the facility added greater value to the facility's inputs than its refuse processing activities. As indicated above, the *SIC Manual* suggests that the "primary activity" of a facility is to be determined by examining the facility's "principal product." The *SIC Manual* goes on to explain that the principal product may be identified by "its relative share of value added at the establishment." However, the *SIC Manual* also acknowledges that it is "rarely possible to obtain this measure for individual products or services." The *SIC Manual* thus recommends that, "when available," the use of revenue data may be used to determine the principal product of a facility. This "criterion," the *SIC Manual* explains, "may be expected

to give approximately the same results in determining the primary activity of an establishment." Because the *SIC Manual* clearly indicates that revenue data may serve as an effective surrogate for "relative value added," we cannot conclude that the Administrator, in using such data, failed to consider proper factors in determining the principal product of the Masada facility.

Petitioner Cohen further contends that the Administrator failed to consider information found in two patents that Masada referenced in its submission to EPA during the petitioning process. *See* Response of Pencor Masada Oxynol, LLC to Petitions to the Administrator, 10 n. 11 (Oct. 17, 2000) (citing U.S. Patent Nos. 5,407,817 and 5,517,703). Petitioner Cohen argues that these patents clearly disclose that Masada's ethanol production process could use other kinds of feedstock to produce ethanol, not only municipal solid waste and sewage sludge. Furthermore, petitioner Cohen contends that the patents also disclose that Masada considered lignin a valuable fuel source to power the production of ethanol, providing Masada with significant cost savings in the production process. Petitioner Cohen therefore suggests that the information provided in the patent is incompatible with the Administrator's determination that the use of lignin as a fuel for the gasifier constituted a waste elimination function.

We do not find any reversible error here. *First*, the ability of Masada's patented ethanol-producing process to use other types of feedstock is irrelevant to the question presented to the Administrator — to wit, whether the primary activity of the Masada facility *as designed for the Middletown site*, is waste processing or chemical processing. The plan that the Administrator reviewed is for the Masada facility to accept municipal waste and sewage sludge as inputs, not other kinds of materials. There is simply no suggestion in the record that the Masada facility will produce ethanol from other inputs. Indeed, as explained above, the *raison d'etre* of the Masada facility is to meet Middletown's waste disposal needs.

Second, with regard to the importance of lignin as an economical fuel source for the production of ethanol, this information was already before the Administrator, as indicated by the Administrator's acknowledgment that the gasifier "gasifies the lignin, combusts the gases, and recovers some of the energy produced, using it to provide steam back to the various waste and chemical processing operations." EPA Order, 17. Indeed, the Administrator explicitly concluded that " [e]ven if energy is recovered from gasification/combustion [of lignin] as a side benefit and used for ethanol production, and even if the presence of a waste stream and integrated disposal process makes ethanol production economical at this site, this does not change the determination that the primary activity is refuse processing." EPA Order, 19. Thus, the information found in the Masada patents merely stands as cumulative evidence supporting factual claims already considered,

and accepted as true for purposes of argument, by the Administrator in her final decision. In sum, there is no indication that the Administrator "failed to consider [this] important aspect of the problem," as petitioner Cohen contends. *Muszynski*, 268 F.3d at 97 (internal quotation omitted).

Finally, petitioner Cohen contends that the Administrator failed to consider the possibility that the facility contained two separate sources of air pollution. Petitioner Cohen takes issue with the Administrator's determination that "there is no dispute in this case that the various interrelated activities at the Masada facility constitute a single source for PSD purposes." EPA Order, 15 n. 9. Petitioner Cohen fails to acknowledge, however, that the likely reason that the Administrator found "no dispute" over this issue is that the Spectra petition explicitly rejected the possibility of two source classifications: "the Project must be identified with SIC Code 2869 for an industrial chemical processing facility *and not* with SIC Code 4953 for a refuse system." Spectra petition, at 22 (emphasis added). As the Administrator explained, " [t]he boundaries of the major source have never been at issue...." EPA Order, 19. Moreover, the Administrator necessarily considered the possibility that two sources existed at the facility in rejecting the applicability of "support facility" analysis. The Administrator explained:

Questions of "support facilities" often arise in making major source determinations under the PSD program when questions arise as to whether facilities are part of the same industrial grouping. Where a facility conveys, stores, or otherwise assists in the production of the principal product *at another source*, it may, under some circumstances, be deemed a support facility and treated as part of the same source as the facility it supports. This policy is used, for example, in determining whether two adjacent facilities should be treated as one source for PSD applicability purposes. However, the support facility test is not relevant to the Masada facility *because there is no question that the chemical processing activities and the waste reduction activities at [the] Masada facility are a single source.*

Id. (emphasis added). As indicated by this passage, the Administrator rejected the support facility analysis on the ground that there was "no question" that the facility's chemical processing and refuse processing activities constituted one source of air pollution. In concluding that the chemical processing activities were an *embedded* source of pollution, rather than a *separate* source from the refuse processing activities, the Administrator further indicated that these chemical processing activities were part of the same industrial grouping. *See* EPA Order, 16 (explaining that, for facilities subject to the 250 tpy threshold, the PSD applicability test requires "an evaluation of the facility to determine if there is a *portion of the plant* (which EPA calls an `embedded' or `nested' facility or source) which could be classified in one of the categories with a 100 tpy major source cutoff" (emphasis

added)). Finally, as discussed above, the waste processing and ethanol production components of the facility are intertwined — indeed, so much so, that the record supports two plausible views as to where the dividing line between the two functions should be drawn. We therefore find no merit to petitioner Cohen's suggestion that the Administrator overlooked the possibility of classifying the Masada facility as if it contained two separate sources of air pollution.

We have considered all of petitioner Cohen's remaining arguments and find them to be without merit. The petition for review is therefore denied.

The Honorable J. Garvan Murtha, Chief Judge of the United States District Court for the District of Vermont, sitting by designation

Intervenor Masada brought a motion before this Court to take judicial notice of the state court record of the Article 78 proceeding, which we granted *See Liberty Mutual Ins. Co. v. Rotches Pork Packers, Inc.*, 969 F.2d 1384, 1388 (2d Cir. 1992) ("A court may take judicial notice of a document filed in another court not for the truth of the matters asserted in the other litigation, but rather to establish the fact of such litigation and related filings.") (internal quotation omitted).

Along with the constitutional requirements of standing, there are additional prudential limitations on the ability of parties to invoke the jurisdiction of federal courts. One of these limitations is that a "plaintiff generally must assert his own legal rights and interests, and cannot rest his claim to relief on the legal rights or interests of third parties." *Warth v. Seldin*, 422 U.S. 490, 499, 95 S. Ct. 2197, 45 L. Ed. 2d 343 (1975). This, too, is an obstacle to LaFleur's standing in this case.

The Houses cannot now file a petition for review of the EPA Order. The time limit on such a petition has long since passed *See* 42 U.S.C. 7607(b) (1).

EPA does not join in this challenge to petitioner Cohen's standing

During the review process, EPA Region 2 concluded, based on information submitted by Masada, that the facility had the potential to emit 247 tpy of SO_2 — just slightly below the default applicability threshold for the PSD program. *See* Letter of Kathleen C. Callahan to Robert K. Warland, *supra*, at 2. This estimate is not controverted by the parties here.

Masada relies nearly exclusively on *Ogden Projects, Inc. v. New Morgan Landfill Co., Inc.*, 911 F. Supp. 863 (E.D. Pa. 1996). That case involved claims, *inter alia*, that the failure of EPA to apply specific regulations to a landfill site resulted in worse air quality in the area surrounding the landfill than would have existed had the regulations been enforced. Although the district court demanded a showing of the "magnitude of the diminished air quality" and "the specific direct effect, if any, that this diminished air quality will have on [plaintiffs'] health, environmental and recreational interests," *id.* at 869, the case did not turn on whether the area in question had attained the NAAQS or whether the increased air pollution exceeded those standards. Moreover, the plaintiffs in that case lived 25 miles and 85 miles respectively from the landfill in question, *see id.*, and thus did not face the type of direct and unavoidable exposure to increased emissions that confronts petitioner Cohen here. *Ogden* is thus easily distinguishable from the instant case, and we need not express any opinion as to the merits of that decision.

The burden rests with the party opposing collateral estoppel to show that it did not have a full and fair opportunity to litigate the issue in the prior proceeding *See Ryan*, 62 N.Y.2d at 501, 478 N.Y.S.2d 823, 467 N.E.2d 487.

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Illinois EPA
Document Index Form

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Doc ID: 2169909

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Bureau ID: 119813AAI **Illinois EPA ID: 170000125683**

Location Name: US Steel Granite City

Category: 03M

Document Date: 01/25/1996

Permit ID: 95010001

Doc ID:

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Batch ID:

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Keyword:

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Comment:

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Illinois EPA
Document Index Form

Batch ID: A000962

Doc ID: 2169910

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Bureau ID: 119813AAI Illinois EPA ID: 170000125683

Location Name: US Steel Granite City

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R008000

National Steel

Granite City Division
National Steel Corporation
20th & State Street
Granite City, Illinois 62040
(618) 451-3456

January 23, 1996

CERTIFIED MAIL NO. Z 135 730 444
RETURN RECEIPT REQUESTED

Mr. Donald Sutton
Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62706

RECEIVED
JAN 26 1996
EPA-DAPC

**Subject: Application for Production Increase Permit,
Application No. 95010001, I.D. No. 119813 AAI**

Dear Mr. Sutton:

Granite City Division (GCD) of National Steel Corporation requests that the subject permit application and conditions 32(c) of the proposed Construction Permit to increase iron and steel production be modified to require compliance with all annual limits on a calendar year basis only. Since many of the emission rates are proportional to production rates, a 12 month rolling average on emission limits would effectively limit production to a 12 month rolling average.

A 12 month rolling average allows for production flexibility if business varies seasonally or production outages occur at the same time each year. The Granite City Division's production does neither of these. Major equipment outages and corresponding production losses do not occur every year, or at the same time of the year.

Under the 12 month rolling average, GCD would be forced to reduce production during a calendar year when no major equipment outages were planned if major equipment outages and corresponding production loss occurred and were recovered during the previous calendar year. This forced production loss would occur even though the annual and daily limits of the proposed permit would not be exceeded during either of the two calendar years, (see Attachment A.)

GCD proposes the following reporting procedure in order to assure the IEPA that its annual production limits will not be exceeded by the end of the calendar year. GCD will submit a yearly iron and steel production plan (by month) by December 15th of the previous year. The plan will be updated quarterly by including the actual production for the previous quarter and projecting the planned production for the remainder of the year. This will assure compliance with the annual production limits by the end of the calendar year.

This proposed permit modification will eliminate the overly restrictive affect of the 12 month rolling average limit on GCD's production plans while meeting all applicable air pollution control requirements.

Very truly yours,

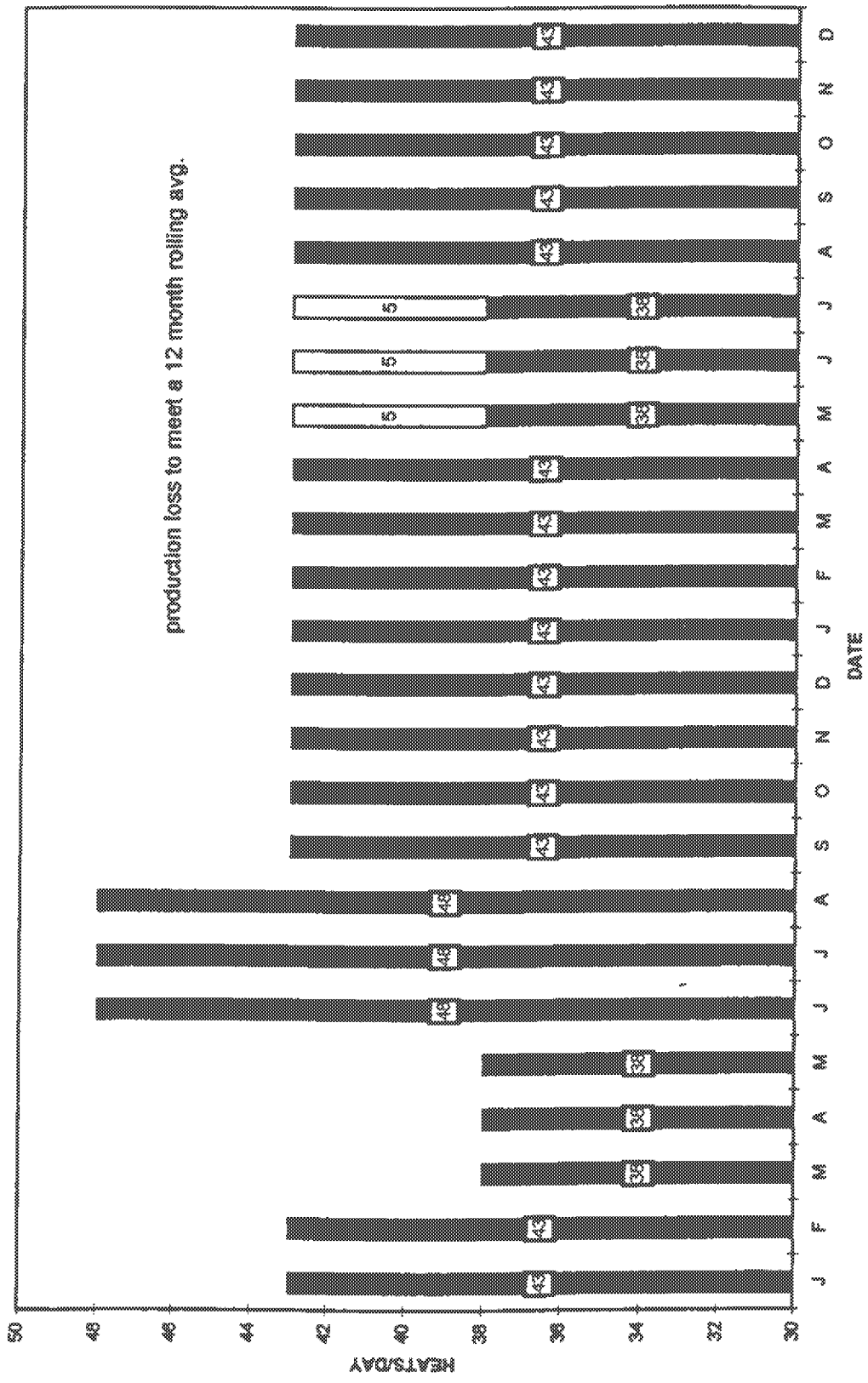
Joseph Kocot (M.)

Joseph S. Kocot
Director - Plant Maintenance

Attachment
hearing1.doc

ATTACHMENT A

BOF PRODUCTION ROLLING AVERAGE vs. CALENDAR YEAR AVERAGE



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Permit Application Update
APPLICATION # 95010001
Proposed Production Increase
Granite City Division of National Steel

The December, 1994 Permit Application for a proposed production increase at the Granite City Division of National Steel contains information concerning emissions changes that are contemporaneous with the proposed increase in production. One of the contemporaneous changes listed is the installation of a new galvanizing line (#8 Galvanizing Line).

The information contained in the permit application was based on design information as it was available at the time of application preparation. Since that time as-built information has become available. The original design envisioned six 0.64 mmBtu/hr space heaters. The final installation included five 3.44 mmBtu/hr space heaters. This change resulted in small changes in the estimated emissions associated with the project.

The attached replacement pages for the production increase application reflect emissions estimated based on the installed equipment. These pages also reflect a correction to the TSP emission factor used to calculate blast furnace uncaptured fugitive emissions. The corrected emission factor changes the projected actual emissions associated with this unit from 24.53 to 49.06 tons per year.

The changes in estimated emissions contained in this update do not result in any changes to the conclusions drawn from the analysis. There are no changes in pollutants that have significant net increases in emissions.

The attached package includes the following.

New Section or Table	Replaces Section or Table
Pages 3-7 through 3-14 (January 16, 1996)	Pages 3-7 through 3-14 (October 30, 1995)
Table 3-1 (January 16, 1996)	Table 3-1 (October 30, 1995)
Table 3-2 (January 16, 1996)	Table 3-2 (October 30, 1995)
Table 3-3 (January 16, 1996)	Table 3-3 (October 30, 1995)
Table 3-4 (January 16, 1996)	Table 3-4 (October 30, 1995)
Table 3-5 (January 16, 1996)	Table 3-5 (October 30, 1995)
Table 3-6 (January 16, 1996)	Table 3-6 (October 30, 1995)
Appendix E (January 16, 1996)	Appendix E (October 30, 1995)

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	Included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	Included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	Included in line 17	-	-	-
4	0041	01	Boiler House 1 (Bins 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	Included in line 17	-	-	-
5	0041	91	Boiler House 1 (Bins 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	Included in line 18	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	Included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	Included in line 18	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	Included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	Included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	Included in line 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	Included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,405	ton proc.	10,851.68	3,580,000	ton proc	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	Included in line 18	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	Included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	18	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							11,703.94			17,388.74	5,684.80
			Contemporaneous Changes									(11.51)
			Net Change									*5,673.29*

R008004

TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,108	MMcf	18.78	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							618.01			856.76	238.75
			Contemperaneous Changes									(200.54)
			Net Change									*38.21*

R008005

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,208 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	28,132	MMcf	88.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	Included in line 19	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 19	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 19	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 19	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2008	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	----	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 19	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.88	
	TOTALS:							639.63			1,115.01	475.98	
			Contemporaneous Changes									(0.13)	
			Net Change									***475.85***	

R008006

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Bls 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.18	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.38	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.068144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R008007

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,809 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	176.51	185,030	MMcf			288.29	92.79
38			Fuel Oil	9.72	lb/Mgal	18	Mgal	0.08	385	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	51.62
			Contemporaneous Changes											(37.31)
			Net Change											*14.31*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,871NTPD
BOF @ 9,908 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,871NTPD
BOF @ 9,808 NTPD

line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.81	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	18	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,123.80					1,071.89	(52.01)
			Contemporaneous Changes											(37.16)
			Net Change											*(89.17)*

ote: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @8,671 NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Bhs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Bhs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.88	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,560,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.23)
			Net Change									*28.05*

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PROJECT	DATE	EMISSION CHANGE (tpy)
Net Contemporaneous Change		-11.5
Proposed Production Increase	To Be Determined	+5,684.8
Net Emission Change		+5,673.3

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2 NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 239 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant discussed below.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 5,685 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-22.1
Shutdown of Batch Annealing	December 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+11.8

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-217.8
Shutdown of Batch Annealing	December 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+26.0
Net Contemporaneous Change		**-200.5**
Proposed Production Increase	To Be Determined	+238.8
Net Emission Change		**+38.3**

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3 based on NO_x emission levels).

3.3.2.3SULFUR DIOXIDE

SO_2 emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 476 tons per year. Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.25
Net Contemporaneous Change		**-0.13**
Proposed Production Increase	To Be Determined	+475.98
Net Emissions Change		**+475.85**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3,** and **3-4** show the road network used in this analysis.

The baseline information used is from a 1988 fugitive emission inventory performed by MRI for the USEPA. Based on that information the emissions were adjusted to reflect the effect of the PM10 control program incorporated into Illinois' SIP to represent base case conditions. The emissions were then scaled up on each road that would be effected by the production increase. In addition, the emissions estimates were adjusted to reflect new controls that are integral to this application.

The specific fugitive dust control program that will be in place concurrent with production increase is described in Appendix F.

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increase. The total change in PM_{10} and TSP emissions is 52 tons per year and -52 tons per year respectively. *(With the exception of the emission factor for the BOF Roof Monitor and the Blast Furnace uncaptured fugitives, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions).*

The change in PM emissions reflected in **Tables 3-4** and **3-5** reflect significant improvements in the capture and control system for the BOF stack. These improvements, which have not been accounted for in any previous permit, result in emissions reductions of 228 and 340 tons per year PM_{10} and TSP respectively including consideration of the proposed production increase. Additional information regarding this emissions change can be found in Appendix C.

There have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix E presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} and TSP emission change and the associated total estimated emissions change are listed in the table below.

ESTIMATED CHANGE IN PM10 EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.1
Net Contemporaneous Change		-37.3
Proposed Production Increase	To Be Determined	+51.6
Net Emissions Change		+14.3

ESTIMATED CHANGE IN TSP EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.2
Net Contemporaneous Change		-37.2
Proposed Production Increase	To Be Determined	-52.0
Net Emissions Change		-89.2

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in TSP emissions and an increase in PM_{10} emissions that is not significant. Because there is no significant increase in particulate matter emissions, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 59.3 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

There have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	VOM EMISSION CHANGE (tpy)
Installation NESHAP Controls Coke By-Product	July 1991	-31.6
Shutdown of Blooming Mill	April 1991	-0.9
Shutdown of Batch Annealing	December 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.6
Net Contemporaneous Change		**-31.2**
Proposed Production Increase	To Be Determined	+59.3
Net Emissions Change		**+28.1**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.539 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally to the increase in production.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+4.20/+4.05	+.25	+26.0	+11.8	+1.6
Net Change		-37.16/-37.31	-0.126	-200.54	-11.51	-31.23

The following information presents how the emission change was calculated for each project.

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}

Caster #1 Actual 14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (< 10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

5 Space Heaters

3,440,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
5 * 3,440,000 Btu/hr / (1,019 Btu/ft^3) = 16,879.3 ft^3/hr total natural gas consumption, 5 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	16,879.3	7.39
TSP	3.0	16,879.3	0.22
PM_{10}	3.0	16,879.3	0.22
VOM	5.3	16,879.3	0.39
CO	20.0	16,879.3	1.48
SO_2	0.6	16,879.3	0.04

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,078
Quench Strip Dryer	1,419
Chem. Treat Strip Dryer	1,370
Pre-clean Recirc. Tank	2,944
Electrolytic Recirc. Tank #1	2,748
Electrolytic Recirc. Tank #2	2,500
Hot Water Rinse Tank	883
Hot Water Make-up Tank	6,869
Chimical Treat Recirc. Tank	491
Chemical Treat Mix Tank	491
Roll Rig Preheaters	102
Total	21,895

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	21,895	9.60
TSP	3.0	21,895	0.29
PM_{10}	3.0	21,895	0.29
VOM	5.3	21,895	0.51
CO	20.0	21,895	1.92
SO_2	0.6	21,895	0.06

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/ton Zn)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	0.092/AP-42	1.77

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	26.03
TSP	4.20
PM_{10}	4.05
VOM	1.56
CO	11.77
SO_2	0.25

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Permit Application Update
APPLICATION # 95010001
Proposed Production Increase
Granite City Division of National Steel

The December, 1994 Permit Application for a proposed production increase at the Granite City Division of National Steel contains information concerning emissions changes that are contemporaneous with the proposed increase in production. One of the contemporaneous changes listed is the installation of a new galvanizing line (#8 Galvanizing Line).

The information contained in the permit application was based on design information as it was available at the time of application preparation. Since that time as-built information has become available. The original design envisioned six 0.64 mmBtu/hr space heaters. The final installation included five 3.44 mmBtu/hr space heaters. This change resulted in small changes in the estimated emissions associated with the project.

The attached replacement pages for the production increase application reflect emissions estimated based on the installed equipment. These pages also reflect a correction to the TSP emission factor used to calculate blast furnace uncaptured fugitive emissions. The corrected emission factor changes the projected actual emissions associated with this unit from 24.53 to 49.06 tons per year.

The changes in estimated emissions contained in this update do not result in any changes to the conclusions drawn from the analysis. There are no changes in pollutants that have significant net increases in emissions.

The attached package includes the following.

New Section or Table	Replaces Section or Table
Pages 3-7 through 3-14 (January 16, 1996)	Pages 3-7 through 3-14 (October 30, 1995)
Table 3-1 (January 16, 1996)	Table 3-1 (October 30, 1995)
Table 3-2 (January 16, 1996)	Table 3-2 (October 30, 1995)
Table 3-3 (January 16, 1996)	Table 3-3 (October 30, 1995)
Table 3-4 (January 16, 1996)	Table 3-4 (October 30, 1995)
Table 3-5 (January 16, 1996)	Table 3-5 (October 30, 1995)
Table 3-6 (January 16, 1996)	Table 3-6 (October 30, 1995)
Appendix E (January 16, 1996)	Appendix E (October 30, 1995)

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,908 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Bins 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Bins 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 18	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 18	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	16.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,580,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 18	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							11,703.94			17,388.74	5,684.80
			Contemporaneous Changes									(11.51)
			Net Change									*5,673.29*

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TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @8,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,165,000	tons proc.	22.79	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,165,000	tons proc.	1.14	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							618.01			858.76	238.75
			Contemperaneous Changes									(200.54)
			Net Change									*38.21*

R008029

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,809 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.85	lb/MMcf	22,774	MMcf	75.72	Included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.85	lb/MMcf	22,203	MMcf	73.82	Included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.85	lb/MMcf	26,132	MMcf	86.89	Included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Bls 1-10) - BFG	6.85	lb/MMcf	37,501	MMcf	124.69	Included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	0.6	lb/MMcf	381	MMcf	0.11	Included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.85	lb/MMcf	5,323	MMcf	17.70	Included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	Included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	Included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.85	lb/MMcf	7,106	MMcf	23.63	Included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	Included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	Included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	Included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	21.94	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.83	5.53	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	Included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.85	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.66	
	TOTALS:							639.03			1,115.01	476.98	
			Contemporaneous Changes									(0.13)	
			Net Change									*475.85*	

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TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0046	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0046	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
11	0046	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0039	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,309,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton prod.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	345.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	included in line 38	MMcf	-	included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,185,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,185,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,185,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.91	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.68	51.52
			Contemporaneous Changes											(37.31)
			Net Change											*14.21*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 6760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Bls 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.031	lb/ton proc.	2,059,557	tons proc.	31.92	3,165,000	tons proc.			49.06	17.13
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

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TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,123.90					1,071.89	(52.01)
			Contemporaneous Changes											(37.16)
			Net Change											*(89.17)*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @ 6,671 NTPD
BOF @ 9,608 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	228	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0948	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.23)
			Net Change									*28.05*

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POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant discussed below.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 5,685 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-22.1
Shutdown of Batch Annealing	December 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+11.8

PROJECT	DATE	EMISSION CHANGE (tpy)
Net Contemporaneous Change		-11.5
Proposed Production Increase	To Be Determined	+5,684.8
Net Emission Change		+5,673.3

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 239 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-217.8
Shutdown of Batch Annealing	December 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+26.0
Net Contemporaneous Change		**-200.5**
Proposed Production Increase	To Be Determined	+238.8
Net Emission Change		**+38.3**

On the basis of these calculations, the proposed production increase would result in a net NO_x emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3 based on NO_x emission levels).

3.3.2.3SULFUR DIOXIDE

SO_2 emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 476 tons per year. Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.25
Net Contemporaneous Change		**-0.13**
Proposed Production Increase	To Be Determined	+475.98
Net Emissions Change		**+475.85**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3, and 3-4** show the road network used in this analysis.

The baseline information used is from a 1988 fugitive emission inventory performed by MRI for the USEPA. Based on that information the emissions were adjusted to reflect the effect of the PM10 control program incorporated into Illinois' SIP to represent base case conditions. The emissions were then scaled up on each road that would be effected by the production increase. In addition, the emissions estimates were adjusted to reflect new controls that are integral to this application.

The specific fugitive dust control program that will be in place concurrent with production increase is described in Appendix F.

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increase. The total change in PM_{10} and TSP emissions is 52 tons per year and -52 tons per year respectively. *(With the exception of the emission factor for the BOF Roof Monitor and the Blast Furnace uncaptured fugitives, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions).*

The change in PM emissions reflected in **Tables 3-4** and **3-5** reflect significant improvements in the capture and control system for the BOF stack. These improvements, which have not been accounted for in any previous permit, result in emissions reductions of 228 and 340 tons per year PM_{10} and TSP respectively including consideration of the proposed production increase. Additional information regarding this emissions change can be found in Appendix C.

There have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix E presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} and TSP emission change and the associated total estimated emissions change are listed in the table below.

ESTIMATED CHANGE IN PM10 EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.1
Net Contemporaneous Change		-37.3
Proposed Production Increase	To Be Determined	+51.6
Net Emissions Change		+14.3

ESTIMATED CHANGE IN TSP EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.2
Net Contemporaneous Change		-37.2
Proposed Production Increase	To Be Determined	-52.0
Net Emissions Change		-89.2

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in TSP emissions and an increase in PM_{10} emissions that is not significant. Because there is no significant increase in particulate matter emissions, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 59.3 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

There have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	VOM EMISSION CHANGE (tpy)
Installation NESHAP Controls Coke By-Product	July 1991	-31.6
Shutdown of Blooming Mill	April 1991	-0.9
Shutdown of Batch Annealing	December 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.6
Net Contemporaneous Change		**-31.2**
Proposed Production Increase	To Be Determined	+59.3
Net Emissions Change		**+28.1**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.539 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally to the increase in production.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+4.20/+4.05	+.25	+26.0	+11.8	+1.6
Net Change		-37.16/-37.31	-0.126	-200.54	-11.51	-31.23

The following information presents how the emission change was calculated for each project.

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual	14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (< 10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

5 Space Heaters

3,440,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
5 * 3,440,000 Btu/hr / (1,019 Btu/ft^3) = 16,879.3 ft^3/hr total natural gas consumption, 5 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	16,879.3	7.39
TSP	3.0	16,879.3	0.22
PM_{10}	3.0	16,879.3	0.22
VOM	5.3	16,879.3	0.39
CO	20.0	16,879.3	1.48
SO_2	0.6	16,879.3	0.04

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,078
Quench Strip Dryer	1,419
Chem. Treat Strip Dryer	1,370
Pre-clean Recirc. Tank	2,944
Electrolytic Recirc. Tank #1	2,748
Electrolytic Recirc. Tank #2	2,500
Hot Water Rinse Tank	883
Hot Water Make-up Tank	6,869
Chimical Treat Recirc. Tank	491
Chemical Treat Mix Tank	491
Roll Rig Preheaters	102
Total	21,895

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	21,895	9.60
TSP	3.0	21,895	0.29
PM_{10}	3.0	21,895	0.29
VOM	5.3	21,895	0.51
CO	20.0	21,895	1.92
SO_2	0.6	21,895	0.06

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/ton Zn)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	0.092/AP-42	1.77

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	26.03
TSP	4.20
PM_{10}	4.05
VOM	1.56
CO	11.77
SO_2	0.25

R008051

National Steel

National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3291
Fax (618) 451-3644

January 9, 1996

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Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

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AUG 23 2013
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Dear Mr. Sutton:

Subject: Application for Production Increase Permit, Application No. 95010001, I.D. No. 119813 AAI

The subject application was originally received by the Agency on January 3, 1995.

The time in which the Agency amy act on this application is hereby extended to January 26, 1996.

By consenting to the extension of time in which the IEPA may act to January 26, 1996 the Applicant does not otherwise waive any of the statutory provisions of Section 39 and 39.1 of the Illinois Environmental Protection Act in the event the IEPA fails to act upon the permit application by January 26, 1996, nor does it waive any of the provisions of the Clean Air Act Amendments of 1990 or the rulemaking thereunder.

Should additional information be needed, please contact my office or that of Larry Siebenberger, telephone (618) 451-3391.

Very truly yours,

Joseph S. Kocot
Director of Plant Maintenance

cc: C.V. Hickman
PRODINCR.CVH

CC608 MV-JRR

National Steel

National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3281
Fax (618) 451-3644

January 9, 1996

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Mr. Donald Sutton
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Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

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Permit, Application No. 95010001,
I.D. No. 119813 AAI

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Very truly yours,

Joseph S. Kocot
Director of Plant Maintenance

cc: C.V. Hickman
PRODINCR.CVH

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FACSIMILE MESSAGE:

DATE: 1/11/96

TIME:

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: [illegible]

COMPANY: [illegible]

ADDRESS:

CITY/STATE:

FAX NUMBER: TELEPHONE NUMBER:

FROM: L. Siebenberger

Granite City Division
National Steel Corp.
20th and State St.
Granite City, Illinois
62040

Our Fax Number is (618) 451-4020

We are transmitting 2 pages (including cover page.) If transmission is not complete,

please call at (618)451-

Subject:

COMMENTS: Medical Documents for Granite City Steel
Re: 40 CFR 302.4(b)(2)

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cooling, and dross mixing ~~sources~~units at a secondary aluminum smelting and refining plant and/or aluminum finishing plant;

20) 12.9 ng/J (0.03 lbs/mmbtu) of heat input from any fuel combustion emission ~~source~~unit that heats air for space heating purposes at a secondary aluminum smelting and refining plant located in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C) of this Part;

21) 68.7 mg/scm (0.03 gr/scf) for any holding furnace at a secondary aluminum smelting and refining plant in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C) of this Part;

22) 2.15 ng/J (0.005 ~~lbs per~~/mmbtu) of heat input from the steel works boilers located at the steel making facilities at steel plant in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C);

23) ~~31.127.24~~ kg/hr (~~68.560~~ lbs/hr) and 0.1125 kg/Mg (.225 lbs/T) of steel ~~produced~~, whichever limit is more stringent for the total of all basic oxygen furnace processes described in Section 212.446(a) of this Subpart and measured at the BOF stack located at steel plant in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C) of this Part;

24) North and ~~s~~South melting furnaces at a secondary aluminum smelting and refining plant located in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C) of this Part, cannot be operated simultaneously;

25) Magnesium pot furnaces at a secondary aluminum smelting and refining plant located in the vicinity of Granite City, as defined in Section 212.324(a)(1)(C) of this Part, can be operated ~~only one~~two lines at a time;

26) 2.15 ng/J (0.005 lbs/mmbtu) of heat input from any fuel combustion ~~source~~emission unit at a secondary aluminum smelting and refining plant and/or aluminum finishing plant except as provided in subsection (b)(20) of this Section;

R008055

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PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: Jim Ross

COMPANY: IEPA

ADDRESS:

CITY/STATE: Springfield, IL.

FAX NUMBER: 217-782-2465 TELEPHONE NUMBER:

FROM: C. Hubbard

Granite City Division
National Steel Corp.
20th and State St.
Granite City, Illinois
62040

Our Fax Number is (618) 451-4020

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please call CVH at (618)451-4027.

Subject: Extension - Coal Yard Permit

COMMENTS:

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National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

November 6, 1995

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Mr. Donald Sutton
Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

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Dear Mr. Sutton:

Subject: Application for Production Increase Permit, Application No. 95010001, I.D. No. 119813 AAI

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Should additional information be needed, please contact my office or that of Larry Siebenberger, telephone (618) 451-3391.

Very truly yours,

Joseph S. Kocot (H.)

Joseph S. Kocot
Director of Plant Maintenance

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cc: C.V. Hickman
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National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

November 6, 1995

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Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

RECEIVED
NOV 16 1995

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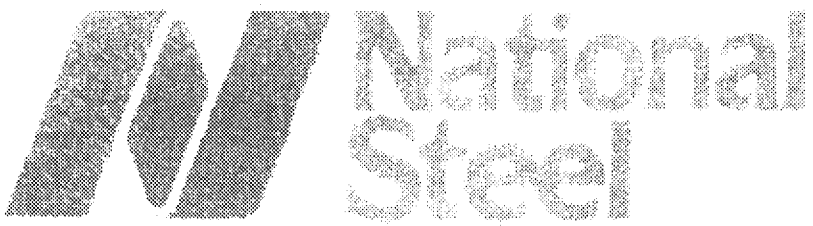
Very truly yours,

Joseph S. Kocot
Director of Plant Maintenance

cc: C.V. Hickman
PRODINCR.CVH

PERMIT APPLICATION

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS



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AUG 23 2013

REVIEWER JRM

Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

December, 1994
Amended October, 1995
4E08109

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The Granite City Division of National Steel Corporation is proposing to increase production at it's steel mill in Granite City, Illinois. This application is proposed to permit an increase in the production rate of the existing Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. Operation of the furnaces is for 24 hours per day, 365 days per year.

The Granite City Steel mill is located in Madison County, Illinois. The largest city near the facility is St. Louis, which is located approximately 15 kilometers southwest of the Granite City steel mill. The latitude and longitude of the mill are approximately 38:41:55 and 90:08:42. The facility occupies approximately 1,100 acres of land in an area primarily used for industrial and agricultural purposes. A site location map is provided in **Figure 1-1**. A site map is provided in **Figure 1-2**. There are no listed federal Prevention of Significant Deterioration (PSD) Class I areas located within 100 km of the project site.

1.2 RECENT PERMITTING HISTORY

Granite City Steel obtained a permit from Illinois EPA in January 1994 to increase the production rate of Blast Furnaces to 6,500 net tons per day and Basic Oxygen Furnaces to 7,600 net tons per day. The permitted production rate for the continuous caster remained at 6,900 net tons per day (permit #119813AAI dated January 4, 1994).

1.3 APPLICATION INFORMATION

The applicant for this project is as follows:

Granite City Division of
National Steel Corporation
20th and State Streets
Granite City, Illinois 62040

The applicant contact is Mr. Larry Siebenberger. Mr. Siebenberger may be contacted at (618) 451-3391.

The Granite City Division of National Steel Corporation proposes to increase production from their two blast furnaces, two basic oxygen furnaces, and two continuous casters.

The production increases proposed in this application are as follows:

- Increase the blast furnaces' production from 6,500 net tons per day (NTPD) to 8,671 NTPD on a calander year average and 9,849 NTPD on a maximum monthly average

- Increase the Basic Oxygen Furnaces' production from 7,600 NTPD to 9,808 NTPD on a calander year average and 11,000 NTPD on a maximum monthly average

- Increase the continuous casters' production from 6,900 NTPD to 9,808 NTPD on a calander year average and 11,000 NTPD on a maximum monthly average

Based on an analysis to determine the net emissions changes resulting from the proposed project, the production increase would result in a net increase in emissions of sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), total suspended particulate matter (TSP), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic material (VOM), and lead (Pb). However, with the exception of CO and SO_2 emissions, the increase would not be significant when measured against state and federal air quality regulations. Therefore the netting analysis presented in Section 3 addresses all pollutants and the balance of this application addresses CO and SO2 only.

The Granite City facility is located in an area that is designated as attainment for SO_2, CO, and Pb and nonattainment for ozone (including NO_x and VOM) and particulate matter (including TSP and PM_{10}). The net emission increases for SO_2 and CO are in excess of the applicable Prevention of Significant Deterioration (PSD) significance levels of 40 and 100 tons per year, respectively. Therefore, the proposed increase in production is considered a major modification

requiring a Best Available Control Technology (BACT) analysis. The net emission increases for Pb and the nonattainment pollutants are all below the PSD and new source review (NSR) significance levels. Therefore no additional control technology analyses for these pollutants are necessary.

Related to the production increase, the amount of fuel used by the boilers at the mill may also increase. However, the increase in fuel use by the boilers will not bring total fuel use to an amount greater than allowed by Granite City Steel's existing permits. Also, the fuels types used by the boilers will not change. Therefore, the boilers are not considered part of the major modification and are exempt from BACT review as specified in the federal regulations at 40 CFR 52.21(b)(2)(iii). Increases in emissions due to increased fuel use will, however, be included in the air quality modeling analysis for this application.

It should also be noted that the actual increase in the use of blast furnace gas can only be estimated at this time. This is because actual operation of the blast furnaces at the proposed production level is needed to determine the actual increase in the blast furnace gas generated. Granite City Steel has estimated the increase in blast furnace gas for this application and is confident that the total emissions associated with this fuel for the production increase will be no greater than that represented in this application. Depending on the actual fuel mix and steam demand that accompanies the production increase, Granite City Steel may consider replacement of some existing boilers or modifications to existing boilers to more efficiently use blast furnace gas which would otherwise be flared. These boiler changes would not adversely affect the total emissions associated with the fuel mix. Such changes, if they appear prudent, will be discussed with IEPA prior to implementation.

2.0
PROCESS DESCRIPTION

2.1 GENERAL DESCRIPTION OF THE MILL

The Granite City Division of National Steel Corporation owns and operates an integrated steel mill in Granite City, Illinois. Integrated steel manufacturing involves raw material preparation, iron production, iron preparation, and steel production.

2.2 GENERAL PROCESS DESCRIPTION

In this mill, iron is produced in blast furnaces by reducing iron bearing material with a hot gas. The charge, consisting of iron ore, coke, limestone, and other materials, is heated to a temperature above 900°C in the blast furnace. Air heated from 870°C to 1100°C is blown through tuyeres into bottom of the furnace. Oxygen in the air reacts with coke, forming carbon monoxide, which in turn reduces the iron oxides in the ore to iron. Limestone and other fluxs in the charge combine with the sulfur in the charge to form sulfates, which float to the top of the mix and are removed in the slag. A trace amount of sulfur is present in the blast furnace gas as it exits due to the reactions and oxidation taking place in the furnace. Molten iron and slag, accumulated in the hearth of the furnace, are drained into a trough equipped with a skimmer and a dam, resulting in the separation of molten iron from the slag.

The molten iron is further desulfurized by injecting a desulfurization reagent through a lance into the hot metal in the hot metal ladle using a carrier gas. This process is conducted in a desulfurization station located inside the BOF shop. The constituents of this reagent are typically CaC_2 which desulfurizes the molten metal, and $CaCO_3$ which provides the CO_2 gas required to mix the metal with the desulfurization agent. This treatment can reduce the sulfur content of the metal to less than 0.005%. Sulfur in the molten metal reacts to form calcium sulfate compounds, which are skimmed off the molten metal as slag. A collection hood collects emissions from the desulfurization process.

The basic oxygen furnace receives a charge composed of approximately 30% metal scrap and 70% molten iron. High purity oxygen is injected below the surface of the molten metal converting it into molten steel. Limestone is added to the charge to form a slag to capture the oxidation products.

Figure 2-1 shows the process flow for the Basic Oxygen Furnace Shop, **Figure 2-2** shows the process flow for ladle metallurgy and argon stirring stations, and **Figure 2-3** shows the process flow for the Continuous Casters.

3.0
EMISSION INFORMATION AND NETTING ANALYSIS

3.1 EXISTING AND PROPOSED EMISSION RATES

Emission rates used for calculation of pollutant emissions from the Blast Furnace, BOF and Continuous Casters are based on published emission factors, regulatory limits, and emission test results. Appendix A provides information on stack tests used in this application. The factors used for lead emssions are based on laboratory analysis of the dust taken from control equipment. Laboratory information is included in Appendix B. Certain of the process sources (e.g. Hot Metal Relading, Transfer Pits, and the Desulfurization Station) are grouped since the emissions are ducted to a common control device. Selected process related emission factors are summarized in the following table.

PROCESS RELATED EMISSION FACTORS

Process Unit	Pollutant	Emission Factor	Reference
BOF Precipitator Stack	PM	0.160 lb/ton	Average (March 1989 Stack Test July 1990 Stack Test August 1993 Stack Test)
	NO_x	0.0389 lb/ton	August 1993 Stack Test
	CO	8.993 lb/ton	August 1993 Stack Test
BOF Roof Monitor (Base Period)	PM	0.4282 lb/ton PM 0.2869 lb/ton PM_{10}	Based on calculations included in Appendix C
BOF Roof Monitor (Projected Period)	PM	0.09872 lb/ton 0.06614 lb/ton	Based on calculations included in Appendix C
Blast Furnance Iron Spout Baghouse	SO_2	0.0073 lb/ton	July, 1993 Stack Test
Blast Furnace Casthouse	PM	0.0703 lb/ton	based on New Source Performance Standards (40CFR60.142a)
	SO_2	0.2006 lb/ton	July, 1993 Stack Test
Blast Furnace Casthouse	NO_x	0.0144 lb/ton	July, 1993 Stack Test
	VOM	0.1016 lb/ton	July, 1993 Stack Test

Fuel combustion emission increases related to the proposed production increase were based on use of the emission factors listed on the following table. The factors for oil are based on

residual oil since the boilers have multiple fuel capability and residual oil factors result in the highest emissions.

FUEL RELATED EMISSION FACTORS

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
Natural Gas (lb/MMcf)	CO	40	AP-42, Page 1.4-2
	NOx	306	November 4, 1992 Stack Test
	SO_2	0.6	AP-42, Page 1.4-2
	PM10	5.1	AP-42, Page 1.4-2
	TSP	5.1	AP-42, Page 1.4-2
	VOM	1.4	AP-42, Page 1.4-2
	Pb	-	-
Blast Furnace Gas (lb/MMcf)	CO	13.7	AIRS, 1990
	NOx	5.28	February 1, 1993 Stack Test
	SO_2	6.65	Stack Test
	PM10	2.9	AIRS, 1990
	TSP	2.9	AIRS, 1990
	VOM	-	-
	Pb	-	-
Fuel Oil (lb/1000gal)	CO	5	AP-42, Page 1.3-2
	NOx	55	AP-42, Page 1.3-2
	SO_2	141.3	AP-42, Page 1.3-2 (based on 0.9%S residual oil)
Fuel Oil (lb/1000gal)	PM10	9.72	AP-42, Page 1.11-2 (based on 0.18% ash)
	TSP	10.8	AP-42, Page 1.11-2 (based on 0.18% ash)
	VOM	0.28	AP-42, Page 1.3-2
	Pb	0.34	AP-42, Page 1.11-2 (based on 0.008% weight % lead in waste oil)

3.2 REGULATORY ANALYSIS

The proposed modification at the Granite City mill will be subject to both state and federal requirements. Illinois has promulgated air pollution control requirements which apply to both existing and new facilities. The source is subject to the requirements of the Prevention of Significant Deterioration (PSD) regulations. Madison County, where the facility is located is designated moderate nonattainment for ozone and attainment for all other criteria pollutants.

On June 19, 1978, the USEPA promulgated regulations governing Prevention of Significant Deterioration of air quality to implement provisions of the Clean Air Act Amendments of 1977. These regulations were changed as a result of the December 14, 1979 decision of the U.S. Court of Appeals for the District of Columbia (Alabama Power Company, et al. vs. Costle). Final rules pursuant to this decision were promulgated on August 7, 1980.

The PSD regulations apply to major sources - i.e., any of the 28 source categories listed in the regulations which emit, or have the potential to emit, more than 100 tons per year of any pollutant subject to regulation under the Clean Air Act, or any other source category which has the potential to emit more than 250 tons per year of any pollutant subject to regulation under the Act. The PSD regulation also applies to the proposed modification of an existing major source, if the emission increase exceeds the significant emission rates defined in the regulations. The proposed production increase will result in an emission increase greater than the PSD significant level of 100 and 40 tons per year for CO and SO_2 respectively. Thus, the proposed modification will be subject to the PSD regulations for CO and SO_2.

3.3 NETTING ANALYSIS

The Granite City Division of National Steel Corporation intends to increase production at their Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. The proposed production level is set out in the following table.

PRODUCTION AREA	PROPOSED PRODUCTION
BLAST FURNACE	8,671 NTPD
BOF SHOP	9,808 NTPD
CASTERS	9,808 NTPD (liquid steel to the casters)

There will be changes in regulated air pollutants accompanying this increase in production. Production related emission increases and contemporaneous emission changes were calculated in accordance with Illinois Environmental Protection Agency (IEPA) regulations for Construction and Modification of Major Stationary Sources (Part 203).

A baseline period for this analysis was chosen to be the period August 1992 through July 1994. Emission changes (related to the production increase and contemporaneous changes) were calculated for:

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Particulate Matter less than 10 Microns (PM_{10})
- Particulate Matter (TSP)
- Volatile Organic Material (VOM)
- Lead (Pb)

The following conclusions were reached regarding the magnitude of the net emission changes related to the production increase and contemporaneous emissions changes:

POLLUTANT	NET EMISSION CHANGE
Carbon Monoxide	Significant
Nitrogen Oxides	Not Significant
Sulfur Dioxide	Significant
Total Suspended Particulate Matter	Not Significant

POLLUTANT	NET EMISSION CHANGE
Particulate Matter less than 10 Microns	Not Significant
Volatile Organic Material	Not Significant
Lead	Not Significant

On the basis of these results, only carbon monoxide (CO) and sulfur dioxide (SO_2) will be considered further in the New Source Review process. Information contained in this section concerning the net emission changes for the significant pollutants are presented for information only since these pollutants will be considered in the review process.

3.3.1 BASE PERIOD SELECTION AND NETTING PROCEDURE

The first step in the air quality permitting process is a "netting" evaluation. This evaluation is used to determine whether an air quality permit and subsequent New Source Review is needed. The analysis considers the increase in emissions that will accompany the proposed project. The increase is measured against a base period which is typically taken as the actual annual emissions averaged over the 24 most recent months. Other base periods can be established if they can be shown to be more representative of normal source operations.

The base period used for this analysis is August 1, 1992 through July 31, 1994. This period was selected because it represents the most recent available 24 month period consistent with IEPA Regulation 203.104. While this period has been used for this analysis, it should be noted that there was significant downtime related to furnace repairs in 1992 which has the effect of depressing base period production.

Changes in emissions expected as a result of the proposed increase in production were in most cases scaled from the base period average actual annual emission rate based on fuel usage and production rates consistent with the proposed production increase. A factor was developed by dividing the proposed production levels by the base period production levels as shown in the following table.

PRODUCTION AREA	AUGUST 1992 - JULY 1994 PRODUCTION	PROPOSED PRODUCTION	RATIO
BLAST FURNACE	5,643	8,671 NTPD	1.537
BOF SHOP	6,612	9,808 NTPD	1.483
CASTERS	6,612	9,808 NTPD (steel to casters)	1.483

Appendix D contains additional information on the base period production. Figure 3-1 shows production trends for the mill.

In certain instances where there is an allowable emission limitation, that limitation was used as the basis of calculating the potential emissions levels associated with the proposed production limit increases. The netting analysis also considers contemporaneous emission changes, both increases and decreases. Contemporaneous changes are defined as changes that have occurred over the past five years.

The analysis is carried out individually for each pollutant that will be effected by the proposed change in source operations. In this case, emissions of Sulfur Dioxide (SO_2), Particulate Matter (TSP and PM_{10}), Nitrogen Oxides (NO_X), Volatile Organic Material (VOM), Lead (Pb), and Carbon Monoxide (CO) were evaluated.

For each pollutant for which the source is major, the net emission change is compared against significance levels specified in new source review guidelines. If the net changes in emissions that result from the planned project plus contemporaneous changes for any single pollutant exceed the applicable significance level, the project is treated as a major modification of the source. The significance levels applicable for this project are:

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40

POLLUTANT	SIGNIFICANCE LEVEL (tons per year)
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant discussed below.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 5,685 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-22.1
Shutdown of Batch Annealing	December 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+10.2

PROJECT	DATE	EMISSION CHANGE (tpy)
Net Contemporaneous Change		**-13.1**
Proposed Production Increase	To Be Determined	+5,684.8
Net Emission Change		**+5,671.7**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2 NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 239 tons per year. There have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-217.8
Shutdown of Batch Annealing	December 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+18.4
Net Contemporaneous Change		**-208.1**
Proposed Production Increase	To Be Determined	+238.8
Net Emission Change		**+30.7**

On the basis of these calculations, the proposed production increase would result in a net NO_X emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3 based on NO_x emission levels).

3.3.2.3 SULFUR DIOXIDE

SO_2 emission sources that would be affected by the proposed production increase include :

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 476 tons per year. Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1991	-0.34
Shutdown of Batch Annealing	December 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.20
Net Contemporaneous Change		**-0.18**
Proposed Production Increase	To Be Determined	+475.8
Net Emissions Change		**+470.28**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- Blast Furnace Gas Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase. Appendix F presents information

regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3, and 3-4** show the road network used in this analysis.

The baseline information used is from a 1988 fugitive emission inventory performed by MRI for the USEPA. Based on that information the emissions were adjusted to reflect the effect of the PM10 control program incorporated into Illinois' SIP to represent base case conditions. The emissions were then scaled up on each road that would be effected by the production increase. In addition, the emissions estimates were adjusted to reflect new controls that are integral to this application.

The specific fugitive dust control program that will be in place concurrent with production increase is described in Appendix F.

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total change in PM_{10} and TSP emissions is 52 tons per year and -61 tons per year respectively. *(With the exception of the emission factor for the BOF Roof Monitor, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions).*

The change in PM emissions reflected in **Tables 3-4** and **3-5** reflect significant improvements in the capture and control system for the BOF stack. These improvements, which have not been accounted for in any previous permit, result in emissions reductions of 228 and 340 tons per year PM_{10} and TSP respectively including consideration of the proposed production increase. Additional information regarding this emissions change can be found in Appendix C.

There have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix E presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} and TSP emission change and the associated total estimated emissions change are listed in the table below.

ESTIMATED CHANGE IN PM10 EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+3.8
Net Contemporaneous Change		**-37.6**
Proposed Production Increase	To Be Determined	+51.6
Net Emissions Change		**+14.0**

ESTIMATED CHANGE IN TSP EMISSIONS

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January 1990	+4.9
# 2 Caster Production	December 1990	+11.7
Ingot Teeming Shutdown	April 1991	-22.4
Shutdown of Blooming Mill	April 1991	-3.4
Shutdown of Batch Annealing	December 1991	-0.2
Road and Material Handling Fugitive Dust Controls	November, 1991 to Present	-32.0
Installation of #8 Galvanizing Line	Expected 1996	+4.0
Net Contemporaneous Change		**-37.4**
Proposed Production Increase	To Be Determined	-60.6
Net Emissions Change		**-98.0**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in TSP emissions and an increase in PM_{10} emissions that is not significant. Because there is no significant increase in particulate matter emissions, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 59.3 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

There have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix E presents information on the emission changing projects. Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	VOM EMISSION CHANGE (tpy)
Installation NESHAP Controls Coke By-Product	July 1991	-31.6
Shutdown of Blooming Mill	April 1991	-0.9
Shutdown of Batch Annealing	December 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.2
Net Contemporaneous Change		**-31.7**
Proposed Production Increase	To Be Determined	+59.3
Net Emissions Change		**+27.6**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.539 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally to the increase in production.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

4.0
BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

4.1 REQUIREMENTS AND APPLICABILITY

BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation which would be emitted from any proposed major stationary source or major modification which the Administrator (on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs) determines is achievable for such pollutant. BACT limitations must not cause the exceedance of any applicable New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Pollutants (NESHAP).

The requirement to conduct a BACT analysis and determination is set forth in Section 165(a)(4) of the Clean Air Act and in federal regulations at 40 CFR 52.21(j). BACT must also comply with all the applicable limits established by the State of Illinois.

BACT is required for each regulated major source pollutant emitted in excess of the significant emission rates. Individual BACT determinations are to be performed for each pollutant subjected to a PSD review emitted from the same emission unit. The BACT determination must also separately address, for each regulated pollutant with a significant emission increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review.

Based on emission estimates for the proposed project, a BACT review is required for both SO_2 and CO control for the proposed project and is presented in the following format:

- BACT procedures
- Control Technology Review
- Previous BACT Determinations
- BACT Conclusion

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA, 1990) by United States Environmental Protection Agency (USEPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

a. A showing that utilizing the control would adversely impact the project's financial viability.

b. A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

c. A showing that those economic considerations outweigh the energy and environmental benefits.

4.2 SO_2 CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the proposed production increases and considered as a part of the BACT review include the blast furnace stoves, the blast furnace casthouse, the ladle dryer preheater and the continuous casters. The increase in iron-making by the blast furnaces may correspondingly increase the production of process blast furnace gas.

4.2.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.2.1.1 Blast Furnace Stove and Boiler Emissions

The blast furnace stoves will burn increased amounts of blast furnace gas and comparable amounts of natural gas to accommodate the production increase. Due to the low concentrations

of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu).

There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu. During the base period little oil was combusted. The projected oil use is based on the amount of oil reclaimed from Granite City Steel's wastewater treatment system. Oil generated through this pollution prevention technique is presently being sold; however, Granite City Steel must maintain the ability to consume this oil internally should future requirements preclude the sale of this material.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher SO_2 emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plant-wide basis.

4.2.1.2 Casthouse Emissions

As discussed in Section 2.2, SO_2 emissions from iron-making operations are limited by process practices employing limestone and other fluxing agents in the burden. Due to the reducing

atmosphere and the fluxes used in the furnace burden to remove impurities, wide ranges of sulfur in the burden are efficiently removed (98+%), predominately into the slag.

Approximate 60% of the sulfur in the coal used to make coke remains in the fuel. Therefore, reducing the sulfur content of the coal used to make coke that is part of the charge to the blast furnace was considered. However, this is not an effective means of reducing SO2 emissions because greater than 98% of the sulfur in the blast furnace burden is removed by the process. Thus, for every pound of sulfur in coal used to make coke, more than 0.988 pounds of sulfur are removed.

1 lb S *(1-0.6) =	0.400 lbs S removed when making coke
0.6 lb S * 0.98 =	0.588 lb S removed by the process
	0.988 lb S removed

As shown, due to the effectiveness of the process in reducing sulfur, reduction in the sulfur content of the coal used would have an insignificant effect on sulfur dioxide emissions.

Some trace amounts of sulfur are also in the iron. The necessary burden practice of adding limestone and fluxes effectively and effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

4.2.1.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.2.2 SO_2 CONTROL TECHNOLOGY OPTIONS

There are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at blast furnace stoves using process blast furnace gas, or to control SO_2 at the blast furnace casthouse, ladle dryer preheater and continuous casters.

4.2.3 INFEASIBLE OPTIONS - SO_2

The proposed production increases to the blast furnaces will result in increased blast furnace gas generation and require additional fuel combustion in the blast furnace stoves. Blast furnace gas and natural gas are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Blast furnace gas is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of blast furnace gas are necessary to produce the required heat energy for the proposed production increases. Because the use of blast furnace gas in some processes is limited by other factors, such as physical limitations of the gas lines and burners, natural gas may also be used as a supplemental fuel. However, the overall quantity of natural gas usage throughout the plant will remain constant.

Blast furnace gas and natural gas typically contains approximately 0.01 and 0.001 percent sulfur (by weight). Based on these low sulfur concentrations, SO_2 reduction using add-on controls is technically infeasible.

4.2.4 SELECTED BACT - SO_2

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at these sources. Based on the extremely low concentrations of SO_2 in blast furnace gas, control of SO_2 emissions at blast furnace stoves is not practiced in the steel industry[3,4,5].

The combustion of blast furnace gas in the blast furnace stoves to supplement existing fuel combustion is the only feasible option to support the proposed production increases. Therefore, this option is determined as BACT for SO_2.

Sulfur dioxide emissions from the blast furnace casthouse are effectively controlled by the solubility of sulfur containing gases in the liquid iron and the efficiency of fluxing to remove impurities, including SO_2. Based on the low SO_2 concentrations in casthouse emissions,

additional reduction using add-on controls is technically infeasible. SO_2 emissions from the blast furnace casthouse are effectively reduced by using current industry work practices. This option is selected as BACT for casthouse SO_2 emissions.

The use of natural gas in the ladle dryer preheater and continuous casters is the only feasible control option to support the proposed production increases based on inherently lower emitting practices.

4.3 CO CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The major sources of CO emissions impacted by the proposed production increases include the blast furnace stoves, the basic oxygen furnaces (BOF), the ladle dryer preheater and the continuous casters. CO emissions may increase as a result of additional process blast furnace firing in the stoves, additional steel production at the BOF and additional fuel requirements at the ladle dryer preheater and continuous casters. A BACT review requires an evaluation of inherently lower-emitting processes/practices and technically feasible add-on controls.

4.3.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.3.1.1 Blast Furnace Stoves

CO formation results from the incomplete combustion of fossil fuels and oxidation of carbon containing materials. The better the combustion practices, the lower the CO formation.

Good combustion practices require the following elements:

- Proper fuel/air mixture
- Proper mixing
- High temperature

Good combustion practice is the inherently lowest emitting method of controlling CO emissions from combustion sources[2.6].

4.3.1.2 Basic Oxygen Furnaces (BOF)

CO is formed in the BOFs by oxidizing carbon in the molten iron. Because high-purity oxygen is the industry standard for making steel, there is no lower-emitting practice for this source.

4.3.1.3 Ladle Dryer Preheater and Continuous Casters

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.3.2 CO CONTROL TECHNOLOGY OPTIONS

The following control technologies are currently available to control CO emissions from affected sources.

4.3.2.1 Blast Furnace Stoves

The following add-on control technology options are currently available to control CO emissions from the blast furnace stoves:

- Direct Combustion (flaring)
- Thermal Oxidization
- Catalytic Oxidation

Direct Combustion

Flaring is a combustion control process in which combustible gases are burned in an open flame in the open air using a specially designed burner tip. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing, and available oxygen. The major factors affecting flare combustion efficiency are gas flammability, auto-ignition temperature, heating value (Btu/scf), density, and flame zone mixing.

The heating value affects flame stability, emissions, and flame structure. A lower heating value produces a cooler flame that does not favor combustion and is more easily extinguished.

Thermal Oxidizers

Thermal oxidizers refer to any device that uses a flame combined within an enclosed chamber to convert combustible gases to carbon dioxide and water. Thermal oxidizers operate most effectively at temperatures between 1,300 to 1,500°F with a residence time of 0.1 to 0.5 seconds. By raising the temperature, the residence time for complete combustion can be reduced and vice versa. However, temperature is the more important process variable. The removal efficiency for CO is in the range of 90 to 95 percent.

Besides temperature and residence time, the concentration of the pollutant in the gas stream also affects operation of the system. The concentration of the pollutant dictates the amount of supplemental fuel required. Low concentrations of the combustible gas require increased supplemental fuel usage.

Catalytic Oxidation

Catalytic incinerators employ a bed of active material (catalyst) that facilitates the overall combustion reaction. The catalyst is a substance that speeds up the rate of a chemical reaction at a given temperature without being permanently altered. The use of a catalyst in an enclosed combustor enables oxidation at temperatures in the range of 500 to 600°F. Common catalysts used in catalytic oxidation units are platinum or other metals. The catalysts are placed on an alumina pellet or honeycomb support. The typical removal efficiency with this type of control is 90 percent.

Certain contaminants contained in the exhaust gas streams will chemically react or alloy poison with the catalyst and cause deactivation, including most heavy metal compounds. Sulfur is also considered a catalyst poison, but its effect is reversible.

4.3.2.2 Basic Oxygen Furnaces (BOF)

The BOF receives a charge composed of approximately 30 percent scrap and 70 percent molten iron and converts it to molten steel by utilizing a jet of high purity oxygen. The oxygen oxidizes the carbon and silicon in the molten iron, removes them, and provides heat for melting scrap.

Two primary systems for hooding and combustion of the BOF gases are currently used. The following control technologies are currently available and in use to control CO emissions from BOF vessels.

- Closed-hood combustion with exhaust stack flare
- Open-hood combustion with no additional controls

Closed-Hood Combustion w/Flare

A closed hood system suppresses combustion at the hood and collects the gases for combustion of CO at an exhaust stack flare. In a closed-hood system movable skirts seal the top of the furnace to limit air induction. Suppressed combustion hoods discourage air infiltration, with as low as 5 percent theoretical air. By suppressing combustion, the CO concentration is increased and the gases are more easily flared.

Open-Hood Combustion

Open combustion hoods allow excess air to be introduced in quantities up to 300 percent. With open hoods there is a gap between the hood and the furnace top into which air can be induced. In an open-hood system CO gases are combusted in the primary hood system with the addition of the excess air.

4.3.2.3 Ladle Dryer Preheater and Continuous Casters

There are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater or continuous casters.

4.3.3 INFEASIBLE OPTIONS - CO

Low concentrations of CO are not effectively and efficiently controlled by emissions control devices[8]. Due to the low concentrations of CO gas in the exhaust stream of the blast furnace stoves, which are below the lower explosive limit (LEL) of 12.5 percent for CO, sustained combustion (flaring) cannot occur[7] without the use of a supplemental fuel. Because the use of supplemental fuel at the flare would result in higher emissions of other pollutants and the formation of additional CO, this is an infeasible option.

The Granite City facility is already equipped with an open hood system on the BOFs where CO is combusted in the hood. Switching to a closed-hood system would require a large capital expense and would be economically infeasible. The residual CO from open-hood combustion is at a concentration level that is not technically feasible to treat further.

4.3.4 SELECTED BACT - CO

A review of BACT/LAER Clearinghouse, U.S. EPA Control Technology Group, and U.S. EPA Office of Air Quality and Planning literature was conducted to determine the current BACT status for sources within the steel industry. Based on this review and the previous evaluation of BACT options, the following BACT determinations for CO were made for sources impacted by the proposed production increases.

4.3.4.1 BACT - Blast Furnace Stoves

BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emissions control. CO emissions can be adequately controlled by the use of

good combustion practices. Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of present good combustion practices.

4.3.4.2 BACT - Basic Oxygen Furnaces (BOF)

The open hood system used by Granite City Steel is a process control with the CO being combusted in the hood system. This type of process does not use add-on controls. After combustion in the open hood system, the CO average concentration is approximately 2500 ppm. This concentration is too low for additional CO control to be technically feasible[8]. Therefore, the existing open hood system, operated in the manner necessary to produce a quality product, is determined to be BACT for the BOFs.

4.3.4.3 BACT - Ladle Dryer Preheater and Continuous Casters

The use of natural gas is the only feasible control option based on inherently lower emitting practices and there are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater and continuous casters. Therefore, the use of natural gas is determined to be BACT for the ladle dryer preheater and continuous casters.

4.4 REFERENCES

1."Pollution Effects of Abnormal Operations in Iron and Steelmaking. Vol. I. U.S. Environmental Protection Agency. EPA-600/2-78-118.

2. A.J. Buonicore and W.T. Davis. "Air Pollution Engineering Manual. "Van Nostrand Reinhold, New York, 1992.

3. A. Vervaert, U.S. EPA Office of Air Quality Planning and Standards, Control Technology Group, personal communication.

4. D. Schuerer, American Institute of Steel Industries, Technical Representative, Pittsburgh, Pa., personal communication.

5. E. Wojcheckowski, U.S. EPA Region V, Air and Radiation Section, personal communication.

6. Air Pollution Technology Institute, Course 427 "Combustion Evaluation", manual. EPA 450/2-80-063.

7. Office of Air Quality Planning and Standards, Control Cost Manual. EPA 450/3-90-006.

8. A. Marshall, John Zink Company, personal communication.

9. "Basic Oxygen Process Furnaces". U.S. Environmental Protection Agency. EPA 340/1-77-02.

10. Air Pollution Technology Institute, Course 415, "Control Of Gaseous Emissions, " manual. EPA 450/2-81-005.

11. Iron and Steel Plant Inspection Workshop. Volumes I and II. Pedco Environmental, Inc., 1983.

5.0
AIR QUALITY IMPACT ASSESSMENT

5.1 BACKGROUND

The proposed production increase at National Steel Corporation's Granite City Steel mill will result in a facility-wide net emission increase of carbon monoxide (CO) and sulfur dioxide (SO_2) of greater than 100 and 40 tons per year, respectively. Therefore, the proposed production increase constitutes a major modification to an existing major stationary source, and subject the mill (for the respective pollutants) to the Federal Clean Air Act's (CAA) New Source Review (NSR) process.

The NSR process requires a major stationary source undergoing a major modification to demonstrate that the modification will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). NSR also requires the source to demonstrate that emissions of specific attainment air pollutants will not deteriorate the existing air quality above incremental amounts established by the CAA. Federal and state regulations have been developed to meet the requirements set forth in the CAA.

The Prevention of Significant Deterioration (PSD) program is a part of the NSR process that states have implemented for major new and modified sources of air pollution, in regions currently in attainment the NAAQS. An air quality impact assessment is one of the requirements which must be conducted in order to receive a PSD permit to construct or modify a source. This section will address the air quality impact assessment requirements which are necessary to receive a PSD permit. The air quality analyses presented in this section satisfy the regulatory requirements given in the Code of Federal Register 40 CFR 52.21(k) and 40 CFR 52.21(m).

Once source and pollutant applicability have been determined, dispersion modeling is typically used to estimate potential ambient pollutant impacts from a major modification. Initially, only

the incremental emission increases resulting from the major modification are modeled. If the impacts from these emissions exceed the CAA's ambient significance levels, a more refined modeling analysis must be conducted to demonstrate overall compliance with NAAQS and PSD increments. **Table 5-1** provides the ambient significance levels for CO and SO_2 impacts. **Table 5-2** presents the CO and SO_2 NAAQS (The Illinois Ambient Air Quality Criteria Pollutant Standards are identical to the NAAQS). **Table 5-3** lists the applicable Class II PSD SO_2 increments.

Another set of ambient impact limits which are applicable to PSD reviews are the de minimis ambient monitoring concentrations given in **Table 5-4**. These concentrations are used to determine whether site specific ambient air monitoring may be required prior to construction or modification. Concentrations greater than the values presented in **Table 5-4** could require preconstruction monitoring for up to a year, however, nearby existing representative monitoring data can often be substituted if available, approved by IEPA, and QA/QC certified according to federal guidelines.

The Illinois Environmental Protection Agency (IEPA) has recently conducted extensive dispersion modeling analyses in and around the Granite City Steel mill. The purpose of this modeling was to demonstrate NAAQS attainment for SO_2 and particulate matter. The IEPA modeling successfully demonstrated NAAQS compliance based on federally enforceable state operating permit (FESOP) SO_2 and PM_{10} emission rates for the Granite City Steel mill. SO_2 emission rates proposed for the production increases are no greater than the proposed FESOP limits. Therefore, NAAQS modeling will not be performed.

IEPA also provided a major portion of the data used in the modeling analyses. Included in the data provided are:

- meteorology (five years surface and upper air);
- receptors (three grid files of varying resolution and coverage);
- stack parameters; and
- downwash and wake effect parameters.

5.2 AREA DESCRIPTION

The Granite City Steel mill is located in Madison County, Illinois. Madison County is located in east-central Illinois. The largest city near the mill is St. Louis, Missouri which is located approximately 15 kilometers southwest of the site. The Granite City Steel mill is situated at a surface elevation of approximately 420 feet above mean sea level. The elevations within a five kilometers radius of the site range from 400 to 430 feet, which are below the stack height elevations of all existing sources at the mill. Therefore, the site is located in an area consisting of simple terrain, and terrain elevations were not included as part of the modeling analyses.

Based on classification systems recognized by the EPA, the project area can be classified as rural. EPA guidance presents two alternative procedures to determine whether the character of an area is predominately urban or rural: 1) land use or 2) population density. The area classification system developed by Auer (1978) was used to classify the area as rural, based on color codes on the USGS maps and population density.

5.3 MODEL SELECTION

A dispersion modeling analysis for the Granite City Steel mill was performed using USEPA computer models which evaluate the ambient impact of air pollution sources by simulating the processes of transport and diffusion of effluents in the atmosphere. The procedures recommended by USEPA Region V, the Illinois Environmental Protection Agency (IEPA), and the *Guideline on Air Quality Models* (Revised), (EPA-450/12-78-027R) were followed for the modeling analysis.

The revised Industrial Source Complex Short Term (ISCST2) model, version 93109 and the more recent ISCST3 models were selected to predict ambient concentration increases. The ISCST model is frequently used in PSD modeling analyses and has gained wide acceptance by the modeling community since options are available to depict emission rate scalars, particle size data, building wake effects and downwash, cavity effects, and various types of emission sources.

The ISCST model is a steady-state Gaussian plume model designed to estimate ground-level pollutant concentrations from a wide variety of sources associated with an industrial complex in an area having simple terrain. The ISCST model utilized the regulatory default options including the following:

- final plume rise;
- stack-tip downwash;
- buoyancy-induced dispersion; and
- no calms processed

5.4 METEOROLOGICAL DATA

The dispersion modeling analysis was performed using five years (1982-86) of hourly surface meteorological data from the St. Louis International Airport (No. 13994) and twice-daily upper air meteorological data from the Salem Regional Airport (No. 03879). The meteorological data was recommended and supplied to Granite City Steel by the IEPA, and was previously used to conduct dispersion modeling analyses for SIP NAAQS attainment demonstrations. These data were received from IEPA in a preprocessed binary format compatible with the requirements of the ISCST2 model. The meteorological data consisted of hourly observations for the following parameters:

- Wind speed
- Wind direction
- Ambient temperature
- Atmospheric stability
- Mixing heights

These data were used to calculate hourly plume rise and pollutant concentrations at downwind receptor locations for averaging periods of up to a year. Each year was processed individually and maximum predicted concentrations for the worst-case year are reported in the modeling results.

The St. Louis Airport is located approximately 25 kilometers west of the mill and the Salem Regional Airport is located approximately 100 kilometers east of the mill. Both data sets are considered representative of the meteorological conditions in Madison County, Illinois. IEPA stated that the surface meteorological was collected at a sampling height of 6.1 meters instead of the standard 10 meters. The non-standard height was included in the modeling runs.

5.5 RECEPTORS

The five-year dispersion modeling analysis utilized three IEPA generated UTM Cartesian receptor grids with varying spacing (1 to 1,000 meter) and coverage. Potential near-source impacts due to downwash and wake effects were assessed utilizing fenceline receptors generated by IEPA and incorporated into three grids provided. Since terrain elevations are fairly constant, the modeling analysis was performed using only simple terrain (no terrain elevations). A copy of the receptor grid files are provided in Appendix G.

5.6 PRECONSTRUCTION AMBIENT AIR QUALITY MONITORING

Preconstruction monitoring of the air quality in the area near a proposed major modification is required by the PSD regulations to determine existing background pollutant concentrations prior to evaluating the impacts of the proposed major modification. The PSD regulations stipulate preconstruction monitoring is required if the maximum predicted (modeled) ambient impact concentration exceeds the de minimis PSD monitoring threshold. However, in lieu of a preconstruction monitoring requirement, the IEPA can designate existing representative monitoring data from a nearby site, if available, and if QA/QC certified according to federal guidelines.

The IEPA monitors CO in Madison County at 2001 Edison Street. This location is approximately 3 blocks (<0.5 kilometers) northwest of the Granite City Steel mill. This location should be considered nearby and representative of background conditions at the site. Therefore, preconstruction monitoring should not be necessary.

The IEPA monitors SO_2 in Madison County at four locations. The nearest monitoring station to the Granite City Steel mill is located in South Roxanna. This monitoring station is approximately 16 kilometers northeast of the Granite City Steel mill. However, because IEPA has already conducted extensive NAAQS SO_2 modeling and determined compliance for the area based on this modeling (at least in-so-far as it relates to the Granite City Steel mill), preconstruction monitoring should not be necessary.

The 1993 Illinois Annual Air Quality Report states that the maximum 1-hour CO average was 8.0 parts per million (9,200 $\mu g/m^3$) and the maximum 8-hour CO average was 3.7 parts per million (4,255 $\mu g/m^3$). These levels are below the 40,000 and 10,000 $\mu g/m^3$ 1-hour and 8-hour NAAQS, respectively.

The 1993 Illinois Annual Air Quality Report states that the maximum 3-hour SO_2 average was 0.171 parts per million (447 $\mu g/m^3$), the maximum 24-hour SO_2 average was 0.063 parts per million (164 $\mu g/m^3$), and the annual SO_2 average was 0.011 parts per million (28.6 $\mu g/m^3$). These levels are below the 1,300, 365, and 80 $\mu g/m^3$ 3-hour, 24-hour and annual NAAQS, respectively.

5.7 SOURCE DATA

The proposed production increases at the Granite City Steel mill will be achieved utilizing existing production equipment. Therefore, only the total emissions from the existing source points will change. The source parameters (stack height, temperature, etc.) are expected to remain the same.

The source data for the SO_2 and CO sources affected by the proposed production increases are presented in Table 5-5. The primary source points at the mill are the blast furnace stoves, boilers, baghouse, the ladle preheater/dryer stacks, the blast furnace casthouse and roof vents, the iron spout baghouse vent, slag pits and the continuous caster stacks. The ladle preheater/dryers were assumed to exhaust through a single stack for this modeling analysis.

5.8 MODELING PROTOCOL

The dispersion modeling analysis was conducted in four steps. Initially, worst-case individual impacts were determined by modeling each source individually for the five year period. From this modeling, a worst-case combined impact was determined by adding together all individual worst-case impacts regardless of time period (within an averaging period) or receptor location. If this process demonstrated that the combined impacts were below the CAA ambient significance levels, NAAQS levels, or applicable PSD Class II increments, no further analyses were conducted. If, however, the combined impacts were calculated to be above the NAAQS levels (with background levels included) or PSD Class II increments, a refined modeling analysis (taking into account the same time period and receptor locations) was performed to evaluate the specific combined impact cases which appeared to exceed the NAAQS or PSD increments

5.8.1 INDIVIDUAL IMPACT MODELING

To determine the individual worst-case impacts, a Chi/Q modeling analysis was conducted utilizing a nominal emission rate of one gram per second for each source. Once the modeling was completed, the applicable emission rates "Q" (in grams per second) for each individual source were multiplied to the Chi/Q impacts and the worst-case individual source impacts were determined.

For example, the maximum eight-hour Chi/Q impact from the basic oxygen furnace (BOF) for the five year modeling period was 5.3327 $\mu g/m^3$ (1982). Multiplying this impact to the 174.12 gram per second increase in CO emissions from the proposed production increases to the BOF results in a maximum eight-hour CO impact of 928.5 $\mu g/m^3$.

5.8.2 COMBINED IMPACT MODELING

Once the individual worst-case impacts were determined, the next step was to evaluate the worst-case combined impacts. To achieve this, it was first necessary to separate the combustion sources from the process sources.

Combustion sources (in this assessment) are defined as sources that burn fuels for the sole purpose of generating steam or thermal energy. These sources can be used interchangeably, that is, fuel burned in one source can be switched immediately to a different source. Therefore, to determine the worst case impacts from the combustion sources (and to maximize operating flexibility), the total emissions from all additional fuel combustion were applied to each combustion source, and the combustion source that was determined to have the highest impact (Boiler 12) was used in the combined impact analysis.

The worst-case combustion source impacts (Boiler 12) were then added to the worst-case individual process source impacts to arrive at a combined worst-case impact. These impacts were then compared to the CAA's ambient significant impact levels. If the significant impact levels were exceeded, the combined impacts were compared to the applicable NAAQS or PSD Class II increment. If the NAAQS or PSD Class II increments were exceeded, additional modeling was required.

5.8.3 REFINED MODELING

If the worst-case combined impacts were greater than the NAAQS (CO) or the PSD Class II increments (SO_2), refined modeling would be necessary. Since IEPA has already conducted extensive modeling to demonstrate SO_2 NAAQS compliance, this modeling was not repeated.

Refined modeling combines the applicable sources into a single modeling run and evaluates the combined impacts of these sources on particular receptor locations and at particular time periods. This modeling typically results in much lower combined impacts because it is unlikely that two or more sources are impacting on the same receptor point at the same time.

5.9 MODELING RESULTS

The results of the dispersion modeling indicate that the proposed production increases will not cause or contribute to a violation of a NAAQS, or cause an exceedance of an applicable PSD Class II increment.

5.9.1 SIGNIFICANT IMPACT DETERMINATION

As described in Section 5.9.1, individual Chi/Q modeling was conducted for all CO and SO_2 sources impacted by the proposed production increases. **Table 5-6** gives the individual and worst-case combined CO modeling results, and **Table 5-7** gives the individual and worst-case combined SO_2 modeling results.

The worst-case combined 1-hour impact levels for CO are 3,164.5 $\mu g/m^3$. This impact is greater than the applicable significant impact level of 2,000 $\mu g/m^3$. Likewise, the worst-case combined 8-hour impact level for CO was 960.3 $\mu g/m^3$, which is greater than the 500.0 $\mu g/m^3$ applicable significant impact level. Therefore, the CO impacts are considered significant and require further evaluation for NAAQS compliance.

The worst-case combined 3-hour, 24-hour and annual impacts for SO_2 are modeled to be 345.3, 32.6 and 7.1 $\mu g/m^3$, respectively. These impacts are greater than their respective 25, 5 and 1 $\mu g/m^3$ applicable significant impact levels. Therefore, the SO_2 impacts are also significant and require further evaluation for PSD Class II increment consumption.

5.9.2 NAAQS DETERMINATION - CO

Table 5-8 presents the individual and worst-case combined modeling results for all CO sources at the Granite City Steel mill. Based on these modeling results, the worst-case combined 1-hour impacts from the Granite City Steel sources is 9,827.8 $\mu g/m^3$. If a representative background concentration of 9,200 $\mu g/m^3$ is added to this impact, the total worst-case 1-hour

impact is 19,027.8 $\mu g/m^3$. This impact is below the NAAQS of 40,000 $\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

Based on the modeling results, the worst-case combined 8-hour impacts from the Granite City Steel sources is 2,871.4 $\mu g/m^3$. If a representative background concentration of 4,255 $\mu g/m^3$ is added to this impact, the total worst-case 8-hour impact is 7,126.4 $\mu g/m^3$. This impact is below the NAAQS of 10,000 $\mu g/m^3$; therefore, the production increase does not cause or contribute to an 8-hour CO NAAQS exceedance.

5.9.3 PSD CLASS II INCREMENT CONSUMPTION - SO_2

SO_2 increment is consumed by sources in a specific area that increase their emission of SO_2 after the SO_2 baseline date has been established for that area. The increment can be expanded in a similar fashion if sources in a specific area decrease their SO_2 emissions after the baseline date. Based on data provided by IEPA, the SO_2 baseline date was established for the Kilngas - Wood River Gas Turbine project in December 1982. This project was eventually canceled. Since this time, two additional PSD projects that would have been potential SO_2 increment consumers were proposed and ultimately canceled.

IEPA and Granite City Steel were unable to identify the number and magnitude of minor source increment changes that have occurred since 1983. However, SO_2 monitoring data for Madison County indicate that SO_2 concentrations are remaining constant or trending downward. Therefore, we can conclude that at least the full Class II PSD increments for SO_2 should be available.

Table 5-7 presents the individual and worst-case combined modeling results for all SO_2 sources affected by the proposed production increases at the Granite City Steel mill. The worst-case combined impact for the 3-hour averaging period was 345.3 $\mu g/m^3$, for the 24-hour averaging period was 99.1 $\mu g/m^3$, and for the annual averaging period was 7.1 $\mu g/m^3$. Based on these

results, the worst-case combined impacts are at or below the 3-hour and annual Class II PSD SO_2 increments of 512 and 20 $\mu g/m^3$, respectively. However, the maximum 24-hour impact was estimated to be 99.1 using this conservative method. That impact is greater than the applicable 24-hour PSD increment of 91 $\mu g/m^3$. Therefore, additional analysis was required for the 24-hour averaging period.

5.9.3.2 Increment Consumption Based on Refined Modeling

Refined modeling was carried out for the 24-hour averaging period. This modeling used the same source assumptions that were used for the previous modeling (e.g. assumption that all incremental fuel was used by one combustion source). Each combustion source was modeled in turn with the process sources to estimate a maximum a maximum ground level concentration, this time adding the predicted concentrations for each source at each receptor location. As shown on Table 5-9, this analysis shows that the maximum concentration predicted at any receptor is 32.6 $\mu g/m^3$, well below the 24-hour PSD increment for SO_2 of 91 $\mu g/m^3$.

5.10 REFERENCES

Auer, Jr., A.H. 1978. *Correlation of Land Use and Cover with Meteorological Anomalies*, Journal of Applied Meteorology, 17:636-643.

U.S. Environmental Protection Agency. 1986. Guideline on Air Quality Models (Revised). EPA-450/2-78-027R, Research Triangle Park, North Carolina.

Illinois Environmental Protection Agency. 1994. 1993 Illinois Annual Air Quality Report. IEPA\APC\94-150, Bureau of Air, Springfield, Illinois.

6.0
ADDITIONAL IMPACT ANALYSES

The additional impact analyses required under 40 CFR 52.21(o) are the following:

1. Air quality impacts in Class I areas within 100 km;
2. Visibility impacts in Class I areas within 100 km;
3. Impacts on soils and vegetation that would result from the modification;
4. Impacts on endangered species; and
5. Socioeconomic analysis

The air quality modeling projections performed in Section 5.0 and by IEPA have demonstrated that the proposed modification will not cause or contribute to an exceedance of the applicable National Ambient Air Quality Standard (NAAQS), or cause an exceedance of a PSD Class II increment. The same can be said for any other anticipated effects that the proposed modification might have upon the surrounding areas of Madison county. Although the source impact analysis is a quantitative, mathematical determination evaluated in relative numerical terms, other impact analyses are generally more qualitative and descriptive in nature. The following sections summarize those additional considerations and demonstrate in each case that the proposed modification will produce no adverse effects.

6.1 AIR QUALITY IMPACTS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on air quality in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state.

The nearest Federal Class I area to the Granite City Steel mill is the Mingo National Wilderness Area which is approximately 210 km southwest of the mill. The next closest Class I area (Hercules-Glades) is about 330 km southwest of the mill. The distance from the Class I area to

the mill is greater than 100 km; therefore no air quality impact analyses were performed to evaluate impacts within the wilderness area.

6.2 VISIBILITY IMPACT ANALYSIS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on visibility in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state. The nearest Class I area is the Mingo National Wilderness Area in Popular Bluff, Missouri, located approximately 210 km south-west of Granite City mill.

The current regulation governing PSD review addresses the prevention of visibility impairment in federal Class I areas. No visibility impact analysis for the Class I area was performed, as the nearest Class I area is more than 100 km from the Granite City mill and no impact is expected.

6.3 IMPACTS ON SOILS AND VEGETATION

Impacts on soils and vegetation applies only to those areas in which there is vegetation of significant commercial or recreational value. There are no vegetation or soil types in Granite City area which would be harmed by concentrations of criteria pollutants below the national ambient air quality standards. Therefore, no soils or vegetation analyses are required for the proposed modification.

6.4 IMPACTS ON ENDANGERED SPECIES

No impacts will occur to any listed endangered or threatened species, since none are known or likely to occur in the project area.

6.5 SOCIOECONOMIC ANALYSIS

The proposed modification at the Granite City mill will have a positive economic impact for the company and therefore, for the community surrounding the mill. The infrastructure surrounding the mill is already established due to the existing industrial nature of the area. Therefore, it is not anticipated that there will be secondary air quality impacts due to the increase in production.

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 48	Mgal	-	Included in line 48	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R008110

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,871 NTPD
BOF @ 9,809 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	included in line 38	MMcf	-	included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00355	lb/ton proc.	2,413,406	tons prod.	4.28	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse ~~~	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,241	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							1,107.94					1,047.36	(60.58)
			Contemporaneous Changes											(37.39)
			Net Change											*(97.97)*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

R008111

Projected Emissions Based On: Blast Furnace @ 9,071 NTPD
BOF @ 9,808 NTPD

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,580,000	ton prod.			10.74	3.50
21	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	10.28	3,580,000	ton prod.			15.25	4.97
22	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	included in line 38	MMcf	-	Included in line 38	-			-	-
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,580,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton proc.	2,413,406	tons prod.	8.71	3,580,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.00715	lb/ton proc.	2,413,406	tons prod.	8.63	3,580,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material HS	0.00395	lb/ton proc.	2,413,406	tons prod.	4.26	3,580,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton proc.	2,413,406	tons proc.	0.39	3,580,000	tons proc.			0.57	0.18
28	0107 & 0035	01	Desulf. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton proc.	2,059,557	tons prod.	38.32	3,165,000	ton prod.			58.88	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton proc.	2,059,557	tons slag	4.29	3,165,000	ton prod.			6.60	2.30
30	9003	01	Iron Pellet Screen	0.00279	lb/ton pellets charged	2,803,341	tons proc.	3.91	4,308,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02548	lb/ton proc.	2,059,557	tons proc.	26.24	3,165,000	tons proc.			40.32	14.08
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F										0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F										0.00
34			Unpaved Parking Lots					-		-			-	-
35			Paved Parking Lots					-		-			-	-
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.9	lb/MMcf	121,039	MMcf	175.51	185,030	MMcf			268.29	92.79
38			Fuel Oil	9.72	lb/Mgal	16	Mgal	0.08	365	Mgal			1.77	1.70
	TOTALS:							937.42					989.04	91.62
			Contemporaneous Changes											(37.54)
			Net Change											*14.08*

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 60 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

R008112

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnace @ 6,671NTPD
BOF @ 9,808 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
3	0008	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
4	0041	01	Boiler House 1 (Bls 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40	-			-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	60	lbs/hr	262.80	69.73
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39	-			-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.36	4,308,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0703	lb/ton proc.	2,059,557	tons proc.	72.35	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Roof Monitor	0.287	lb/ton proc.	2,413,406	tons proc.	346.20	3,580,000	tons proc.	0.066144		118.40	(227.81)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.86	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

R008113

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @8,071 NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	381	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 19	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.0946	lb/ton proc.	2,059,557	tons proc.	97.40	3,165,000	tons proc.	149.68	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0047	lb/ton proc.	2,059,557	tons proc.	4.83	3,165,000	tons proc.	7.42	-
15	0033	01	2 BOF Vessels	0.0060	lb/ton proc.	2,413,406	tons proc.	7.24	3,580,000	tons proc.	10.74	-
16	0035	01	Transfer Pits	0.0010	lb/ton proc.	2,059,557	tons proc.	1.03	3,165,000	tons proc.	1.58	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
18			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
19			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
20			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	385	lb/Mgal	0.05	-
	TOTALS:							111.80			171.08	59.28
			Contemporaneous Changes									(31.70)
			Net Change									*27.58*

R008114

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 8,071NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 18	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 18	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.85	3,680,000	ton proc.	16,097.47	5,245.59
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	16	Mgal	inc. above	365	Mgal	0.91	-
	TOTALS:							11,763.94			17,388.74	5,684.80
			Contemporaneous Changes									(13.11)
			Net Change									*5,671.69*

R008115

TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb

Projected Emissions Based On: Blast Furnace @ 6,671NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	EMISSION RATE lb/hr	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT OR PRODUCTION RATE	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	0.01600000	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	0.00039000	8760	hours	0.0017	1.537	tons proc.	0.00262550	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	0.00055000	8760	hours	0.0024	1.537	tons proc.	0.00370263	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	0.00022000	8760	hours	0.0010	1.537	tons proc.	0.00148105	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	0.00036700	8760	hours	0.0016	1.537	tons proc.	0.00247067	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	0.00053700	8360	hours	0.0024	1.537	tons proc.	0.00361512	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	0.00021400	8360	hours	0.0009	1.537	tons proc.	0.00144066	-
9	0033	01	BOF 2 Vessels Stack	0.19337500	lb/hr	0.19337500	8760	hours	0.8470	1.483	tons prod.	1.25607505	-
10	0034	01	BOF Roof Monitor	0.01290000	lb/hr	* 0.01290000	8760	hours	0.0565	1.483	tons prod.	0.08379247	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	0.00002320	8760	hours	0.0001	1.483	tons prod.	0.00015070	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	0.00000062	8760	hours	0.0000	1.483	tons prod.	0.00000405	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	0.00002250	8760	hours	0.0001	1.483	tons prod.	0.00014615	-
14	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	0.00020200	8760	hours	0.0009	1.483	tons prod.	0.00131210	-
15	0105	01	Deslagging Station	0.00240000	lb/hr	0.00240000	8760	hours	0.0105	1.483	tons prod.	0.01558930	-
16	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	0.01330000	8760	hours	0.0583	1.483	tons prod.	0.08639068	-
17	0120	01	Caster Mold - Casters	0.00113000	lb/hr	0.00113000	8760	hours	0.0049	1.483	tons prod.	0.00733996	-
18			Boilers -Waste Oil	0.33600000	lb/Mgals		-	-	-	365	Mgals	0.06132000	-
	TOTAL					0.26			0.889			1.627	0.539
			Contemporaneous Changes										0.000
			Net Change										*0.539*

R008116

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 6,071 NTPD
BOF @ 9,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0008	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 19	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 19	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 19	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 19	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,165,000	tons proc.	422.00	215.43	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,165,000	tons proc.	~~21.94~~	11.23	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,165,000	tons proc.	13.89	6.37	Est. Annual Max
16	113	1	Blast Furnace Slag Pits	0.0100	lb/ton	2,059,557	tons proc.	10.30	3,165,000	tons proc.	15.93	5.63	
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
18			Natural Gas	0.6	lb/MMcf	1,145	MMcf	-	1,145	MMcf	0.34	0.00	
19			Blast Furnace Gas	6.65	lb/MMcf	121,039	MMcf	-	185,030	MMcf	615.22	212.77	
20			Fuel Oil	141.3	lb/Mgal	16	Mgal	-	365	Mgal	25.79	24.86	
	TOTALS:							639.03			1,115.01	475.98	
			Contemporaneous Changes									(0.18)	
			Net Change									*475.80*	

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TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @ 6,671NTPD
BOF @ 3,808 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	Blast Furnace Gas Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Bls 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Bls 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,580,000	ton proc.	69.63	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,185,000	tons proc.	22.78	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,185,000	tons proc.	1.14	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,580,000	ton prod.	89.50	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	1,145	MMcf	inc. above	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	121,039	MMcf	inc. above	185,030	MMcf	488.48	-
20			Fuel Oil	55	lb/Mgal	16	Mgal	inc. above	365	Mgal	10.04	-
	TOTALS:							618.01			856.78	238.75
			Contemperaneous Changes									(208.14)
			Net Change									*30.61*

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TABLE 5-1
AMBIENT SIGNIFICANT IMPACT LEVELS IN CLASS II AREAS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	2,000	---	500	---	---
SO_2	---	25	---	5	1

TABLE 5-2
NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	40,000	---	10,000	---	---
SO_2	---	1,300	---	365	80

TABLE 5-3
CLASS II PSD INCREMENT LEVELS ($\mu g/m^3$)

	Averaging Period		
Pollutant	3-hour	24-hour	Annual
SO_2	512	91	20

TABLE 5-4
DE MINIMIS PRECONSTRUCTION MONITORING IMPACT LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	---	---	575	---	---
SO_2	---	---	---	13	---

TABLE 5-5
SOURCE DATA PARAMETERS

Source Name	Source ID#	East	North	Stack Height	Exit Temp.	Exit Velocity	Diameter
		(m)	(m)	(m)	(K)	(m/s)	(m)
Casthouse Baghouse	17000	749675	4286481	19.32	339	20.33	3.35
Iron Spout Baghouse	17005	749780	4286540	16.76	416	20.70	0.76
Blast Furnace Stove B	17010	749730	4286485	68.58	533	18.56	2.74
Boiler House 1 (Boilers 1-7)	17020	749815	4286590	68.58	460	4.85	4.11
Blast Furnace Stove A	17030	749880	4286560	66.14	533	26.84	2.13
Boiler 11	17040	749945	4286640	46.33	510	11.88	2.13
Boiler 12	17050	749945	4286640	46.33	510	10.64	2.13
Boiler House 1 (Boilers 8-10)	17060	749760	4286660	60.96	460	3.44	3.20
A Underfire Battery	17110	750170	4286730	9.15	529	3.31	2.74
B Underfire Battery	17120	750180	4286730	9.15	529	4.79	2.74
Slab Furnace #1	17130	747740	4286570	33.53	616	18.96	2.07
Slab Furnace #2	17140	747770	4286570	33.53	616	18.96	2.07
Slab Furnace #3	17150	747750	4286550	33.53	616	18.96	2.07
Slab Furnace #4	17340	747680	4286530	44.50	644	8.15	4.20
By-Products Flare	17260	750050	4286770	32.00	1273	20.00	1.94
BOF Ladle Preheater/Dryer	30030	748430	4286320	Volume Source			
BOF	21760	748360	4286450	48.80	561	16.00	5.49
Continuous Caster #1	22100	748560	4286320	34.69	339	8.29	1.98
Continuous Caster #2	22292	748630	4286410	40.23	339	17.52	2.23

TABLE 5-6
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q impacts		Blast Furnace Gas			No. 6 Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Cont. Caster #1	47.5527	17.8091	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0
Cont. Caster #2	73.3953	17.1240	0.0	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0	0.0	0.0
Blast Furnace Stove A	1.1997	0.4702	17.8	21.4	8.4	0.00	0.0	0.0	0.00	0.0	0.0	21.4	8.4
Blast Furnace Stove B	1.0404	0.4282	17.8	18.5	7.6	0.00	0.0	0.0	0.00	0.0	0.0	18.5	7.6
Boiler House 1-7	1.7836	0.6565	17.8	31.8	11.7	0.03	0.0	0.0	0.00	0.0	0.0	31.8	11.7
Boiler House 8-10	3.5287	1.3240	17.8	62.8	23.6	0.03	0.1	0.0	0.00	0.0	0.0	62.9	23.6
Boiler 11	4.7301	1.7913	17.8	84.2	31.9	0.03	0.1	0.0	0.00	0.0	0.0	84.4	31.9
Boiler 12	5.1308	1.9338	17.8	91.4	34.4	0.03	0.1	0.0	0.00	0.0	0.0	91.5	34.5
Flare	0.4857	0.1362	17.8	8.6	2.4	0.00	0.0	0.0	0.00	0.0	0.0	8.6	2.4
BOF-Ladle	125.6553	51.4169	17.8	2,237.8	915.7	0.00	0.0	0.0	0.00	0.0	0.0	2,237.8	915.7
Max. Combustion Impact	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,237.8	915.7
BOF	17.6553	4.1854	0.0	0.0	0.0	0.00	0.0	0.0	207.17	3,657.6	867.1	3,657.6	867.1
Maximum Impact Levels (1):												5,895.4	1,782.8
Significance Levels:												2,000.0	500.0

(1) Maximum impact level equals the sum of the maximum combustion impact and the impact from non-combustion sources (Basic Oxygen Furnace).

BFG Short Term Emission Rate Calculation:

Proj. BFG Usage:	211,334	MMcf/yr
Base BFG Usage:	121,039	MMcf/yr
Net Increase:	90,295	MMcf/yr
CO EF:	13.7	lb/MMcf
Incremental CO Emissions:	618.52	tons/yr
Incremental CO Emission Rate:	17.81	g/sec

No. 6 F.O. Short Term Emission Rate Calculation:

Proj. F.O. Usage:	365	Mgal/yr
Base F.O. Usage:	16	Mgal/yr
Net Increase:	349	Mgal/yr
CO EF:	5.0	lb/MMcf
CO Emissions:	0.87	tons/yr
CO Emission Rate	0.03	g/sec

Other Short Term Emission Rate Calculation:

BOF

Proj. Production:	4,015,000	tons/yr
Base Production:	2,413,406	tons/yr
Net Increase:	1,601,594	tons/yr
CO EF:	8.993	lb/ton
CO Emissions:	7,201.57	tons/yr
CO Emission Rate	207.17	g/sec

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TABLE 6-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q impacts			Blast Furnace Gas					No. 6 Fuel Oil			
Source	3-hour	24-hour	Annual	3 & 24-hr Emission Rate	Annual Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	0.7395	0.1662	0.0136	8.53	6.12	6.3	1.4	0.1	0.00	0.0	0.0	0.0
Blast Furnace Stove B	0.7237	0.1680	0.0117	8.53	6.12	6.2	1.4	0.1	0.00	0.0	0.0	0.0
Boiler House 1-7	1.1529	0.2987	0.0229	8.53	6.12	9.8	2.5	0.1	0.71	0.0	0.0	0.0
Boiler House 8-10	2.5074	0.6452	0.0508	8.53	6.12	21.4	5.5	0.3	0.71	0.0	0.0	0.0
Boiler 11	4.1542	1.4305	0.0889	8.53	6.12	35.4	12.2	0.5	0.71	0.0	0.0	0.1
Boiler 12	4.4142	1.5511	0.1062	8.53	6.12	37.6	13.2	0.7	0.71	0.0	0.0	0.1
Flare	0.3159	0.0794	0.0063	8.53	6.12	2.7	0.7	0.0	0.00	0.0	0.0	0.0
A&B BF - Casthouse	14.6877	4.2607	0.0955	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B BF - Uncap. Fug	186.4113	58.3531	7.5129	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	168.4563	48.4854	6.1389	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #1	692.3306	147.4141	12.0020	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #2	546.4022	129.1282	12.7399	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #3	540.8122	127.0257	13.3671	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #4	568.7669	144.8420	14.1285	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #5	597.7734	155.6524	14.7405	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Slag Pit #6	469.1691	158.0640	15.6250	0.00	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Maximum Impact Levels:												
Significance Levels:												
Class II PSD Increments:												

BFG Emission Rate Calculation:

		3 & 24-hr	Annual
Proj. BFG Usage:	(MMcf/yr)	210,167	185,030
Base BFG Usage:	(MMcf/yr)	121,039	121,039
Net Increase:	(MMcf/yr)	89,128	63,991
SO2 EF:	(lb/MMcf)	6.65	6.65
SO2 Emissions:	(tons/yr)	296.35	212.77
SO2 Emission Rate	(g/sec)	8.53	6.12

No. 6 F.O. Emission Rate Calculation:

		Annual
Proj. F.O. Usage:	(Mgal/yr)	365
Base F.O. Usage:	(Mgal/yr)	16
Net Increase:	(Mgal/yr)	349
SO2 EF:	(lb/Mgal)	141.3
SO2 Emissions:	(tons/yr)	24.66
SO2 Emission Rate	(g/sec)	0.71

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TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q impacts			Other					Totals		
Source	3-hour	24-hour	Annual	3 & 24-hr Emission Rate	Annual Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	0.7395	0.1662	0.0136	0.00	0.00	0.0	0.0	0.0	6.3	1.4	0.1
Blast Furnace Stove B	0.7237	0.1680	0.0117	0.00	0.00	0.0	0.0	0.0	6.2	1.4	0.1
Boiler House 1-7	1.1529	0.2987	0.0229	0.00	0.00	0.0	0.0	0.0	9.8	2.5	0.2
Boiler House 8-10	2.5074	0.6452	0.0508	0.00	0.00	0.0	0.0	0.0	21.4	5.5	0.3
Boiler 11	4.1542	1.4305	0.0889	0.00	0.00	0.0	0.0	0.0	35.4	12.2	0.6
Boiler 12	4.4142	1.5511	0.1062	0.00	0.00	0.0	0.0	0.0	37.6	13.2	0.9
Flare	0.3159	0.0794	0.0063	0.00	0.00	0.0	0.0	0.0	2.7	0.7	0.0
A&B BF - Casthouse	14.6877	4.2607	0.0955	6.20	6.20	91.0	26.4	0.6	91.0	26.4	0.6
A&B BF - Uncap. Fug	186.4113	58.3531	7.5129	0.32	0.32	60.2	18.9	2.4	60.2	18.9	2.4
Iron Spout Baghouse	168.4563	48.4854	6.1389	0.18	0.18	30.9	8.9	1.1	30.9	8.9	1.1
Slag Pit #1	692.3306	147.4141	12.0020	0.04	0.03	25.5	5.4	0.3	25.5	5.4	0.3
Slag Pit #2	546.4022	129.1282	12.7399	0.04	0.03	20.1	4.7	0.3	20.1	4.7	0.3
Slag Pit #3	540.8122	127.0257	13.3671	0.04	0.03	19.9	4.7	0.4	19.9	4.7	0.4
Slag Pit #4	568.7669	144.8420	14.1285	0.04	0.03	20.9	5.3	0.4	20.9	5.3	0.4
Slag Pit #5	597.7734	155.6524	14.7405	0.04	0.03	22.0	5.7	0.4	22.0	5.7	0.4
Slag Pit #6	469.1691	158.0640	15.6250	0.04	0.03	17.3	5.8	0.4	17.3	5.8	0.4
Maximum Impact Levels:									**345.3**	**99.1**	**7.1**
Significance Levels:									**25.0**	**5.0**	**1.0**
Class II PSD Increments:									**512.0**	**91.0**	**20.0**

Other Emission Rate Calculations:

A&B Blast Furnace Casthouse	Annual
Proj. SO2 Emissions (tons/yr)	422.00
Base SO2 Emissions: (tons/yr)	206.57
Net SO2 Emissions: (tons/yr)	215.43
Net SO2 Emissions: (g/sec)	6.197

A&B B.F. Uncap. Roof Fugs.	Annual
Proj. SO2 Emissions (tons/yr)	21.94
Base SO2 Emissions: (tons/yr)	10.71
Net SO2 Emissions: (tons/yr)	11.23
Net SO2 Emissions: (g/sec)	0.323

Iron Spout Baghouse	Annual
Proj. SO2 Emissions: (tons/yr)	13.89
Base SO2 Emissions: (tons/yr)	7.52
Net SO2 Emissions: (tons/yr)	6.37
Net SO2 Emissions: (g/sec)	0.183

Slag Pits	3 & 24-hr	Annual
Proj. SO2 Emissions: (tons/yr)	17.97	15.82
Base SO2 Emissions: (tons/yr)	10.30	10.30
Net SO2 Emissions: (tons/yr)	7.67	5.52
Net SO2 Emissions: (g/sec)	0.22	0.16
Net SO2 Emissions: (g/sec/pit)	0.04	0.03

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TABLE 8-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Blast Furnace Gas			Natural Gas			Coke Oven Gas		
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)
BOF	17.6553	5.3327	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0
Cont. Caster #1	47.5527	17.8091	0.00	0.0	0.0	2.89	137.3	51.4	0.00	0.0	0.0
Cont. Caster #2	82.7923	17.1650	0.00	0.0	0.0	2.89	239.0	49.5	0.00	0.0	0.0
Blast Furnace Stove A	1.1997	0.4734	41.41	49.7	19.6	2.89	3.5	1.4	2.52	3.0	1.2
Blast Furnace Stove B	1.2430	0.4282	41.41	51.5	17.7	2.89	3.6	1.2	2.52	3.1	1.1
Boiler House 1-7	1.8212	0.8147	41.41	75.4	33.7	2.89	5.3	2.4	2.52	4.6	2.1
Boiler House 8-10	4.2527	1.8400	41.41	176.1	76.2	2.89	12.3	5.3	2.52	10.7	4.6
Boiler 11	6.6510	2.2235	41.41	275.4	92.1	2.89	19.2	6.4	2.52	16.8	5.6
Boiler 12	7.1537	2.5136	41.41	296.3	104.1	2.89	20.6	7.3	2.52	18.0	6.3
Flare	0.6122	0.1645	41.41	25.4	6.8	0.00	0.0	0.0	0.00	0.0	0.0
Slab Furnace 1	25.9116	10.1473	0.00	0.0	0.0	2.89	74.8	29.3	0.00	0.0	0.0
Slab Furnace 2	24.3797	8.1820	0.00	0.0	0.0	2.89	70.4	23.6	0.00	0.0	0.0
Slab Furnace 3	28.2578	10.0804	0.00	0.0	0.0	2.89	81.6	29.1	0.00	0.0	0.0
Slab Furnace 4	11.6485	2.3372	0.00	0.0	0.0	2.89	33.6	6.7	0.00	0.0	0.0
"A" Underfire	21.4379	7.9854	0.00	0.0	0.0	0.00	0.0	0.0	2.52	54.0	20.1
"B" Underfire	12.0289	5.9158	0.00	0.0	0.0	0.00	0.0	0.0	2.52	30.3	14.9
BOF-Ladle	229.5923	51.4169	0.00	0.0	0.0	2.89	662.7	148.4	2.52	578.6	129.6
Maximum Combined Impact Levels:											
Background CO Concentrations:											
Total CO Concentration:											
Ambient Air Quality Standard:											

BFG Emission Rate Calculation:

		1 & 8-hr
Proj. BFG Usage:	(MMcf/yr)	210,167
CO EF:	(lb/MMcf)	13.7
CO Emissions:	(tons/yr)	1,439.64
CO Emission Rate:	(g/sec)	41.41

COG Emission Rate Calculation:

		1 & 8-hr
Proj. COG Usage:	(MMcf/yr)	9,522
CO EF:	(lb/MMcf)	18.4
CO Emissions:	(tons/yr)	87.60
CO Emission Rate:	(g/sec)	2.52

Nat. Gas Emission Rate Calculation:

		1 & 8-hr
Proj. NG Usage:	(MMcf/yr)	5,017
CO EF:	(lb/MMcf)	40.0
CO Emissions:	(tons/yr)	100.34
CO Emission Rate:	(g/sec)	2.89

R008124

TABLE 6-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q impacts		No. 6 Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
BOF	17.6553	5.3327	0.00	0.0	0.0	519.35	9,169.2	2,769.5	9,169.2	2,769.5
Cont. Caster #1	47.5527	17.8091	0.00	0.0	0.0	0.00	0.0	0.0	137.3	51.4
Cont. Caster #2	82.7923	17.1650	0.00	0.0	0.0	0.00	0.0	0.0	239.0	49.5
Blast Furnace Stove A	1.1997	0.4734	0.00	0.0	0.0	0.00	0.0	0.0	49.7	19.6
Blast Furnace Stove B	1.2430	0.4282	0.00	0.0	0.0	0.00	0.0	0.0	51.5	17.7
Boiler House 1-7	1.8212	0.8147	0.00	0.0	0.0	0.00	0.0	0.0	75.4	33.7
Boiler House 8-10	4.2527	1.8400	0.00	0.0	0.0	0.00	0.0	0.0	176.1	76.2
Boiler 11	6.6510	2.2235	0.03	0.2	0.1	0.00	0.0	0.0	275.4	92.1
Boiler 12	7.1537	2.5136	0.03	0.2	0.1	0.00	0.0	0.0	296.3	104.1
Flare	0.6122	0.1645	0.00	0.0	0.0	0.00	0.0	0.0	25.4	6.8
Slab Furnace 1	25.9116	10.1473	0.00	0.0	0.0	0.00	0.0	0.0	74.8	29.3
Slab Furnace 2	24.3797	8.1820	0.00	0.0	0.0	0.00	0.0	0.0	70.4	23.6
Slab Furnace 3	28.2578	10.0804	0.00	0.0	0.0	0.00	0.0	0.0	81.6	29.1
Slab Furnace 4	11.6485	2.3372	0.00	0.0	0.0	0.00	0.0	0.0	33.6	6.7
"A" Underfire	21.4379	7.9854	0.00	0.0	0.0	0.00	0.0	0.0	54.0	20.1
"B" Underfire	12.0289	5.9158	0.00	0.0	0.0	0.00	0.0	0.0	30.3	14.9
BOF-Ladle	229.5923	51.4169	0.00	0.0	0.0	0.00	0.0	0.0	662.7	148.4
Maximum Combined Impact Levels:									**9,831.9**	**2,917.9**
Background CO Concentrations:									**9,200.0**	**4,255.0**
Total CO Concentration:									**19,031.9**	**7,172.9**
Ambient Air Quality Standard:									**40,000.0**	**10,000.0**

No. 6 F.O. Emission Rate Calculation:

		1 & 8-hr
Proj. F.O. Usage:	Mgal/yr	365
CO EF:	lb/Mgal	5.0
CO Emissions:	tons/yr	0.91
CO Emission Rate	g/sec	0.03

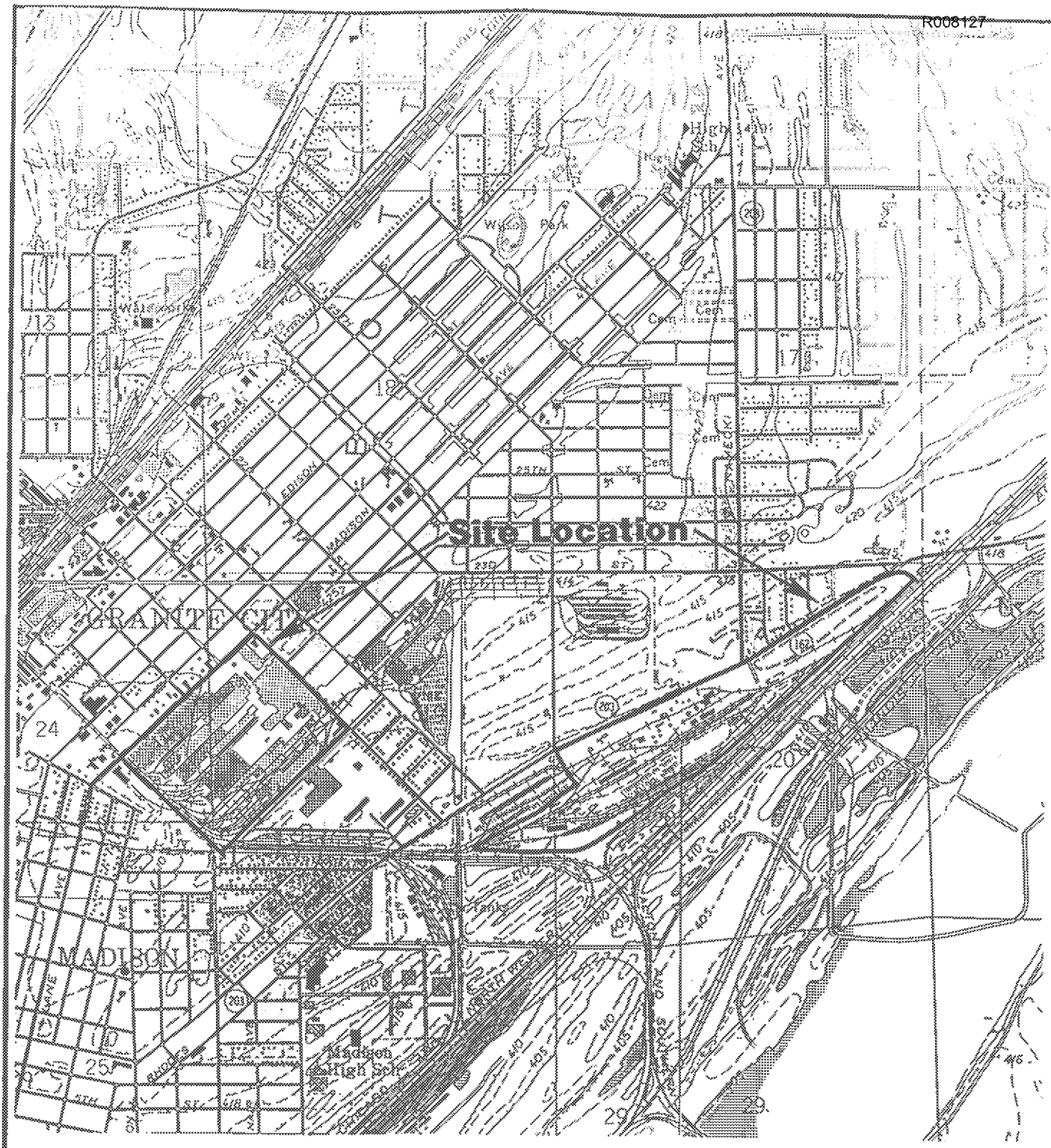
Other Emission Rate Calculations:

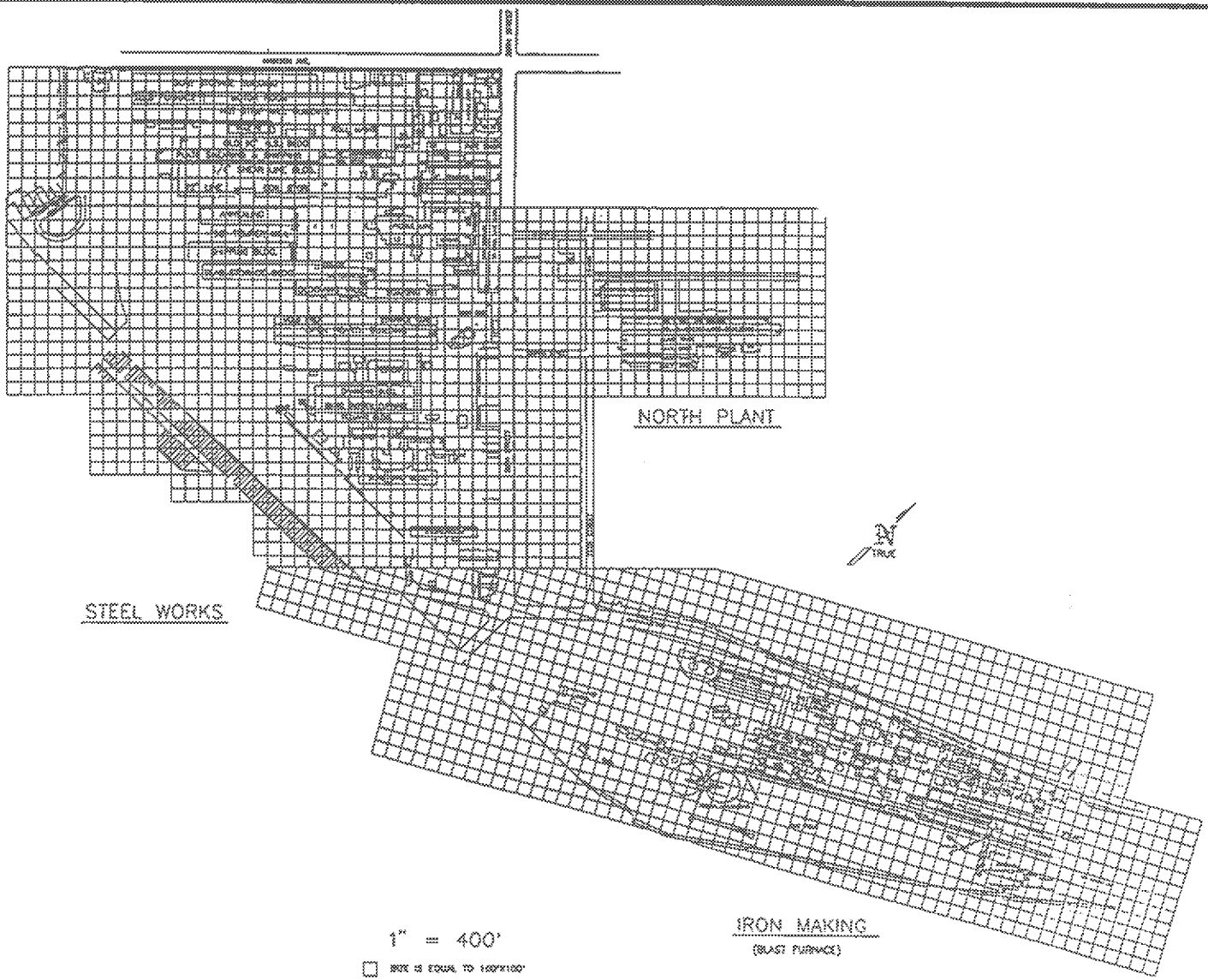
BOF		1 & 8-hr
Proj. Production:	tons/yr	4,015,000
CO EF:	lb/ton	8.993
CO Emissions:	tons/yr	18,053.45
CO Emission Rate	g/sec	519.35

R008125

TABLE 5-9
REFINED MODELING RESULTS - PSD INCREMENT ANALYSIS
24-HOUR IMPACTS

Case #	Description	Maximum 24-hour Impact	Year	Class II PSD Increment
		(ug/m3)		(ug/m3)
1	BF Stove A + 9 Process Sources	32.5	1982	91.0
2	BF Stove B + 9 Process Sources	32.5	1982	91.0
3	Boilers 1-7 + 9 Process Sources	32.5	1982	91.0
4	Boilers 8-10 + 9 Process Sources	32.5	1982	91.0
5	Boiler 11 + 9 Process Sources	32.5	1982	91.0
6	Boiler 12 + 9 Process Sources	32.6	1984	91.0
7	By-Products Flare + 9 Process Sources	32.5	1982	91.0


Site Location
GRANITE CITY
MADISON
Madison High Sch
Cem
Pond
Water Tower
Pump
Ch
Sch
Mon
Ceme
Ceme
Ceme



SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO 4E0810

Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Map	FIG. NO. 1-2

R008128

File: F:\4E0810\9\FIG1-2.DWG Last edited: 12/29/94 @ 1:09 p.m. @ WCC-ST.LOUIS

FIGURE 2-1
PROCESS FLOW - BASIC OXYGEN FURNACE SHOP

R008129

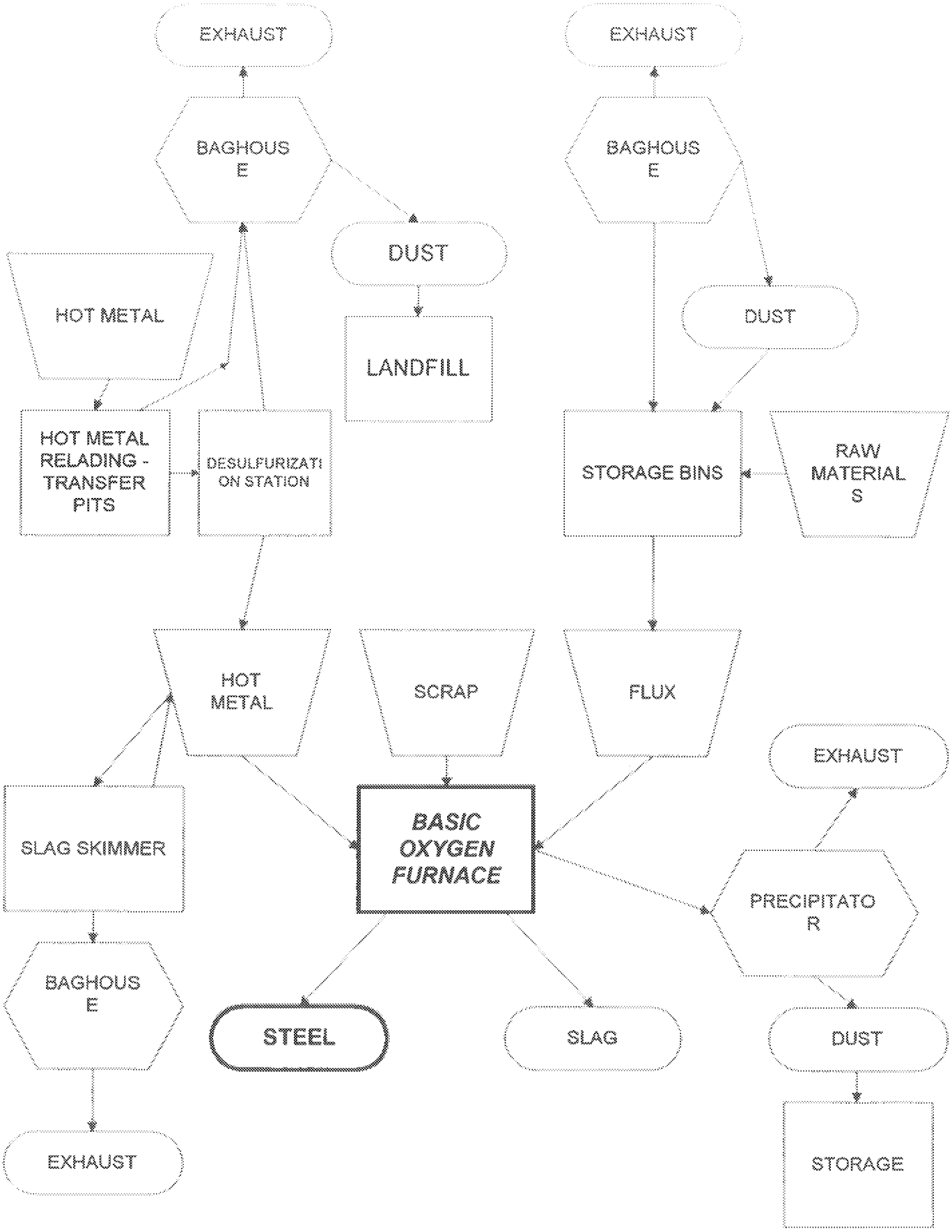


FIGURE 2-2
PROCESS FLOW - LADLE METALLURGY STATION & ARGON STIRRING STATIONS

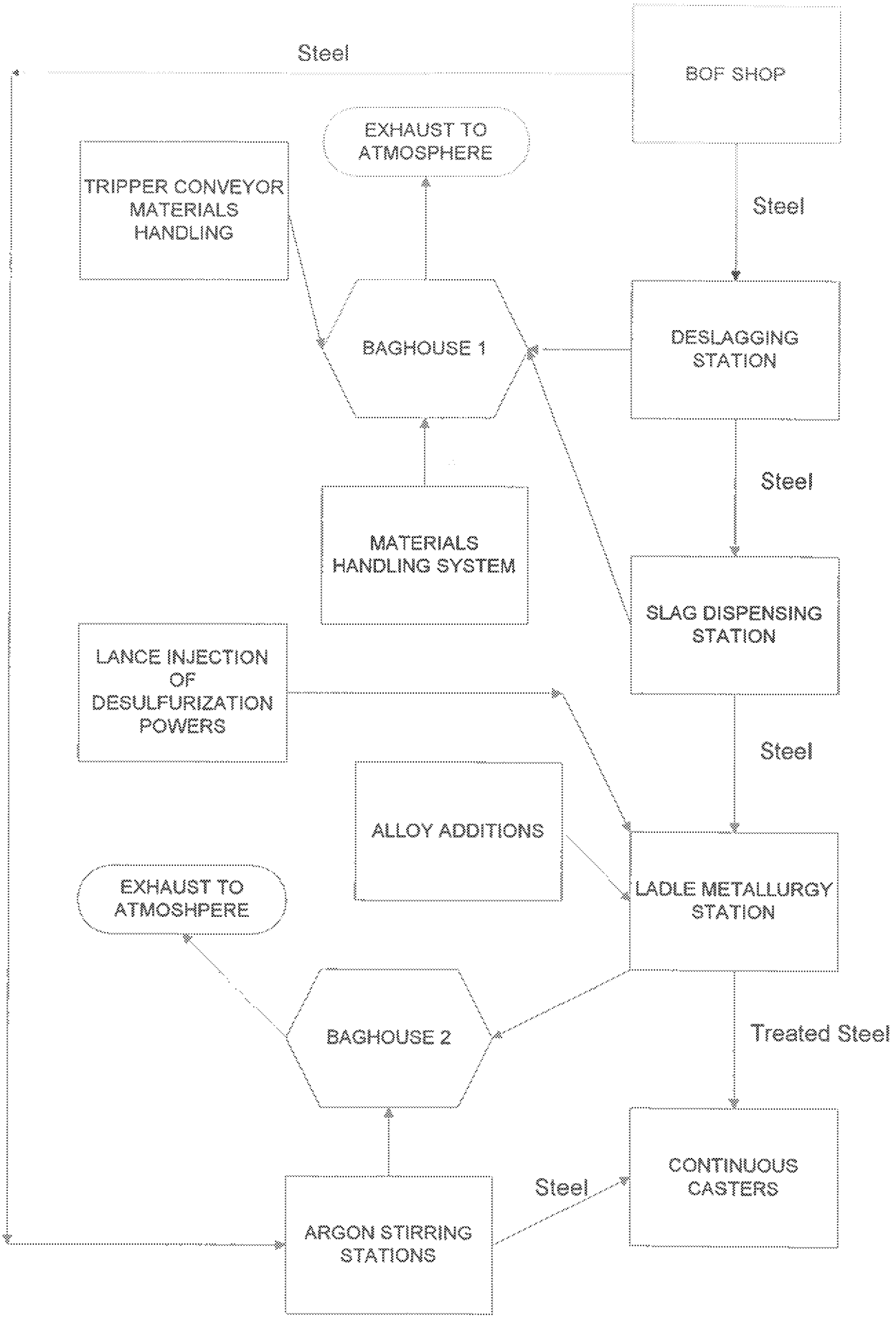


FIGURE 2-3 - PROCESS FLOW CONTINUOUS CASTER

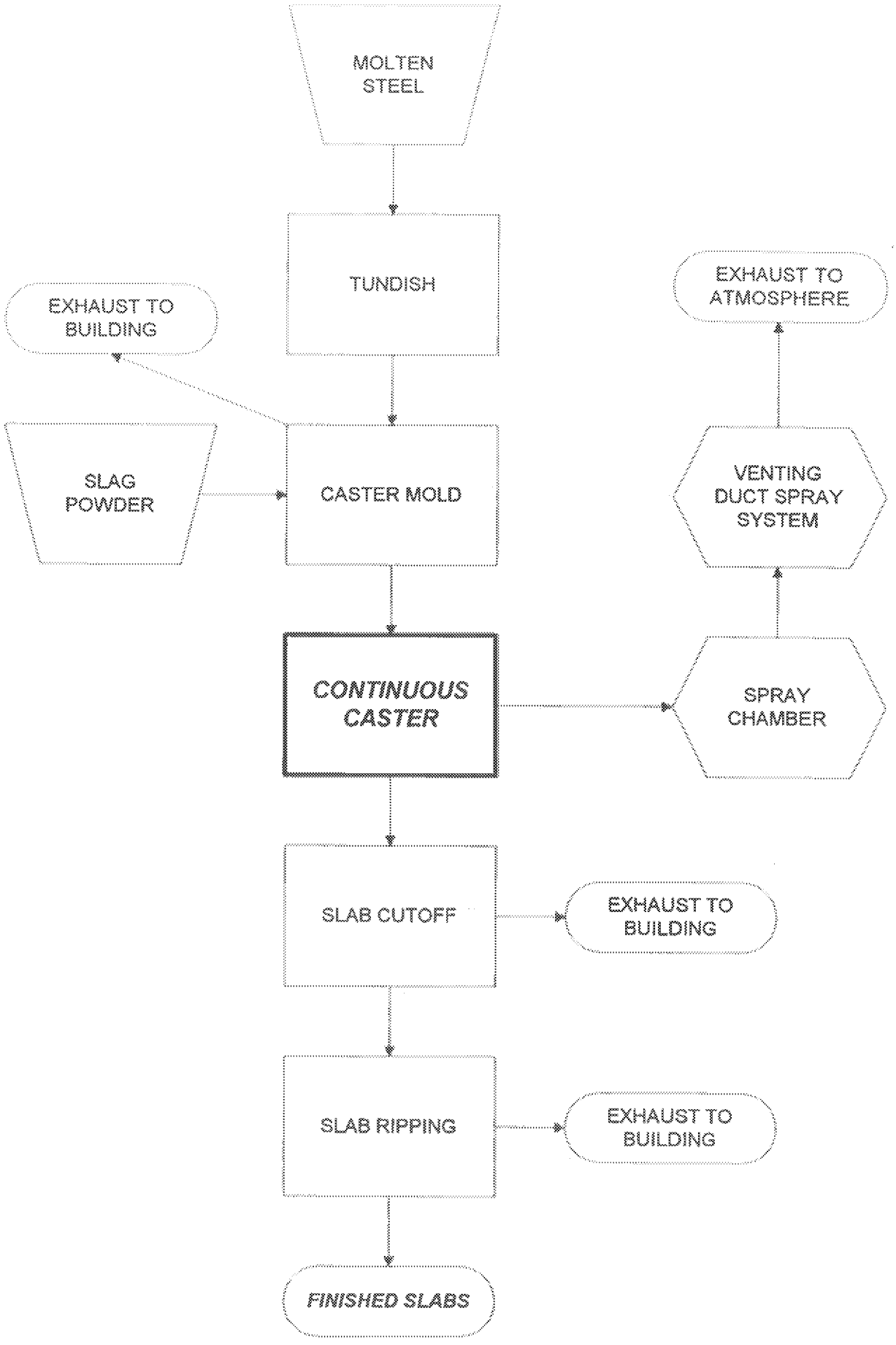
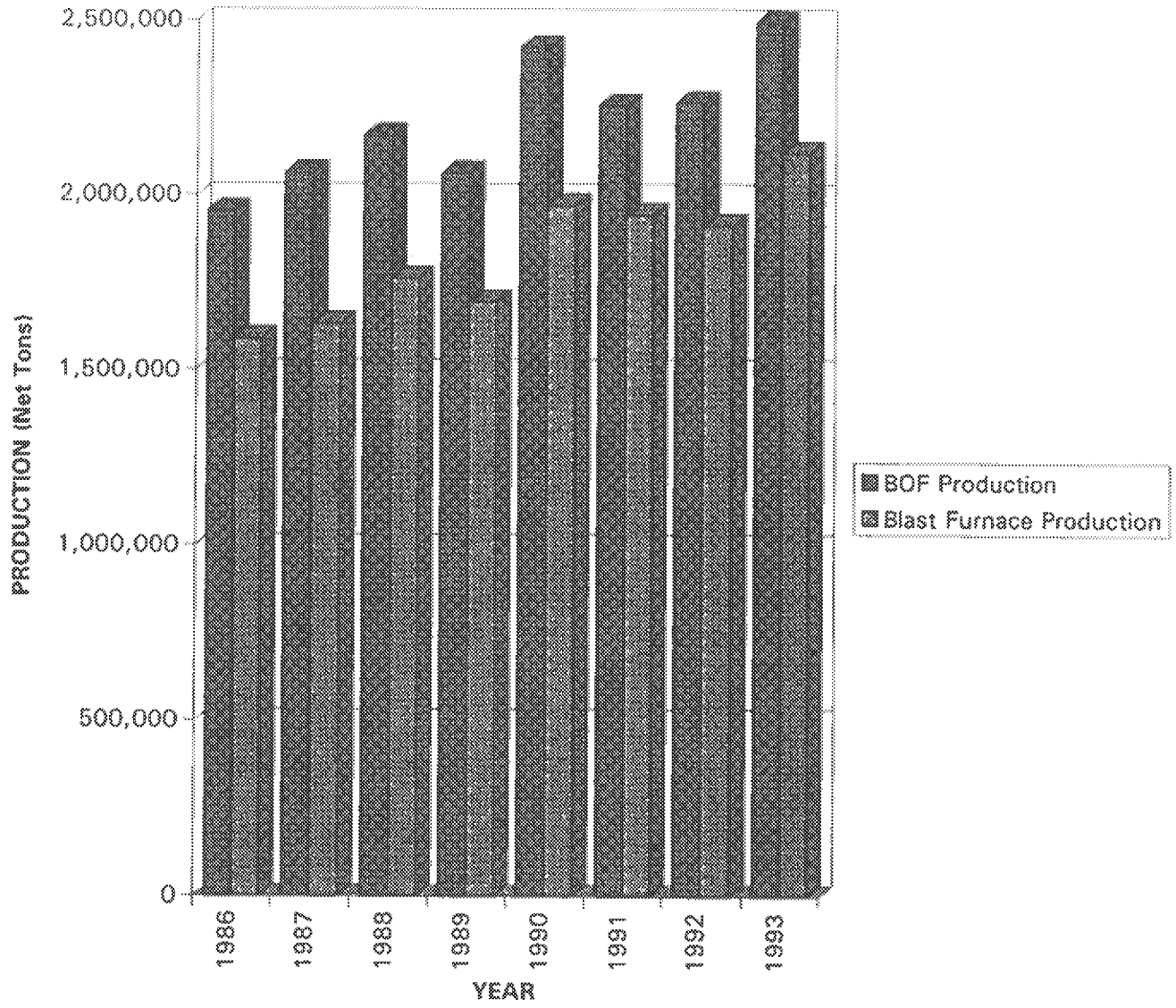
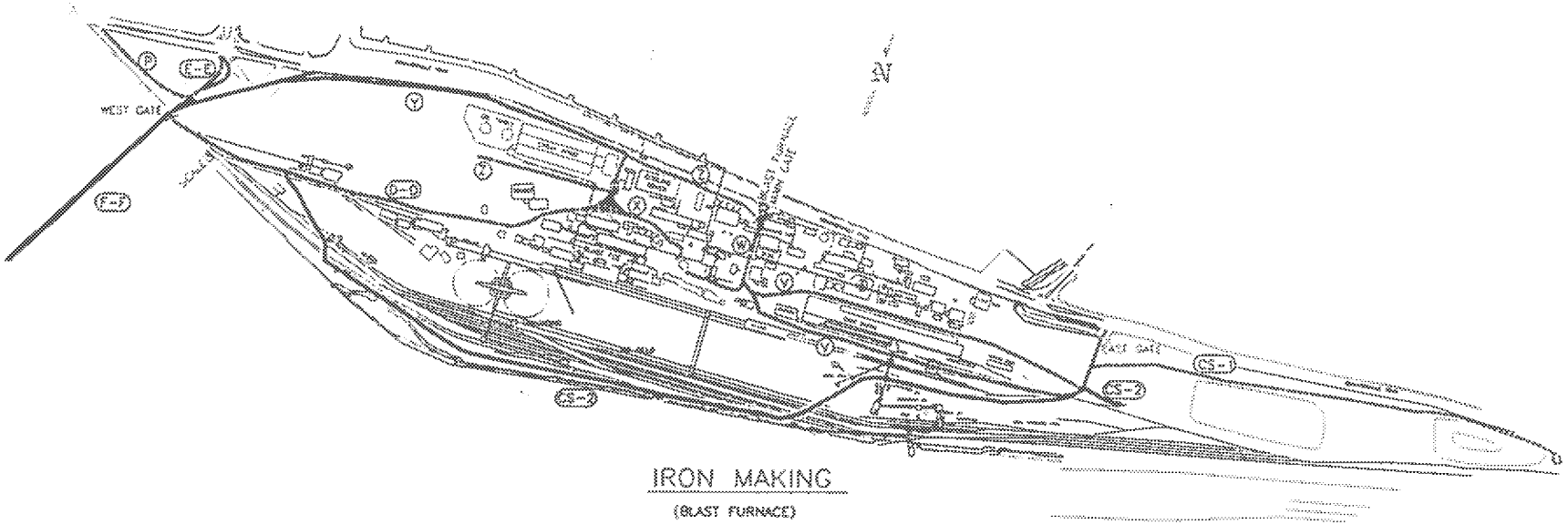


FIGURE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL CORPORATION
PRODUCTION TRENDS





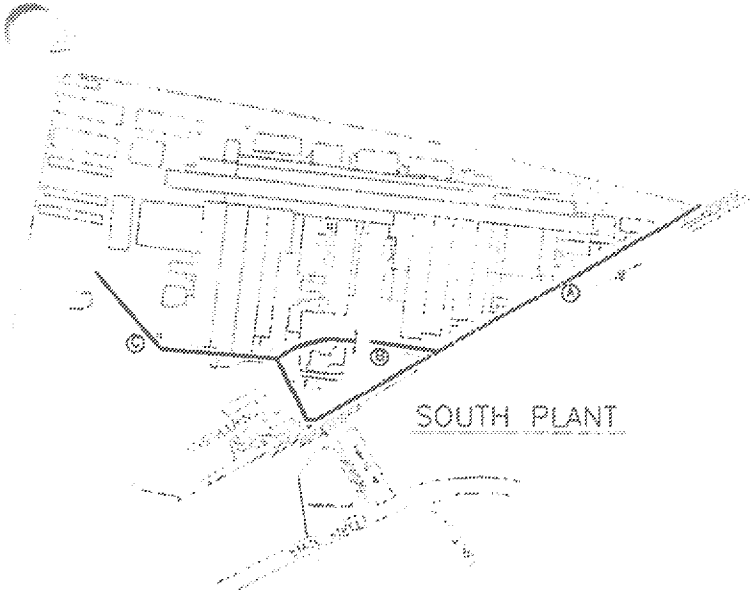
IRON MAKING

(BLAST FURNACE)

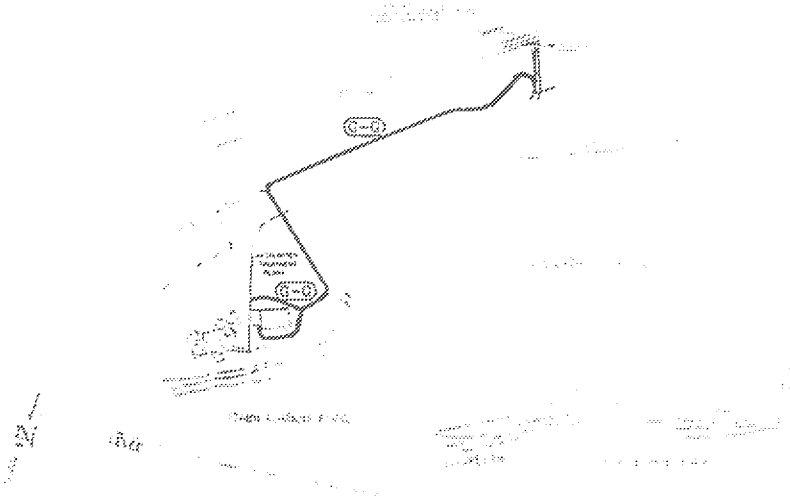
LEGEND

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO 4E08109
Woodward-Clyde Consultants Engineering & science applied to the earth & its environment	
DRN. BY kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area
	FIG. NO 3-3

R008133



SOUTH PLANT

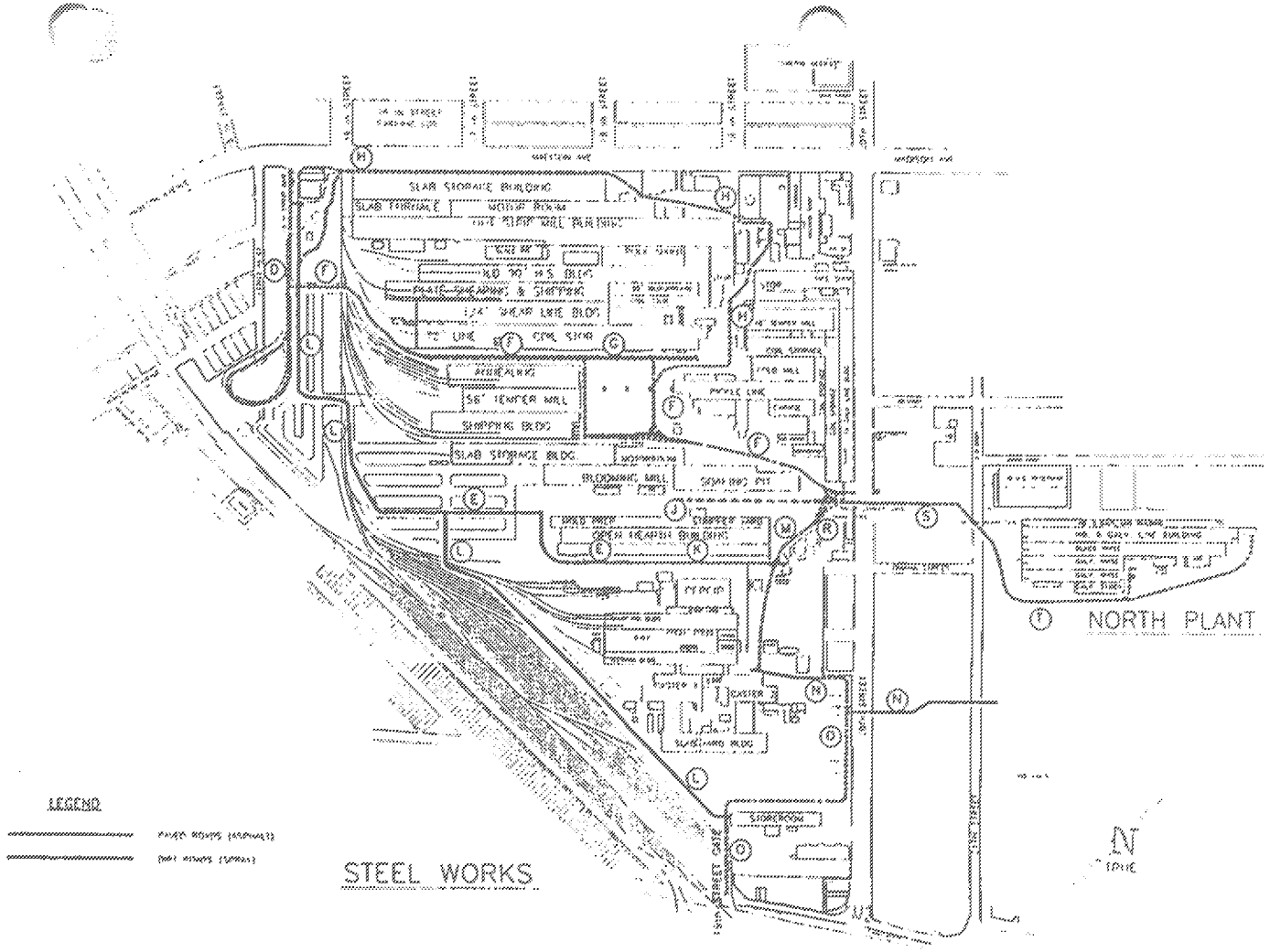


WASTEWATER TREATMENT FACILITY

LEGEND

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO 4E08169
Woodward-Clyde Consultants Engineering & science applied to the earth & its environment	
DRN BY kdw 12/29/94 DSGN BY CHKD BY	Road Network South Plant & WWTP
FIG NO 3-4

R008134



GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO 4E08109
Woodward-Clyde Consultants	
DRN BCkdw 12/29/94 DSGN BY CHKD BY	Road Network Steel Works
	FIG NO 3-2

R008135

APPENDIX A
SOURCE TEST RESULTS

BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
SO_2 EMISSION TEST
JULY 1, 1993

BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SO_2, NO_X, AND VOM EMISSION TEST
JULY 1, 1993

BOF PRECIPITATOR EXHAUST STACK
TSP, NO_X, AND CO EMISSION TEST
AUGUST 27-28, 1993

TSP EMISSION TEST
MARCH 30, 1989

TSP EMISSION TEST
JULY 11, 1990

#12 BOILER STACK
NO_X EMISSION TEST
NOVEMBER 4, 1992

#12 BOILER STACK
NO_X EMISSION TEST
FEBRUARY 1, 1993

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-47
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide compliance test program on the Blast Furnace Iron Spout Baghouse exhaust stack on July 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4 and 6 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on on the stack exhaust. The test ports were located eight diameters downstream and two diameters upstream from the last flow disturbances. The stack diameter at this sampling location was 82 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted simultaneously with the sulfur dioxide sampling per USEPA Method 4 using large EPA Method 5 impingers.

Sulfur Dioxide Determination (USEPA Method 6)

Sulfur dioxide sampling was conducted in accordance with EPA Method 6 using large EPA Method 5 impingers.

The first impinger contained 100 mls of 80% IPA to collect SO_3. The second, third and fourth impingers contained 100 mls of 10% hydrogen peroxide. The fifth impinger contained 200 grams of silica gel.

The test repetition times varied with each batch cycle time. The test times were 77, 83 and 67 minutes for runs 1 through 3, respectively.

A final leak check and 20 minute purge were conducted at the completion of each run.

The SO_2 samples were analyzed at ARI's laboratory using standard titrations to a thorin endpoint with barium chloride as specified in EPA Method 6.

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Blast Furnace Iron Spout Baghouse Exhaust Stack

TEST DATE: July 1, 1993

TEST RUN:	1	2	3	
TEST TIME:	0904-1021	1117-1240	1338-1445	Average
STACK GAS				
Temperature, °F	123.3	124.2	123.6	123.7
Velocity, fps	71.7	68.6	68.1	69.5
Volume flow, acfm	157,818.4	150,970.0	149,783.1	152,857.2
Volume flow, dscfh	8,318,765.7	7,944,645.5	7,905,846.1	8,066,419.1
Moisture, % by vol	0.7	1.1	0.9	0.9
CO_2, % by volume	0.5	0.7	0.7	0.7
O_2, % by volume	20.1	20.1	20.1	20.1
SULFUR DIOXIDE				
Concentration				
lbs/dscf x 10^{-5}	0.0492	0.0429	0.0373	0.0431
ppmv db	3.0	2.6	2.2	2.6
Emission rate				
lbs/hr	4.1	3.4	3.0	3.5

R008141

BLAST FURNACE IRON SPOUT BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	599	1.25

SO_2

$$\frac{1.25 \text{ hr./cast} \times 3.5 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.0073 \text{ lb./ton}$$

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-46
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

August 3, 1993

CERTIFIED MAIL NO. P 111 549 790
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn. Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Dear Sir:

Subject: July 1, 1993 Blast Furnace Simultaneous Cast Emissions Compliance Test results for the Casthouse and Iron Spout Baghouses.

Attached please find "The Final Report" regarding the July 1st emission test as required by special conditions 4e, g, and h of the Construction Permit for the Blast Furnace and Basic Oxygen Furnace Production Increase (application no. 92090104) for Granite City Division.

Compliance was achieved in accordance with USEPA Methods 1-5, 6, 6c, 7e, 9, and 25a. The attached information indicates the following emissions rates:

BLAST FURNACE CASTHOUSE BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Particulate	.003 gr/dscf	.010 gr/dscf
Sulfur Dioxide	96.1 lbs/hr	n/a
Nitrogen Oxide	6.9 lbs/hr	n/a
VOM (as C_1)	40.6 lbs/hr	n/a

BLAST FURNACE IRON SPOUT BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Sulfur Dioxide	3.5 lbs/hr	n/a

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct an emission compliance test program on the Blast Furnace Cast House Baghouse exhaust stack on July 1, 1993.

The purpose of this formal test program was to determine total particulate, sulfur dioxide (SO_2), nitrogen oxides (as NO_2) and volatile organic compounds (as C_1) emissions over the duration of simultaneous casting operations.

Methodology

Sampling was conducted following USEPA Methods 1-5, 6C, 7E and 25A as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 132.0 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling train per USEPA Method 4.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

Initially the sampling was conducted for 2.5 minutes on each of the 24 points. When the simultaneous casting operation exceeded the time required to complete the full four port sampling run of 60 minutes, sampling was continued for 2.5 minutes per traverse point while traversing the stack in reverse order. The total sampling times were 77, 82.5 and 67.5 minutes for runs 1, 2 and 3 respectively.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Sulfur Dioxide Determination (USEPA Method 6C)

Sulfur dioxide sampling was conducted following EPA Method 6C protocols. A Western Research Model 721 ATM Photometric SO_2 monitor was used during the testing. Results were recorded on ARI's data logger and computer system.

ARI's sampling system consisted of a heated probe with in-stack filter in each stack followed by a 3-way calibration valve connected to a heated Teflon sample line connected to a 3-way valve at ground level. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's SO_2 and NO_x monitors.

Certified SO_2 calibration standards and zero air were used to calibrate the monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

Specifically, gas standards of zero air, 491 ppm and 910 ppm SO_2 in N_2 were used for calibration. The SO_2 monitor span was set at 1000 ppm during the testing.

A pre-test and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for each test run.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous nitrogen oxides (as NO_2) sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 monitor. Data was recorded on ARI's data logger and computer system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pre-test and post-test measurement system bias test and calibration error test were performed using certified master gas calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x in N_2. The monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Determination of Total VOC (USEPA Method 25A)

Total volatile organic compounds sampling and analysis were conducted on-site on the stack exhaust using a Ratfisch Model RS-55 Total Hydrocarbon Analyzer. The monitor was calibrated using propane as the VOC standard. The VOC concentration was converted to a C_1 basis using the factor of 3 as listed in USEPA Method 25A. The analyzer utilizes a continuous heated FID which keeps the sample gas stream above its dewpoint.

The sampling systems consisted of the following:

1) Stainless steel probe with instack filter holder.

2) 3-way calibration valve and line located at the probe.

3) Heated Teflon line (>250°F) from the probe to the analyzer.

The Ratfisch analyzer was operated at the following conditions:

Oven temperature	:	150°C
Sample backpressure	:	200 m bar
Air	:	11.5 psi
Hydrogen	:	6.0 psi
Response time	:	30 seconds
Chart speed	:	10 cm/hr
Data logger	:	15 sec. - 1 minute average
Span	:	1000 ppm propane

Zero gas and USEPA protocol 1 certified propane standards in N_2 gas standards were used for calibration of the instrument. The calibration gases were introduced at the 3-way calibration valve located at the end of each sample probe. Calibration gases used were 253.9 ppm, 467.1 ppm and 844.2 ppm propane in N_2.

Emission Calculations

The particulate, sulfur dioxide and nitrogen oxides (as NO_2) emission rates in lbs/hr were calculated for each run by multiplying the measured particulate, sulfur dioxide and nitrogen oxides concentrations (lbs/dscf) by the stack gas volumetric flow rate (dscfh).

The volatile organic compound emission rate in lbs/hr were calculated for each run by multiplying the measured VOC concentration (lbs/scf wb) by the stack gas volumetric flow rate (scfh wb).

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: Blast Furnace Cast House Baghouse Exhaust Stack
TEST DATE: 7/01/93 (Simultaneous casting during each run)

TEST RUN:	1	2	3 *	Average
TEST TIME:	0904-1021	1117-1240	1338-1445	
STACK GAS				
Temperature, F	112.3	117.3	121.9	117.1
Velocity, fps	73.8	73.8	74.0	73.9
Volume flow, acfm	421,019.1	420,607.0	421,692.9	421,106.3
Volume flow, scfm db	374,039.0	370,068.6	367,931.7	370,679.8
Volume flow, scfh wb	22,849,051.7	22,629,550.0	22,508,057.9	22,662,219.9
Volume flow, dscfh	22,442,338.6	22,204,114.9	22,075,903.9	22,240,785.6
Moisture, % by vol	1.8	1.9	1.9	1.9
CO_2, % by volume	0.0	0.0	0.0	0.0
O_2, % by volume	20.9	20.9	20.9	20.9
PARTICULATE SAMPLE				
Time, min.	75.0	82.5	67.5	75.0
Volume, dscf	53.8	61.2	50.4	55.1
Solids collected, mg	10.6	12.6	11.8	11.7
Isokinetic ratio, %	95.2	99.5	100.7	98.4
PARTICULATES				
Concentration				
gr/dscf	0.003	0.003	0.004	0.003
x 10^{-6} lbs/dscf	0.435	0.454	0.516	0.468
Emission rate				
lbs/hr	9.752	10.071	11.388	10.404
SULFUR DIOXIDE				
Concentration				
ppmv db	21.6	29.7	26.7	26.0
x 10^{-6} lbs/dscf	3.595	4.939	4.436	4.323
Emission rate				
lbs/hr	80.7	109.7	97.9	96.1
NITROGEN OXIDES (as NO_2)				
Concentration				
ppmv, db	2.9	2.6	2.3	2.6
x 10^{-6} lbs/dscf	0.351	0.306	0.274	0.310
Emission rate				
lbs/hr	7.9	6.8	6.0	6.9
VOC (as C_1)				
Concentration				
ppmv wb	57.1	57.0	58.3	57.5
x 10^{-6} lbs/scf wb	1.778	1.777	1.815	1.790
Emission rate				
lbs/hr	40.6	40.2	40.9	40.6

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-53
GRANITE CITY P.O. 30-25149

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

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(708) 487-1580

AUGUST 27-28, 1993 TEST

FORMAL PARTICULATE EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a formal emission test program on the exhaust stack associated with the electrostatic precipitator serving the basic oxygen furnace on August 27-28, 1993.

Testing was conducted on August 27, 1993 with the fan flow rate set at 650,000 cfm on the electrostatic precipitator. As a result ofa delayed ignition condition which occurred at the beginning of the blow on the second run, a fourth run was conducted.

Testing was conducted on August 28, 1993 with the fan flow rate set at 680,000 cfm. Three sample runs were done at this condition.

Methodology

Sampling was conducted following USEPA Methods 1-5, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 147.75 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas O_2 and CO_2 Determination (USEPA Method 3A)

Continuous oxygen sampling was conducted in accordance with EPA Method 3A using ARI's OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

ARI's sampling system consisted of a heated probe with in-stack filter followed by a 3-way calibration valve connected to a heated Teflon sample line. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's O_2, CO_2, NO_x and CO monitors.

Certified gas standards of zero air, nitrogen and 12.1 O_2 in N_2 calibration gases were introduced at the three-way calibration valve located at the end of the sample probe for calibration of the O_2 monitor. The O_2 monitor span was set at 25% during the testing.

Continuous carbon dioxide sampling was conducted using ARI's Horiba NDIR Model 2000 carbon dioxide monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

Certified gas standards of nitrogen, 8.2 and 12.9 CO_2 in N_2 calibration gases were used to calibrate the monitor. The CO_2 monitor span was set at 15% during the testing.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling trains per USEPA Method 4.

Total Particulate Determination (USEPA Method 5)

Particulate emission sampling was conducted using two Method 5 sampling trains in order to complete each sampling run within a specified time frame and to allow continuous sampling throughout a complete emissions cycle without sampling downtime due to sampling port changes.

Sampling was conducted for 1.5 minutes per point at each of 24 points (six points per port and four ports). The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling. The sampling time for each run varied based on the duration of the cycle. The first 36 minutes consisted of initially sampling the 24 points. Backwards traversing was then performed at each point at 1½ minutes per point until the process cycle was completed.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

The two sampling trains were positioned at their respective port locations with the "A" train serving the South and West ports and the "B" train serving the East and North ports.

At the beginning of each cycle, sampling was started in the South port. Sampling was conducted for 1½ minutes at each of six points in the first port. At the completion of nine minutes of sampling, the second sampling train in the East port was immediately started and sampling conducted in the second port identical to the first. This process was repeated for the North and West ports with sampling and traversing continued backwards from the last sample point (24) until the cycle time was completed. Sampling was conducted continuously throughout the entire cycle.

The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling rate at all times.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder and ARI's datalogger system. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pretest and post-test measurement system bias test and calibration error test were performed using certified master gas NO_x calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x. The NO_x monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Carbon Monoxide Determination (USEPA Method 10)

Continuous carbon monoxide sampling was conducted in accordance with USEPA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were recorded out on a dual pen strip chart recorder and recorded on ARI's datalogger system.

Certified CO calibration standards and zero air were used to calibrate the CO monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

CO calibration standards of 5,750, 8,748 and 18,600 in N_2 were used to calibrate the CO monitor. The CO monitor span was set at 20,000 ppm during the testing.

A pretest and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for that test run.

Emission Calculations

The stack particulate emission rate (lbs/cycle) for each of the sampling runs was determined by summing the particulate emission rates (lbs/run) determined for each of the two sampling trains "A" and "B" used during each sampling run. This combined total represented the total stack particulate emissions for each complete BOF emissions cycle.

The total nitrogen oxides and carbon monoxide emission rates were calculated by summing the stack flow rate for each run and calculating the emission rate (lb/run) by multiplying the total flow rate (dscf/run) by the nitrogen oxides and carbon monoxide concentrations (lb/dscf).

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 1
TEST TIME: 0911-0957
BLOW TIME: 0919-0938

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.1	313.4
Velocity, fps	76.4	79.7
Volume flow, acfm	545,611.4	569,697.6
Volume flow, scfm db	303,519.9	309,880.3
Volume flow, dscf/run	8,195,036.9	5,577,845.4
Moisture, % by vol	18.1	19.7
CO_2, % by volume	3.8	3.8
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	13.834	9.418
Particulate collected, mg	11.1	5.8
Isokinetic ratio, %	104.9	105.0
PARTICULATES		
Concentration		
gr/dscf	0.0124	0.0095
x 10^{-6} lbs/dscf	1.764	1.351
Emission rate		
lbs/run	14.46	7.54
lbs/cycle (total)	22.00	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 3
TEST TIME: 1230-1310
BLOW TIME: 1237-1254

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	314.2	318.2
Velocity, fps	76.0	82.8
Volume flow, acfm	542,645.7	591,510.8
Volume flow, scfm db	293,391.8	313,670.5
Volume flow, dscf/run	6,601,314.8	5,646,068.2
Moisture, % by vol	20.1	21.2
CO_2, % by volume	4.1	4.1
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	11.607	9.274
Particulate collected, mg	9.2	5.7
Isokinetic ratio, %	109.3	101.6
PARTICULATES		
Concentration		
gr/dscf	0.0122	0.0094
x 10^{-6} lbs/dscf	1.746	1.346
Emission rate		
lbs/run	11.52	7.60
lbs/cycle (total)	19.12	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 4
TEST TIME: 1413-1451
BLOW TIME: 1419-1438

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	310.1	317.8
Velocity, fps	78.7	85.0
Volume flow, acfm	561,878.6	607,439.9
Volume flow, scfm db	326,542.8	326,660.2
Volume flow, dscf/run	5,877,771.3	5,879,882.7
Moisture, % by vol	14.6	20.1
CO_2, % by volume	4.5	4.5
O_2, % by volume	18.1	18.1
PARTICULATE SAMPLE		
Time, min.	18.0	18.0
Volume, dscf	10.499	10.284
Particulate collected, mg	11.1	12.4
Isokinetic ratio, %	102.4	108.8
PARTICULATES		
Concentration		
gr/dscf	0.0162	0.0185
x 10^{-6} lbs/dscf	2.321	2.648
Emission rate		
lbs/run	13.64	15.57
lbs/cycle (total)	29.21	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-4
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 5
TEST TIME: 0900-0952
BLOW TIME: 0918-0936

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	298.7	286.4
Velocity, fps	65.8	77.7
Volume flow, acfm	470,344.8	555,137.6
Volume flow, scfm db	278,873.4	341,610.9
Volume flow, dscf/run	7,529,581.0	6,148,995.5
Moisture, % by vol	14.4	12.6
CO_2, % by volume	3.4	3.4
O_2, % by volume	18.8	18.8
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	12.272	9.758
Particulate collected, mg	12.3	15.4
Isokinetic ratio, %	101.4	98.7
PARTICULATES		
Concentration		
gr/dscf	0.0155	0.0244
x 10^{-6} lbs/dscf	2.210	3.480
Emission rate		
lbs/run	16.64	21.40
lbs/cycle (total)	38.04	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-5
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 6
TEST TIME: 1041-1124
BLOW TIME: 1048-1107

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.4	318.3
Velocity, fps	78.8	85.3
Volume flow, acfm	562,592.7	609,377.7
Volume flow, scfm db	326,274.4	329,363.3
Volume flow, dscf/run	8,319,997.0	5,928,539.0
Moisture, % by vol	14.9	20.0
CO_2, % by volume	4.0	4.0
O_2, % by volume	18.0	18.0
PARTICULATE SAMPLE		
Time, min.	25.5	18.0
Volume, dscf	13.973	9.619
Particulate collected, mg	14.0	16.9
Isokinetic ratio, %	104.3	100.9
PARTICULATES		
Concentration gr/dscf	0.0155	0.0271
$\times 10^{-6}$ lbs/dscf	2.209	3.874
Emission rate lbs/run	18.38	22.97
lbs/cycle (total)	41.35	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-6
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 680,000 cfm

TEST DATE: 8/28/93
TEST RUN: 7
TEST TIME: 1220-1300
BLOW TIME: 1229-1248

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	313.5	316.8
Velocity, fps	83.2	85.0
Volume flow, acfm	594,638.8	607,381.3
Volume flow, scfm db	339.110.5	334,795.4
Volume flow, dscf/run	7,629,986.0	6,026,316.5
Moisture, % by vol	16.1	18.5
CO_2, % by volume	3.5	3.5
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	12.530	9.928
Particulate collected, mg	12.2	16.0
Isokinetic ratio, %	102.1	102.4
PARTICULATES		
Concentration gr/dscf	0.0150	0.0249
x 10^{-6} lbs/dscf	2.147	3.554
Emission rate lbs/run	16.38	21.42
lbs/cycle (total)	37.80	

FORMAL PARTICULATE EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-7

TEST DATE:	8/27/93	8/27/93	8/27/93
TEST TIME:	0911-0957	1230-1310	1413-1451
FAN FLOW, CFM:	650,000	650,000	650,000
TEST RUN:	1	3	4
Volume flow, dscf	13,772,882	12,247,383	11,757,654
Nitrogen Oxides (as NO_2)			
Concentration ppmv db	6.2	5.7	6.2
Emission rate, lbs/run	10.2	8.4	8.8
Carbon Monoxide			
Concentration ppmv db	2,133	2,165	2,663
Emission rate, lbs/run	2,135.5	1,926.6	2,275.8

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PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT 436-11
GRANITE CITY P.O. 30-917230

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS 62040

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MARCH 30, 1989 TEST

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 1

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	244.7	225.1
Velocity, fps	82.2	69.8
Volume flow, acfm	587,556	498,843
Volume flow, scfm	432,181	377,553
Volume flow, dscf/run	6,611,591	9,099,112
Moisture, % by volume	15.0	10.7
CO_2, % by volume	3.9	3.9
O_2, % by volume	17.0	17.0
PARTICULATE SAMPLE		
Time, min.	18.0	27.0
Volume, dscf	10.66	14.09
Particulate collected, mg	19.0	15.8
Isokinetic ratio, %	99.6	95.6
PARTICULATES		
Concentration		
gr/dscf	0.0275	0.0173
x 10^{-6} lbs/dscf	3.93	2.47
Emissions		
lbs/run	25.98	22.51
lbs/cycle (total)	48.49	

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 2

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	226.7	219.3
Velocity, fps	77.7	62.9
Volume flow, acfm	555,142	449,598
Volume flow, scfm	419,099	343,269
Volume flow, dscf/run	7,523,166	8,438,755
Moisture, % by volume	14.5	9.0
CO_2, % by volume	3.8	3.8
O_2, % by volume	17.0	17.0
PARTICULATE SAMPLE		
Time, min.	21.0	27.0
Volume, dscf	12.74	13.41
Particulate collected, mg	16.0	16.2
Isokinetic ratio, %	104.6	98.1
PARTICULATES		
Concentration		
gr/dscf	0.0194	0.0186
x 10^{-6} lbs/dscf	2.77	2.66
Emissions		
lbs/run	20.83	22.48
lbs/cycle (total)	43.31	

R003169

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 3-30-89

TEST RUN: 3

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	218.5	220.4
Velocity, fps	69.4	69.7
Volume flow, acfm	495,472	497,800
Volume flow, scfm	378,687	379,341
Volume flow, dscf/run	7,822,464	9,410,534
Moisture, % by volume	13.9	8.1
CO_2, % by volume	3.8	3.8
O_2, % by volume	16.9	16.9
ARTICULATE SAMPLE		
Time, min.	24.0	27.0
Volume, dscf	12.80	14.9
Particulate collected, mg	24.6	6.2
Isokinetic ratio, %	101.0	97.8
PARTICULATES		
Concentration gr/dscf	0.0297	0.0064
$\times 10^{-6}$ lbs/dscf	4.24	0.92
Emissions lbs/run	33.16	8.63
lbs/cycle (total)	41.79	

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 7/11/90

TEST RUN: 2 Compliance

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	248.5	249.3
Velocity, fps	75.688	57.967
Volume flow, acfm	540,705	414,109
Volume flow, scfm	393,930	301,812
Volume flow, dscf/run	6,810,769	7,276,183
Moisture, % by volume	17.67	10.71
CO_2, % by volume	3.2	3.2
O_2, % by volume	18.2	18.2
PARTICULATE SAMPLE		
Time, min.	21	27
Volume, dscf	11.407	11.777
Particulate collected, mg	13.1	8.8
Isokinetic ratio, %	103.5	100.0
PARTICULATES		
Concentration		
gr/dscf	0.0177	0.0115
x 10^{-6} lbs/dscf	2.532	1.648
Emissions		
lbs/run	17.25	11.77
lbs/cycle (total)	29.02	

PARTICULATE EMISSION COMPLIANCE TEST
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: BOF Precipitator Stack

TEST DATE: 7/11/90

TEST RUN: 3 Compliance

SAMPLING TRAIN:	"A" South and West Ports	"B" North and East Ports
STACK GAS		
Temperature, °F	240.8	252.4
Velocity, fps	66.486	73.564
Volume flow, acfm	474,967	525,532
Volume flow, scfm	293,005	380,716
Volume flow, dscf/run	7,911,135	8,995,404
Moisture, % by volume	16.30	12.49
CO_2, % by volume	3.1	3.1
O_2, % by volume	18.5	18.5
PARTICULATE SAMPLE		
Time, min.	27	27
Volume, dscf	13.057	15.170
Particulate collected, mg	6.7	12.3
Isokinetic ratio, %	102.0	104.2
PARTICULATES		
Concentration		
gr/dscf	0.0079	0.0125
x 10^{-5} lbs/dscf	1.1315	1.7878
Emissions		
lbs/run	8.95	16.08
lbs/cycle (total)	25.03	

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-34

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

NOVEMBER 4, 1992 TEST

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack on November 4, 1992.

The run was completed on November 4, 1992 when the boiler was operating with natural gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Barton, Mr. D. Chapman and Mr. E. Kelly of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of the test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler (Natural Gas)

	Run #1
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	73.7
Emission rate, lbs./hr.	32.276

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack November 4, 1992.

Methodology

Sampling was conducted following USEPA Methods 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1991 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack (Natural Gas)

TEST DATE: November 4, 1992
TEST TIME: 1223-1333

STACK GAS

Temperature, °F	300.6
Velocity, fps	35.4
Volume flow, acfm	94,999.5
Volume flow, scfm db	61,131.2
Volume flow, dscfh	3,667,873.2
Moisture, % by volume	6.7
CO_2, % by volume	8.1

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	73.7
x 10^{-6} lbs./dscf	8.8
Emission rate	
lbs./hr.	32.276

NO_x EMISSION TEST
12 BOILER STACK
NOVEMBER 4, 1992

Natural Gas Usage 117 MMBTU/hr.

$$\frac{32,276 \text{ lb./hr. } NO_x}{117 \text{ MMBTU/hr.}} = 0.3 \text{ lb./MMBTU } NO_x$$

0.3 lb./MMBTU x 1019 BTU/$ft.^3$ = 306 lb./MM $ft.^3$ NO_x

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-38

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

FEBRUARY 1, 1993 TEST

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located in Granite City, Illinois to conduct a nitrogen oxide emission test program on the #12 Boiler exhaust stack on February 1, 1993.

The run was completed on February 1, 1993 with the Boiler operating with blast furnace gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Ames, Mr. M. Barton, Mr. D. Chapman and Mr. J. Whitaker of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of this test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler

	Blast Furnace Gas
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	15.2
Emission rate, lbs./hr.	7.373

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack February 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4, and 7E as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas CO_2 and O_2 Determination (USEPA Method 3A)

Continuous carbon dioxide and oxygen sampling was conducted on the exhaust stack in accordance with EPA Method 3A using ARI's Horiba PIR-2000 carbon dioxide analyzer and OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor's results were recorded on ARI's data logger system.

Calibration gas and zero air were introduced directly into the 3-way valve located at the end of the sample probe. The CO_2 monitor span was set at 15% and the O_2 monitor was set at 25% during the testing.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack

TEST DATE: 02/01/93
TEST TIME: 1520-1620
CONDITION: Blast Furnace Gas

STACK GAS

Temperature, °F	469.8
Velocity, fps	48.0
Volume flow, acfm	128,744.0
Volume flow, scfm db	67,898.0
Volume flow, dscfh	4,073,882.7
Moisture, % by volume	7.3
CO_2, % by volume	12.6
O_2, % by volume	8.4

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	15.2
x 10^{-6} lbs./dscf	1.810
Emission rate	
lbs./hr.	7.373

NO_x EMISSION TEST
12 BOILER STACK
FEBRUARY 1, 1993

Blast Furnace Gas Fuel Usage Rate 112.4 MMBTU/hr.

$$\frac{7.373 \text{ lb./hr. } NO_x}{112.4 \text{ MMBTU/hr.}} = 0.066 \text{ lb./MMBTU}$$

$.066 \text{ lb./MMBTU} \times 80 \text{ BTU/ft.}^3 = 5.28 \text{ lb./MM ft.}^3 \ NO_x$

APPENDIX B

BOF DUST - LEAD CONTENT

Test Date	06/21/89	990 ppm
	09/17/90	1,289 ppm
	10/20/92	1,091 ppm
Average		1,123 ppm

See following test results.

R008185

ENVIRONMETRICS

2345 Millpark Drive
Maryland Heights, MO 63043
(314) 427-0550

GRANITE CITY STEEL
20TH & SHERMAN
GRANITE CITY, IL 62040

ATTN: TOM MAHL

PO: 30-030071T BOF ESP Dust
INVOICE: 10091

RECEIVED
SEP 28 1990
DEOO

ANALYSIS RESULTS

SAMPLE ID: 19008038
LAB ID: 9008915

TEST PERFORMED	METHOD OF ANALYSIS	RESULTS
	SW-846 6010	TOTAL
		ppm
LEAD		1,289

SEPTEMBER 17, 1990

WAYNE L. COOPER
LABORATORY DIRECTOR

TESTING
LABORATORIES
inc.
Engineers
Metallurgists
2350 Seventh Blvd. • St. Louis, Missouri 63104
314/771-7111

Report No. 89-6-4479

June 21, 1989

Examination of furnace dust sample submitted 6/8/89.

Granite City Steel
20th & State Streets
Granite City, IL 62040

P.O.: 309233656
Attn: Mr. Doug Stracke

TEST REPORT

Basic Oxygen Furnace

Lead, ppm	990

Analysis on as received basis.

Respectfully submitted,

Allan M. Siegel

Allan M. Siegel, P.E.
Director

LN - 152057-58
LB - 32730
RW/sas

Inv. #30504

R008187

DTC Laboratories, Inc.

An Environmental Testing and Consulting Service Company

4590 INDUSTRIAL DRIVE
SPRINGFIELD, ILLINOIS 62703
FAX: (217) 529-8485
(217) 529-9191

A N A L Y T I C A L R E P O R T

CLIENT: Granite City Steel
DATE RECEIVED: 10-14-92
SAMPLE DESCRIPTION: #19210028 BOF Precipitator Dust
LOG NO.: 3244-92
REPORT DATE: 10-20-92

	RESULT
LEAD	1090.75 mg/kg (PPM)

Victor J. Gairani
Laboratory Manager

APPENDIX C
EMISSION FACTOR CALCULATION
BOF ROOF MONITOR (Emissions Source 0034)

Base Period Emission Factor

Uncontrolled, at source, PM emission factors per AP-42 and AIRS:

- charge = 0.6 lbs PM / ton hot metal at BOF
- refine = 28.5 lbs PM / ton steel at BOF
- tap = 0.92 lbs PM / ton steel at BOF
- PM_{10}/TSP ratio = 0.67 (Table 7.5-2 AP-42, Top Blown Furnace)

Production in tons per year:

Iron = 2,059,557 Steel = 2,413,406

PM_{10} from BOF roof:

Process Step	*Base Period Actual Emissions (tons/year)*	*Base Period Actual Emissions (lbs/hr)*	*Emission Rate (lbs/ton steel)*	*Assumed Hood Capture Efficiency (%)*
Charge	41.4	9.45	0.3431	90
Refine	239.4	52.61	0.19095	99
Tap	74.4	16.98	0.06164	90
Total	346.2	79.04	0.2869	

(346.2 tpy * 2000lb/ton)/2,413,406tons steel = 0.2869 lb PM_{10}/ton steel

Emission Factor with Production Increase

Many improvements have been made to the BOF ESP control system since it was originally installed. These improvements include but are not limited to secondary emission hoods and doghouse enclosures, steam injection, air/water lances for moisture control and electronic voltage controllers for the ESP. A fume suppression system was installed in April, 1992 for additional control of tapping emissions.

Granite City has employed the use of formal problem-solving techniques as part of an ongoing effort to optimize the performance of the ESP system. The following are some of the improvements which have been implemented or will be implemented:

- 4th Quarter 1993 - #1 field wire replacement
- January 1995 - #2 field wire replacement
- July 1996 - #3 and #4 field wire replacement
- March 1995 - installed double dump valves on all ESP hoppers
- 3rd Quarter 1995 - replaced Automatic Voltage Controllers for all ESPs
- 2nd Quarter 1995 - replaced inefficient transformer rectifiers
- 3rd Quarter 1995 - replaced rubber boots on top of ESP to minimize water and air infiltration
- 2nd Quarter 1995 - replaced transition pieces at top of evaporation chambers
- 2nd Quarter 1995 - repaired downcomer and ductwork air leaks
- January 1995 - relocated steam injection to downcomer

In addition to all of these improvements, in June of 1995, a forth ESP was added at a cost of approximately $7,000,000. This addition to the existing ESP control system is intended to ensure compliance at the increased production rates proposed in this application.

Figure C-1 at the end of this Appendix shows the BOF gas cleaning system as it will be for the increased production rate.

The roof monitor emission rate that will be achieved at the increased production rate is shown below.

Uncontrolled, at source, PM emission factors per AP-42 and AIRS:

- charge = 0.6 lbs PM / ton hot metal at BOF
- refine = 28.5 lbs PM / ton steel at BOF
- tap = 0.92 lbs PM / ton steel at BOF
- PM_{10}/TSP ratio = 0.67 (Table 7.5-2 AP-42, Top Blown Furnace)

Production in tons per year:

Iron = 3,165,000 Steel = 3,580,000

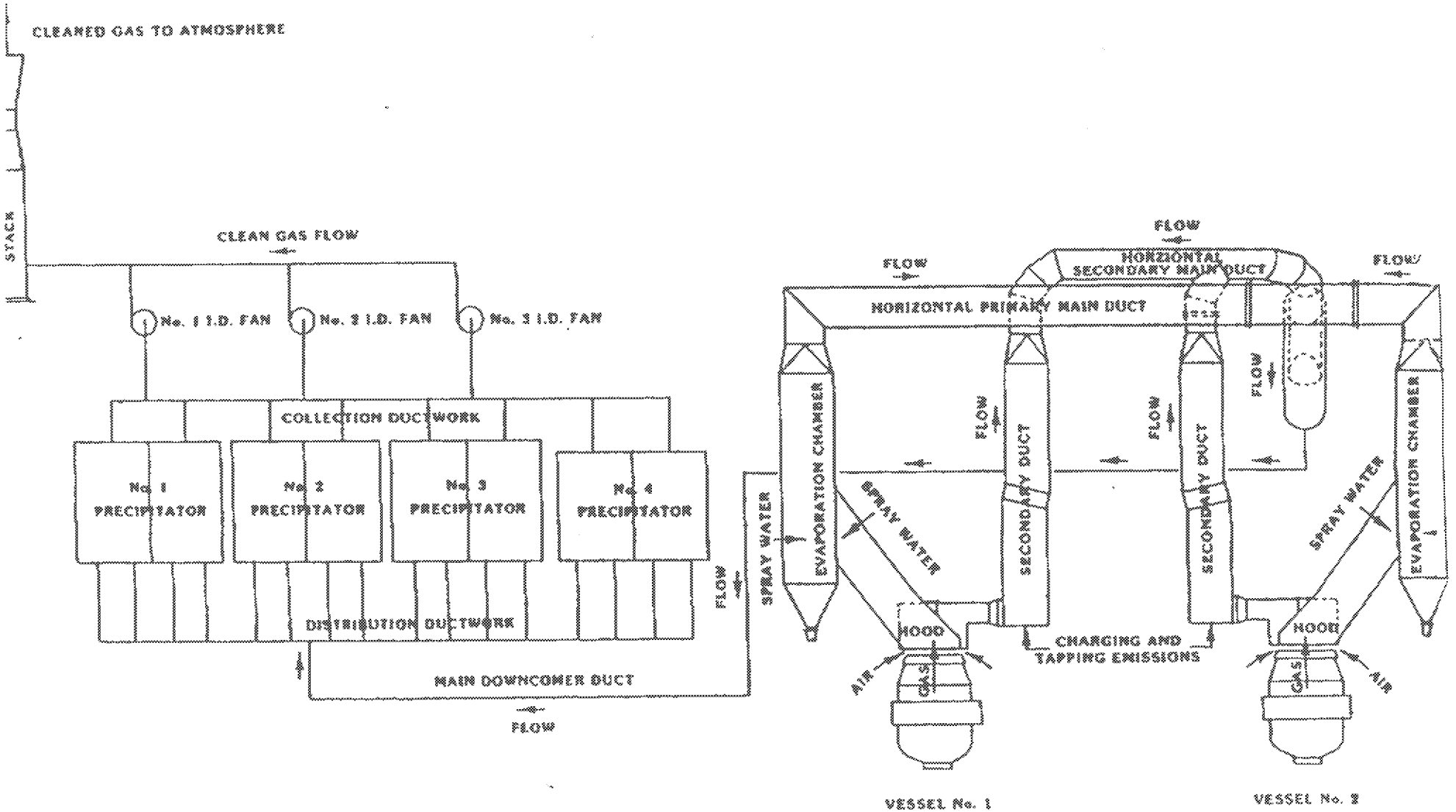
PM_{10} from BOF roof:

Process Step	*Production Increase Emissions (tons/year)*	*Production Increase Emissions (lbs/hr)*	*Emission Rate (lbs/ton steel)*	*Assumed Hood Capture Efficiency (%)*
Charge	31.8	7.26	0.01777	95 **
Refine	34.2	7.8	0.019095	99.9 **
Tap	52.4	11.97	0.029279	95 **
Total	118.4	27.03	0.066145	

(118.4 tpy * 2000lb/ton)/3,580,000tons steel = 0. 066145lb PM_{10}/ton steel

** Increased capture and control efficiency due to installation of 4th ESP and system improvements

FIGURE C-1



BOF GAS CLEANING SYSTEM

GRANITE CITY STEEL

R008191

Blast Furnace and BOF Shop Production
Base Period for Netting Analysis

BOF PRODUCTION (net tons/month)

month	1992	1993	1994	Total (24 months)	Avg. (12 months)	Average (NTPD)
1		202,208	182,828			
2		183,411	201,262			
3		206,652	226,972			
4		200,932	211,620			
5		213,685	218,556			
6		209,803	211,134			
7		218,856	213,900			
8	213,186	217,920				
9	136,528	211,489				
10	151,809	218,685				
11	207,000	210,646				
12	188,638	206,000				
total	896,165	2,495,686	1,465,960	4,826,811	2,413,406	6,612

BLAST FURNACE PRODUCTION (net tons/month)

month	1992	1993	1994			
1		170,141	167,484			
2		164,107	175,540			
3		173,463	196,360			
4		173,707	182,627			
5		178,714	187,788			
6		175,806	184,430			
7		183,744	186,723			
8	182,629	187,742				
9	114,561	179,321				
10	126,780	185,734				
11	176,865	178,574				
12	128,877	178,939				
total	729,302	2,119,981	1,270,630	4,119,113	2,059,557	5,643

BASE PERIOD FUEL USE

	BFG (MMBtu)					BFG (MMcf)						
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average						
"A" Stoves	547,311	1,861,751	1,234,705	3,643,767	1,821,884	22,774						
"B" Stoves	752,802	1,792,114	1,007,535	3,552,451	1,776,226	22,203						
Boilers 1-10	1,125,491	3,288,275	1,586,436	6,000,202	3,000,101	37,501						
Boiler 11	194,301	417,788	269,591	851,680	425,840	5,323						
Boiler 12	319,314	582,520	235,193	1,137,027	568,514	7,108						
B.F. Flare	650,135	2,124,204	1,406,819	4,181,158	2,090,579	26,132						
Totals				19,366,285	9,683,143	121,039						
	#6 Oil (MMBtu)					# 6 Oil (Mgals)	NG (MMBtu)					NG (MMcf)
Source	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average	Aug - Dec '92	1993	Jan - Jul '94	Total	Average	Average
"A" Stoves												
"B" Stoves												
Boilers 1-10							102,015	186,510	437,409	734,934	367,467	361
Boiler 11	0	1,013	3,638	4,651	2,326	15	43,915	240,390	175,846	460,151	230,076	226
Boiler 12	0	300	0	300	150	1	97,964	240,780	106,361	445,085	222,543	218
BOF Preheaters/Dryers							123,982	298,959	154,814	577,735	288,868	283
Centers							13,843	62,344	38,990	115,177	57,589	57
Totals				4,951	2475.5	16				2,333,082	1,166,541	1,145

R008194

APPENDIX E

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizaing Line	Expected 1996	+3.97/+3.82	+.20	+18.4	+10.2	+1.2
Net Change		-37.39/-37.54	-0.176	-208.14	-13.11	-31.66

The following information presents how the emission change was calculated for each project.

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY, 1990

Based on May 8, 1989 submittal for modification of operating permit for "A" & "B" Blast Furnaces. +4.9 TPY

2 CASTER PRODUCTION - DECEMBER 1, 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast.)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping with Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual	14.3 tons/yr PM_{10}

Caster #2 PM_{10} emissions = 26.0 - 14.3 = 11.7 tons/yr

INGOT TEEMING SHUTDOWN - APRIL 1, 1991

670,000 tons / year X 0.067 lbs / ton = 22.4 tons / year PM_{10} reduction

[1] Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster".

SHUTDOWN BLOOMING MILL - APRIL 1, 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990.

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1 - 3) (firing rate 321.8 MMBtu/hr/furnace) and #4 slab furnace (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_X Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General < 10 MMBtu/hr

44,131 X 0.003 X 1/2000 = 0.066 tpy PM_{10} emission reduction

44,131 X 0.0006 X 1/2000 = 0.013 tpy SO_2 emission reduction

44,131 X 0.10 X 1/2000 = 2.21 tpy NO_X emission reduction

44,131 X 0.0053 X 1/2000 = 0.12 tpy VOC emission reduction

44,131 X 0.02 X 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill < 10 MMBtu/hr

18,083 X 0.003 X 1/2000 = 0.027 tpy PM_{10} emission reduction

18,083 X 0.0006 X 1/2000 = 0.005 tpy SO_2 emission reduction

18,083 X 0.10 X 1/2000 = 0.90 tpy NO_X emission reduction

18,803 X 0.0053 X 1/2000 = 0.05 tpy VOC emission reduction

18,803 X 0.02 X 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 X 0.005 X 1/2000 = 2.69 tpy PM_{10} emission reduction

1,076,926 X 0.0006 X 1/2000 = 0.32 tpy SO_2 emission reduction

1,076,926 X 0.399 X 1/2000 = 214.71 tpy NO_X emission reduction

1,076,926 X 0.0014 X 1/2000 = 0.75 tpy VOC emission reduction

1,076,926 X 0.04 X 1/2000 = 21.5 tpy CO emission reduction

EMISSION REDUCTION SUMMARY for SHUTDOWN of BLOOMING MILL (tons/year)

	PM_{10}	SO_2	NO_X	CO	VOC
Soaking Pit - General	0.66	0.013	2.21	0.44	0.12
Blooming Mill	0.027	0.005	0.90	0.18	0.05
Soaking Pits	2.69	0.32	214.71	21.5	0.75
Total	3.377	0.338	217.82	22.12	0.92

SHUTDOWN BATCH ANNEALING - DECEMBER, 1991

1990 Natural Gas Usage 118,612 MMBtu (< 10 MMBtu/hr)

118,612 X 0.003 X 1/2000 = 0.18 tpy PM_{10} emission reduction

118,612 X 0.0006 X 1/2000 = 0.036 tpy SO_2 emission reduction

118,612 X 0.147[2] X 1/2000 = 8.72 tpy NO_X emission reduction

118,612 X 0.0053 X 1/2000 = 0.31 tpy VOC emission reduction

118,612 X 0.02 X 1/2000 = 1.19 tpy CO emission reduction

[2] Based on the "ACT for NO_X Emissions from Iron and Steel Mills".

NO. 8 GALVANIZING LINE

Furnace

54.6 MMBtu/hr - natural gas fired

Pollutant	*Emission Factor/Source (lb/MMBtu)*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	0.0378/Vendor Guarantee	54.6	9.04
TSP	0.003/AP-42	54.6	0.72
PM_{10}	0.003/AP-42	54.6	0.72
VOM	0.0028/AP-42	54.6	0.67
CO	0.035/AP-42	54.6	8.37
SO_2	0.0006/AP-42	54.6	0.14

Fume Scrubber

10,000 cfm

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.24/Vendor Guarantee	1.05
PM_{10}	0.24/ Vendor Guarantee	1.05

6 Space Heaters

640,000 Btu/hr per heater - natural gas fired
1,019 Btu/ft^3 (1993 emission inventory)
6 * 640,000 Btu/hr / (1,019 Btu/ft^3) = 3768.4 ft^3/hr total natural gas consumption, 6 heaters

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	3768.4	1.65
TSP	3.0	3768.4	0.05
PM_{10}	3.0	3768.4	0.05
VOM	5.3	3768.4	0.09
CO	20.0	3768.4	0.33
SO_2	0.6	3768.4	0.00

11 Galvanize Line Related Heaters

Heaters associated with the following galvanizing processes are to be installed as part of the No. 8 Galvanize Line Project:

Equipment	*Maximum Natural Gas Use (CFH)*
Entry Strip Dryer	2,100
Quench Strip Dryer	1,500
Chem. Treat Strip Dryer	1,800
Pre-clean Recirc. Tank	2,700
Electrolytic Recirc. Tank #1	1,600
Electrolytic Recirc. Tank #2	1,300
Hot Water Rinse Tank	200
Hot Water Make-up Tank	4,500
Chimical Treat Recirc. Tank	500
Chemical Treat Mix Tank	500
Roll Rig Preheaters	847
Total	17,547

Pollutant	*Emission Factor(lb/MMft^3) AIRS-1-05-001-6*	*Heat Input (MMBtu/hr)*	*Annual Emissions (tpy)*
NO_X	100.0	17,547	7.69
TSP	3.0	17,547	0.23
PM_{10}	3.0	17,547	0.23
VOM	5.3	17,547	0.41
CO	20.0	17,547	1.54
SO_2	0.6	17,547	0.05

Kettle Melting

32,000 tons product per month
0.1 tons Zn per ton product

32,000 tons product/month * 0.1 tons Zn/ton product * 0.1 lbs TSP/ton Zn * 12 months / 2000 lbs /ton = 1.92 tons TSP
1.92 tons TSP * 0.92 = 1.77 tons PM_{10}

Pollutant	*Emission Factor (lb/hr)/Source*	*Annual Emissions (tpy)*
TSP	0.1/AP-42	1.92
PM_{10}	0.92/AP-42	1.77

TOTAL EMISSIONS ASSOCIATED WITH NO. 8 GALVANIZE LINE PROJECT

Pollutant	*Annual Emissions (tpy)*
NO_X	18.38
TSP	3.97
PM_{10}	3.82
VOM	1.16
CO	10.24
SO_2	0.20

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^*) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^*) = .159(30) = 4.77$

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} \sim 21{,}823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) ~ 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions	-	Total Uncontrolled Emissions after NESHAPS Controls Installed	=				=	
Toluene	59,584	-	997	=	58,587 lbs.	x	$\frac{1T}{2000}$	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x	$\frac{1T}{2000}$	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x	$\frac{1T}{2000}$	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x	$\frac{1T}{2000}$	=	0.4 tons/yr.
									31.6 tons/yr.

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Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Efficiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Naphthalene Separator	87	Tar Spray	100	100,480	0	7,032	0	339	0	113	0	102	0
Naphthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-Intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	89,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
BTX Storage (TLO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
Flushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Excess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Wash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
Wash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,873	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

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R008205

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	$\frac{X}{MW}$	Mole fraction (y)	P° at 25°C
enzene	.5925	78.11	.0076	.710	96 mm Hg
oluene	.1598	92.13	.0017	.159	30
ylene (mixed)	.0336	106.16	.0003	.028	8.2
ylbenzene	.0100	106.16	.00009	.008	9.6
rene	.0136	104.14	.0001	.009	7.7
hthalene	.005	128.16	.00004	.004	<1
bon disulfide	.003	76.14	.00004	.004	366
marin	.0367	118.13	.00031	.029	100
lohexane	.0009	84.16	.00001	.001	98
lohexene	.0276	82.14	.00034	.032	100
lopentadiene	.0064	66.10	.00009	.008	600
lene	.0029	70.13	.00004	.004	654
tane	.0014	72.15	.00002	.002	533
ophene	.0024	84.13	.00003	.003	79
,5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
,3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = ΣyM = 84.47
Average vapor pressure of light oil = ΣyP - 89.67

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R008206

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Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

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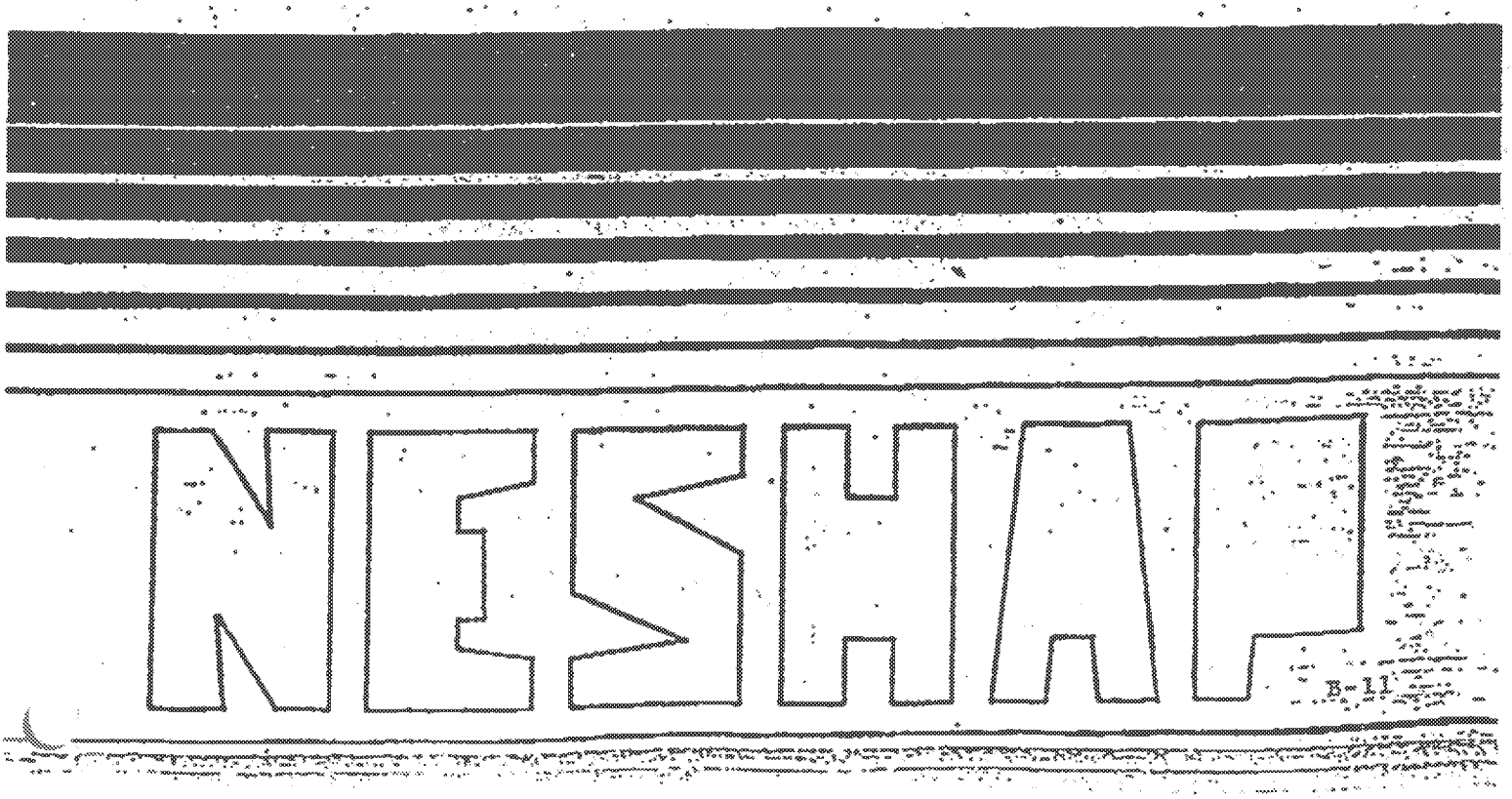

B-11

TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[a]
Cooling tower	270	6,340
Direct-water	70	1,090
Tar-bottom	89	4,080
Light-oil condenser vent	87	2,040
Naphthalene separation	20	470
Naphthalene processing	95	5,360
Tar-intercepting sump	21	1,090
Tar dewatering	77	4,350
Tar decanter	12	680
Tar storage	15	780
Light-oil sump	5.8	300
Light-oil storage	5.8	80
BTX storage	5.8	80
Benzene storage	9	510
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	3.8	180
Wash-oil decanter	3.8	180
Wash-oil circulation tank	a	600
Pump seals	a	400
Valves	a	270
Pressure-relief devices	a	30
Exhausters	a	50
Sample connections	a	20
Open-ended lines	a	20
Total (rounded)		29,000

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

APPENDIX F

FUGITIVE PARTICULATE EMISSIONS

EMISSION CALCULATIONS

Fugitive particulate emissions from paved and unpaved roads were calculated based on information provided in "Granite City Area PM-10 Emission Inventory", MRI Final Report, 1988, and the 1991 PM_{10} SIP developed by the Illinois Environmental Protection Agency.

Based on information in these sources, fugitive particulate inventories were developed for three scenarios:

- Initial Uncontrolled Emissions - These are uncontrolled emission estimates taken from the 1988 MRI report.
- Projected Initial Uncontrolled Emissions - These emission estimates reflect uncontrolled emissions reported in the 1988 MRI document scaled up by a factor related to the requested production increase. That factor is derived by dividing the requested production level by the base period production level. The factor applied is dependent on the potential increase in activity on each specific road segment. A factor of one was used for those areas where activity is not a function of production level. A factor of 1.1 was used in those areas where some increase in activity may occur, but that increase is expected to be minor.
- Projected Controlled Emissions - These estimates start with the Projected Initial Uncontrolled Emissions and are then reduced to reflect the fugitive emission control program that will be in effect with the production increase.

EMISSION CONTROL PROGRAM

Table F-1 presents intitial uncontrolled, projected uncontrolled, and projected controlled emissions.

Projected controlled emissions reflect an extensive fugitive dust control program. As a part of this application, Granite City Steel is committing to a fugitive emission control program that adds to the commitments that were implemented earlier. The resulting control program is outlined below in **Table F-2.**

MATERIALS HANDLING

Uncontrolled and controlled emissions from materials handling activities that will be affected by the production increase were estimated using the same sources previously cited. These estimates are presented in **Table F-3**.

SUMMARY

Fugitive emissions ard credits are summarized on **Table F-4**.

TABLE F-1

R008211

Granite City Division of National Steel Company
Projected PM-10 Emissions - Roads

Area	Segment ***	Initial Uncontrolled Emissions * (TPY)	Production Increase Factor	Projected Initial Uncontrolled Emissions **	Control Efficiency for Projected Emissions (%) *	Projected Controlled Emissions ***
South Plant	A ****	26.09	1.00	26.09	95.00%	1.30
	B	9.91	1.00	9.91	98.00%	0.20
	C	7.46	1.00	7.46	98.00%	0.15
Steelworks	D****	45.72	1.48	67.80	98.00%	1.36
	K ****	6.23	1.48	9.24	98.00%	0.18
	M ****	7.39	1.48	10.96	98.00%	0.22
	E	8.79	1.00	8.79	98.00%	0.18
	F ****	148.15	1.48	219.71	98.84%	2.55
	G ****	3.96	1.48	5.87	96.24%	0.22
	H [2]	11.24	1.00	11.24	97.90%	0.24
	J	8.10	1.00	8.10	98.00%	0.16
	L	161.37	1.48	239.31	98.00%	4.79
	R ****	2.57	1.48	3.81	98.00%	0.08
BOF	O ****	37.61	1.48	55.78	98.00%	1.12
	N	27.75	1.48	41.15	98.00%	0.82
	P [2]	28.44	1.48	42.18	99.30%	0.30
Furnace	V [2]	65.65	1.10	72.22	99.50%	0.36
	W ****	6.59	1.10	7.25	96.54%	0.25
	X ****	238.16	1.54	366.04	97.52%	9.09
	Y	11.06	1.00	11.06	98.00%	0.22
	Z [1]	43.70	1.54	67.17	99.67%	0.22
North Plant	S ****	17.84	1.00	17.84	95.00%	0.89
	T ****	21.09	1.00	21.09	95.00%	1.06
Area	D-D [2]	41.87	1.54	64.35	98.98%	0.66
	E-E [2]	1.69	1.54	2.60	97.87%	0.06
	F-F	1.53	1.54	2.35	98.00%	0.05
	CS(1) ****	13.57	1.00	13.57	98.00%	0.27
	CS(2)	8.49	1.00	8.49	98.00%	0.17
	G-G	6.81	1.00	6.81	95.00%	0.29
	Total:	1,017.82		1,427.23		27.42

*** Based on IEPA PM10 SIP**
**** Base case emissions times production increase factor**
***** Unpaved roads paved as per proposed schedule.**
****** Paved Road.**
[1] Road 72% paved. The remaining 28% will be paved prior to the production increase.
[2] Road to be paved prior to production increase.

TABLE F-2
GRANITE CITY DIVISION of NATIONAL STEEL
FUGITIVE PARTICULATE EMISSION CONTROL PROGRAM for REQUESTED PRODUCTION INCREASE

AREA	SEGMENT	SURFACE	CONTROL
South Plant	A	Paved	Sweep or Flush once per month
	B	Unpaved	Spray three times per month
	C	Unpaved	Spray three times per month
Steelworks	D	Paved	Sweep or flush daily
	K	Paved	Sweep or flush daily
	M	Paved	Sweep or flush daily
	E	Unpaved	Spray three times per month
	F	Paved	Sweep or flush daily
	G	Paved	Sweep or flush daily
	H *	Paved	Sweep or flush once per month
	J	Paved	Sweep or flush daily
	L	Unpaved	Spray four times per month
	R	Paved	Sweep or flush daily
BOF	O	Paved	Sweep or flush daily
	N	Unpaved	Spray three times per month
	P *	Paved	Sweep or flush five days per week
Blast Furnace	V *	Paved	Sweep or flush five days per week
	W	Paved	Sweep or flush five days per week
	X	Paved	Sweep or flush five days per week
	Y	Unpaved	Spray three times per month
	Z *	Paved	Sweep or flush five days per week
North Plant	S	Paved	Sweep or flush every other day
	T	Paved	Sweep or flush every other day
Area	D-D *	Paved	Sweep or flush five days per week
	E-E *	Paved	Sweep or flush five days per week
	F-F	Unpaved	Spray three times per month
	CS(1)	Paved	Sweep or flush five days per week
	CS(2)	Unpaved	Spray three times per month
	G-G	Unpaved	Spray quarterly

* Sprayed four times per month as of production increase; paved by July 31, 1996.

TABLE F-3

Granite City Division of Nation Steel

Base Case PM10 Emissions and Contemporaneous Emissions Reductions - Materials Handling

Material			Control * Efficiency		Production Increase			Production Increase Related
	TPY (1)	TPY		TPY		TPY	TPY	TPY
Coke	7.45	7.45	90%	0.64	1.54	0.98	(6.47)	0.34
Coke Breeze	0.01	0.01	90%	0.00	1.54	0.00	(0.01)	0.00
Pellets	7.84	7.84	90%	0.67	1.54	1.03	(6.81)	0.36
Limestone	1.88	1.88	90%	0.16	1.54	0.25	(1.63)	0.09
	17.18	17.18		1.47		2.26	(14.92)	0.79

*** Based on IEPA PM10 SIP**

**** Reductions based Contemporaneous Controls**

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TABLE F-4
FUGITIVE EMISSION SUMMARY

Granite City Division of National Steel

IEPA Fugitive PM10 SIP Control Requirement for GCS			61.68	tons / year
PM10 Emissions from Roads	27.42	tons / year		
PM10 Emissions from Materials Handling	2.26	tons / year		
Total Fugitive PM10 Emissions After Production Increase			29.68	tons / year
Excess Fugitive PM10 Reduction (Credit)			32.00	tons / year

R008214

R008215

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20th & State Streets
Granite City, Illinois 62040

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Subject: Ozone Permit

Comments: Revised Table 3-5 with second TSP contemporaneous
emissions

EPA - DIVISION OF RECORDS MANAGEMENT
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TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,67 MTPD
BOF @ 9,808 MTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
2	0005	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
3	0006	01	Blast Furnace Gas Flare - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
4	0042	01	Boiler House 1 (Bns 1-10) - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
5	0043	01	Boiler House 1 (Bns 1-10) - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
7	0044	01	Boiler #11 - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
8	0044	02	Boiler #11 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40				-	-
9	0045	01	Boiler #12 - BFG	2.9	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
10	0045	01	Boiler #12 - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	-
11	0045	02	Boiler #12 - Fuel Oil	9.72	lb/Mgal	Included in line 40	Mgal	-	Included in line 40				-	-
12	0033	01	BOF 2 Vessels	0.16	lb/ton proc.	2,413,406	tons proc.	193.07	8,760	hours	89	lbs/hr	352.80	68.73
13	0038	01	BOF Pigheaters/Dryers - NG	5.1	lb/MMcf	Included in line 39	MMcf	-	Included in line 39				-	
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	16.88	3,165,000	tons proc.			24.53	8.57
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.0024	lb/ton pellets charged	2,803,241	tons proc.	3.38	4,309,581	tons proc.			5.17	1.81
16	0007 & 0012	01	"A" & "B" Blast Furnace - Segregated Slag	0.5703	lb/ton proc.	2,059,557	tons proc.	72.85	3,165,000	tons proc.			111.19	38.83
17	0034	01	BOF Reef Monitor	0.428	lb/ton proc.	2,413,406	tons proc.	516.72	3,580,000	tons proc.	0.0987		176.71	(340.01)
18	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.0016	lb/ton proc.	2,413,406	tons proc.	1.93	3,580,000	tons proc.			2.85	0.93
19	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0050	lb/ton proc.	2,059,557	tons proc.	5.17	3,165,000	tons proc.			7.94	2.77

OCT 30 '95 10:32AM SCS ENVIRONMENTAL P.2

R008216

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furnace @ 8,671 tHPD
BOF @ 9,808 tSPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
20	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.009	lb/ton prod.	2,413,408	tons prod.	7.24	3,650,000	ton prod.			10.74	3.50
21	0071 & 0118	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton prod.	2,413,408	tons prod.	10.28	3,650,000	ton prod.			15.25	4.97
22	0071 & 0118	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	Included in line 38	MMcf	-	Included in line 38	-			-	
23	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton prod.	2,413,408	tons prod.	8.57	3,650,000	ton prod.			12.71	4.14
	73	1	Slab Ripping - Casters #1 & #2	0.00722	lb/ton prod.	2,413,408	tons prod.	8.71	3,650,000	ton prod.			12.92	4.21
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Trigger	0.00715	lb/ton prod.	2,413,408	tons prod.	8.63	3,650,000	ton prod.			12.80	4.17
26	0105 & 0106	01	Deslagging Station & Material #3	0.00355	lb/ton prod.	2,413,408	tons prod.	4.28	3,650,000	ton prod.			6.35	2.07
27			BOF Hopper Baghouse	0.00032	lb/ton prod.	2,413,408	tons prod.	0.39	3,650,000	tons prod.			0.57	0.18
28	0107 & 0035	01	Deduff. Station (inside BOF shop) & Xfer Pit	0.03721	lb/ton prod.	2,059,557	tons prod.	38.32	3,185,000	ton prod.			59.08	20.57
29	0113	01	Blast Furnace Slag Pits	0.00417	lb/ton prod.	2,059,557	tons slag	4.29	3,185,000	ton prod.			6.60	2.30
30	0003	01	Iron Pellet Screen	0.00278	lb/ton pellets charged	2,808,241	tons proc.	3.81	4,306,581	tons proc.			6.01	2.10
31		01	Iron Spout Baghouse	0.02648	lb/ton prod.	2,059,557	tons proc.	26.26	3,185,000	tons proc.			40.32	14.06
32			Road Fugitive Emissions	Included in Contemporaneous Changes. See Appendix F						-				0.00
33			Material Handling	Included in Contemporaneous Changes. See Appendix F						-				0.00
34			Unpaved Parking Lots					-		-				
35			Paved Parking Lots					-		-				
36			Natural Gas	5.1	lb/MMcf	1,145	MMcf	2.92	1,145	MMcf			2.92	0.00
37			Blast Furnace Gas	2.8	lb/MMcf	121,039	MMcf	175.51	186,030	MMcf			268.29	92.78
38			Fuel Oil	9.72	lb/Mgal	18	Mgal	0.09	365	Mgal			1.77	1.70
	TOTALS:							1,107.94					1,047.36	(60.58)
			Contemporaneous Changes											(17.39)
			Net Change											(97.97)

Note: Actual Emissions = Base Year Throughput * Emission Factor / 2000

Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
except -
BOF Vessels Projected Actual Emissions = 80 lb/hr * 8760 hrs
BOF Roof Monitor Projected Actual Emissions = Projected Emission Factor * Projected Throughput

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R008217

APPENDIX B

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizing Line	Expected 1996	+3.82	+.20	+18.4	+10.2	+1.2
Net Change		-72.31/-37.54	-0.176	-208.14	-13.22	-31.66

The following information presents how the emission change was calculated for each project.

R008219

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National Steel Corporation
20th & State Streets
Granite City, Illinois 62040

IEPA-DIVISION OF RECORDS MANAGEMENT
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Subject: Production Increase Permit

Comments: Emission Data for 43215/Low Production Permit Application

TABLE 3.1

GRANITE CITY DIVISION of NATIONAL STEEL

METALS ANALYSIS SUMMARY - CD

SAMPLE ID	DATE	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
CD01	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD02	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD03	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD04	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD05	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD06	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD07	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD08	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD09	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD10	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD11	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD12	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD13	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD14	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD15	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD16	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD17	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD18	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD19	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD20	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD21	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD22	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD23	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD24	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD25	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD26	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD27	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD28	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD29	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD30	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD31	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD32	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD33	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD34	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD35	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD36	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD37	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD38	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD39	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD40	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD41	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD42	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD43	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD44	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD45	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD46	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD47	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD48	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD49	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD50	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD51	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD52	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD53	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD54	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD55	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD56	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD57	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD58	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD59	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD60	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD61	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD62	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD63	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD64	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD65	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD66	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD67	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD68	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD69	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD70	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD71	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD72	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD73	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD74	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD75	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD76	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD77	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD78	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD79	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD80	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD81	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD82	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD83	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD84	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD85	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD86	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD87	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD88	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD89	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD90	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD91	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD92	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD93	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD94	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD95	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD96	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD97	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD98	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD99	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20
CD100	10/26/94	1,360	0.31	0.31	22.80	0.06	0.31	1,360	2.20	0.31	1.20	1,360	0.31	1,360	22.80	0.01	0.31	1,360	0.31	0.31	1,360	0.31	0.31	1.20

TABLE 3-2

GRANITE CITY DIVISION of NATIONAL STEEL

MELTING ANALYSIS SUMMARY - NOx

TABLE 3-3

CHARLOTTE CITY DIVISION of NATIONAL STEEL

NETTING ANALYSIS SUMMARY - 502

TABLE 3-4

GRANITE CITY EXPANSION of NATIONAL STEEL

RETRO ANALYSIS SUMMARY - PM-10

TABLE 3.4
GRANITE CITY DIVISION / NATIONAL STEEL
BETTING ANALYSIS SUMMARY - PM-10

TABLE 3-5

GRANITE CITY DIVISION OF NATIONAL STEEL

MELTING ANALYSIS SUMMARY - TSP

Line #	MONTH	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	MODE PLAN THROUPUT	UNITS	ACTUAL EMISSIONS	PROJECTED EMISSIONS	UNITS	PROJECTED THROUPUT	UNITS	PROJECTED EMISSION FACTOR	UNITS	ACTUAL EMISSIONS	PROJECTED EMISSIONS
1	1995	01	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
2	1995	01	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
3	1995	01	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
4	1995	01	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
5	1995	01	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
6	1995	01	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
7	1995	01	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
8	1995	01	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
9	1995	01	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
10	1995	01	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
11	1995	01	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
12	1995	01	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17
13	1995	02	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
14	1995	02	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
15	1995	02	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
16	1995	02	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
17	1995	02	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
18	1995	02	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
19	1995	02	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
20	1995	02	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
21	1995	02	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
22	1995	02	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
23	1995	02	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
24	1995	02	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17
25	1995	03	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
26	1995	03	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
27	1995	03	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
28	1995	03	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
29	1995	03	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
30	1995	03	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
31	1995	03	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
32	1995	03	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
33	1995	03	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
34	1995	03	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
35	1995	03	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
36	1995	03	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17
37	1995	04	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
38	1995	04	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
39	1995	04	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
40	1995	04	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
41	1995	04	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
42	1995	04	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
43	1995	04	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
44	1995	04	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
45	1995	04	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
46	1995	04	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
47	1995	04	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
48	1995	04	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17
49	1995	05	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
50	1995	05	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
51	1995	05	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
52	1995	05	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
53	1995	05	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
54	1995	05	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
55	1995	05	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
56	1995	05	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
57	1995	05	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
58	1995	05	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
59	1995	05	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
60	1995	05	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17
61	1995	06	"A" Melt Shop Emissions - EAF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
62	1995	06	"A" Melt Shop Emissions - LMF	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
63	1995	06	"A" Melt Shop Emissions - RH	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
64	1995	06	"A" Melt Shop Emissions - BOS	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
65	1995	06	"A" Melt Shop Emissions - CC	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
66	1995	06	"A" Melt Shop Emissions - Ladle Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
67	1995	06	"A" Melt Shop Emissions - Ladle Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
68	1995	06	"A" Melt Shop Emissions - Tundish Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
69	1995	06	"A" Melt Shop Emissions - Tundish Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
70	1995	06	"A" Melt Shop Emissions - Slag Pot Dryer	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
71	1995	06	"A" Melt Shop Emissions - Slag Pot Preheat	2.6	lbs/ton	2,269,557	tons steel	2,947	2,947	tons	2,269,557	tons steel	2.6	lbs/ton	2,947	2,947
72	1995	06	"A" Melt Shop Emissions - Charging	0.0150	lbs/ton	2,269,557	tons steel	17	17	tons	2,269,557	tons steel	0.0150	lbs/ton	17	17

R008226

TABLE 3-5
GRANITE CITY DIVISION / NATIONAL STEEL
MELTING ANALYSIS SUMMARY - TSP

Projected Emissions = Based On Permit Limit
Actual Emissions = Based On Actual Throughput
Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
Baseline Actual Emissions = Highest Two Consecutive Years Throughput * Emission Factor / 2000
Baseline Actual Emissions = Highest Two Consecutive Years Throughput * Emission Factor / 2000
Projected Actual Emissions = Projected Throughput * Emission Factor / 2000
BOF Shop Baseline Actual Emissions = 69 Ton/yr + 0.150 Tpy
BOF Shop Further Projected Actual Emissions = Projected Emission Factor * Projected Throughput

Page 2 of 2

TABLE 3-8

GRANITE CITY DIVISION of NATIONAL STEEL

MELTING ANALYSIS SUMMARY - VOM

TABLE 4-7
GRANITE CITY DIVISION OF NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM

APPENDIX B

The following table summarizes emissions changing projects that have been undertaken at Granite City Steel since 1990.

PROJECTS CHANGING EMISSIONS SINCE 1990 (TPY)

Project	Effective Date	TSP/PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Sput Hood	January, 1990	+4.90				
# 2 Caster Production	December 1, 1990	+11.70				
Ingot Teeming Shutdown	April 1, 1991	-22.40				
Installation NESHAP Controls Coke By-Product	July, 1991					-31.6
Shutdown Blooming Mill	April 1, 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown Batch Annealing	December, 1991	-0.18	-0.036	-8.72	-1.19	-0.31
Fugitive Dust Control Program (Roads and Material Handling)	November, 1991 to present	-32.00				
Installation of #8 Galvanizing Line	Expected 1996	+3.82	+.20	+18.4	+10.2	+1.2
Net Change		-37.54	-0.176	-208.14	-13.22	-31.66

The following information presents how the emission change was calculated for each project.

TABLE F-

Granite City Division of Nation Steel

IEPA Fugitive PM10 SIP Control Requirement for GCS			61.68	tons / year
PM10 Emissions from Roads	27.42	tons / year		
PM10 Emissions from Materials Handling	2.26	tons / year		
Total Fugitive PM10 Emissions After Production Increase			29.68	tons / year
Excess Fugitive PM10 Reduction (Credit)			32.00	tons / year

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R008230

TABLE F-

Granite City Division of National Steel

Base Case PM10 Emissions and Contemporaneous Emissions Reductions - Materials Handling

Material	TPY (1)	TPY	Control * Efficiency	TPY	Production Increase	TPY	TPY	Production Increase Related TPY
Coke	7.45	7.45	90%	0.64	1.54	0.98	(6.47)	0.34
Coke Breeze	0.01	0.01	90%	0.00	1.54	0.00	(0.01)	0.00
Pellets	7.84	7.84	90%	0.67	1.54	1.03	(6.81)	0.36
Limestone	1.88	1.88	90%	0.16	1.54	0.25	(1.63)	0.09
	17.18	17.18		1.47		2.26	(14.92)	0.78

* Based on EPA PM10 SIP

** Reductions based Contemporaneous Controls

OCT 27 '96 04:48PM GCS ENVIRONMENTAL P.13

R008231

TABLE F-

Granite City Division of National Steel Company
Projected PM-10 Emissions - Roads

Area	Segment ***	Initial Uncontrolled Emissions * (TPY)	Production Increase Factor	Projected Actual Uncontrolled Emissions **	Control Efficiency for Projected Emissions (%) *	Projected Controlled Emissions ***
South Plant	A ****	26.08	1.00	26.08	98.00%	1.30
	B	9.81	1.00	9.81	98.00%	0.20
	C	7.46	1.00	7.46	98.00%	0.15
Steelworks	D****	46.72	1.48	67.80	98.00%	1.36
	K ****	8.23	1.48	8.24	98.00%	0.16
	M ****	7.39	1.48	10.96	98.00%	0.22
	E	8.78	1.00	8.78	98.00%	0.18
	F ****	148.18	1.48	219.31	98.84%	2.55
	Q ****	3.86	1.48	5.87	98.24%	0.22
	H (2)	11.24	1.00	11.24	97.80%	0.24
	J	8.10	1.00	8.10	98.00%	0.16
	L	161.37	1.48	239.31	98.00%	4.78
	R ****	2.57	1.48	3.81	98.00%	0.08
BOF	O ****	37.81	1.48	56.78	98.00%	1.12
	N	27.78	1.48	41.16	98.00%	0.82
	P (2)	28.44	1.48	42.19	98.30%	0.30
Furnace	V (2)	66.85	1.10	72.22	98.50%	0.36
	W ****	6.89	1.10	7.35	98.64%	0.25
	X ****	238.15	1.84	388.04	97.52%	8.08
	Y	11.08	1.00	11.08	98.00%	0.22
	Z (1)	48.70	1.84	87.17	98.97%	0.32
North Plant	S ****	17.84	1.00	17.84	98.00%	0.89
	T ****	21.08	1.00	21.08	98.00%	1.05
Area	D-D (2)	41.87	1.54	64.38	98.66%	0.86
	E-E (2)	1.69	1.54	2.60	97.87%	0.06
	F-F	1.63	1.54	2.35	98.00%	0.05
	CB(1) ****	13.67	1.00	13.67	98.00%	0.27
	CB(2)	8.48	1.00	8.49	98.00%	0.17
	G-G	6.81	1.00	6.81	98.00%	0.29
	Total	1,017.82		1,457.74		27.49

* Based on ISPA PM10 EF

** Base case emissions times production increase factor

*** Unpaved roads paved as per proposed schedule.

**** Paved Road.

[1] Road 72% paved. The remaining 28% will be paved prior to the production increase.

[2] Road to be paved prior to production increase.

R008233

FACSIMILE MESSAGE

DATE: 10/26/95

TIME: _____

Please Deliver The Following Pages To:

NAME: Jim Orr

COMPANY: IEPA

CITY/STATE: _____

FAX NUMBER: _____

OCT 27 1995

From:

NAME: L. Siebenberger

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 23 2013
REVIEWER JRM

Our FAX Number: (618) 451-4020

We are transmitting 3 pages (including this cover letter)

If transmission is not complete, call: _____
Tele: (618-451-3457)

Subject: Regulation Impact Summit

Comments: As per our discussion we would like a calendar year average. Also I would be more here to show the 32 ton valve for the exhaust system in the permit application. Pls call me.

BOF PRODUCTION ROLLING AVERAGE vs. CALENDAR YEAR AVERAGE
Sheet1 Chart 2
HEATS/DAY
DATE
production loss to meet a 12 month rolling avg.

TWELVE MONTH ROLLING VS CALENDAR YEAR AVERAGE

- 12 month rolling average is only useful if your business varies seasonally or production outages occur at the same time each year.
- Granite City Divisions production does neither of these. Major equipment outages, may not occur every year or at the same time every year. Blast Furnace relines may occur every five years. When GCD takes down one of its two Blast Furnace production is severely affected.
- Per the attached example GCD would be forced to cut production in the second year to meet a 12 month rolling average even though the calendar year annual average would not be exceeded nor would any ambient air quality standards be exceeded.
- GCD believes a concern regarding enforceability, having to wait 12 months to see if a violation occurs, is not valid in GCDs case. GCD would not run the risk of violating a calendar year production average. GCDs production of iron and steel is well documented. In addition to maintaining a record of actual daily and monthly production rates, GCD could maintain a production plan, updated monthly which would project how the calendar year average will be met.

Attachment
YEARAVG.LOS

R008236

FACSIMILE MESSAGE

DATE: 10/30/95

TIME: _____

Please Deliver The Following Pages To:

NAME: Jim Ross

COMPANY: IEPA

CITY/STATE: _____

FAX NUMBER: _____

From:

NAME: L. Eichenberger

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 23 2013
REVIEWER JRM

Our FAX Number: (618) 451-4010

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If transmission is not complete, call: _____
Tele: (618-451-3437)

Subject: Radiation Permit

Comments: Response to previous question

09/29/95

ADDITIONAL INFORMATION NEEDED FOR GCD PRODUCTION INCREASE APPLICATION

1. Data on historic capture system flow rates for each BOF operation (i.e., flow rate during charge, during refine, during tap). Also data on proposed flow rates for each.

2. Description of current BOF capture system. Include number of fans, location of fans, fan size, location of flow meters, description of meters, etc.

3. Description of fume suppression system on BOF tapping. Can fume suppression be used elsewhere (e.g., charging, hot metal transfer, blast furnace tapping and runners)?

4. List of improvements to BOF capture and control made over the last 5 years.

5. Provide acceptable production increase in tons/yr if based on an annual limit.

6. Provide data on sulfur content of coals used - max and avg.

G-CONCER.DOC

BACT DEFICIENCIES WHICH NEED ADDRESSED IN APPLICATION

1. Need to address the feasibility of the use of lower sulfur coals to "prevent" SO2 emissions.

2. Need to address the feasibility of replacing oil use with natural gas use for SO2 emission prevention. Why is potential oil use increasing so much as a result of production increase?

1. **Data on historic capture system flow rates for each BOF operation:**

The flow rates used historically to control charging, refining and tapping emissions vary widely depending on the ability of the hooding to capture the emissions, and the ability of the ESP system to clean the emissions and meet the applicable standards at the roof and stack respectfully. It is generally desirable to use the lowest flow rates necessary to capture the emissions since this minimizes the strain on the gas conditioning system to cool and condition the gas and on the ESP system to clean the emissions. Increased draft rates may be required to capture the emission as normal wear and tear causes the capture system to loosen up. A more stringent opacity standard at the roof monitor will require increased capture efficiencies to those required to meet a less stringent standard. The fourth ESP provides the additional cleaning ability, necessary to meet more stringent stack emission standards and to increase draft rates, and thus improve capture efficiencies as necessary to meet more stringent roof monitor emission standards.

The minimum pulpit set points for flows as measured by the stack flow meter are as follows:

Charging	550,000 CFM	
Refining	600,000 CFM	
Tapping	150,000 CFM	(Until 1 minute after completing alloy addition to ladle)

These set points represent the maximum flow rate which is reached during that portion of the process. Overlapping vessel operation would require maximum pulpit set points based on the total flow necessary to control the corresponding portion of the process which is occurring on each vessel during the overlap.

The BOF capture system shall be operated at the above minimum pulpit set points until and unless the Agency approves a lower minimum pulpit set point based on a demonstration that an equivalent or better level of particulate matter control will occur.

2. **Descriptions of current BOF capture system:**

The attached schematic illustrates the current BOF capture and ESP cleaning system including the recent addition of the 4th ESP. The capture system consists of primary and secondary capture hoods, doghouse vessel enclosures, lance hole spray system and fume suppression for control of tapping.

3. **Description of fume suppression system on BOF tapping:**

The fume suppression system consist of gas burners which impinge a flame above the steel bath in the ladle being tapped into. The flame consumes the oxygen above the bath and thus suppresses the formation of fumes normally generated. This is the only location fume suppression is currently used at GCD. All handling of hot metal (iron) starting with tapping at the Blast Furnaces, reladling, desulfurization, slag skimming, and charging to the vessels at the BOF are controlled by localized hoods and evacuation to an ESP or Baghouse cleaning system.

4. **List improvements to BOF capture and control systems over last 5 years:**

Many improvements have been made to the BOF ESP control system since it was originally installed. These improvements include but are not limited to secondary emission hoods and doghouse enclosures, steam injection, air/water lances for moisture control and electronic voltage controllers for the ESP. A fume suppression system was installed in April, 1992 for additional control of tapping emissions.

Granite City has employed the use of formal problem-solving techniques as part of an ongoing effort to optimize the performance of the ESP system. The following are some of the improvements which have been implemented or will be implemented:

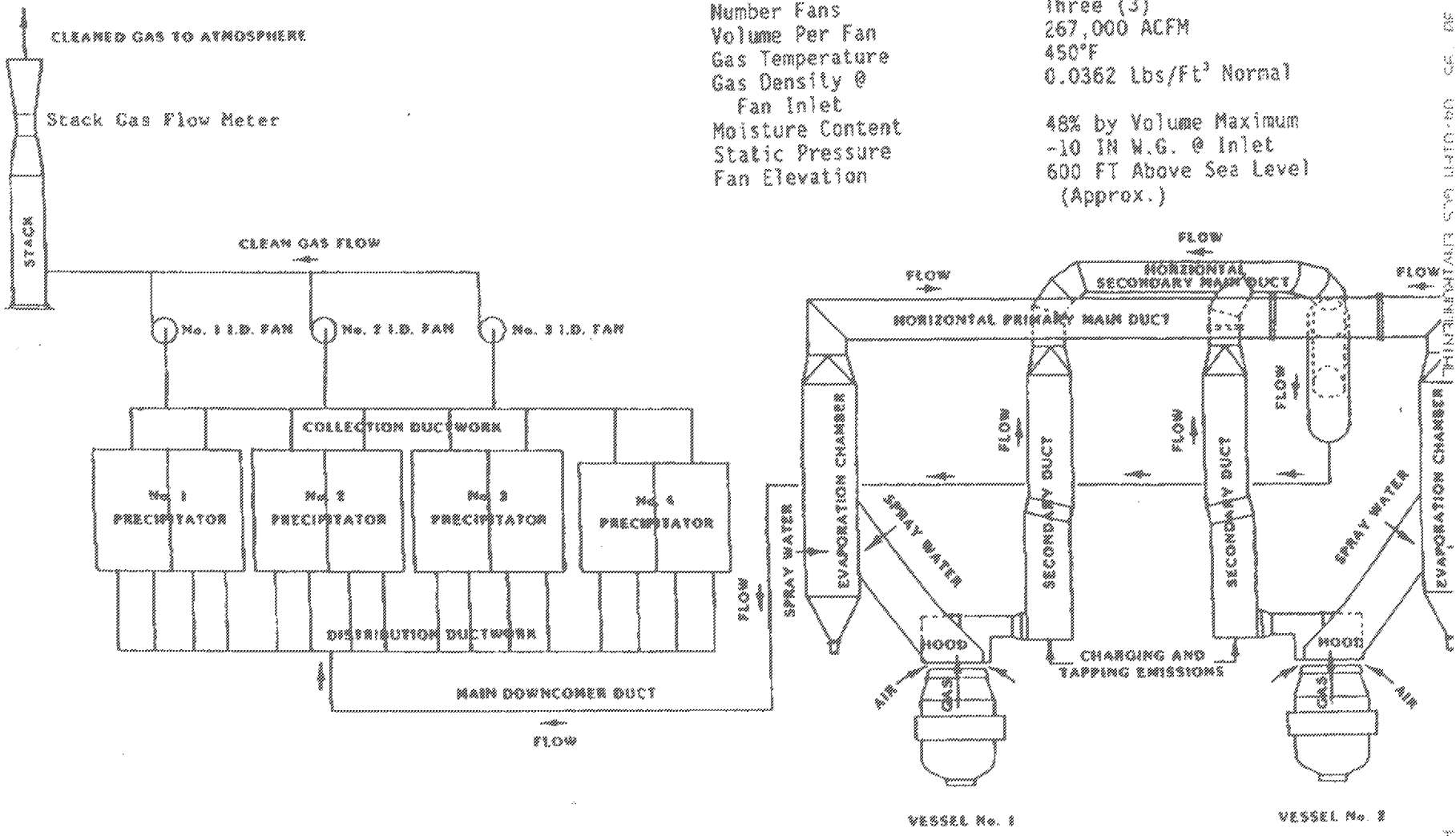
- 4th Quarter 1993 - #1 field wire replacement
- January 1995 - #2 field wire replacement
- July 1996 - #3 and #4 field wire replacement
- March 1995 - installed double dump valves on all ESP hoppers
- 3rd Quarter 1995 - replaced Automatic Voltage Controllers for all ESPs
- 2nd Quarter 1995 - replaced inefficient transformer rectifiers
- 3rd Quarter 1995 - replaced rubber boots on top of ESP to minimize water and air infiltration
- 2nd Quarter 1995 - replaced transition pieces at top of evaporation chambers
- 2nd Quarter 1995 - repaired downcomer and ductwork air leaks
- January 1995 - relocated steam injection to downcomer

In addition to all of these improvements, in June of 1995, a fourth ESP was added at a cost of approximately $7,000,000. This addition to the existing ESP control system is intended to ensure compliance at the increased production rates proposed in this application.

Attachment
qmbof.ls

Induced Draft Fan Original Design Data:

Total Gas Flow	800,000 ACFM
Number Fans	Three (3)
Volume Per Fan	267,000 ACFM
Gas Temperature	450°F
Gas Density @ Fan Inlet	0.0362 Lbs/Ft³ Normal
Moisture Content	48% by Volume Maximum
Static Pressure	-10 IN W.G. @ Inlet
Fan Elevation	600 FT Above Sea Level (Approx.)



BOF GAS CLEANING SYSTEM

GRANITE CITY STEEL

R008241

atmosphere and the fluxes used in the furnace burden to remove impurities, wide ranges of sulfur in the burden are efficiently removed (98+ %), predominately into the slag.

Approximate 60% of the sulfur in the coal used to make coke remains in the fuel. Therefore, reducing the sulfur content of the coal used to make coke that is part of the charge to the blast furnace was considered. However, this is not an effective means of reducing SO2 emissions because greater than 98% of the sulfur in the blast furnace burden is removed by the process. Thus, for every pound of sulfur in coal used to make coke, more than 0.988 pounds of sulfur are removed.

1 lb S *(1-0.6) = 0.400 lbs S removed when making coke
0.6 lb S * 0.98 = 0.588 lb S removed by the process
0.988 lb S removed

As shown, due to the effectiveness of the process in reducing sulfur ~~Sulfur~~, reduction in the sulfur content of the coal used would have an insignificant effect on sulfur dioxide emissions.

Some trace amounts of sulfur are also in the iron. The ~~This~~ necessary burden practice of adding limestone and fluxes effectively and effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

4.2.1.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.2.2 SO_2 CONTROL TECHNOLOGY OPTIONS

of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu).

There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu. During the base period little oil was combusted. The projected oil use is based on the amount of oil reclaimed from Granite City Steel's wastewater treatment system. Oil generated through this pollution prevention technique is presently being sold; however, Granite City Steel must maintain the ability to consume this oil internally should future requirements preclude the sale of this material.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher SO_2 emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plant-wide basis.

4.2.1.2 Casthouse Emissions

As discussed in Section 2.2, SO_2 emissions from iron-making operations are limited by process practices employing limestone and other fluxing agents in the burden. Due to the reducing

R008244

National Steel

National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3231
Fax (618) 451-3644

May 31, 1995

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JUN 0 2 1995
EPA - DAPC SPRLD

CERTIFIED MAIL NO. Z 351 483 690
RETURN RECEIPT REQUESTED

Mr. Donald Sutton
Manager-Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for Production Increase Permit, Application No. 95010001, I.D. No. 119813 AAI

Dear Mr. Sutton:

The subject application was originally received by the Agency on January 3, 1995.

The time in which the Agency may act on this application is hereby extended to September 30, 1995.

By consenting to the extension of time in which the IEPA may act to September 30, 1995 the Applicant does not otherwise waive any of the statutory provisions of Section 39 and 39.1 of the Illinois Environmental Protection Act in the event the IEPA fails to act upon the permit application by September 30, 1995, nor does it waive any of the provisions of the Clean Air Act Amendments of 1990 or the rulemaking thereunder.

Should additional information be needed, Please contact my office or that of Larry Siebenberger, telephone (618) 451-3391.

Fred Steinkuehler
Director - Engineering Technology

cc: C.V. Hickman
PRODINCR.CVH

IEPA - DIVISION OF RECORDS MANAGEMENT
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AUG 23 2013
REVIEWER JRM

R008245

National Steel

Fred H. Steinkuehler
Director-Engineering Technology

National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3391
Fax (618) 451-3443

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APR 24 1995
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April 19, 1995

CERTIFIED MAIL NO. Z 351 483 658
RETURN RECEIPT REQUESTED

RECEIVED
APR 24 1995
IEPA - DAPC - SPRLD

Mr. Donald Sutton
Manager - Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, IL 62702

Dear Mr. Sutton:

SUBJECT: Application for Production Increase Permit,
Application No. 95010001, I.D. No. 119813 AAI

The subject application has been amended to include the contemporaneous emission changes associated with the installation of the #8 Galvanizing Line. While the subject application was pending at the IEPA, the company applied for and received a permit to install a new galvanizing line. Enclosed are the amended pages to the subject permit application.

Should you have any questions regarding this application, please contact Larry Siebenberger, telephone (618) 451-3391.

Very truly yours,

Fred Steinkuehler (LS)

Fred H. Steinkuehler
Director-Engineering Technology

LS/cg
PIP-#8.LS

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG-23 2013
REVIEWER JRM

FACSIMILE MESSAGE

R008246

TO: Jim Ross LOCATION: Air permits

FROM: C Hickman GRANITE CITY STEEL EQC

SUBJECT: ~~Revision to~~ ~~Application for~~ ~~Temporary~~ Construction Permit Extensions - BOF, Prod. Area Limit 11/6/95

COMMENTS: As requested

2 PAGE(S) TO FOLLOW

Facsimile Number from which this is being sent: (618) 451-4020

Granite City Steel Division - South Plant (EQC)

NOV 16 1995

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 23 2013
REVIEWER JRM

Amendment to
Permit Application Dated December, 1994
Proposed Production Increase
Granite City Division of National Steel Corporation

On December 31, 1994, Granite City Steel submitted an application to the Illinois Environmental Protection Agency (IEPA) for a proposed production increase at their mill in Granite City, Illinois.

While that application was pending at IEPA, Granite City Steel applied for and received a permit to install a new galvanizing line. Since the emissions changes associated with the installation of that line will be contemporaneous with the proposed production increase, the application has been amended to account for the new galvanizing line.

This amendment also contains a small change in the estimated amount of blast furnace gas that will be used when the production increase is implemented.

The net result of the increased emissions associated with the operation of #8 Galvanizing Line and a decrease in emissions associated with the revised estimate of blast furnace gas use accompanying the production increase is a small decrease in SO_2 and CO emissions. Since the modeling that is described as a part of the initial application used a higher emission rate for these pollutants, the modeling was not revised. If the modeling were revised, it would show decreased impacts related to the air quality standards and the PSD increments.

Please make the following changes to the December, 1994 application.

- Replace the cover and cover page with the pages provided with this amendment;
- Replace pages 3-8 through 3-15 with pages 3-8 through 3-16 provided with this amendment;
- Replace Tables 3-1 through 3-7 with Tables 3-1 through 3-7 provided with this amendment; and
- Insert the table titled "Potential Emissions Related to Installation of #8 Galvanizing Line" as the last page of Appendix C.

PERMIT APPLICATION

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

Woodward-Clyde

December, 1994
Amended April, 1995
4E08109

PERMIT APPLICATION

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

Woodward-Clyde

December, 1994
Amended April, 1995
4E08109

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 6,492 tons per year.

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-22.1
Shutdown of Batch Annealing	December, 1991	-1.2
Installation of #8 Galvanizing Line	Expected 1996	+10.2
Net Decrease		**-13.1**
Proposed Production Increase	To Be Determined	+6,491.9
Net Emission Change		**+6,478.8**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase

would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2 NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_X emissions associated with the production increase. The total increase in NO_X emissions is estimated to be 248 tons per year.

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to NO_X emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-217.8
Shutdown of Batch Annealing	December, 1991	-8.7
Installation of #8 Galvanizing Line	Expected 1996	+18.4
Net Decrease		**-208.1**
Proposed Production Increase	To Be Determined	+247.9
Net Emission Change		**+39.8**

On the basis of these calculations, the proposed production increase would result in a net NO_x emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3).

3.3.2.3 SULFUR DIOXIDE

SO_2 emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 470 tons per year.

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-0.34
Shutdown of Batch Annealing	December, 1991	-0.04
Installation of #8 Galvanizing Line	Expected 1996	+0.20
Net Decrease		**-0.18**
Proposed Production Increase	To Be Determined	+470.46
Net Emissions Change		**+470.28**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points

- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase.

Appendix C presents information regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3,** and **3-4** show the road network used in this analysis.

The baseline set of information used is from a 1988 fugitive emission inventory. Based on that information, emissions were scaled to a base period (August, 1992 to July 1994) estimate using the increase in production (16.9%) and then reductions were calculated to reflect road paved or to be paved for credit, and additional proposed controls to paved and unpaved roads.

The specific fugitive dust control program that is proposed in addition to paving includes:

- three times a month spraying of unpaved roads (except when not required because of naturally wet or frozen conditions); and
- daily sweeping of paved roads shown on **Figures 3-2, 3-3,** and **3-4.**

Table 3-4 and **Table 3-5** present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total increase in PM_{10} and TSP emissions is 5 tons per year. (In most cases, the PM_{10} emissions have been estimated using a factor identical to the PM factor. This procedure may result in an overestimate of actual PM_{10} emissions.) The decrease in emissions is due to reductions in unpaved road fugitive dust emissions, paving of some previously unpaved roads, and sweeping of paved roads.

Based on information provided by Granite City Steel, there have been six projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} emission change are listed in the table below.

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Installation of #8 Galvanizing Line	Expected 1996	+2.1
Net Decrease		-7.3
Proposed Production Increase	To Be Determined	+4.8
Net Emissions Change		-2.5

Projects considered in calculating the net TSP emission change are listed in the table below.

PROJECT	DATE	TSP EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Installation of #8 Galvanizing Line	Expected 1996	+2.1
Net Decrease		-7.3
Proposed Production Increase	To Be Determined	+4.9
Net Emissions Change		-2.4

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in PM_{10} and net increase in TSP particulate matter emissions. Because the TSP increase is less than the 25 tons per year significance threshold, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 67.7 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

Based on information provided by Granite City Steel, there have been four projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	EMISSION REDUCTION (tpy)
Installation NESHAP Controls Coke By-Product	July, 1991	-31.6
Shutdown of Blooming Mill	April 1, 1991	-0.9
Shutdown of Batch Annealing	December, 1991	-0.3
Installation of #8 Galvanizing Line	Expected 1996	+1.2
Net Decrease		**-31.7**
Proposed Production Increase	To Be Determined	+67.7
Net Emissions Change		**+36.0**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6 LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.48 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

NE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	By-Products Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 16	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 16	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 16	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,759,500	ton proc.	16,904.59	
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 16	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	-	-	-	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	-	-	-	185,030	MMcf	1,267.46	-
17			Fuel Oil	5.0	lb/Mgal	-	-	-	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**18,195.86**	**6,491.92**
			Contemperaneous Changes									(13.05)
			Net Change									***6,478.87***

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TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

#	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
	0008	01	By-Products Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,759,500	ton proc.	73.12	-
	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,321,500	tons proc.	23.91	-
	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emiss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,321,500	tons proc.	1.20	-
	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,759,500	ton prod.	93.99	-
	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 18	-	-	-
			Natural Gas	306	lb/MMcf	-	-	-	1,145	MMcf	175.19	-
			Blast Furnace Gas	5.28	lb/MMcf	-	-	-	185,030	MMcf	488.48	-
			Fuel Oil	55	lb/Mgal	-	-	-	365	Mgal	10.04	-
	TOTALS:							**618.01**			**865.92**	**247.91**
			Contemperaneous Changes									(208.17)
			Net Change									***39.74***

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TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 19	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 19	-	-	-	-
3	0008	01	By-Products Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 19	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 19	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 19	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 19	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 19	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 19	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,321,500	tons proc.	422.00	-	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,321,500	tons proc.	21.94	-	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,321,500	tons proc.	13.89	-	Est. Annual Max
16	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
17			Natural Gas	0.6	lb/MMcf	-	MMcf	-	1,145	lb/MMcf	0.34	-	
18			Blast Furnace Gas	6.65	lb/MMcf	-	MMcf	-	185,030	lb/MMcf	615.22	-	
19			Fuel Oil	141.3	lb/Mgal	-	Mgal	-	365	lb/Mgal	25.79	-	
	TOTALS:							628.73			1,099.18	470.46	
			Contemporaneous Changes									(0.18)	
			Net Change									***470.28***	

R008261

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

#	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	Included in line 39	-	-	-	-
	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	Included in line 39	-	-	-	-
	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	Included in line 39	-	-	-	-
	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	Included in line 39	-	-	-	-
	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	Included in line 38	-	-	-	-
	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	Included in line 39	-	-	-	-
	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	Included in line 38	-	-	-	-
	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	15.00	Mgal	0.07	Included in line 40	-	-	-	-
	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	Included in line 39	-	-	-	-
	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	Included in line 38	-	-	-	-
	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	1.00	Mgal	0.00	Included in line 40	-	-	-	-
	0033	01	BOF 2 Vessels	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	Included in line 39	-	-	-	-
	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,321,500	tons proc.	25.74	9.78	-
	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.04675	lb/ton proc.	2,059,557	tons proc.	48.14	3,321,500	tons proc.	77.64	29.50	-
	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	2,053,521	tons proc.	22.28	3,321,500	tons proc.	139.14	116.86	limit
	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
	0035	01	Hot Metal Reladling - Xfer Pit	0.165	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.43	0.31	Com. w/0107
	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit

R008262

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

#	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
2	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
3	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	Included in line 38	-	-	-	-
4	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
5	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	-0.29	limit
6	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
7			BOF Hopper Baghouse			2,413,406	tons proc.	0.00	3,759,500	tons proc.	0.75	0.75	limit
8	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
9	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
10	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,413,406	tons proc.	2.87	3,759,500	tons proc.	4.47	1.60	-
11		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
12			Fugitive Unpaved Roads					771.06		-	59.32	(711.74)	-
13			Fugitive Paved Roads					178.35		-	249.38	71.03	-
14			Material Handling					18.88		-	28.47	9.59	-
15			Unpaved Parking Lots					-		-	-	-	-
16			Paved Parking Lots					-		-	-	-	-
17			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	-	2.92	-	-
18			Blast Furance Gas	2.9	lb/MMcf	-	MMcf	-	185,030	-	268.29	-	-
19			Fuel Oil	9.72	lb/Mgal	-	Mgal	-	365	-	1.77	-	-
TOTALS:								**1,555.03**			**1,559.78**	**4.75**	
			Contemgeraneous Changes									(7.36)	
			Net Change									***(2.61)***	

R008263

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

#	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	included in line 43	-	-	-	-
	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	included in line 43	-	-	-	-
	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	included in line 43	-	-	-	-
	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	included in line 43	-	-	-	-
	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	included in line 42	-	-	-	-
	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	included in line 43	-	-	-	-
	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	included in line 42	-	-	-	-
	0044	92	Boiler #11 - Fuel Oil	10.8	lb/Mgal	15.00	Mgal	0.08	included in line 44	-	-	-	-
	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	included in line 43	-	-	-	-
	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	included in line 42	-	-	-	-
	0048	92	Boiler #12 - Fuel Oil	10.8	lb/Mgal	1.00	Mgal	0.01	included in line 44	-	-	-	-
	0033	01	BOF 2 Vessels Stack	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	included in line 42	-	-	-	-
	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
	0006	01	"A" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
	0007	01	"A" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
	0011	01	"B" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
	0012	01	"B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.74	0.62	Com. w/0107

R008264

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

#	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit
	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	included in line 42	-	-	-	-
	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
	0103 & 0121 & 104	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	(0.29)	-
	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
			BOF Hopper Baghouse	-	-	2,413,406	tons prod.	0.00032	3,759,500	ton prod.	0.75	0.75	limit
	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,675,991	tons proc.	3.18	3,759,500	tons proc.	4.47	1.29	-
		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
			Fugitive Unpaved Roads	-	-	-	-	771.06	-	-	59.32	(711.74)	-
			Fugitive Paved Roads	-	-	-	-	178.35	-	-	249.38	71.03	-
			Material Handling	-	-	-	-	18.88	-	-	28.47	9.59	-
			Unpaved Parking Lots	-	-	-	-	-	-	-	-	-	-
			Paved Parking Lots	-	-	-	-	-	-	-	-	-	-
			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	MMcf	2.92	-	-
			Blast Furnace Gas	2.9	lb/MMcf	-	MMcf	-	185,030	MMcf	268.29	-	-
			Fuel Oil	10.8	lb/Mgal	-	Mgal	-	365	Mgal	1.97	-	-
TOTALS:								1,555.42			1,560.29	4.87	
			Contemperaneous Changes									(7.36)	
			Net Change									***(2.49)***	

R008265

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	By-Products Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 19	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.1016	lb/ton proc.	2,059,557	tons proc.	104.67	3,321,500	tons proc.	168.80	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0050	lb/ton proc.	2,059,557	tons proc.	5.19	3,321,500	tons proc.	8.37	-
15	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
16			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
17			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	185,030	MMcf	0.00	-
18			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.15			178.82	67.67
			Contemperaneous Changes									(31.71)
			Net Change									*35.96*

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TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	8760	hours	0.0017	-	tons proc.	0.00275464	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	8760	hours	0.0024	-	tons proc.	0.00388475	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	8760	hours	0.0010	-	tons proc.	0.00155390	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	8760	hours	0.0016	-	tons proc.	0.00259219	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	8360	hours	0.0022	-	tons proc.	0.00361974	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	8360	hours	0.0009	-	tons proc.	0.00144250	-
9	0033	01	BOF 2 Vessels Stack	0.17000000	lb/hr	8760	hours	0.7446	-	tons prod.	1.15993788	-
10	0034	01	Roof Monitor - Charge thru Tap	0.01290000	lb/hr	8760	hours	0.0565	-	tons prod.	0.08801882	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015830	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	8760	hours	0.0000	-	tons prod.	0.00000426	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015352	-
14	0050	01	Coal Crushing & Pulverizing	0.00000002	lb/hr	8760	hours	0.0000	-	tons proc.	0.00000015	-
15	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	8760	hours	0.0009	-	tons prod.	0.00137828	-
16	0105	01	Deslagging Station	0.00240000	lb/hr	8760	hours	0.0105	-	tons prod.	0.01637559	-
17	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	4385	hours	0.0292	-	tons prod.	0.04542584	-
18	0120	01	Caster Mold - Casters	0.00113000	lb/hr	7930	hours	0.0045	-	tons prod.	0.00697965	-
19			Boilers -Fuel Oil	0.01600000	lb/Mgals	-	-	-	365	Mgals	0.00292000	-
	TOTAL							0.856			1.337	0.481
			Contemperaneous Changes									0.000
			Net Change									***0.481***

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Granite City Steel

Potential Emissions Related to Installation of #8 Galvanizing Line

Emissions Estimate - Summary

Pollutant	Furnace	Fume Scrubber	Related Space Heaters	Related Galvizing Line Heaters	Total
Nitrogen Oxides	9.04	-	1.65	7.69	18.38
Particulate Matter	0.72	1.05	0.05	0.23	2.05
Particulate Matter < 10 microns	0.72	1.05	0.05	0.23	2.05
Volatile Organic Material	0.67	-	0.09	0.41	1.16
Carbon Monoxide	8.37	-	0.33	1.54	10.24
Sulfur Dioxide	0.14	-	0.01	0.05	0.20

Emissions Estimate - Furnace

Pollutant	Emission Factor lb/MMBtu	Factor Reference	Heat Input MMBtu/hr	Annual Potential Emissions (Tons)
Nitrogen Oxides	0.0378	Vendor Guarantee	54.6	9.04
Particulate Matter	0.0030	AP-42	54.6	0.72
Particulate Matter < 10 microns	0.0030	AP-42	54.6	0.72
Volatile Organic Material	0.0028	AP-42	54.6	0.67
Carbon Monoxide	0.0350	AP-42	54.6	8.37
Sulfur Dioxide	0.0006	AP-42	54.6	0.14

Emissions Estimate - Fume Scrubber

Pollutant	Emission Factor lb/hr	Factor Reference	Heat Input MMBtu/hr	Annual Potential Emissions (Tons)
Nitrogen Oxides	-	-	-	-
Particulate Matter	0.24	Vendor Information	-	1.05
Particulate Matter < 10 microns	0.24	Vendor Information	-	1.05
Volatile Organic Material	-	-	-	-
Carbon Monoxide	-	-	-	-
Sulfur Dioxide	-	-	-	-

Emissions Estimate - 8 Space Heaters

Pollutant	Emission Factor lb/MMcf	Factor Reference	Heat Input * MMBtu/hr	Annual Potential Emissions (Tons)
Nitrogen Oxides	100.0	AIRS 1-05-001-6	0.64	1.65
Particulate Matter	3.0	AIRS 1-05-001-6	0.64	0.05
Particulate Matter < 10 microns	3.0	AIRS 1-05-001-6	0.64	0.05
Volatile Organic Material	5.3	AIRS 1-05-001-6	0.64	0.09
Carbon Monoxide	20.0	AIRS 1-05-001-6	0.64	0.33
Sulfur Dioxide	0.6	AIRS 1-05-001-6	0.64	0.01

* per heater, use 1018 Btu/scf natural gas

Emissions Estimate - 11 Galvanizing Line Related Heaters

Pollutant	Emission Factor lb/MMcf	Factor Reference	Fuel Input * MMcf/hr	Annual Potential Emissions (Tons)
Nitrogen Oxides	100.0	AIRS 1-05-001-6	0.0175	7.69
Particulate Matter	3.0	AIRS 1-05-001-6	0.0175	0.23
Particulate Matter < 10 microns	3.0	AIRS 1-05-001-6	0.0175	0.23
Volatile Organic Material	5.3	AIRS 1-05-001-6	0.0175	0.41
Carbon Monoxide	20.0	AIRS 1-05-001-6	0.0175	1.54
Sulfur Dioxide	0.6	AIRS 1-05-001-6	0.0175	0.05

* Total for 11 heaters.

R008269

National Steel

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2001 E. State Streets
Granite City, Illinois 62040
(618) 451-3381
Fax: (618) 451-3644

March 28, 1995

CERTIFIED MAIL NO. Z 351 483 639
RETURN RECEIPT REQUESTED

RECEIVED
APR 03 1995

Mr. Donald Sutton
Manager-Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for Production Increase Permit, Application No. 95010001, I.D. No. 119813 AAI

Dear Mr. Sutton:

The subject application was originally received by the Agency on January 3, 1995.

The time in which the Agency may act on this application is hereby extended to July 3, 1995.

By consenting to the extension of time in which the IEPA may act to July 3, 1995 the Applicant does not otherwise waive any of the statutory provisions of Section 39 and 39.1 of the Illinois Environmental Protection Act in the event the IEPA fails to act upon the permit application by July 3, 1995, nor does it waive any of the provisions of the Clean Air Act Amendments of 1990 or the rulemaking thereunder.

Should additional information be needed, Please contact my office or that of Larry Siebenberger, telephone (618) 451-3391.

Fred Steinkuehler
Fred Steinkuehler (FS)
Director - Engineering Technology

cc: C.V. Hickman
PRODINCR.CVH

National Steel

National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3281
Fax (618) 451-3644

March 28, 1995

CERTIFIED MAIL NO. Z 351 483 639
RETURN RECEIPT REQUESTED

Mr. Donald Sutton
Manager-Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for Production Increase
Permit, Application No. 95010001,
I.D. No. 119813 AAI

Dear Mr. Sutton:

The subject application was originally received by the Agency on January 3, 1995.

The time in which the Agency may act on this application is hereby extended to July 3, 1995.

By consenting to the extension of time in which the IEPA may act to July 3, 1995 the Applicant does not otherwise waive any of the statutory provisions of Section 39 and 39.1 of the Illinois Environmental Protection Act in the event the IEPA fails to act upon the permit application by July 3, 1995 nor does it waive any of the provisions of the Clean Air Act Amendments of 1990 or the rulemaking thereunder.

Should additional information be needed, Please contact my office or that of Larry Siebenberger, telephone (618) 451-3391.

Fred Steinkuehler
Fred Steinkuehler (FS)
Director - Engineering Technology

cc: C.V. Hickman
PRODUCER.CVH

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3452

December 30, 1994

IEPA-DIVISION OF RECORDS MANAGEMENT
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CERTIFIED MAIL NO. Z 096 615 613
RETURN RECEIPT REQUESTED

Mr. Donald Sutton
Manager, Permit Section
Division of Air Pollution Control
Illinois Environmental Protection Agency
1340 North 9th Street
Springfield, Illinois 62702

Subject: Application for a Construction Permit to increase production at the following operations. A & B Blast Furnaces, BOF and Continuous Casters 1 & 2, Application Nos. BF 089460 0, BOF 089457 0, and CC 089421 0, respectively; I.D. No. 119813 AAI

Dear Mr. Sutton:

Granite City Division (GCD) of National Steel Corporation is requesting a Construction Permit to increase production at the subject operation.

Over the last three years National Steel Corporation has reported net income (losses) excluding unusual and extraordinary items of ($247) million dollars. GCD must increase production capacity to improve profitability during the current strong steel market and reduce production cost in order to improve competitiveness and assure its long-term survival. GCD currently employs more than 3,000 workers and contributes in excess of 1 billion dollars annually to the local economy. The Granite City, City Counsel recently passed a resolution recognizing GCD's future viability as absolutely essential to the success of government services in the area and requesting favorable consideration of the proposal production increases.

The attached permit application addresses the environmental impact of the proposed production increase. GCD recognizes the need and has committed the resources necessary to meet all applicable environmental requirements.

GCD is requesting an expedited review of its application and issuance of the permit modification. GCD requests a public hearing be held by the IEPA as soon as practicable within the time of the permit review process.

Should you have any questions regarding this application please contact Larry Siebenberger, telephone (618) 451-3391.

Fred Steinkuehler

Fred Steinkuehler (LS)

Director-Engineering Technology

Attachment
CONSTPMT.LS

R008273

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62794-9276

APPLICATION FOR PERMIT(A)

[X] CONSTRUCT [ ] OPERATE

NAME OF EQUIPMENT TO BE CONSTRUCTED OR OPERATED: Blast Furnaces, Basic Oxygen Furnaces, Continuous Casters (B)

FOR AGENCY USE ONLY

I.D. NO. 119-0113 AAI I

PERMIT NO. 95010001

DATE 1-3-95

1a. NAME OF OWNER: Granite City Division of National Steel Corp.		2a. NAME OF OPERATOR: Same	
1b. STREET ADDRESS OF OWNER: 20th & State Streets		2b. STREET ADDRESS OF OPERATOR:	
1c. CITY OF OWNER: Granite City		2c. CITY OF OPERATOR:	
1d. STATE OF OWNER: IL	1e. ZIP CODE: 62040	2d. STATE OF OPERATOR:	2e. ZIP CODE:

3a. NAME OF CORPORATE DIVISION OR PLANT: Granite City Steel		3b. STREET ADDRESS OF EMISSION SOURCE: 20th & Madison Streets		
3c. CITY OF EMISSION SOURCE: Granite City	3d. LOCATED WITHIN CITY LIMITS: [X] YES [ ] NO	3e. TOWNSHIP: Granite City	3f. COUNTY: Madison	3g. ZIP CODE: 62040

4. ALL CORRESPONDENCE TO: (TITLE AND/OR NAME OF INDIVIDUAL) Larry Siebenberger	5. TELEPHONE NUMBER FOR AGENCY TO CALL: 618/451-3391
6. ADDRESS FOR CORRESPONDENCE: (CHECK ONLY ONE) [X] OWNER [ ] OPERATOR [ ] EMISSION SOURCE	7. YOUR DESIGNATION FOR THIS APPLICATION (C):

8. THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT. BY AFFIXING HIS SIGNATURE HERETO HE FURTHER CERTIFIES THAT HE IS AUTHORIZED TO EXECUTE THIS APPLICATION.

AUTHORIZED SIGNATURE(S):(D)

BY Fred Steinkuehler (Ltd) 12/30/94
SIGNATURE DATE

Fred Steinkuehler
TYPED OR PRINTED NAME OF SIGNER

Director-Engineering Technology
TITLE OF SIGNER

RECEIVED
JAN 03 1995

BY _____ DATE
SIGNATURE

_____
TYPED OR PRINTED NAME OF SIGNER

_____
TITLE OF SIGNER

(A) THIS FORM IS TO PROVIDE THE AGENCY WITH GENERAL INFORMATION ABOUT THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS FORM MAY BE USED TO REQUEST A CONSTRUCTION PERMIT, AN OPERATING PERMIT, A CONSTRUCTION OR OPERATING PERMIT.

(B) ENTER THE GENERIC NAME OF THE EQUIPMENT TO BE CONSTRUCTED OR OPERATED. THIS NAME WILL APPEAR ON THE PERMIT WHICH MAY BE ISSUED PURSUANT TO THIS APPLICATION. THIS FORM MUST BE ACCOMPANIED BY OTHER APPLICABLE FORMS AND INFORMATION.

C) PROVIDE A DESIGNATION IN ITEM 7 ABOVE WHICH YOU WOULD LIKE THE AGENCY TO USE FOR IDENTIFICATION OF YOUR EQUIPMENT. YOUR DESIGNATION WILL BE REFERENCED IN CORRESPONDENCE FROM THIS AGENCY RELATIVE TO THIS APPLICATION. YOUR DESIGNATION MUST NOT EXCEED TEN (10) CHARACTERS.

(D) THIS APPLICATION MUST BE SIGNED IN ACCORDANCE WITH 35 ILL. ADM. CODE 201.154 OR 201.159 WHICH STATES: "ALL APPLICATIONS AND SUPPLEMENTS THERETO SHALL BE SIGNED BY THE OWNER AND OPERATOR OF THE EMISSION SOURCE OR AIR POLLUTION CONTROL EQUIPMENT, OR THEIR AUTHORIZED AGENT, AND SHALL BE ACCOMPANIED BY EVIDENCE OF AUTHORITY TO SIGN THE APPLICATION."

IF THE OWNER OR OPERATOR IS A CORPORATION, SUCH CORPORATION MUST HAVE ON FILE WITH THE AGENCY A CERTIFIED COPY OF A RESOLUTION OF THE CORPORATION'S BOARD OF DIRECTORS AUTHORIZING THE PERSONS SIGNING THIS APPLICATION TO CAUSE OR ALLOW THE CONSTRUCTION OR OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

IL 532-0238
PRINTED ON RECYCLED PAPER

PERMIT APPLICATION

PROPOSED PRODUCTION INCREASE
GRANITE CITY DIVISION of
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

Prepared for
Granite City Division of
National Steel Corporation

For Submittal to
Illinois Environmental Protection Agency

Prepared by
Woodward-Clyde Consultants
2318 Millpark Drive
St. Louis, Missouri

Woodward-Clyde

December, 1994
4E08109

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

The Granite City Division of National Steel Corporation is proposing to increase production at it's steel mill in Granite City, Illinois. This application is proposed to permit an increase the production rate of the existing Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. Operation of the furnaces is for 24 hours per day, 365 days per year.

The Granite City Steel mill is located in Madison County, Illinois. The largest city near the facility is St. Louis, which is located approximately 15 kilometers southwest of the Granite City steel mill. The latitude and longitude of the mill are approximately 38:41:55 and 90:08:42. The facility occupies approximately 1,100 acres of land in an area primarily used for industrial and agricultural purposes. A site location map is provided in **Figure 1-1**. A site map is provided in **Figure 1-2**. There are no listed federal Prevention of Significant Deterioration (PSD) Class I areas located within 100 km of the project site.

1.2 RECENT PERMITTING HISTORY

Granite City Steel obtained a permit from Illinois EPA in January 1994 to increase the production rate of Blast Furnaces to 6,500 net tons per day and Basic Oxygen Furnaces to 7,600 net tons per day. The permitted production rate for the continuous caster remained at 6,900 net tons per day (permit #119813AAI dated January 4, 1994).

1.3 APPLICATION INFORMATION

The applicant for this project is as follows:

Granite City Division of
National Steel Corporation
20th and State Streets
Granite City, Illinois 62040

The applicant contact is Mr. Larry Siebenberger. Mr. Siebenberger may be contacted at (618) 451-3391.

The Granite City Division of National Steel Corporation proposes to increase production from their two blast furnaces, two basic oxygen furnaces, and two continuous casters. The production increases proposed in this application are as follows:

- Increase the blast furnaces' production from 6,500 net tons per day (NTPD) to 9,100 NTPD

- Increase the Basic Oxygen Furnaces' production from 7,600 NTPD to 10,300 NTPD

- Increase the continuous casters' production from 6,900 NTPD to 10,300 NTPD

Based on an analysis to determine the net emissions changes resulting from the proposed project, the production increase would result in a net increase of sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), total suspended particulate matter (TSP), volatile organic material (VOM), and lead (Pb) emissions. Emissions of particulate matter less than 10 microns in diameter (PM_{10}) would decrease as a result of the production increase.

The Granite City facility is located in an area that is designated as attainment for SO_2, CO, and Pb and nonattainment for ozone (including NO_x and VOM) and particulate matter (including TSP and PM_{10}). The net emission increases for SO_2 and CO are in excess of the applicable Prevention of Significant Deterioration (PSD) significance levels of 40 and 100 tons per year, respectively. Therefore, the proposed increase in production is considered a major modification requiring a Best Available Control Technology (BACT) analysis. The net emission increases for Pb and the nonattainment pollutants are all below the PSD and new source review (NSR) significance levels. Therefore no additional control technology analyses for these pollutants are necessary.

Related to the production increase, the amount of fuel used by the boilers at the mill may also increase. However, the increase in fuel use by the boilers will not bring total fuel use

to an amount greater than allowed by Granite City Steel's existing permits. Also, the fuels types used by the boilers will not change. Therefore, the boilers are not considered part of the major modification and are exempt from BACT review as specified in the federal regulations at 40 CFR 52.21(b)(2)(iii). Increases in emissions due to increased fuel use will, however, be included in the air quality modeling analysis for this application.

It should also be noted that the actual increase in the use of blast furnace gas can only be estimated at this time. This is because actual operation of the blast furnaces at the proposed production level is needed to determine the actual increase in the blast furnace gas generated. Granite City Steel has estimated the increase in blast furnace gas for this application and is confident that the total emissions associated with this fuel for the production increase will be no greater than that represented in this application. Depending on the actual fuel mix and steam demand that accompanies the production increase, Granite City Steel may consider replacement of some existing boilers or modifications to existing boilers to more efficiently use blast furnace gas which would otherwise be flared. Again, these boiler changes would not adversely affect the total emissions associated with the fuel mix. Such changes, if they appear prudent, will be discussed with IEPA prior to implementation.

2.0
PROCESS DESCRIPTION

2.1 GENERAL DESCRIPTION OF THE MILL

The Granite City Division of National Steel Corporation owns and operates an integrated steel mill in Granite City, Illinois. Integrated steel manufacturing involves raw material preparation, iron production, iron preparation, and steel production.

2.2 GENERAL PROCESS DESCRIPTION

In this mill, iron is produced in blast furnaces by reducing iron bearing material with a hot gas. The charge, consisting of iron ore, coke, limestone, and other materials, is heated to a temperature above 900°C in the blast furnace. Air heated from 870°C to 1100°C is blown through tuyeres into bottom of the furnace. Oxygen in the air reacts with coke, forming carbon monoxide, which in turn reduces the iron oxides in the ore to iron. Limestone and other fluxs in the charge combine with the sulfur in the charge to form sulfates, which float to the top of the mix and are removed in the slag. A trace amount of sulfur is present in the blast furnace gas as it exits due to the reactions and oxidation taking place in the furnace. Molten iron and slag, accumulated in the hearth of the furnace, are drained into a trough equipped with a skimmer and a dam, resulting in the separation of molten iron from the slag.

The molten iron is further desulfurized by injecting a desulfurization reagent through a lance into the hot metal in the torpedo car using a carrier gas. This process is conducted in a desulfurization station located inside the BOF shop. The constituents of this reagent are typically CaC_2 which desulfurizes the molten metal, and $CaCO_3$ which provides the CO_2 gas required to mix the metal with the desulfurization agent. This treatment can reduce the sulfur content of the metal to less than 0.005%. Sulfur in the molten metal reacts to form calcium sulfate compounds, which are skimmed off the molten metal as slag. A collection hood collects emissions from the desulfurization process.

The basic oxygen furnace receives a charge composed of approximately 30% metal scrap and 70% molten iron. High purity oxygen is injected below the surface of the molten metal converting it into molten steel. Limestone is added to the charge to form a slag to capture the oxidation products.

3.0
EMISSION INFORMATION AND NETTING ANALYSIS

3.1 EXISTING AND PROPOSED EMISSION RATES

Emission rates used for calculation of pollutant emissions from the Blast Furnace, BOF and Continuous Casters are based on published emission factors, laboratory analysis, and emission test results.

Fuel related emissions increases related to the proposed production increase were based on use of the following emission factors listed on the following pages. Emission factors for process related emissions are based on published emission factors or, where appropriate, stack test results.

Stack test results used in the analysis include:

- August, 1993 test at BOF Electrostatic Precipitator Stack (PM, NO_x, CO)
- July, 1993 test at Blast Furnace Iron Spout Baghouse (SO_2)
- July, 1993 test at Blast Furnace Casthouse Baghouse (PM, SO_2, NO_x, VOC)

FUEL RELATED EMISSION FACTORS

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
Natural Gas	CO	40	AP-42, Page 1.4-2
(lb/MMcf)	NOx	306	November 4, 1992 Stack Test
	SO_2	0.6	AP-42, Page 1.4-2
	PM10	5.1	AP-42, Page 1.4-2
	TSP	5.1	AP-42, Page 1.4-2
	VOM	1.4	AP-42, Page 1.4-2

FUEL and FACTOR UNITS	POLLUTANT	EMSSION FACTOR	REFERENCE
	Pb	"	"
Blast Furnace Gas	CO	13.7	AIRS 1990
(lb/MMcf)	NOx	5.28	February 1, 1993 Stack Test
	SO_2	6.65	Stack Test
	PM10	2.9	AIRS, 1990
	TSP	2.9	AIRS, 1990
	VOM	"	"
	Pb	"	"
Fuel Oil	CO	5	AP-42, Page 1.3-2
(lb/Mgal)	NOx	55	AP-42, Page 1.3-2
	SO_2	141.3	AP-42, Page 1.3-2 (based on 0.9%S oil)
	PM10	9.72	AP-42, Page 1.11-2 (based on 0.18% ash)
	TSP	10.8	AP-42, Page 1.11-2 (based on 0.18% ash)
	VOM	0.28	AP-42, Page 1.3-2
	Pb	0.016	Based on laboratory anaylsis of ash

3.2 REGULATORY ANALYSIS

The proposed modification at the Granite City mill will be subject to both state and federal requirements. Illinois has promulgated air pollution control requirements which apply to both existing and new facilities. The source is subject to the requirements of the Prevention

of Significant Deterioration (PSD) regulations. Madison County, where the facility is located is designated moderate nonattainment for ozone and attainment for all other criteria pollutants.

On June 19, 1978, the EPA promulgated regulations governing Prevention of Significant Deterioration of air quality to implement provisions of the Clean Air Act Amendments of 1977. These regulations were changed as a result of the December 14, 1979 decision of the U.S. Court of Appeals for the District of Columbia (Alabama Power Company, et al. vs. Costle). Final rules pursuant to this decision were promulgated on August 7, 1980.

The PSD regulations apply to major sources - i.e., any of the 28 source categories listed in the regulations which emit, or have the potential to emit, more than 100 tons per year of any pollutant subject to regulation under the Clean Air Act, or any other source category which has the potential to emit more than 250 tons per year of any pollutant subject to regulation under the Act. The PSD regulation also applies to the proposed modification of an existing major source, if the emission increase exceeds the significant emission rates defined in the regulations. The proposed production increase will result in an emission increase greater than the PSD significant level of 100 and 40 tons per year for CO and SO_2 respectively. Thus, the proposed modification will be subject to the PSD regulations for CO and SO_2.

3.3 NETTING ANALYSIS

The Granite City Division of National Steel Corporation intends to increase production at their Blast Furnaces, Basic Oxygen Furnaces, and Continuous Casters. The proposed production level is set out in the following table.

PRODUCTION AREA	PROPOSED PRODUCTION (NTPD)
BLAST FURNACE	9,100
BOF SHOP	10,300
CASTERS	10,300 (liquid steel to the casters)

There will be changes in regulated air pollutants accompanying this increase in production. Production related emission increases and contemporaneous emission changes were calculated in accordance with Illinois Environmental Protection Agency (IEPA) regulations for Construction and Modification of Major Stationary Sources (Part 203).

A baseline period for this analysis was chosen to be the period August 1992 through July 1994. Emission changes (related to the production increase and contemporaneous changes) were calculated for:

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_X)
- Sulfur Dioxide (SO_2)
- Particulate Matter less than 10 Microns (PM_{10})
- Particulate Matter (TSP)
- Volatile Organic Material (VOM)
- Lead (Pb)

The following conclusions were reached regarding the magnitude of the net emission changes related to the production increase and contemporaneous emissions changes:

POLLUTANT	NET EMISSION CHANGE
Carbon Monoxide	Significant
Nitrogen Oxides	Not Significant
Sulfur Dioxide	Significant
Total Suspended Particulate Matter	Not Significant
Particulate Matter less than 10 Microns	Not Significant
Volatile Organic Material	Not Significant
Lead	Not Significant

On the basis of these results, only carbon monoxide (CO) and sulfur dioxide (SO_2) will be considered further in the New Source Review process. Information contained in this section concerning the net emission changes for the significant pollutants are presented for information only since these pollutants will be considered in the review process.

3.3.1 BASE PERIOD SELECTION AND NETTING PROCEDURE

The first step in the air quality permitting process is a "netting" evaluation. This evaluation is used to determine whether an air quality permit and subsequent New Source Review is needed. The analysis considers the increase in emissions that will accompany the proposed project. The increase is measured against a base period which is typically taken as the actual annual emissions averaged over the 24 most recent months. Other base periods can be established if they can be shown to be more representative of normal source operations.

The base period used for this analysis is August 1, 1992 through July 31, 1994. This period was selected because it represents the most recent available 24 month period consistent with IEPA Regulation 203.104. While this period has been used for this analysis, it should be noted that there was significant downtime related to furnace repairs in 1992 which has the effect of depressing base period production.

Changes in emissions expected as a result of the proposed increase in production were in most cases scaled from the base period average actual annual emission rate based on fuel usage and production rates consistent with the proposed production increase. A factor was developed by dividing the proposed production levels by the base period production levels as shown in the following table. Appendix B contains additional information on the base period production. **Figure 3-1** shows production trends for the mill.

PRODUCTION AREA	AUGUST 1992 - JULY 1994 PRODUCTION (NTPD)	PROPOSED PRODUCTION (NTPD)	RATIO
BLAST FURNACE	5,643	9,100	1.613
BOF SHOP	6,612	10,300	1.558
CASTERS	6,612	10,300 (liquid steel to casters)	1.558

In certain instances where there is an allowable emission limitation, that limitation was used as the basis of calculating the potential emissions levels associated with the proposed production limit increases.

The netting analysis also considers contemporaneous emission changes, both increases and decreases. Contemporaneous changes are defined as changes that have occurred over the past five years.

Particulate Matter (TSP and PM_{10}), Nitrogen Oxides (NO_x), Volatile Organic Material (VOM), Lead (Pb), and Carbon Monoxide (CO) were evaluated.

For each pollutant for which the source is major, the net emission change is compared against significance levels specified in new source review guidelines. If the net changes in emissions that result from the planned project plus contemporaneous changes for any single pollutant exceed the applicable significance level, the project is treated as a major modification of the source. The significance levels applicable for this project are:

Pollutant	Significance Level (tons per year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
Total Suspended Particulate	25
Particulate Matter < 10 microns	15
Volatile Organic Material	40
Lead	0.6

The procedures, assumptions, and results are discussed for each pollutant considered.

3.3.2 POLLUTANT ANALYSES

3.3.2.1 CARBON MONOXIDE

CO emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater

Table 3-1 presents the estimated increases in CO emissions associated with the production increase. The total increase in CO emissions is 6,514 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to CO emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-22.1
Shutdown of Batch Annealing	December, 1991	-1.2
Net Decrease		-23.3
Proposed Production Increase	To Be Determined	+6,513.7
Net Emission Change		**+6,490.4**

On the basis of these calculations, the proposed production increase would result in a net CO emission increase in excess of the significance level (100 tpy). Thus the production increase would be classified as a major modification and Prevention of Significant Deterioration review requirements would apply for this pollutant.

3.3.2.2 NITROGEN OXIDES

Nitrogen Oxides emission sources that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Caster Molds
- Blast Furnace Casthouse

Table 3-2 presents the estimated increases in NO_x emissions associated with the production increase. The total increase in NO_x emissions is estimated to be 256 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to NO_x emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-217.8
Shutdown of Batch Annealing	December, 1991	-8.7
Net Decrease		**-226.5**
Proposed Production Increase	To Be Determined	+256.3
Net Emission Change		**+29.8**

On the basis of these calculations, the proposed production increase would result in a net NO_x emission change below the significance level (40 tpy). Thus the production increase would not require Prevention of Significant Deterioration (for NO_2) or Nonattainment New Source Review (for O_3).

3.3.2.3 SULFUR DIOXIDE

SO_2 emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Continuous Casters
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Ladle Dryer & Preheater
- Blast Furnace Casthouse

Table 3-3 presents the estimated increases in SO_2 emissions associated with the production increase. The expected increase in SO_2 emissions is 481 tons per year.

Based on information provided by Granite City Steel, there have been two projects within the five year contemporaneous time frame which resulted in changes to SO_2 emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net emission change are listed in the table below.

PROJECT	DATE	EMISSION CHANGE (tpy)
Shutdown of Blooming Mill	April 1, 1991	-0.34
Shutdown of Batch Annealing	December, 1991	-0.04
Net Decrease		**-0.4**
Proposed Production Increase	To Be Determined	+481.04
Net Emissions Change		**+480.6**

On the basis of these calculations, the proposed production increase would result in a net SO_2 emission increase in excess of the significance level. Thus the production increase would

be classified as a major modification and Prevention of Significant Deterioration requirements would apply for this pollutant.

3.3.2.4 PARTICULATE MATTER

Particulate Matter (PM_{10} and TSP) emissions that would be affected by the proposed production increase include the following:

- Blast Furnace Stoves
- Boilers 1-12
- By-Products Flare
- BOF Vessels
- Continuous Casters
- Ladle Dryer & Preheater
- Blast Furnace Process Emission Points
- BOF Shop Process Emission Points
- Continuous Caster Process Emission Points
- Fugitive Emissions from Roads and Materials Handling

Particulate matter emission increases are affected by the types and amounts of fuel used in each process unit that will be affected by the production increase.

Appendix C presents information regarding fugitive emissions changes from roads and materials handling areas. **Figures 3-2, 3-3, and 3-4** show the road network used in this analysis.

The baseline set of information used is from a 1988 fugitive emission inventory. Based on that information, emissions were scaled to a base period (August, 1992 to July 1994) estimate using the increase in production (16.9%) and then reductions were calculated to reflect road paved or to be paved for credit, and additional proposed controls to paved and unpaved roads.

The specific fugitive dust control program that is proposed in addition to paving includes:

- three times a month spraying of unpaved roads (except when not required because of naturally wet or frozen conditions); and

- daily sweeping of paved roads shown on Figures 3-2, 3-3, and 3-4.

Table 3-4 and Table 3-5 present the estimated changes in PM_{10} and TSP emissions associated with the production increases and fugitive dust controls to roads. The total increase in PM_{10} and TSP emissions is 9 and 27 tons per year, respectively. In both cases, the decrease in emissions are due to reductions in unpaved road fugitive dust emissions, paving of some previously unpaved roads, and sweeping of paved roads.

Based on information provided by Granite City Steel, there have been five projects (in addition to control of fugitive emissions from roads) within the five year contemporaneous time frame which resulted in changes to PM_{10} emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net PM_{10} emission change are listed in the table below.

PROJECT	DATE	PM_{10} EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+9.4
Net Emissions Change		**0.0**

Projects considered in calculating the net TSP emission change are listed in the table below.

PROJECT	DATE	TSP EMISSION CHANGE (tpy)
Remove Blast Furnace Slag Spout Hood	January, 1990	+4.9
# 2 Caster Production	December 1, 1990	+11.7
Ingot Teeming Shutdown	April 1, 1991	-22.4
Shutdown of Blooming Mill	April 1, 1991	-3.4
Shutdown of Batch Annealing	December, 1991	-0.2
Net Decrease		**-9.4**
Proposed Production Increase	To Be Determined	+9.5
Net Emissions Change		**+0.1**

On the basis of these calculations, the proposed production increases and additional dust controls will result in a net decrease in PM_{10} and net increase in TSP particulate matter emissions. Because the TSP increase is less than the 25 tons per year significance threshold, the production increase will not trigger Nonattainment New Source Review for PM_{10} or TSP.

3.3.2.5 VOLATILE ORGANIC MATERIAL

The Blast Furnace Casthouse is the primary source of Volatile Organic Material (VOM) emissions increase that would result from the proposed production increase.

Table 3-6 presents the estimated increases in VOM emissions associated with the production increase. The total increase in VOM emissions is estimated at 67.7 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

Based on information provided by Granite City Steel, there have been three projects within the five year contemporaneous time frame which resulted in changes to VOM emissions. Appendix C presents information on the emission changing projects.

Projects considered in calculating the net VOM emission change are listed in the table below.

PROJECT	DATE	EMISSION REDUCTION (tpy)
Installation NESHAP Controls Coke By-Product	July, 1991	-31.6
Shutdown of Blooming Mill	April 1, 1991	-0.9
Shutdown of Batch Annealing	December, 1991	-0.3
Net Decrease		**-32.9**
Proposed Production Increase	To Be Determined	+67.7
Net Emissions Change		**+34.8**

On the basis of these calculations, the proposed production increase would result in a net increase in VOM emissions below the applicable significance level of 40 tons per year. Thus the production increase would not require a Nonattainment New Source Review for this pollutant.

3.3.2.6 LEAD

Table 3-7 presents the estimated increases in lead emissions associated with the production increase. The total increase in lead emissions is estimated at 0.48 tons per year. The increased emissions due to production increases were estimated by increasing 1993 emissions proportionally.

On the basis of these calculations, the production increase results in increased lead emissions less than the 0.6 tons per year significance threshold. Therefore, a PSD Review for this pollutant is not required.

4.0
BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

4.1 REQUIREMENTS AND APPLICABILITY

BACT is defined as an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation which would be emitted from any proposed major stationary source or major modification which the Administrator (on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs) determines is achievable for such pollutant. BACT limitations must not cause the exceedance of any applicable New Source Performance Standards (NSPS) and/or National Emission Standards for Hazardous Pollutants (NESHAP).

The requirement to conduct a BACT analysis and determination is set forth in Section 165(a)(4) of the Clean Air Act and in federal regulations at 40 CFR 52.21(j). BACT must also comply with all the applicable limits established by the State of Illinois.

BACT is required for each regulated major source pollutant emitted in excess of the significant emission rates. Individual BACT determinations are to be performed for each pollutant subjected to a PSD review emitted from the same emission unit. The BACT determination must also separately address, for each regulated pollutant with a significant emission increase at the source, air pollution controls for each emissions unit or pollutant emitting activity subject to review.

Based on emission estimates for the proposed project, a BACT review is required for both SO_2 and CO control for the proposed project and is presented in the following format:

- BACT procedures
- Control Technology Review
- Previous BACT Determinations
- BACT Conclusion

Preparation of the BACT analysis included in this document incorporates the most recent "top-down" BACT guidance (EPA, 1990) by United States Environmental Protection Agency (EPA) for PSD permit determinations. That is, for each pollutant, the most stringent emission limit potentially applicable for a given pollutant was considered and then compared to the proposed project to determine its technical and economic feasibility.

When the most stringent technically feasible emission limitation is not selected as BACT, justification must be provided in terms of adverse economic, environmental, or energy impacts. Several other factors may be considered in justification of rejecting more stringent controls, including:

a. A showing that utilizing the control would adversely impact the project's financial viability.

b. A showing that the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant.

c. A showing that those economic considerations outweigh the energy and environmental benefits.

4.2 SO_2 CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The sources of SO_2 emissions impacted by the proposed production increases and considered as a part of the BACT review include the blast furnace stoves, the blast furnace casthouse, the ladle dryer preheater and the continuous casters. The increase in iron-making by the blast furnaces may correspondingly increase the production of process blast furnace gas.

4.2.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.2.1.1 Blast Furnace Stoves

The blast furnace stoves will burn increased amounts of blast furnace gas and comparable amounts of natural gas to accommodate the production increase. Due to the low

concentrations of SO_2 and other pollutants in blast furnace gas and natural gas, these products are typically thought of as clean burning fuels[1].

Emissions of SO_2 will be impacted by the quantity of fuel required and the sulfur content of the fuel. For example, blast furnace gas has trace amounts of sulfur but is lower in heating value than natural gas or fuel oil. Therefore, it takes a much greater volume of blast furnace gas to provide the same heat energy as these other fuels. The greater volume and respective sulfur concentration must be compared to the lower volumes and respective sulfur concentration for natural gas or fuel oil to determine a lower emitting practice.

Based on fuel data for each type of fuel used, the lowest emitting fuel for SO_2 is natural gas (approximately 6.0×10^{-4} lbs/mmBtu). The next lowest emitting fuel for SO_2 is blast furnace gas (approximately 8.3×10^{-2} lbs/mmBtu). There may be a small increase in fuel oil use associated with the production increase. Fuel oil combustion results in SO_2 emissions of approximately 1.0 lb/mmBtu.

Increased quantities of blast furnace gas will be produced by the blast furnaces with the proposed production increase. If this fuel is not used in the blast furnace stoves or in other combustion sources, it must be flared. Although blast furnace gas is a higher emitting fuel than natural gas, substituting natural gas at the blast furnace stoves would still result in the combustion of the blast furnace gas at the flare. Therefore, combustion of blast furnace gas in the blast furnace stoves is the inherently lowest emitting practice on a plant-wide basis.

4.2.1.2 Casthouse Emissions

As discussed in Section 2.2, SO_2 emissions from iron-making operations are limited by process practices employing limestone and other fluxing agents in the burden. Due to the reducing atmosphere and the fluxes used in the furnace burden to remove impurities, wide ranges of sulfur in the burden are efficiently removed (98+ %), predominately into the slag. Some trace amounts of sulfur are also in the iron. This necessary burden practice of adding limestone and fluxes effectively and effectively reduces SO_2 emissions to trace amounts[4]. No other lower emitting practices are in use in the steel industry[3,4,5].

4.2.1.3 Ladle Dryer Preheater and Continuous Caster Emissions

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.2.2 SO_2 CONTROL TECHNOLOGY OPTIONS

There are no add-on SO_2 control technologies currently in use in the steel industry for SO_2 control at blast furnace stoves using process blast furnace gas, or to control SO_2 at the blast furnace casthouse, ladle dryer preheater and continuous casters.

4.2.3 INFEASIBLE OPTIONS - SO_2

The proposed production increases to the blast furnaces will result in increased blast furnace gas generation and require additional fuel combustion in the blast furnace stoves. Blast furnace gas and natural gas are considered clean fuels and are the preferred supplemental fuels for the increased combustion needs based on inherently lower emitting practices.

Blast furnace gas is a low Btu fuel (approximately 80 Btu/cubic feet). Because of its low Btu value, large volumes of blast furnace gas are necessary to produce the required heat energy for the proposed production increases. Because the use of blast furnace gas in some processes is limited by other factors, such as physical limitations of the gas lines and burners, natural gas may also be used as a supplemental fuel. However, the overall quantity of natural gas usage throughout the plant will remain constant.

Blast furnace gas and natural gas typically contains approximately 0.01 and 0.001 percent sulfur (by weight). Based on these low sulfur concentrations, SO_2 reduction using add-on controls is technically infeasible.

4.2.4 SELECTED BACT - SO_2

Based on a review of the BACT/LAER clearinghouse, information obtained from the U.S. EPA Control Technology Group, and literature from the U.S. EPA Office of Air Quality

Planning and Standards, no add-on BACT determination has been made for SO_2 emissions at these sources. Based on the extremely low concentrations of SO_2 in blast furnace gas, control of SO_2 emissions at blast furnace stoves is not practiced in the steel industry[3,4,5].

The combustion of blast furnace gas in the blast furnace stoves to supplement existing fuel combustion is the only feasible option to support the proposed production increases. Therefore, this option is determined as BACT for SO_2.

Sulfur dioxide emissions from the blast furnace casthouse are effectively controlled by the solubility of sulfur containing gases in the liquid iron and the efficiency of fluxing to remove impurities, including SO_2. Based on the low SO_2 concentrations in casthouse emissions, reduction using add-on controls is technically infeasible. SO_2 emissions from the blast furnace casthouse are effectively reduced by using current industry work practices. This option is selected as BACT for casthouse SO_2 emissions.

The use of natural gas in the ladle dryer preheater and continuous casters is the only feasible control option to support the proposed production increases based on inherently lower emitting practices.

4.3 CO CONTROL TECHNOLOGY REQUIREMENTS AND APPLICABILITY

The major sources of CO emissions impacted by the proposed production increases include the blast furnace stoves, the basic oxygen furnaces (BOF), the ladle dryer preheater and the continuous casters. CO emissions may increase as a result of additional process blast furnace firing in the stoves, additional steel production at the BOF and additional fuel requirements at the ladle dryer preheater and continuous casters. A BACT review requires an evaluation of inherently lower-emitting processes/practices and technically feasible add-on controls.

4.3.1 INHERENTLY LOWER-EMITTING PROCESSES/PRACTICES

4.3.1.1 Blast Furnace Stoves

CO formation results from the incomplete combustion of fossil fuels and oxidation of carbon containing materials. The better the combustion practices, the lower the CO formation.

Good combustion practices requires the following elements:

- Proper fuel/air mixture
- Proper mixing
- High temperature

Good combustion practice is the inherently lowest emitting method of controlling CO emissions from combustion sources[2,6].

4.3.1.2 Basic Oxygen Furnaces (BOF)

CO is formed in the BOFs by oxidizing carbon in the molten iron. Because high-purity oxygen is the industry standard for making steel, there is no lower-emitting practice for this source.

4.3.1.3 Ladle Dryer Preheater and Continuous Casters

The ladle dryer preheater and continuous casters may require an increase in fuel usage as a result of the production increase. However, because natural gas is the only fuel used at these units, the lowest emitting practice is in place and will continue to be employed.

4.3.2 CO CONTROL TECHNOLOGY OPTIONS

The following control technologies are currently available to control CO emissions from affected sources.

4.3.2.1 Blast Furnace Stoves

The following add-on control technology options are currently available to control CO emissions from the blast furnace stoves:

- Direct Combustion (flaring)
- Thermal Oxidization
- Catalytic Oxidation

Direct Combustion

Flaring is a combustion control process in which combustible gases are burned in an open flame in the open air using a specially designed burner tip. Completeness of combustion in a flare is governed by flame temperature, residence time in the combustion zone, turbulent mixing, and available oxygen. The major factors affecting flare combustion efficiency are gas flammability, auto-ignition temperature, heating value (Btu/scf), density, and flame zone mixing.

The heating value affects flame stability, emissions, and flame structure. A lower heating value produces a cooler flame that does not favor combustion and is more easily extinguished.

Thermal Oxidizers

Thermal oxidizers refer to any device that uses a flame combined within an enclosed chamber to convert combustible gases to carbon dioxide and water. Thermal oxidizers operate most effectively at temperatures between 1,300 to 1,500°F with a residence time of 0.1 to 0.5 seconds. By raising the temperature, the residence time for complete combustion can be reduced and vice versa. However, temperature is the more important process variable. The removal efficiency for CO is in the range of 90 to 95 percent.

Besides temperature and residence time, the concentration of the pollutant in the gas stream also affects operation of the system. The concentration of the pollutant dictates the amount

of supplemental fuel required. Low concentrations of the combustible gas require increased supplemental fuel usage.

Catalytic Oxidation

Catalytic incinerators employ a bed of active material (catalyst) that facilitates the overall combustion reaction. The catalyst is a substance that speeds up the rate of a chemical reaction at a given temperature without being permanently altered. The use of a catalyst in an enclosed combustor enables oxidation at temperatures in the range of 500 to 600°F. Common catalysts used in catalytic oxidation units are platinum or other metals. The catalysts are placed on an alumina pellet support or honeycomb support. The typical removal efficiency with this type of control is 90 percent.

Certain contaminants contained in the exhaust gas streams will chemically react or alloy with the catalyst and cause deactivation, including most heavy metal compounds. Sulfur is also considered a catalyst poison, but its effect is reversible.

4.3.2.2 Basic Oxygen Furnaces (BOF)

The BOF receives a charge composed of approximately 30 percent scrap and 70 percent molten iron and converts it to molten steel by utilizing a jet of high purity oxygen. The oxygen oxidizes the carbon and silicon in the molten iron, removes them, and provides heat for melting scrap.

Two primary systems for hooding and combustion of the BOF gases are currently used. The following control technologies are currently available and in use to control CO emissions from BOF vessels.

- Closed-hood combustion with exhaust stack flare
- Open-hood combustion with no additional controls

Closed-Hood Combustion w/Flare

A closed hood system suppresses combustion at the hood and collects the gases for combustion of CO at an exhaust stack flare. In a closed-hood system movable skirts seal the top of the furnace to limit air induction. Suppressed combustion hoods discourage air infiltration, with as low as 5 percent theoretical air. By suppressing combustion, the CO concentration is increased and the gases are more easily flared.

Open-Hood Combustion

Open combustion hoods allow excess air to be introduced in quantities up to 300 percent. With open hoods there is a gap between the hood and the furnace top into which air can be induced. In an open-hood system CO gases are combusted in the primary hood system with the addition of the excess air.

4.3.2.3 Ladle Dryer Preheater and Continuous Casters

There are no add-on CO control technologies currently in use in the steel industry for CO control at the ladle dryer preheater or continuous casters.

4.3.3 INFEASIBLE OPTIONS - CO

Low concentrations of CO are not effectively and efficiently controlled by emissions control devices[8]. Due to the low concentrations of CO gas in the exhaust stream of the blast furnace stoves, which are below the lower explosive limit (LEL) of 12.5 percent for CO, sustained combustion (flaring) cannot occur[7] without the use of a supplemental fuel. Because the use of supplemental fuel at the flare would result in higher emissions of other pollutants and the formation of additional CO, this is an infeasible option.

The Granite City facility is already equipped with an open hood system on the BOFs where CO is combusted in the hood. Switching to a closed-hood system would require a large capital expense and would be economically infeasible. The residual CO from open-hood combustion is at a concentration level that is not technically feasible to treat further.

4.3.4 SELECTED BACT - CO

A review of BACT/LAER Clearinghouse, U.S. EPA Control Technology Group, and U.S. EPA Office of Air Quality and Planning literature was conducted to determine the current BACT status for sources within the steel industry. Based on this review and the previous evaluation of BACT options, the following BACT determinations for CO were made for sources impacted by the proposed production increases.

4.3.4.1 BACT - Blast Furnace Stoves

BACT literature indicates that blast furnace stoves at steel mills are not using add-on control equipment for CO emissions control. CO emissions can be adequately controlled by the use of good combustion practices. Therefore the BACT recommendation for control of CO emissions from the blast furnace stoves is the maintenance of good combustion practices.

4.3.4.2 BACT - Basic Oxygen Furnaces (BOF)

The open hood system used by Granite City Steel is a process control with the CO being combusted in the hood system. This type of process does not use add-on controls. After combustion in the open hood system, the CO average concentration is approximately 2500 ppm. This concentration is too low for additional CO control to be technically feasible[8]. Therefore, the existing open hood system, operated in the manner necessary to produce a quality product, is determined to be BACT for the BOFs.

4.4 REFERENCES

1."Pollution Effects of Abnormal Operations in Iron and Steelmaking. Vol. I. U.S. Environmental Protection Agency. EPA- 600/2-78-118.

2. A.J. Buonicore and W.T. Davis. "Air Pollution Engineering Manual. "Van Nostrand Reinhold, New York, 1992.

3. A. Vervaert, U.S. EPA Office of Air Quality Planning and Standards, Control Technology Group, personal communication.

4. D. Schuerer, American Institute of Steel Industries, Technical Representative, Pittsburgh, Pa., personal communication.

5. E. Wojcheckowski, U.S. EPA Region V, Air and Radiation Section, personal communication.

6. Air Pollution Technology Institute, Course 427 "Combustion Evaluation", manual. EPA 450/2-80-063.

7. Office of Air Quality Planning and Standards, Control Cost Manual. EPA 450/3-90-006.

8. A. Marshall, John Zink Company, personal communication.

"Basic Oxygen Process Furnaces". U.S. Environmental Protection Agency. EPA 340/1-77-02.

Air Pollution Technology Institute, Course 415, "Control Of Gaseous Emissions, " manual. EPA 450/2-81-005.

Iron and Steel Plant Inspection Workshop. Volumes I and II. Pedco Environmental, Inc., 1983.

5.0
AIR QUALITY IMPACT ASSESSMENT

5.1 BACKGROUND

The proposed production increases at National Steel Corporation's Granite City Steel mill will result in a facility-wide net emission increase of carbon monoxide (CO) and sulfur dioxide (SO_2) of greater than 100 and 40 tons per year, respectively. Therefore, the proposed production increases constitute a major modification to an existing major stationary source, and subject the mill (for the respective pollutants) to the Federal Clean Air Act's (CAA) New Source Review (NSR) process.

The NSR process requires a major stationary source undergoing a major modification to demonstrate that the modification will not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS). NSR also requires the source to demonstrate that emissions of specific attainment air pollutants will not deteriorate the existing air quality above incremental amounts established by the CAA. Federal and state regulations have been developed to meet the requirements set forth in the CAA.

The Prevention of Significant Deterioration (PSD) program is a part of the NSR process that states have implemented for major new and modified sources of air pollution, in regions currently in attainment the NAAQS. An air quality impact assessment is one of the requirements which must be conducted in order to receive a PSD permit to construct or modify a source. This section will address the air quality impact assessment requirements which are necessary to receive a PSD permit. The air quality analyses presented in this section satisfy the regulatory requirements given in the Code of Federal Register 40 CFR 52.21(k) and 40 CFR 52.21(m).

Once source and pollutant applicability have been determined, dispersion modeling is typically used to estimate potential ambient pollutant impacts from a major modification. Initially, only the incremental emission increases resulting from the major modification are modeled. If the impacts from these emissions exceed the CAA's ambient significance levels, a more refined modeling analysis must be conducted to demonstrate overall compliance with

NAAQS and PSD increments. **Table 5-1** provides the ambient significance levels for CO and SO_2 impacts. **Table 5-2** presents the CO and SO_2 NAAQS (The Illinois Ambient Air Quality Criteria Pollutant Standards are identical to the NAAQS). **Table 5-3** lists the applicable Class II PSD SO_2 increments.

Another set of ambient impact limits which are applicable to PSD reviews are the de minimis ambient monitoring concentrations given in **Table 5-4**. These concentrations are used to determine whether site specific ambient air monitoring may be required prior to construction or modification. Concentrations greater than the values presented in **Table 5-4** could require preconstruction monitoring for up to a year, however, nearby existing representative monitoring data can often be substituted if available, approved by IEPA, and QA/QC certified according to federal guidelines.

The Illinois Environmental Protection Agency (IEPA) has recently conducted extensive dispersion modeling analyses in and around the Granite City Steel mill. The purpose of this modeling was to demonstrate NAAQS attainment for SO_2 and particulate matter. The IEPA modeling successfully demonstrated NAAQS compliance based on federally enforceable state operating permit (FESOP) SO_2 and PM_{10} emission rates for the Granite City Steel mill. SO_2 emission rates proposed for the production increases are no greater than the proposed FESOP limits. Therefore, NAAQS modeling will not be performed.

IEPA also provided a major portion of the data used in the modeling analyses. Included in the data provided are:

- meteorology (five years surface and upper air);
- receptors (three grid files of varying resolution and coverage);
- stack parameters; and
- downwash and wake effect parameters.

5.2 AREA DESCRIPTION

The Granite City Steel mill is located in Madison County, Illinois. Madison County is located in east-central Illinois. The largest city near the mill is St. Louis, Missouri which is located approximately 15 kilometers southwest of the site. The Granite City Steel mill is situated at a surface elevation of approximately 420 feet above mean sea level. The

elevations within a five kilometers radius of the site range from 400 to 430 feet, which are below the stack height elevations of all existing sources at the mill. Therefore, the site is located in an area consisting of simple terrain, and terrain elevations were not included as part of the modeling analyses.

Based on classification systems recognized by the EPA, the project area can be classified as rural. EPA guidance presents two alternative procedures to determine whether the character of an area is predominately urban or rural: 1) land use or 2) population density. The area classification system developed by Auer (1978) was used to classify the area as rural, based on color codes on the USGS maps and population density.

5.3 MODEL SELECTION

A dispersion modeling analysis for the Granite City Steel mill was performed using EPA computer models which evaluate the ambient impact of air pollution sources by simulating the processes of transport and diffusion of effluents in the atmosphere. The procedures recommended by EPA Region V, the Illinois Environmental Protection Agency (IEPA), and the *Guideline on Air Quality Models* (Revised), (EPA-450/12-78-027R) were followed for the modeling analysis.

The revised Industrial Source Complex Short Term (ISCST2) model, version 92062 was selected to predict ambient concentration increases. The ISCST2 model is frequently used in PSD modeling analyses and has gained wide acceptance by the modeling community since options are available to depict emission rate scalars, particle size data, building wake effects and downwash, cavity effects, and various types of emission sources.

The ISCST2 model is a steady-state Gaussian plume model designed to estimate ground-level pollutant concentrations from a wide variety of sources associated with an industrial complex in an area having simple terrain. The ISCST2 model utilized the regulatory default options including the following:

- final plume rise;
- stack-tip downwash;
- buoyancy-induced dispersion; and
- no calms processed

5.4 METEOROLOGICAL DATA

The dispersion modeling analysis was performed using five years (1982-86) of hourly surface meteorological data from the St. Louis International Airport (No. 13994) and twice-daily upper air meteorological data from the Salem Regional Airport (No. 03879). The meteorological data was recommended and supplied to Granite City Steel by the IEPA, and was previously used to conduct dispersion modeling analyses for SIP NAAQS attainment demonstrations. These data were received from IEPA in a preprocessed binary format compatible with the requirements of the ISCST2 model. The meteorological data consisted of hourly observations for the following parameters:

- Wind speed
- Wind direction
- Ambient temperature
- Atmospheric stability
- Mixing heights

These data were used to calculate hourly plume rise and pollutant concentrations at downwind receptor locations for averaging periods of up to a year. Each year was processed individually and maximum predicted concentrations for the worst-case year are reported in the modeling results.

The St. Louis Airport is located approximately 25 kilometers west of the mill and the Salem Regional Airport is located approximately 100 kilometers east of the mill. Both data sets are considered representative of the meteorological conditions in Madison County, Illinois.

5.5 RECEPTORS

The five-year dispersion modeling analysis utilized three IEPA generated UTM cartesian receptor grids with varying spacings (1 to 1,000 meter) and coverage. Potential near-source impacts due to downwash and wake effects were assessed utilizing fenceline receptors generated by IEPA and incorporated into three grids provided. Since terrain elevations are fairly constant, the modeling analysis was performed using only simple terrain (no terrain elevations). A copy of the receptor grid files are provided in Appendix E.

5.6 PRECONSTRUCTION AMBIENT AIR QUALITY MONITORING

Preconstruction monitoring of the air quality in the area near a proposed major modification is required by the PSD regulations to determine existing background pollutant concentrations prior to evaluating the impacts of the proposed major modification. The PSD regulations stipulate preconstruction monitoring is required if the maximum predicted (modelled) ambient impact concentration exceeds the de minimis PSD monitoring threshold. However, in lieu of a preconstruction monitoring requirement, the IEPA can designate existing representative monitoring data from a nearby site, if available, and if QA/QC certified according to federal guidelines.

The IEPA monitors CO in Madison County at 2001 Edison Street. This location is approximately 3 blocks (<0.5 kilometers) northwest of the Granite City Steel mill. This location should be considered nearby and representative of background conditions at the site. Therefore, preconstruction monitoring should not be necessary.

The IEPA monitors SO_2 in Madison County at four locations. The nearest monitoring station to the Granite City Steel mill is located in South Roxanna. This monitoring station is approximately 16 kilometers northeast of the Granite City Steel mill. However, because IEPA has already conducted extensive NAAQS SO_2 modeling and determined compliance for the area based on this modeling (at least in-so-far as it relates to the Granite City Steel mill), preconstruction monitoring should not be necessary.

The 1993 Illinois Annual Air Quality Report states that the maximum 1-hour CO average was 8.0 parts per million (9,200 $\mu g/m^3$) and the maximum 8-hour CO average was 3.7 parts per million (4,255 $\mu g/m^3$). These levels are below the 40,000 and 10,000 $\mu g/m^3$ 1-hour and 8-hour NAAQS, respectively.

The 1993 Illinois Annual Air Quality Report states that the maximum 3-hour SO_2 average was 0.171 parts per million (447 $\mu g/m^3$), the maximum 24-hour SO_2 average was 0.063 parts per million (164 $\mu g/m^3$), and the annual SO_2 average was 0.011 parts per million (28.6 $\mu g/m^3$). These levels are below the 1,300, 365, and 80 $\mu g/m^3$ 3-hour, 24-hour and annual NAAQS, respectively.

5.7 SOURCE DATA

The proposed production increases at the Granite City Steel mill will be achieved utilizing existing production equipment. Therefore, only the total emissions from the existing source points will change. The source parameters (stack height, temperature, etc.) are expected to remain the same.

The source data for the SO_2 and CO sources impacted by the proposed production increases are presented in **Table 5-5**. The primary source points at the mill are the blast furnace stoves, boilers, baghouse, the ladle preheater/dryer stacks, the blast furnace casthouse and roof vents, the iron spout baghouse vent and the continuous caster stacks. The ladle preheater/dryers were assumed to exhaust through a single stack for this modeling analysis.

5.8 MODELING PROTOCOL

The dispersion modeling analysis was conducted in three steps. Initially, worst-case individual impacts were determined by modeling each source individually for the five year period. From this modeling, a worst-case combined impact was determined by adding together all individual worst-case impacts regardless of time period (within an averaging period) or receptor location. If this process demonstrated that the combined impacts were below the CAA ambient significance levels, NAAQS levels or applicable PSD Class II increments, no further analyses were conducted. If, however, the combined impacts were calculated to be above the NAAQS levels (with background levels included) or PSD Class II increments, a refined modeling analysis (taking into account the same time period and receptor locations) was performed to evaluate the specific combined impact cases which appeared to exceed the NAAQS or PSD increments.

5.8.1 INDIVIDUAL IMPACT MODELING

To determine the individual worst-case impacts, a Chi/Q modeling analysis was conducted utilizing a nominal emission rate of one gram per second for each source. Once the modeling was completed, the applicable emission rates "Q" (in grams per second) for each individual source were multiplied to the Chi/Q impacts and the worst-case individual source impacts were determined.

For example, the maximum eight-hour Chi/Q impact from the basic oxygen furnace (BOF) for the five year modeling period was 4.3226 $\mu g/m^3$ (1983). Multiplying this impact to the 174.12 gram per second increase in CO emissions from the proposed production increases to the BOF results in a maximum eight-hour CO impact of 752.65 $\mu g/m^3$.

5.8.2 COMBINED IMPACT MODELING

Once the individual worst-case impacts were determined, the next step was to evaluate the worst-case combined impacts. To achieve this, it was first necessary to separate the combustion sources from the process sources.

Combustion sources (in this assessment) are defined as sources that burn fuels for the sole purpose of generating steam or thermal energy. These sources can be used interchangably, that is, fuel burned in one source can be switched immediately to a different source. Therefore, to determine the worst case impacts from the combustion sources (and to maximize operating flexibility), the total emissions from all additional fuel combustion were applied to each combustion source, and the combustion source that was determined to have the highest impact (Boiler 12) was used in the combined impact analysis.

The worst-case combustion source impacts (Boiler 12) were then added to the worst-case individual process source impacts to arrive at a combined worst-case impact. These impacts were then compared to the CAA's ambient significant impact levels. If the significant impact levels were exceeded, the combined impacts were compared to the applicable NAAQS or PSD Class II increment. If the NAAQS or PSD Class II increments were exceeded, additional modeling was required.

5.8.3 REFINED MODELING

If the worst-case combined impacts were greater than the NAAQS (CO) or the PSD Class II increments (SO_2), refined modeling was necessary. Since IEPA has already conducted extensive modeling to demonstrate SO_2 NAAQS compliance, this modeling was not repeated.

Refined modeling combines sources into a single modeling run and evaluates the combined impacts of these sources on particular receptor locations and at particular time periods. This

modeling typically results in much lower combined impacts because it is likely that two or more sources are not impacting on the same receptor point at the same time.

5.9 MODELING RESULTS

The results of the dispersion modeling indicate that the proposed production increases will not cause or contribute to a violation of a NAAQS, or cause an exceedance of an applicable PSD Class II increment.

5.9.1 SIGNIFICANT IMPACT DETERMINATION

As described in Section 5.9.1, individual Chi/Q modeling was conducted for all CO and SO_2 sources impacted by the proposed production increases. **Table 5-6** gives the CO modeling results, and **Table 5-7** gives the SO_2 modeling results.

The worst-case combined 1-hour impact levels for CO are 1,730.2 $\mu g/m^3$. This impact is less than the applicable significant impact level of 2,000 $\mu g/m^3$. However, the worst-case combined 8-hour impact level for CO was 798.0 $\mu g/m^3$, which is greater than the 500.0 $\mu g/m^3$ applicable significant impact level. Therefore, the CO impacts are considered significant and require further evaluation for NAAQS compliance.

The worst-case combined 3-hour, 24-hour and annual impacts for SO_2 are modeled to be 233.3, 120.5 and 13.8 $\mu g/m^3$, respectively. These impacts are greater than their respective 25, 5 and 1 $\mu g/m^3$ applicable significant impact levels. Therefore, the SO_2 impacts are also significant and require further evaluation for PSD Class II increment consumption.

5.9.2 NAAQS DETERMINATION - CO

Table 5-8 presents the worst-case individual and combined modeling results for all CO sources at the Granite City Steel mill. Based on these modeling results, the worst-case combined 1-hour impacts from the Granite City Steel sources is 5,095.3 $\mu g/m^3$. If a representative background concentration of 9,200 $\mu g/m^3$ is added to this impact, the total worst-case 1-hour impact is 14,295.3 $\mu g/m^3$. This impact is below the NAAQS of 40,000

$\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

Based on the modeling results, the worst-case combined 8-hour impacts from the Granite City Steel sources is 2,291.3 $\mu g/m^3$. If a representative background concentration of 4,255 $\mu g/m^3$ is added to this impact, the total worst-case 8-hour impact is 6,546.3 $\mu g/m^3$. This impact is below the NAAQS of 10,000 $\mu g/m^3$, therefore, the production increase does not cause or contribute to a 1-hour CO NAAQS exceedance.

5.9.3 PSD CLASS II INCREMENT CONSUMPTION - SO_2

SO_2 increment is consumed by sources in a specific area that increase their emission of SO_2 after the SO_2 baseline date has been established for that area. The increment can be expanded in a similar fashion if sources in a specific area decrease their SO_2 emissions after the baseline date. Based on data provided by IEPA, the SO_2 baseline date was established for the Kilngas - Wood River Gas Turbine project in December 1982. This project was eventually cancelled. Since this time, two additional PSD projects that would have been potential SO_2 increment consumers were proposed and ultimately cancelled.

IEPA and Granite City Steel were unable to identify the number and magnitude of minor source increment changes that have occurred since 1983. However, SO_2 monitoring data for Madison County indicate that SO_2 concentrations are remaining constant or trending downward. Therefore, we can conclude that at least the full Class II PSD increments for SO_2 should be available.

Table 5-9 presents the worst-case individual and combined modeling results for all SO_2 sources affected by the proposed production increases at the Granite City Steel mill. Based on these results, the worst-case combined impacts are below the 3-hour and annual Class II increments of 512 and 20 $\mu g/m^3$, respectively but exceed the 24-hour Class II increment of 91 $\mu g/m^3$.

To further evaluate the 24-hour average combined SO_2 impacts from the Granite City Steel sources, refined modeling was performed. The refined modeling evaluated the impacts of each individual combustion source combined with the three process sources (A&B Blast

Furnace Casthouse, A&B Blast Furnace Uncaptured Roof Fugitives, and the Iron Spout Baghouse). A total of seven modeling runs were made to evaluate these combinations:

- Blast Furnace Stove A + 3 process sources;
- Blast Furnace Stove B + 3 process sources;
- Boiler House I (Boilers 1-7) + 3 process sources;
- Boiler House I (Boilers 8-10) + 3 process sources;
- Boiler 11 + 3 process sources;
- Boiler 12 + 3 process sources; and
- By-products flare + 3 process sources

Table 5-10 presents the summary results of the refined modeling analyses. The results show that the maximum combined 24-hour SO_2 impact of 86.1 $\mu g/m^3$ is less than the Class II increment of 91 $\mu g/m^3$.

5.10 REFERENCES

Auer, Jr., A.H. 1978. *Correlation of Land Use and Cover with Meteorological Anomalies*, Journal of Applied Meteorology, 17:636-643.

U.S. Environmental Protection Agency. 1986. Guideline on Air Quality Models (Revised). EPA-450/2-78-027R, Research Triangle Park, North Carolina.

Illinois Environmental Protection Agency. 1994. 1993 Illinois Annual Air Quality Report. IEPA\APC\94-150, Bureau of Air, Springfield, Illinois.

6.0
ADDITIONAL IMPACT ANALYSIS

The additional impact analysis required under 40 CFR 52.21(o) are the following:

1. Impacts on soils and vegetation that would result from the modification

2. Air quality and visibility impact on Class I areas within 100 km

3. Impacts on endangered species

4. Socioeconomic analysis

The air quality modeling projections performed in Section 5.0 have demonstrated that the proposed modification will not cause or contribute to an exceedance of the applicable National Ambient Air Quality Standard (NAAQS) or cause an exceedence of a PSD Class II increment. The same can be said for any other anticipated effects that the proposed modification might have upon the surrounding areas of Madison county. Although the source impact analysis is a quantitative, mathematical determination evaluated in relative numerical terms, other impact analyses are generally more qualitative and descriptive in nature. The following sections summarize those additional considerations and demonstrate in each case that the proposed modification will produce no adverse effects.

CLASS I AREA IMPACTS

The nearest Federal Class I area to the Granite City Steel mill is the Mingo National Wilderness Area which is approximately 210 km southwest of the mill. The next closest Class I area (Hercules-Glades) is about 330 km southwest of the mill. The distance from the Class I area to the mill is greater than 100 km; therefore no air quality impact analyses were performed to evaluate impacts within the wilderness area.

VISIBILITY IMPACT ANALYSIS IN CLASS I AREAS

The Clean Air Act Amendments require evaluation of new emission sources to determine potential impact on visibility in Class I areas. Mandatory Class I areas include international parks, national wilderness areas, national memorial parks and other areas redesignated to Class I areas by the state. The nearest Class I area is the Mingo National Wilderness Area in Popular Bluff, Missouri, located approximately 210 km south-west of Granite City mill.

The current regulation governing PSD review addresses the prevention of visibility impairment in federal Class I areas. No visibility impact analysis for the Class I area was performed, as the nearest Class I area is more than 200 km from the Granite City mill and no impact is expected.

SOILS AND VEGETATION ANALYSIS

Soils and vegetation analysis applies only to those areas in which there is vegetation of significant commercial or recreational value. There are no vegetation or soil types in Granite City area which would be harmed by concentrations of criteria pollutants below the national ambient air quality standard. Therefore, no soils or vegetation analyses are required for the proposed modification.

IMPACTS ON ENDANGERED SPECIES

No impacts will occur to any listed endangered or threatened species, since none are known or likely to occur in the project area.

SOCIOECONOMIC ANALYSIS

The proposed modification at the Granite City mill will have a positive economic impact for the company and therefore for the community surrounding the mill. The infrastructure surrounding the mill is already established due to the existing industrial nature of the area. Therefore, it is not anticipated that there will be secondary air quality impacts due to the increase in production.

TABLE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - CO

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,774	MMcf	156.00	included in line 17	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	13.7	lb/MMcf	22,203	MMcf	152.09	included in line 17	-	-	-
3	0008	01	By-Products Flare - BFG	13.7	lb/MMcf	26,132	MMcf	179.00	included in line 17	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	13.7	lb/MMcf	37,501	MMcf	256.88	included in line 17	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	40	lb/MMcf	361	MMcf	7.22	included in line 18	-	-	-
6	0044	01	Boiler #11 - BFG	13.7	lb/MMcf	5,323	MMcf	36.46	included in line 17	-	-	-
7	0044	91	Boiler #11 - NG	40	lb/MMcf	226	MMcf	4.52	included in line 18	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	5.0	lb/Mgal	15.00	Mgal	0.04	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	13.7	lb/MMcf	7,106	MMcf	48.68	included in line 17	-	-	-
10	0048	91	Boiler #12 - NG	40	lb/MMcf	218	MMcf	4.36	included in line 18	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	5.0	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF 2 Vessels	8.993	lb/ton proc.	2,413,406	ton proc.	10,851.88	3,759,500	ton proc.	16,904.59	
13	0038	01	BOF Preheaters/Dryers - NG	40	lb/MMcf	283	MMcf	5.66	included in line 18	-	-	-
14	0071 & 0119	01	Continuous Casters #1 & #2 - NG	40	lb/MMcf	57	MMcf	1.14	included in line 18	-	-	-
15			Natural Gas	40	lb/MMcf	-	-	-	1,145	MMcf	22.90	-
16			Blast Furnace Gas	13.7	lb/MMcf	-	-	-	168,212	MMcf	1,289.25	-
17			Fuel Oil	5.0	lb/Mgal	-	-	-	365	Mgal	0.91	-
	TOTALS:							**11,703.94**			**18,217.66**	**6,513.72**
			Contemperaneous Changes									(23.30)
			Net Change									***6,490.42***

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TABLE 3-2
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - NOx

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,774	MMcf	60.12	Included in Line 20	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	5.28	lb/MMcf	22,203	MMcf	58.62	Included in Line 20	-	-	-
3	0008	01	By-Products Flare - BFG	5.28	lb/MMcf	26,132	MMcf	68.99	Included in Line 20	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	5.28	lb/MMcf	37,501	MMcf	99.00	Included in Line 20	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	306	lb/MMcf	361	MMcf	55.23	Included in Line 19	-	-	-
6	0044	01	Boiler #11 - BFG	5.28	lb/MMcf	5,323	MMcf	14.05	Included in Line 20	-	-	-
7	0044	91	Boiler #11 - NG	306	lb/MMcf	226	MMcf	34.58	Included in Line 19	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	55	lb/Mgal	15.00	Mgal	0.41	Included in Line 21	-	-	-
9	0048	01	Boiler #12 - BFG	5.28	lb/MMcf	7,106	MMcf	18.76	Included in Line 20	-	-	-
10	0048	91	Boiler #12 - NG	306	lb/MMcf	218	MMcf	33.35	Included in Line 19	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	55	lb/Mgal	1.00	Mgal	0.03	Included in Line 21	-	-	-
12	0033	01	BOF 2 Vessels	0.0389	lb/ton proc.	2,413,406	tons proc.	46.94	3,759,500	ton proc.	73.12	-
13	0038	01	BOF Preheaters/Dryers - NG	306	lb/MMcf	283	MMcf	43.30	Included in Line 19	-	-	-
14	0007 & 0012	01	"A" & "B" Blast Furnace - Casthouse	0.01440	lb/ton proc.	2,059,557	tons proc.	14.83	3,321,500	tons proc.	23.91	-
15	0005 & 0010	01	"A" & "B" Blast Furnace - Uncaptured Roof Emss.	0.00072	lb/ton proc.	2,059,557	tons proc.	0.74	3,321,500	tons proc.	1.20	-
16	0070 &0120	01	Caster Mold - Casters #1 & #2	0.05	lb/ton prod.	2,413,406	tons prod.	60.34	3,759,500	ton prod.	93.99	-
17	0071 & 0119	01	Continuous Casters #1 & #2 - NG	306	lb/MMcf	57	MMcf	8.72	Included in Line 19	-	-	-
18			Natural Gas	306	lb/MMcf	-	-	-	1,145	MMcf	175.19	-
19			Blast Furnace Gas	5.28	lb/MMcf	-	-	-	188,212	MMcf	496.88	-
20			Fuel Oil	55	lb/Mgal	-	-	-	365	Mgal	10.04	-
	TOTALS:							618.01			874.32	256.31
			Contemperaneous Changes									(226.54)
			Net Change									*29.77*

RD08325

TABLE 3-3
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - SO2

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,774	MMcf	75.72	included in line 18	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	6.65	lb/MMcf	22,203	MMcf	73.82	included in line 18	-	-	-	-
3	0008	01	By-Products Flare - BFG	6.65	lb/MMcf	26,132	MMcf	86.89	included in line 18	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	6.65	lb/MMcf	37,501	MMcf	124.69	included in line 18	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	0.6	lb/MMcf	361	MMcf	0.11	included in line 18	-	-	-	-
6	0044	01	Boiler #11 - BFG	6.65	lb/MMcf	5,323	MMcf	17.70	included in line 18	-	-	-	-
7	0044	91	Boiler #11 - NG	0.6	lb/MMcf	226	MMcf	0.07	included in line 18	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	141.3	lb/Mgal	15.00	Mgal	1.06	included in line 20	-	-	-	-
9	0048	01	Boiler #12 - BFG	6.65	lb/MMcf	7,106	MMcf	23.63	included in line 18	-	-	-	-
10	0048	91	Boiler #12 - NG	0.6	lb/MMcf	218	MMcf	0.07	included in line 18	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	141.3	lb/Mgal	1.00	Mgal	0.07	included in line 20	-	-	-	-
12	0038	01	BOF Preheaters/Dryers - NG	0.6	lb/MMcf	283	MMcf	0.08	included in line 18	-	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.2006	lb/ton proc.	2,059,557	tons proc.	206.57	3,321,500	tons proc.	422.00	-	Est. Annual Max
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0104	lb/ton proc.	2,059,557	tons proc.	10.71	3,321,500	tons proc.	21.94	-	Est. Annual Max
15	---	--	Iron Spout Baghouse	0.0073	lb/ton proc.	2,059,557	tons proc.	7.52	3,321,500	tons proc.	13.89	-	Est. Annual Max
16	0071 & 0119	01	Continuous Casters #1 & #2 - NG	0.6	lb/MMcf	57	MMcf	0.02	included in line 18	-	-	-	
17			Natural Gas	0.6	lb/MMcf	-	MMcf	-	1,145	lb/MMcf	0.34	-	
18			Blast Furnace Gas	6.65	lb/MMcf	-	MMcf	-	188,212	lb/MMcf	625.60	-	
19			Fuel Oil	141.3	lb/Mgal	-	Mgal	-	365	lb/Mgal	25.79	-	
	TOTALS:							628.73			1,109.77	481.04	
			Contemperaneous Changes									(0.40)	
			Net Change									*480.64*	

R008326

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	Included in line 39	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	Included in line 39	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	Included in line 39	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	Included in line 39	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	Included in line 38	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	Included in line 39	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	Included in line 38	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	9.72	lb/Mgal	15.00	Mgal	0.07	Included in line 40	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	Included in line 39	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	Included in line 38	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	9.72	lb/Mgal	1.00	Mgal	0.00	Included in line 48	-	-	-	-
12	0033	01	BOF 2 Vessels	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	Included in line 38	-	-	-	-
14	0005 & 0010	01	"A" & "B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	2,059,557	tons proc.	15.96	3,321,500	tons proc.	25.74	9.78	-
15	0006 & 0011	01	"A" & "B" Blast Furnace - Charging	0.04675	lb/ton proc.	2,059,557	tons proc.	48.14	3,321,500	tons proc.	77.64	29.50	-
16	0007 & 0012	01	"A" & "B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	2,053,521	tons proc.	22.28	3,321,500	tons proc.	139.14	116.86	limit
17	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
18	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.43	0.31	Com. w/0107
19	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
20	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit

R0008327

TABLE 3-4
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - PM-10

Projected Emissions Based On: Blast Furnance @ 9,100 NTPD
BOF @ 10,300 NTPD

Line #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
21	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
22	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
23	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	Included in line 38	-	-	-	-
24	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
25	0103, 0104 & 0121	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	-0.29	limit
26	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
27			BOF Hopper Baghouse			2,413,406	tons proc.	0.00	3,759,500	tons proc.	0.75	0.75	limit
28	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
29	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
30	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,413,406	tons proc.	2.87	3,759,500	tons proc.	4.47	1.60	-
31		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
32			Fugitive Unpaved Roads					771.06		-	59.32	(711.74)	-
33			Fugitive Paved Roads					178.35		-	249.38	71.03	-
34			Material Handling					18.88		-	28.47	9.59	-
35			Unpaved Parking Lots					-		-	-	-	-
36			Paved Parking Lots					-		-	-	-	-
37			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	-	2.92	-	-
38			Blast Furance Gas	2.9	lb/MMcf	-	MMcf	-	188,212	-	272.91	-	-
39			Fuel Oil	9.72	lb/Mgal	-	Mgal	-	365	-	1.77	-	-
	TOTALS:							**1,555.03**			**1,564.40**	**9.36**	
			Contemperaneous Changes									(9.40)	
			Net Change									*(0.04)*	

R008328

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
1	0004	01	"A" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,774	MMcf	33.02	included in line 43	-	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	2.9	lb/MMcf	22,203	MMcf	32.19	included in line 43	-	-	-	-
3	0008	01	By-Products Flare - BFG	2.9	lb/MMcf	26,132	MMcf	37.89	included in line 43	-	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	2.9	lb/MMcf	37,501	MMcf	54.38	included in line 43	-	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	5.1	lb/MMcf	361	MMcf	0.92	included in line 42	-	-	-	-
6	0044	01	Boiler #11 - BFG	2.9	lb/MMcf	5,323	MMcf	7.72	included in line 43	-	-	-	-
7	0044	91	Boiler #11 - NG	5.1	lb/MMcf	226	MMcf	0.58	included in line 42	-	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	10.8	lb/Mgal	15.00	Mgal	0.08	included in line 44	-	-	-	-
9	0048	01	Boiler #12 - BFG	2.9	lb/MMcf	7,106	MMcf	10.30	included in line 43	-	-	-	-
10	0048	91	Boiler #12 - NG	5.1	lb/MMcf	218	MMcf	0.56	included in line 42	-	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	10.8	lb/Mgal	1.00	Mgal	0.01	included in line 44	-	-	-	-
12	0033	01	BOF 2 Vessels Stack	0.0996	lb/ton proc.	2,413,406	tons proc.	120.19	3,759,500	ton proc.	300.03	179.84	limit
13	0038	01	BOF Preheaters/Dryers - NG	5.1	lb/MMcf	283	MMcf	0.72	included in line 42	-	-	-	-
14	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
15	0006	01	"A" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
16	0007	01	"A" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
17	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.0155	lb/ton proc.	1,029,779	tons proc.	7.98	1,660,750	tons proc.	12.87	4.89	-
18	0011	01	"B" Blast Furnace - Charging	0.04675	lb/ton proc.	1,029,779	tons proc.	24.07	1,660,750	tons proc.	38.82	14.75	-
19	0012	01	"B" Blast Furnace - Baghouse Stack	0.0217	lb/ton proc.	1,029,779	tons proc.	11.17	1,660,750	tons proc.	69.57	58.40	limit
20	0034	01	Roof Monitor - Charge thru Tap	0.120	lb/ton proc.	2,413,406	tons proc.	144.80	3,759,500	tons proc.	225.57	80.77	-
21	0035	01	Hot Metal Reladling - Xfer Pit	0.185	lb/ton proc.	2,413,406	tons proc.	1.12	3,759,500	tons proc.	1.74	0.62	Com. w/0107

IR008329

TABLE 3-5
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - TSP

Projected Emissions Based On: Blast Furance @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy	COMMENTS
22	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.039	lb/ton proc.	2,413,406	tons proc.	0.32	3,759,500	tons proc.	3.75	3.43	limit
23	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.0170	lb/ton proc.	2,413,406	tons proc.	0.21	3,759,500	tons proc.	9.95	9.74	limit
24	0070 & 0120	01	Caster Mold - Casters #1 & #2	0.006	lb/ton prod.	2,413,406	tons prod.	7.24	3,759,500	ton prod.	11.28	4.04	-
25	0071 & 0119	01	Cont. Casters #1 & #2 - Spray Chamber	0.00852	lb/ton proc.	2,413,406	tons prod.	2.06	3,759,500	ton prod.	3.20	1.15	-
26	0071 & 0119	01	Continuous Casters #1 & #2 - NG	5.1	lb/MMcf	57	MMcf	0.15	included in line 42	-	-	-	-
27	0072 & 0118	01	Slab Cutoff - Casters #1 & #2	0.0071	lb/ton proc.	2,413,406	tons prod.	8.57	3,759,500	ton prod.	13.35	4.78	-
28	0103 & 0121 & 104	01	Argon Stirring #1 & #2, Material Handling Tripper	0.014	lb/ton proc.	2,413,406	tons prod.	16.89	3,759,500	ton prod.	16.60	(0.29)	-
29	0105 & 0106	01	Deslagging Station & Material HS	0.0043	lb/ton proc.	2,413,406	tons prod.	5.19	3,759,500	ton prod.	8.23	3.04	limit
30			BOF Hopper Baghouse	-	-	2,413,406	tons prod.	0.00032	3,759,500	ton prod.	0.75	0.75	limit
31	0107	01	Desulf. Station (inside BOF shop)	1.09	lb/ton proc.	2,413,406	tons prod.	6.58	3,759,500	ton prod.	73.70	67.12	Com. w/0035
32	0113	01	Blast Furnace Slag Pits	0.0075468	lb/ton slag	420,194	tons slag	1.59	529,444	ton prod.	2.00	0.41	-
33	9003	01	Iron Pellet Screen	0.0023766	lb/ton proc.	2,675,991	tons proc.	3.18	3,759,500	tons proc.	4.47	1.29	-
34		01	Iron Spout Baghouse	0.00352	lb/ton proc.	2,413,406	tons proc.	4.25	3,759,500	tons proc.	32.80	28.55	limit
35			Fugitive Unpaved Roads	-	-	-	-	771.06	-	-	59.32	(711.74)	-
36			Fugitive Paved Roads	-	-	-	-	178.35	-	-	249.38	71.03	-
37			Material Handling	-	-	-	-	18.88	-	-	28.47	9.59	-
38			Unpaved Parking Lots	-	-	-	-	-	-	-	-	-	-
39			Paved Parking Lots	-	-	-	-	-	-	-	-	-	-
40			Natural Gas	5.1	lb/MMcf	-	MMcf	-	1,145	MMcf	2.92	-	-
41			Blast Furnace Gas	2.9	lb/MMcf	-	MMcf	-	188,212	MMcf	272.91	-	-
42			Fuel Oil	10.8	lb/Mgal	-	Mgal	-	365	Mgal	1.97	-	-
	TOTALS:							1,555.42			1,564.90	9.48	
			Contemperaneous Changes									(9.40)	
			Net Change									***0.08***	

R008330

TABLE 3-6
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - VOM

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION tpy	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0004	01	"A" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,774	MMcf	0.00	included in line 18	-	-	-
2	0009	01	"B" Blast Furnace Stoves - BFG	0.0	lb/MMcf	22,203	MMcf	0.00	included in line 18	-	-	-
3	0008	01	By-Products Flare - BFG	0.0	lb/MMcf	26,132	MMcf	0.00	included in line 18	-	-	-
4	0041	01	Boiler House 1 (Blrs 1-10) - BFG	0.0	lb/MMcf	37,501	MMcf	0.00	included in line 18	-	-	-
5	0041	91	Boiler House 1 (Blrs 1-10) - NG	2.8	lb/MMcf	361	MMcf	0.51	included in line 17	-	-	-
6	0044	01	Boiler #11 - BFG	0.0	lb/MMcf	5,323	MMcf	0.00	included in line 18	-	-	-
7	0044	91	Boiler #11 - NG	1.4	lb/MMcf	226	MMcf	0.16	included in line 17	-	-	-
8	0044	92	Boiler #11 - Fuel Oil	0.28	lb/Mgal	15.00	Mgal	0.00	included in line 18	-	-	-
9	0048	01	Boiler #12 - BFG	0.0	lb/MMcf	7,106	MMcf	0.00	included in line 18	-	-	-
10	0048	91	Boiler #12 - NG	1.4	lb/MMcf	218	MMcf	0.15	included in line 17	-	-	-
11	0048	92	Boiler #12 - Fuel Oil	0.28	lb/Mgal	1.00	Mgal	0.00	included in line 18	-	-	-
12	0033	01	BOF Preheaters/Dryers - NG	2.8	lb/MMcf	283	MMcf	0.40	included in line 17	-	-	-
13	0007 & 0012	01	"A & B" Blast Furnace - Casthouse	0.1016	lb/ton proc.	2,059,557	tons proc.	104.67	3,321,500	tons proc.	168.80	-
14	0005 & 0010	01	"A & B" Blast Furnace - Uncap. roof	0.0050	lb/ton proc.	2,059,557	tons proc.	5.19	3,321,500	tons proc.	8.37	-
15	0071 & 0119	01	Continuous Casters #1 & #2 - NG	2.8	lb/MMcf	57	MMcf	0.08	included in line 17	-	-	-
16			Natural Gas	2.8	lb/MMcf	-	MMcf	-	1,145	MMcf	1.60	-
17			Blast Furnace Gas	0.0	lb/MMcf	-	MMcf	-	168,212	MMcf	0.00	-
18			Fuel Oil	0.28	lb/Mgal	-	Mgal	-	365	lb/Mgal	0.05	-
	TOTALS:							111.15			178.82	67.67
			Contemperaneous Changes									(32.86)
			Net Change									*34.81*

R008331

TABLE 3-7
GRANITE CITY DIVISION of NATIONAL STEEL
NETTING ANALYSIS SUMMARY - Pb

Projected Emissions Based On: Blast Furnace @ 9,100 NTPD
BOF @ 10,300 NTPD

LINE #	POINT	MODE	SOURCE DESCRIPTION	EMISSION FACTOR	UNITS	BASE YEAR THRUPUT	UNITS	ACTUAL EMISSION TPY	PROJECTED THRUPUT	UNITS	PROJECTED ACTUAL EMISSIONS tpy	POTENTIAL EMISSIONS INCREASE tpy
1	0044	03	Boiler #11 - Fuel Oil	0.01600000	lb/Mgal	15.00	Mgal	0.0001	included in line 19	-	-	-
2	0048	03	Boiler #12 - Fuel Oil	0.01600000	lb/Mgal	1.00	Mgal	0.0000	included in line 19	-	-	-
3	0005	01	"A" Blast Furnace - Uncap. Fugitives	0.00039000	lb/hr	8760	hours	0.0017	-	tons proc.	0.00275464	-
4	0006	01	"A" Blast Furnace - Charging	0.00055000	lb/hr	8760	hours	0.0024	-	tons proc.	0.00388475	-
5	0007	01	"A" Blast Furnace - Baghouse Stack	0.00022000	lb/hr	8760	hours	0.0010	-	tons proc.	0.00155390	-
6	0010	01	"B" Blast Furnace - Uncap. Fugitives	0.00036700	lb/hr	8760	hours	0.0016	-	tons proc.	0.00259219	-
7	0011	01	"B" Blast Furnace - Charging	0.00053700	lb/hr	8360	hours	0.0022	-	tons proc.	0.00361974	-
8	0012	01	"B" Blast Furnace - Baghouse Stack	0.00021400	lb/hr	8360	hours	0.0009	-	tons proc.	0.00144250	-
9	0033	01	BOF 2 Vessels Stack	0.17000000	lb/hr	8760	hours	0.7446	-	tons prod.	1.15993788	-
10	0034	01	Roof Monitor - Charge thru Top	0.01290000	lb/hr	8760	hours	0.0565	-	tons prod.	0.08801882	-
11	0035	01	Hot Metal Reladling - Xfer Pit	0.00002320	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015830	-
12	0037	01	Flux Conv. & Xfer Pts., Bin Floor - BOF	0.00000062	lb/hr	8760	hours	0.0000	-	tons prod.	0.00000426	-
13	0040	01	Hot Metal Chging Ladle Slag Skimmer	0.00002250	lb/hr	8760	hours	0.0001	-	tons prod.	0.00015352	-
14	0050	01	Coal Crushing & Pulverizing	0.00000002	lb/hr	8760	hours	0.0000	-	tons proc.	0.00000015	-
15	0103	01	Argon Stirring #1 & #2	0.00020200	lb/hr	8760	hours	0.0009	-	tons prod.	0.00137828	-
16	0105	01	Deslagging Station	0.00240000	lb/hr	8760	hours	0.0105	-	tons prod.	0.01637559	-
17	0107	01	Desulf. Station (inside BOF shop)	0.01330000	lb/hr	4385	hours	0.0292	-	tons prod.	0.04542584	-
18	0120	01	Caster Mold - Casters	0.00113000	lb/hr	7930	hours	0.0045	-	tons prod.	0.00697865	-
19			Boilers -Fuel Oil	0.01600000	lb/Mgals	-	-	-	365	Mgals	0.00292000	-
	TOTAL							0.856			1.337	0.481
			Contemperaneous Changes									0.000
			Net Change									*0.481*

R0009332

TABLE 5-1
AMBIENT SIGNIFICANT IMPACT LEVELS IN CLASS II AREAS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	2,000	---	500	---	---
SO_2	---	25	---	5	1

TABLE 5-2
NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	40,000	---	10,000	---	---
SO_2	---	1,300	---	365	80

TABLE 5-3
CLASS II PSD INCREMENT LEVELS ($\mu g/m^3$)

	Averaging Period		
Pollutant	3-hour	24-hour	Annual
SO_2	512	91	20

TABLE 5-4
DE MINIMIS PRECONSTRUCTION MONITORING IMPACT LEVELS ($\mu g/m^3$)

	Averaging Periods				
Pollutant	1-hour	3-hour	8-hour	24-hour	Annual
CO	---	---	575	---	---
SO_2	---	---	---	13	---

TABLE 5-5
SOURCE DATA PARAMETERS

Source Name	Source ID#	East	North	Stack Height	Exit Temp.	Exit Velocity	Diameter
		(m)	(m)	(m)	(K)	(m/s)	(m)
Casthouse Baghouse	17000	749675	4286481	19.32	339	20.33	3.35
Iron Spout Baghouse	17005	749780	4286540	16.76	416	20.70	0.76
Blast Furnace Stove B	17010	749730	4286485	68.58	533	18.56	2.74
Boiler House 1 (Boilers 1-7)	17020	749815	4286590	68.58	460	4.85	4.11
Blast Furnace Stove A	17030	749880	4286560	66.14	533	26.84	2.13
Boiler 11	17040	749945	4286640	46.33	510	11.88	2.13
Boiler 12	17050	749945	4286640	46.33	510	10.64	2.13
Boiler House 1 (Boilers 8-10)	17060	749760	4286660	60.96	460	3.44	3.20
A Underfire Battery	17110	750170	4286730	9.15	529	3.31	2.74
B Underfire Battery	17120	750180	4286730	9.15	529	4.79	2.74
Slab Furnace #1	17130	747740	4286570	33.53	616	18.96	2.07
Slab Furnace #2	17140	747770	4286570	33.53	616	18.96	2.07
Slab Furnace #3	17150	747750	4286550	33.53	616	18.96	2.07
Slab Furnace #4	17340	747680	4286530	44.50	644	8.15	4.20
By-Products Flare	17260	750050	4286770	32.00	1273	20.00	1.94
BOF Ladle Preheater/Dryer	30030	748430	4286320	Volume Source			
BOF	21760	748360	4286450	48.80	561	16.00	5.49
Continuous Caster #1	22100	748560	4286320	34.69	339	8.29	1.98
Continuous Caster #2	22292	748630	4286410	40.23	339	17.52	2.23

TABLE 5-6
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Blast Furnace Gas			Fuel Oil			Other			Totals	
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	0.00	0.0	0.0	174.12	1,650.4	752.6	1,650.4	752.6
Blast Furnace Stove A	2.0532	1.0151	13.24	27.2	13.4	0.00	0.0	0.0	0.00	0.0	0.0	27.2	13.4
Blast Furnace Stove B	1.8693	1.0145	13.24	24.7	13.4	0.00	0.0	0.0	0.00	0.0	0.0	24.7	13.4
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	13.24	41.1	19.2	0.02	0.1	0.0	0.00	0.0	0.0	41.2	19.2
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	13.24	79.7	39.5	0.02	0.2	0.1	0.00	0.0	0.0	79.8	39.5
Boiler 11	5.5322	3.2387	13.24	73.2	42.9	0.02	0.1	0.1	0.00	0.0	0.0	73.4	43.0
Boiler 12	5.5725	3.4203	13.24	73.8	45.3	0.02	0.1	0.1	0.00	0.0	0.0	73.9	45.4
By-Products Flare	1.7171	0.8079	13.24	22.7	10.7	0.00	0.0	0.0	0.00	0.0	0.0	22.7	10.7
Maximum Combined Impact Levels:												**1,730**	**788**
Significant Impact Levels:												**2,000**	**500**

R008335

TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q Impacts			Blast Furnace Gas				Fuel Oil			
Source	3-hour	24-hour	Annual	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	6.43	9.6	4.5	0.5	0.00	0.0	0.0	0.0
Blast Furnace Stove B	1.4918	0.5830	0.0764	6.43	9.6	3.7	0.5	0.00	0.0	0.0	0.0
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	6.43	14.7	7.3	0.9	0.71	1.6	0.8	0.1
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	6.43	26.4	12.0	1.7	0.71	2.9	1.3	0.2
Boiler 11	4.6445	2.0769	0.2546	6.43	29.8	13.3	1.6	0.71	3.3	1.5	0.2
Boiler 12	4.8437	2.2734	0.2785	6.43	31.1	14.6	1.8	0.71	3.4	1.6	0.2
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
By-Products Flare	1.2329	0.3581	0.0390	6.43	7.9	2.3	0.3	0.00	0.0	0.0	0.0
Maximum Combined Impact Levels:											
Significant Impact Levels:											

R008336

TABLE 5-7
SIGNIFICANT IMPACT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q Impacts			Other				Totals		
Source	3-hour (ug/m3)	24-hour (ug/m3)	Annual (ug/m3)	Emission Rate (g/sec)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)	3-hour Impact (ug/m3)	24-hour Impact (ug/m3)	Annual Impact (ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	0.00	0.0	0.0	0.0	9.6	4.5	0.5
Blast Furnace Stove B	1.4918	0.5830	0.0764	0.00	0.0	0.0	0.0	9.6	3.7	0.5
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	0.00	0.0	0.0	0.0	16.3	8.1	0.9
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	0.00	0.0	0.0	0.0	29.3	13.4	1.8
Boiler 11	4.6445	2.0769	0.2546	0.00	0.0	0.0	0.0	33.1	14.8	1.8
Boiler 12	4.8437	2.2734	0.2785	0.00	0.0	0.0	0.0	34.5	16.2	2.0
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	6.20	124.8	75.2	8.0	124.8	75.2	8.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.32	53.0	22.5	3.0	53.0	22.5	3.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.20	20.8	6.6	0.8	20.8	6.6	0.8
By-Products Flare	1.2329	0.3581	0.0390	0.00	0.0	0.0	0.0	7.9	2.3	0.3
Maximum Combined Impact Levels:								**233**	**120**	**14**
Significant Impact Levels:								**25**	**5**	**1**

R008337

TABLE 5-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Blast Furnace Gas			Natural Gas			Coke Oven Gas		
Source	1-hour	8-hour	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact	Emission Rate	1-hour Impact	8-hour Impact
	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	0.00	0.0	0.0	0.00	0.0	0.0
Blast Furnace Stove A	2.0532	1.0151	37.09	76.1	37.6	2.89	5.9	2.9	2.52	5.2	2.6
Blast Furnace Stove B	1.8693	1.0145	37.09	69.3	37.6	2.89	5.4	2.9	2.52	4.7	2.6
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	37.09	115.3	53.7	2.89	9.0	4.2	2.52	7.8	3.6
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	37.09	223.2	110.6	2.89	17.4	8.6	2.52	15.2	7.5
Boiler 11	5.5322	3.2387	37.09	205.2	120.1	2.89	16.0	9.3	2.52	13.9	8.2
Boiler 12	5.5725	3.4203	37.09	206.7	126.9	2.89	16.1	9.9	2.52	14.0	8.6
Continuous Caster #1	41.7285	17.9392	0.00	0.0	0.0	2.89	120.4	51.8	0.00	0.0	0.0
Continuous Caster #2	65.6823	25.7982	0.00	0.0	0.0	2.89	189.6	74.5	0.00	0.0	0.0
Slab Furnace #1	20.2760	11.3136	0.00	0.0	0.0	2.89	58.5	32.7	2.52	51.1	28.5
Slab Furnace #2	16.9908	10.9717	0.00	0.0	0.0	2.89	49.0	31.7	2.52	42.8	27.6
Slab Furnace #3	28.6036	12.3773	0.00	0.0	0.0	2.89	82.6	35.7	2.52	72.1	31.2
Slab Furnace #4	4.4349	2.3828	0.00	0.0	0.0	2.89	12.8	6.9	2.52	11.2	6.0
"A" Underfire	19.7897	14.7393	0.00	0.0	0.0	0.00	0.0	0.0	2.52	49.9	37.1
"B" Underfire	14.7496	11.2577	0.00	0.0	0.0	0.00	0.0	0.0	2.52	37.2	28.4
BOF Ladle Preheater/Dryer	152.9160	59.5354	0.00	0.0	0.0	2.89	441.4	171.8	2.52	385.4	150.0
By-Products Flare	1.7171	0.8079	37.09	63.7	30.0	0.00	0.0	0.0	0.00	0.0	0.0
Maximum Combined Impact Levels:											
Background CO Concentration:											
Total CO Impacts:											
National Ambient Air Quality Standard:											

R008338

TABLE 5-8
NAAQS MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - CO

	Chi/Q Impacts		Fuel Oil			Other			Totals	
Source	1-hour (ug/m3)	8-hour (ug/m3)	Emission Rate (g/sec)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)	Emission Rate (g/sec)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)	1-hour Impact (ug/m3)	8-hour Impact (ug/m3)
BOF	9.4783	4.3226	0.00	0.0	0.0	486.30	4,609.3	2,102.1	4,609.3	2,102.1
Blast Furnace Stove A	2.0532	1.0151	0.00	0.0	0.0	0.00	0.0	0.0	87.2	43.1
Blast Furnace Stove B	1.8693	1.0145	0.00	0.0	0.0	0.00	0.0	0.0	79.4	43.1
Boiler House 1 (Boilers 1-7)	3.1081	1.4475	0.02	0.1	0.0	0.00	0.0	0.0	132.2	61.5
Boiler House 1 (Boilers 8-10)	6.0184	2.9815	0.02	0.2	0.1	0.00	0.0	0.0	255.9	126.8
Boiler 11	5.5322	3.2387	0.02	0.1	0.1	0.00	0.0	0.0	235.2	137.7
Boiler 12	5.5725	3.4203	0.02	0.1	0.1	0.00	0.0	0.0	236.9	145.4
Continuous Caster #1	41.7285	17.9392	0.00	0.0	0.0	0.00	0.0	0.0	120.4	51.8
Continuous Caster #2	65.6823	25.7982	0.00	0.0	0.0	0.00	0.0	0.0	189.6	74.5
Slab Furnace #1	20.2760	11.3136	0.00	0.0	0.0	0.00	0.0	0.0	109.6	61.2
Slab Furnace #2	16.9908	10.9717	0.00	0.0	0.0	0.00	0.0	0.0	91.9	59.3
Slab Furnace #3	28.6036	12.3773	0.00	0.0	0.0	0.00	0.0	0.0	154.6	66.9
Slab Furnace #4	4.4349	2.3828	0.00	0.0	0.0	0.00	0.0	0.0	24.0	12.9
"A" Underfire	19.7897	14.7393	0.00	0.0	0.0	0.00	0.0	0.0	49.9	37.1
"B" Underfire	14.7496	11.2577	0.00	0.0	0.0	0.00	0.0	0.0	37.2	28.4
BOF Ladle Preheater/Dryer	152.9160	59.5354	0.00	0.0	0.0	0.00	0.0	0.0	826.7	321.9
By-Products Flare	1.7171	0.8079	0.00	0.0	0.0	0.00	0.0	0.0	63.7	30.0
Maximum Combined Impact Levels:									**5,436**	**2,424**
Background CO Concentration:									**9,200**	**4,255**
Total CO Impacts:									**14,636**	**6,679**
National Ambient Air Quality Standard:									**40,000**	**10,000**

R008339

TABLE 5-9
PSD CLASS II INCREMENT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

	Chi/Q Impacts			Blast Furnace Gas				Fuel Oil			
Source	3-hour	24-hour	Annual	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0649	6.43	9.6	4.5	0.5	0.00	0.0	0.0	0.0
Blast Furnace Stove B	1.4918	0.5830	0.0764	6.43	9.6	3.7	0.5	0.00	0.0	0.0	0.0
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	6.43	14.7	7.3	0.9	0.71	1.6	0.8	0.1
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	6.43	26.4	12.0	1.7	0.71	2.9	1.3	0.2
Boiler 11	4.6445	2.0769	0.2546	6.43	29.8	13.3	1.6	0.71	3.3	1.5	0.2
Boiler 12	4.8437	2.2734	0.2785	6.43	31.1	14.6	1.8	0.71	3.4	1.6	0.2
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2887	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
Iron Spout Baghouse	102.1884	32.4756	3.8891	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0
By-Products Flare	1.2329	0.3581	0.0390	6.43	7.9	2.3	0.3	0.00	0.0	0.0	0.0
Maximum Combined Impact Levels:											
Class II PSD Increments:											

R008340

TABLE 5-9
PSD CLASS II INCREMENT MODELING RESULTS
INDIVIDUAL AND WORST-CASE COMBINED IMPACTS - SO2

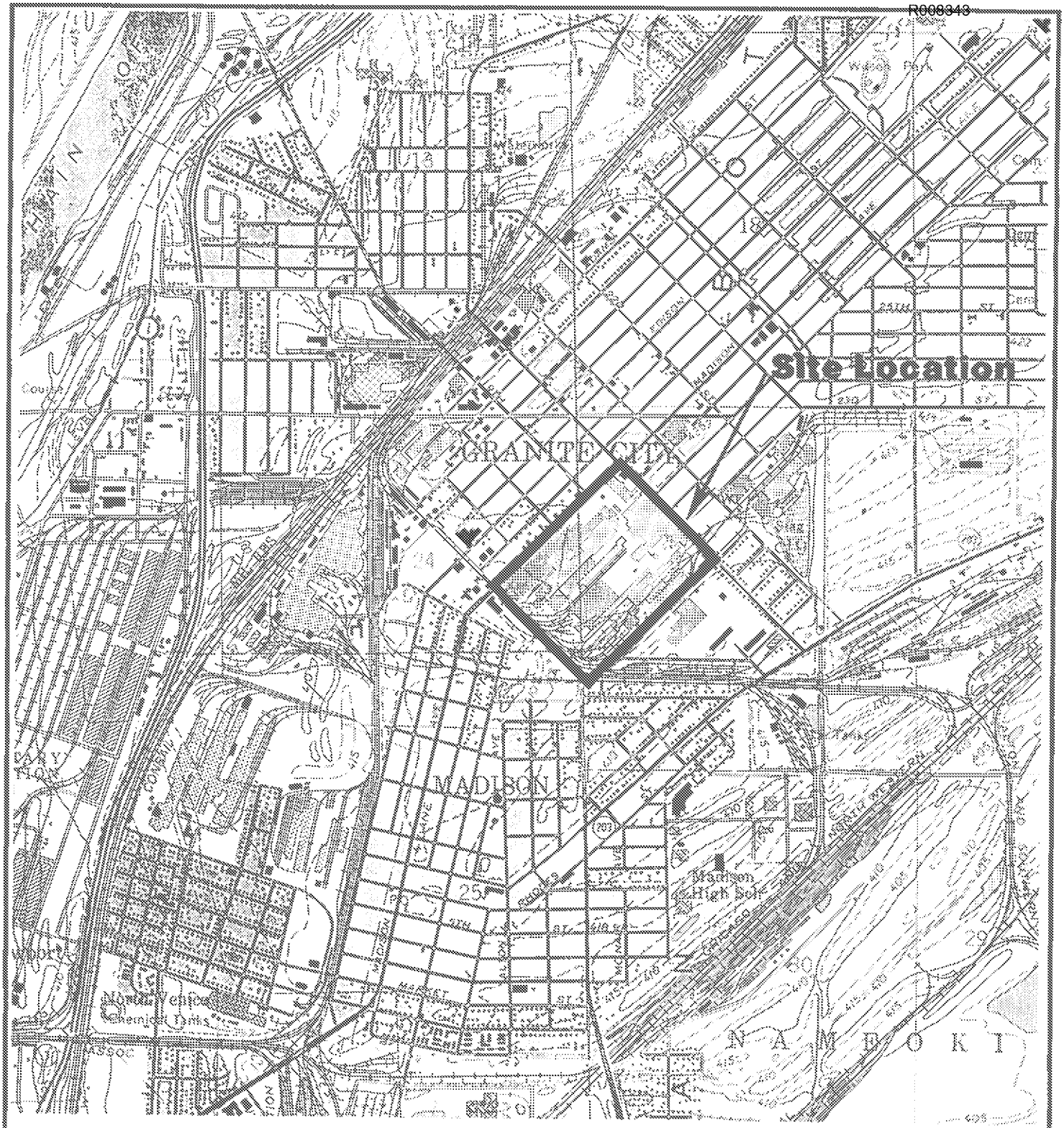
	Chi/Q Impacts			Other				Totals		
Source	3-hour	24-hour	Annual	Emission Rate	3-hour Impact	24-hour Impact	Annual Impact	3-hour Impact	24-hour Impact	Annual Impact
	(ug/m3)	(ug/m3)	(ug/m3)	(g/sec)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
Blast Furnace Stove A	1.4869	0.7043	0.0849	0.00	0.0	0.0	0.0	9.6	4.5	0.5
Blast Furnace Stove B	1.4918	0.5830	0.0764	0.00	0.0	0.0	0.0	9.6	3.7	0.5
Boiler House 1 (Boilers 1-7)	2.2918	1.1350	0.1330	0.00	0.0	0.0	0.0	16.3	8.1	0.9
Boiler House 1 (Boilers 8-10)	4.1050	1.8747	0.2569	0.00	0.0	0.0	0.0	29.3	13.4	1.8
Boiler 11	4.6445	2.0769	0.2546	0.00	0.0	0.0	0.0	33.1	14.8	1.8
Boiler 12	4.8437	2.2734	0.2785	0.00	0.0	0.0	0.0	34.5	16.2	2.0
A&B Blast Furnace - Casthouse	20.1379	12.1341	1.2867	6.20	124.8	75.2	8.0	124.8	75.2	8.0
A&B Blast Furnace - Uncap. Roof Fugs.	164.2107	69.5259	9.3195	0.32	53.0	22.5	3.0	53.0	22.5	3.0
Iron Spout Baghouse	102.1884	32.4756	3.8691	0.20	20.8	6.6	0.8	20.8	6.6	0.8
By-Products Flare	1.2329	0.3581	0.0390	0.00	0.0	0.0	0.0	7.9	2.3	0.3
Maximum Combined Impact Levels:								**233**	**120**	**14**
Class II PSD Increments:								**512**	**91**	**20**

R008341

TABLE 5-10
REFINED MODELING RESULTS - PSD INCREMENT ANALYSIS
24-HOUR IMPACTS

Case #	Description	Maximum 24-hour Impact	Class II PSD Increment
		($\mu g/m^3$)	($\mu g/m^3$)
1	BF Stove A + 3 Process Sources	80.16	91
2	BF Stove B + 3 Process Sources	80.16	91
3	Boilers 1-7 + 3 Process Sources	80.16	91
4	Boilers 8-10 + 3 Process Sources	86.10	91
5	Boiler 11 + 3 Process Sources	80.16	91
6	Boiler 12 + 3 Process Sources	80.16	91
7	By-Products Flare + 3 Process Sources	80.16	91

* The 3 Process sources include the Blast Furnace Casthouse, the Blast Furnace Uncaptured Roof Fugitives, and the Iron Spout Baghouse.



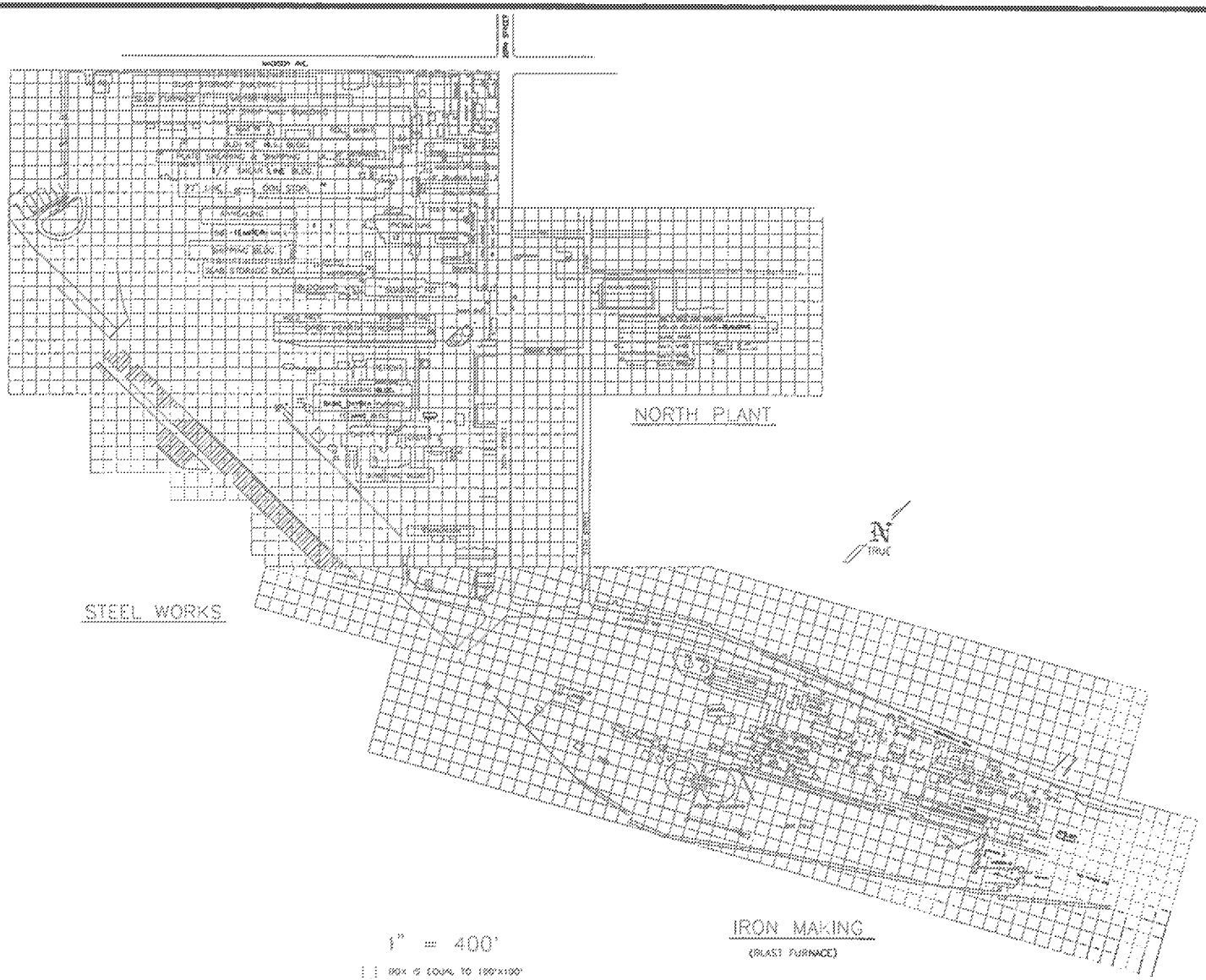
NOTE: Drawing taken from U.S.G.S.–Granite City, IL 7.5 minute Quadrangle dated 1982.

0 100

SCALE FEET

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Location Map
	FIG. NO. 1–1

File: F:\4E08109\FIG1-1.DWG Last edited: 12/29/94 @ 1:14 p.m. @ WCC-ST.LOUIS



SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E08109

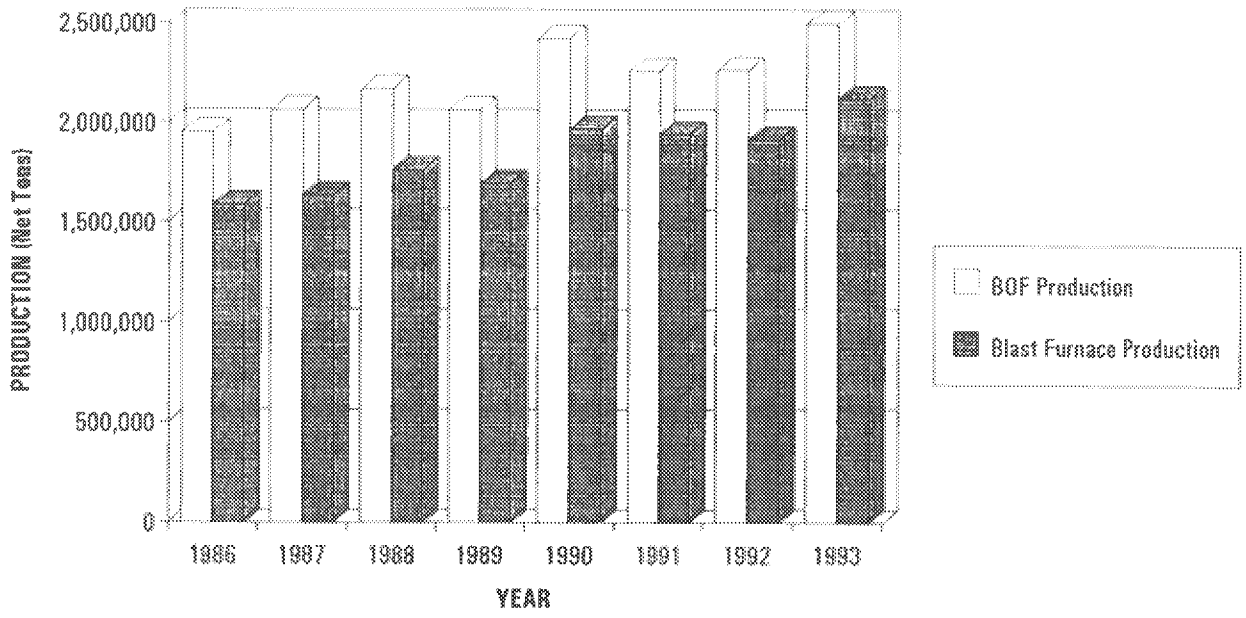
Woodward-Clyde Consultants

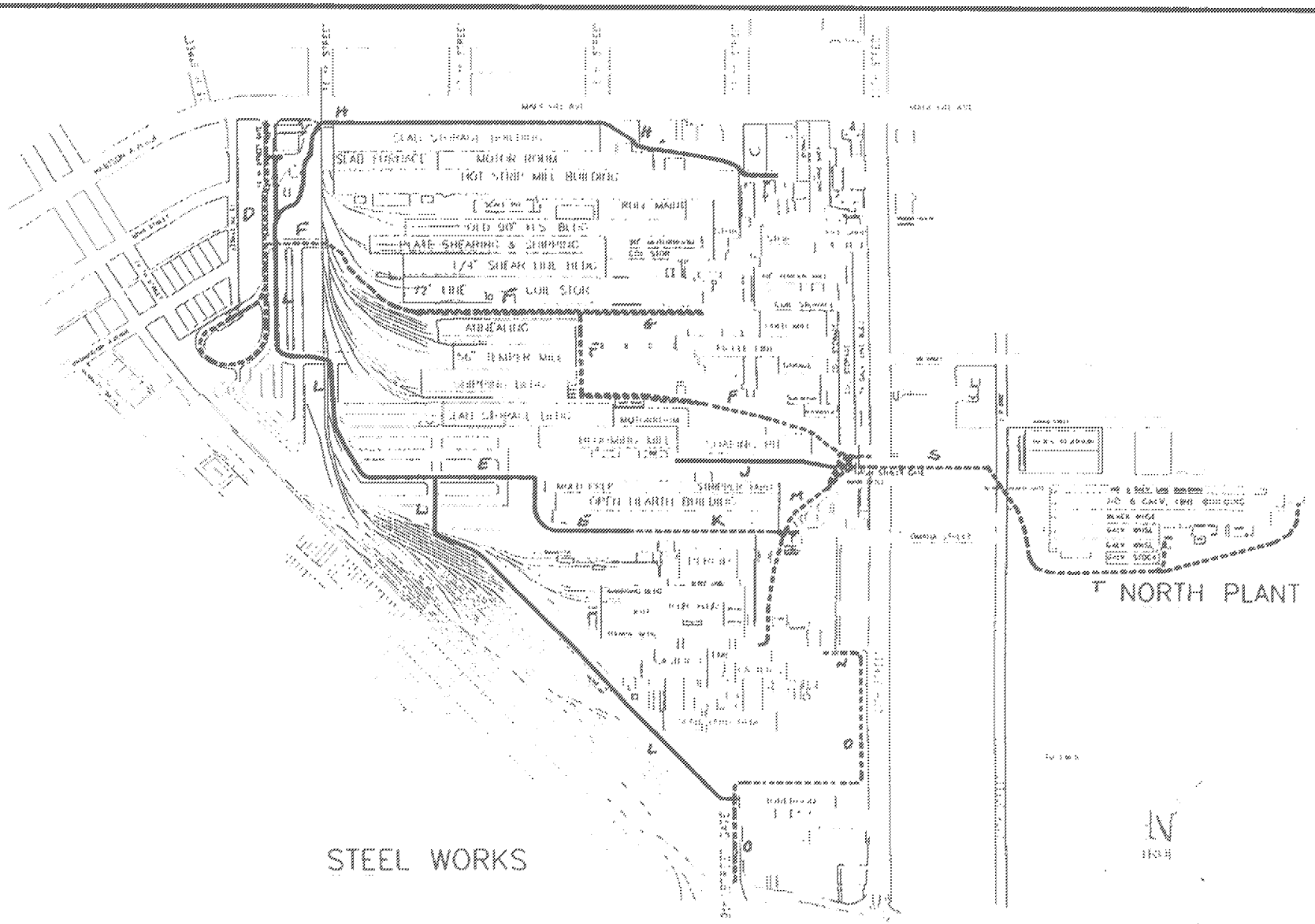
Engineering & sciences applied to the earth & its environment

RD08344

DRN. BY kdw 12/29/94 DSGN. BY: CHKD. BY:	Site Map	FIG. NO. 1-2

FIGURE 3-1
GRANITE CITY DIVISION of NATIONAL STEEL CORPORATION
PRODUCTION TRENDS





SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL
GRANITE CITY, ILLINOIS

PROJECT NO.
4E08109

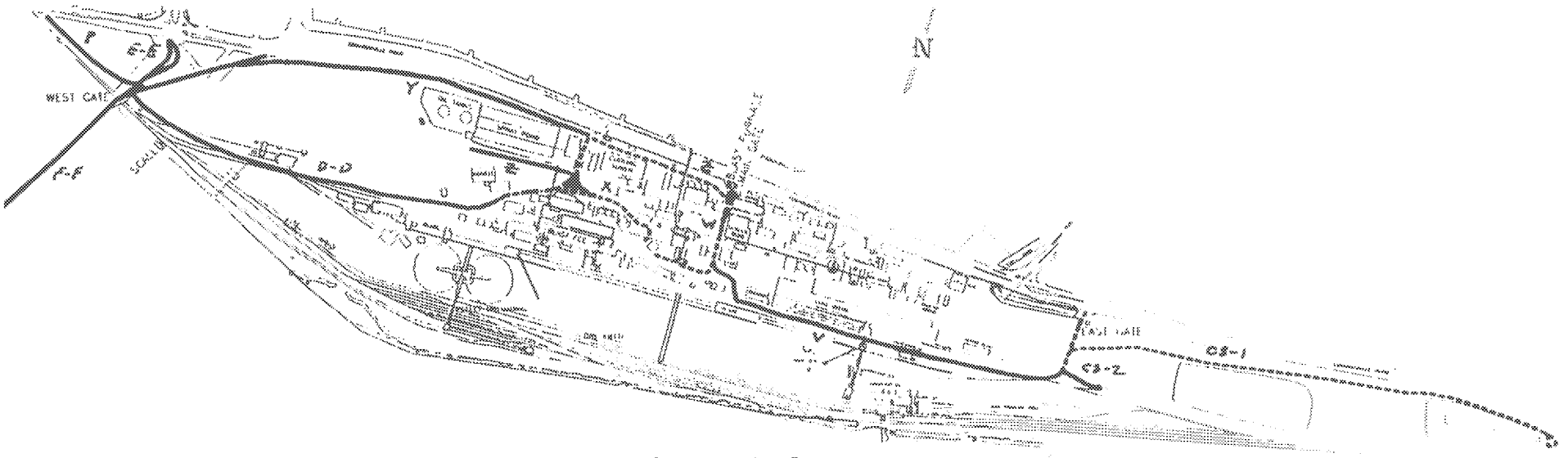
Woodward-Clyde Consultants
Engineering & sciences applied to the earth & its environment

DRN. BY: kdw 12/29/94
DSGN. BY:
CHKD. BY:

Road Network
Steel Works

FIG. NO.
3-2

R008346



IRON MAKING

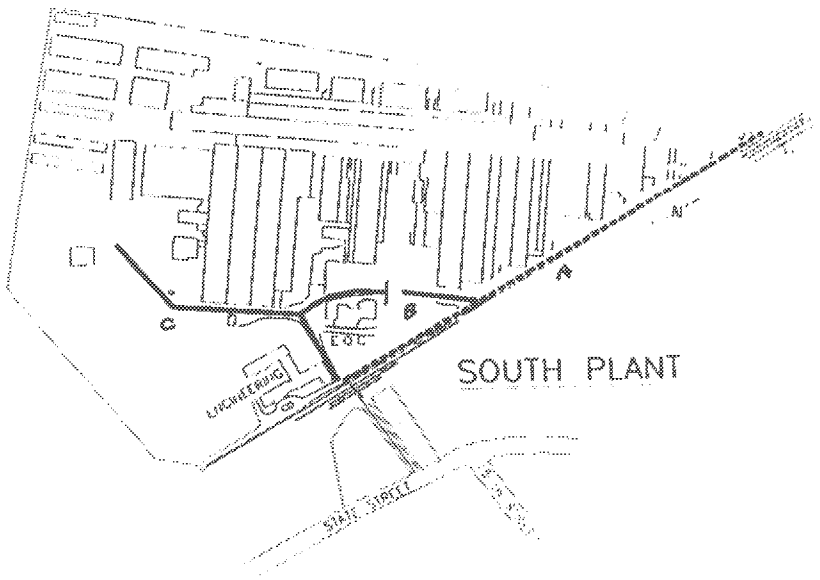
(BLAST FURNACE)

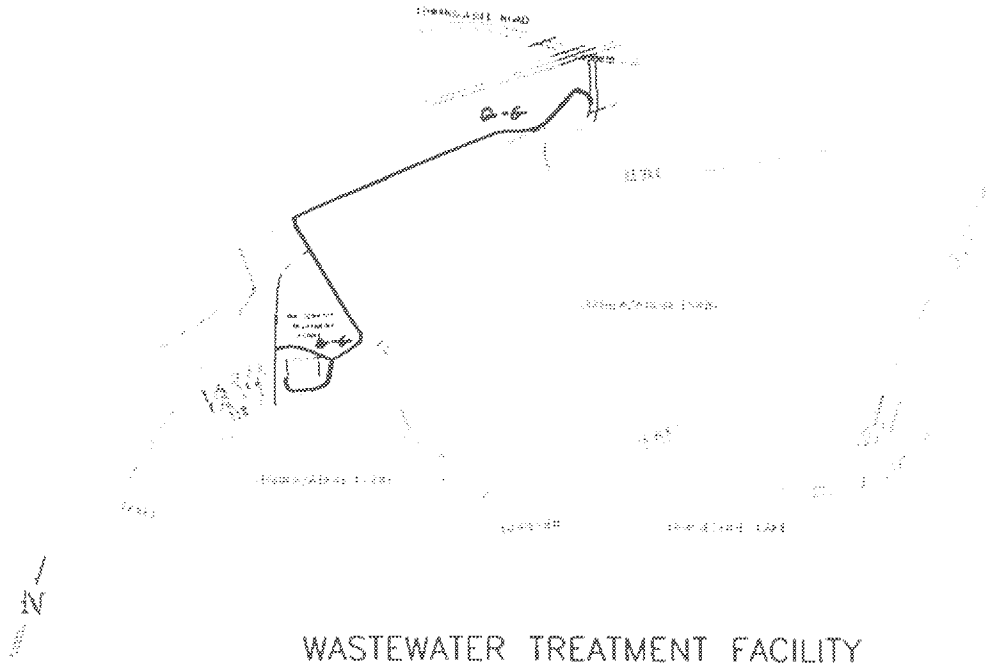
LEGEND

SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E0810 9
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment		
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network Iron Making Area	FIG. NO. 3-3

R008347





LEGEND

SOURCE: Map from Granite City Steel.

GRANITE CITY STEEL GRANITE CITY, ILLINOIS	PROJECT NO. 4E08109
Woodward-Clyde Consultants Engineering & sciences applied to the earth & its environment	R008348
DRN. BY: kdw 12/29/94 DSGN. BY: CHKD. BY:	Road Network South Plant & WWTP
	FIG. NO. 3-4

File: F:\4E08109\FIG3-4.DWG Last edited: 12/29/94 @ 1:10 p.m. @ WCC-ST.LOUIS

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-47
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide compliance test program on the Blast Furnace Iron Spout Baghouse exhaust stack on July 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4 and 6 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on on the stack exhaust. The test ports were located eight diameters downstream and two diameters upstream from the last flow disturbances. The stack diameter at this sampling location was 82 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted simultaneously with the sulfur dioxide sampling per USEPA Method 4 using large EPA Method 5 impingers.

R008502

Sulfur Dioxide Determination (USEPA Method 6)

Sulfur dioxide sampling was conducted in accordance with EPA Method 6 using large EPA Method 5 impingers.

The first impinger contained 100 mls of 80% IPA to collect SO_3. The second, third and fourth impingers contained 100 mls of 10% hydrogen peroxide. The fifth impinger contained 200 grams of silica gel.

The test repetition times varied with each batch cycle time. The test times were 77, 83 and 67 minutes for runs 1 through 3, respectively.

A final leak check and 20 minute purge were conducted at the completion of each run.

The SO_2 samples were analyzed at ARI's laboratory using standard titrations to a thorin endpoint with barium chloride as specified in EPA Method 6.

SULFUR DIOXIDE EMISSION TEST PROGRAM
BLAST FURNACE IRON SPOUT BAGHOUSE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Blast Furnace Iron Spout Baghouse Exhaust Stack

TEST DATE: July 1, 1993

TEST RUN:	1	2	3	
TEST TIME:	0904-1021	1117-1240	1338-1445	Average
STACK GAS				
Temperature, °F	123.3	124.2	123.6	123.7
Velocity, fps	71.7	68.6	68.1	69.5
Volume flow, acfm	157,818.4	150,970.0	149,783.1	152,857.2
Volume flow, dscfh	8,318,765.7	7,944,645.5	7,905,846.1	8,066,419.1
Moisture, % by vol	0.7	1.1	0.9	0.9
CO_2, % by volume	0.5	0.7	0.7	0.7
O_2, % by volume	20.1	20.1	20.1	20.1
SULFUR DIOXIDE				
Concentration				
lbs/dscf x 10^{-5}	0.0492	0.0429	0.0373	0.0431
ppmv db	3.0	2.6	2.2	2.6
Emission rate				
lbs/hr	4.1	3.4	3.0	3.5

R008353

BLAST FURNACE IRON SPOUT BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	599	1.25

SO_2

$$\frac{1.25 \text{ hr./cast} \times 3.5 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.0073 \text{ lb./ton}$$

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-46
NATIONAL STEEL CORP. P.O. #30-320892

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

JULY 1, 1993 TEST

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct an emission compliance test program on the Blast Furnace Cast House Baghouse exhaust stack on July 1, 1993.

The purpose of this formal test program was to determine total particulate, sulfur dioxide (SO_2), nitrogen oxides (as NO_2) and volatile organic compounds (as C_1) emissions over the duration of simultaneous casting operations.

Methodology

Sampling was conducted following USEPA Methods 1-5, 6C, 7E and 25A as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 132.0 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling train per USEPA Method 4.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

Initially the sampling was conducted for 2.5 minutes on each of the 24 points. When the simultaneous casting operation exceeded the time required to complete the full four port sampling run of 60 minutes, sampling was continued for 2.5 minutes per traverse point while traversing the stack in reverse order. The total sampling times were 77, 82.5 and 67.5 minutes for runs 1, 2 and 3 respectively.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

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3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Sulfur Dioxide Determination (USEPA Method 6C)

Sulfur dioxide sampling was conducted following EPA Method 6C protocols. A Western Research Model 721 ATM Photometric SO_2 monitor was used during the testing. Results were recorded on ARI's data logger and computer system.

ARI's sampling system consisted of a heated probe with in-stack filter in each stack followed by a 3-way calibration valve connected to a heated Teflon sample line connected to a 3-way valve at ground level. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's SO_2 and NO_x monitors.

Certified SO_2 calibration standards and zero air were used to calibrate the monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

Specifically, gas standards of zero air, 491 ppm and 910 ppm SO_2 in N_2 were used for calibration. The SO_2 monitor span was set at 1000 ppm during the testing.

A pre-test and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for each test run.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous nitrogen oxides (as NO_2) sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 monitor. Data was recorded on ARI's data logger and computer system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pre-test and post-test measurement system bias test and calibration error test were performed using certified master gas calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x in N_2. The monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Determination of Total VOC (USEPA Method 25A)

Total volatile organic compounds sampling and analysis were conducted on-site on the stack exhaust using a Ratfisch Model RS-55 Total Hydrocarbon Analyzer. The monitor was calibrated using propane as the VOC standard. The VOC concentration was converted to a C_1 basis using the factor of 3 as listed in USEPA Method 25A. The analyzer utilizes a continuous heated FID which keeps the sample gas stream above its dewpoint.

The sampling systems consisted of the following:

1) Stainless steel probe with instack filter holder.

2) 3-way calibration valve and line located at the probe.

3) Heated Teflon line (>250°F) from the probe to the analyzer.

The Ratfisch analyzer was operated at the following conditions:

Oven temperature	:	150°C
Sample backpressure	:	200 m bar
Air	:	11.5 psi
Hydrogen	:	6.0 psi
Response time	:	30 seconds
Chart speed	:	10 cm/hr
Data logger	:	15 sec. - 1 minute average
Span	:	1000 ppm propane

Zero gas and USEPA protocol 1 certified propane standards in N_2 gas standards were used for calibration of the instrument. The calibration gases were introduced at the 3-way calibration valve located at the end of each sample probe. Calibration gases used were 253.9 ppm, 467.1 ppm and 844.2 ppm propane in N_2.

Emission Calculations

The particulate, sulfur dioxide and nitrogen oxides (as NO_2) emission rates in lbs/hr were calculated for each run by multiplying the measured particulate, sulfur dioxide and nitrogen oxides concentrations (lbs/dscf) by the stack gas volumetric flow rate (dscfh).

The volatile organic compound emission rate in lbs/hr were calculated for each run by multiplying the measured VOC concentration (lbs/scf wb) by the stack gas volumetric flow rate (scfh wb).

EMISSION TEST PROGRAM
BLAST FURNACE CAST HOUSE BAGHOUSE EXHAUST STACK
SIMULTANEOUS OVERLAP CASTING OPERATION
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: Blast Furnace Cast House Baghouse Exhaust Stack
TEST DATE: 7/01/93 (Simultaneous casting during each run)

TEST RUN:	1	2	3	Average
TEST TIME:	0904-1021	1117-1240	1338-1445	
STACK GAS				
Temperature, F	112.3	117.3	121.9	117.1
Velocity, fps	73.8	73.8	74.0	73.9
Volume flow, acfm	421,019.1	420,607.0	421,692.9	421,106.3
Volume flow, scfm db	374,039.0	370,068.6	367,931.7	370,679.8
Volume flow, scfh wb	22,849,051.7	22,629,550.0	22,508,057.9	22,662,219.9
Volume flow, dscfh	22,442,338.6	22,204,114.9	22,075,903.9	22,240,785.6
Moisture, % by vol	1.8	1.9	1.9	1.9
CO_2, % by volume	0.0	0.0	0.0	0.0
O_2, % by volume	20.9	20.9	20.9	20.9
PARTICULATE SAMPLE				
Time, min.	75.0	82.5	67.5	75.0
Volume, dscf	53.8	61.2	50.4	55.1
Solids collected, mg	10.6	12.6	11.8	11.7
Isokinetic ratio, %	95.2	99.5	100.7	98.4
PARTICULATES				
Concentration				
gr/dscf	0.003	0.003	0.004	0.003
x 10^{-6} lbs/dscf	0.435	0.454	0.516	0.468
Emission rate				
lbs/hr	9.752	10.071	11.388	10.404
SULFUR DIOXIDE				
Concentration				
ppmv db	21.6	29.7	26.7	26.0
x 10^{-6} lbs/dscf	3.595	4.939	4.436	4.323
Emission rate				
lbs/hr	80.7	109.7	97.9	96.1
NITROGEN OXIDES (as NO_2)				
Concentration				
ppmv, db	2.9	2.6	2.3	2.6
x 10^{-6} lbs/dscf	0.351	0.306	0.274	0.310
Emission rate				
lbs/hr	7.9	6.8	6.0	6.9
VOC (as C_1)				
Concentration				
ppmv wb	57.1	57.0	58.3	57.5
x 10^{-6} lbs/scf wb	1.778	1.777	1.815	1.790
Emission rate				
lbs/hr	40.6	40.2	40.9	40.6

BLAST FURNACE CASTHOUSE BAGHOUSE
EMISSION TEST - JULY 1, 1993

Production Data	Tons per Cast	Time Per Cast (hrs)
Run #1	624	1.25
Run #2	544	1.375
Run #3	630	1.125
Average	599	1.25

TSP and PM_{10}

$$\frac{1.25 \text{ hr./cast} \times 10.404 \text{ lb./hr.}}{599 \text{ tons/cast}} = 0.0217 \text{ lb./ton TSP and } PM_{10}$$

SO_2

$$\frac{1.25 \text{ hr./cast} \times 96.1 \text{ lb./hr. } SO_2}{599 \text{ tons/cast}} = 0.2006 \text{ lb./ton } SO_2$$

NO_x

$$\frac{1.25 \text{ hr./cast} \times 6.9 \text{ lb./hr. } NO_x}{599 \text{ tons/cast}} = 0.0144 \text{ lb./ton } NO_x$$

VOC

$$\frac{1.25 \text{ hr./cast} \times 40.6 \text{ lb./hr. VOC}}{599 \text{ tons/cast}} = 0.0847 \text{ lb./ton VOC}$$

National Steel

Granite City Division
National Steel Corporation
20th & State Streets
Granite City, Illinois 62040
(618) 451-3456

August 3, 1993

CERTIFIED MAIL NO. P 111 549 790
RETURN RECEIPT REQUESTED

Illinois Environmental Protection Agency
Division of Air Pollution Control
Attn. Source Emission Test Specialist
Intercontinental Center
1701 1st Avenue
Maywood, Illinois 60153

Dear Sir:

Subject: July 1, 1993 Blast Furnace Simultaneous Cast Emissions Compliance Test results for the Casthouse and Iron Spout Baghouses.

Attached please find "The Final Report" regarding the July 1st emission test as required by special conditions 4e, g, and h of the Construction Permit for the Blast Furnace and Basic Oxygen Furnace Production Increase (application no. 92090104) for Granite City Division.

Compliance was achieved in accordance with USEPA Methods 1-5, 6, 6c, 7e, 9, and 25a. The attached information indicates the following emissions rates:

BLAST FURNACE CASTHOUSE BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Particulate	.003 gr/dscf	.010 gr/dscf
Sulfur Dioxide	96.1 lbs/hr	n/a
Nitrogen Oxide	6.9 lbs/hr	n/a
VOM (as C_1)	40.6 lbs/hr	n/a

BLAST FURNACE IRON SPOUT BAGHOUSE

Emissions Type	Avg. Conc.	Limit
Sulfur Dioxide	3.5 lbs/hr	n/a

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-53
GRANITE CITY P.O. 30-25149

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH AND STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

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951 OLD RAND ROAD UNIT 106
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(708) 487-1580

AUGUST 27-28, 1993 TEST

FORMAL PARTICULATE EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a formal emission test program on the exhaust stack associated with the electrostatic precipitator serving the basic oxygen furnace on August 27-28, 1993.

Testing was conducted on August 27, 1993 with the fan flow rate set at 650,000 cfm on the electrostatic precipitator. As a result ofa delayed ignition condition which occurred at the beginning of the blow on the second run, a fourth run was conducted.

Testing was conducted on August 28, 1993 with the fan flow rate set at 680,000 cfm. Three sample runs were done at this condition.

Methodology

Sampling was conducted following USEPA Methods 1-5, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located two diameters downstream and one-half diameters upstream from the last flow disturbances. The stack diameter at this location was 147.75 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 6 points on four traverses for a total of 24 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas O_2 and CO_2 Determination (USEPA Method 3A)

Continuous oxygen sampling was conducted in accordance with EPA Method 3A using ARI's OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

ARI's sampling system consisted of a heated probe with in-stack filter followed by a 3-way calibration valve connected to a heated Teflon sample line. The Teflon sample line was connected to an ice-cooled condenser to remove moisture followed by a Teflon lined pump. A sample manifold was connected to the exhaust side of the pump with intake lines for ARI's O_2, CO_2, NO_x and CO monitors.

Certified gas standards of zero air, nitrogen and 12.1 O_2 in N_2 calibration gases were introduced at the three-way calibration valve located at the end of the sample probe for calibration of the O_2 monitor. The O_2 monitor span was set at 25% during the testing.

Continuous carbon dioxide sampling was conducted using ARI's Horiba NDIR Model 2000 carbon dioxide monitor. The monitor results were recorded on a strip chart recorder and ARI's datalogger system.

Certified gas standards of nitrogen, 8.2 and 12.9 CO_2 in N_2 calibration gases were used to calibrate the monitor. The CO_2 monitor span was set at 15% during the testing.

Stack Gas Moisture Content

Moisture sampling was conducted simultaneously with the particulate sampling in the back half of the Method 5 sampling trains per USEPA Method 4.

Total Particulate Determination (USEPA Method 5)

Particulate emission sampling was conducted using two Method 5 sampling trains in order to complete each sampling run within a specified time frame and to allow continuous sampling throughout a complete emissions cycle without sampling downtime due to sampling port changes.

Sampling was conducted for 1.5 minutes per point at each of 24 points (six points per port and four ports). The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling. The sampling time for each run varied based on the duration of the cycle. The first 36 minutes consisted of initially sampling the 24 points. Backwards traversing was then performed at each point at 1½ minutes per point until the process cycle was completed.

Stack Particulate Sampling Train

The particulate sampling train used during the test series was an Andersen Samplers, Incorporated Method 5 sampling train. The major components are described below:

1. Nozzle - Type 316 stainless steel with sharp tapered leading edge.

2. Probe - Heated glass lined probe with attached pitot tube and stack temperature thermocouple connected to a heated filter holder.

3. Andersen Samplers, Incorporated Sample Case and Control Module - as per EPA Method 5 test specifications.

Sampling Train Assembly

The sample train was assembled as follows:

1. A stainless steel nozzle was selected, sized to maintain isokinetic sampling and attached to the heated glass lined probe.

2. A preweighed filter was placed in the filter holder and its number noted on the data sheets.

3. 100 mls of deionized distilled water was placed in the first and second impinger.

4. The third impinger was assembled dry.

5. 200 grams of dry silica gel was placed in the fourth impinger.

6. The clean glassware and entire sampling train was then assembled at the sampling location.

Sampling Train Leak Check Procedures (Pre and Post)

1. The pump was started.

2. The course flow adjustment valve was opened.

3. Flow through the dry gas meter was checked.

4. The probe inlet was plugged.

5. The fine flow adjustment valve was adjusted to yield a vacuum gauge reading of 15 in Hg.

6. If the flow exceeded .02 ACFM, the pump was shut off and all connections were rechecked for tightness and the leak test procedure was repeated until acceptable results were obtained.

Pitot Tube Leak Check Procedure

1. A positive (or negative) pressure was created in the pitot line to be checked.

2. The line was then plugged to hold the pressure and the magnehelic gauge was monitored to watch for any change in the manometer fluid level.

3. If the fluid level changed, the system was rechecked for leaks and the leak check procedure was repeated until no leaks were found.

Particulate Sampling Procedure

Crushed ice was added to the impinger compartment, the nozzle was uncapped and the probe was introduced into the stack to the first sampling point. The dry gas meter reading was recorded and sampling was started. At each point, a pitot reading was made and the sampling rate was adjusted using K-Factor calculations which were based on preliminary temperature, pressure and moisture estimates. When sampling at the last point in the port was completed, the pump was turned off and the probe was carefully removed from that port.

The two sampling trains were positioned at their respective port locations with the "A" train serving the South and West ports and the "B" train serving the East and North ports.

At the beginning of each cycle, sampling was started in the South port. Sampling was conducted for 1½ minutes at each of six points in the first port. At the completion of nine minutes of sampling, the second sampling train in the East port was immediately started and sampling conducted in the second port identical to the first. This process was repeated for the North and West ports with sampling and traversing continued backwards from the last sample point (24) until the cycle time was completed. Sampling was conducted continuously throughout the entire cycle.

The sampling rate during each run was adjusted to compensate for the changes in stack gas temperature and moisture content throughout the cycle to maintain isokinetic sampling rate at all times.

A final leak test was performed on the sampling train as previously described. The umbilical cord was disconnected and the sample case and probe were then disassembled.

Particulate Sample Recovery

1. The filter was removed from the heated filter holder and placed in a clean Petrie dish and labeled as Container #1.

2. A brush was used to clean the nozzle and other fittings as required. The acetone washings from the inner surfaces of the nozzle, and upstream portion of the filter holder were collected in a bottle and labeled as Container #2.

3. The contents of impinger #4 were transferred to a clean bottle to be weighed at a later time for moisture content and was labeled as Container #3.

4. The contents of impingers #1, #2, and #3 were placed in a graduated cylinder to measure the total volume of water collected.

Particulate Sample Analysis

1. Container #1 - At ARI's laboratory, the container was opened and placed in a desiccator and allowed to dry to a constant weight. Each filter and any loose matter were then weighed to the nearest 0.1 mg.

2. Container #2 - At ARI's laboratory, the contents of this container were transferred to a tared beaker and allowed to evaporate at room temperature in a fume hood. It was then placed in a desiccator and weighed on an analytical balance to the nearest 0.1 mg.

3. Container #3 - The contents of this container were transferred to a tared beaker and the weight of the silica gel was determined. The difference between this final weight and 200 grams was the total moisture collected by the silica gel.

4. The net weight gain recorded for Containers #1 and #2 were summed to yield the total solid particulates collected.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder and ARI's datalogger system. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

A converter efficiency test and response time test were conducted prior to beginning the testing following EPA Method 20 procedures.

A pretest and post-test measurement system bias test and calibration error test were performed using certified master gas NO_x calibration standards of 57.0 ppm, 142.8 ppm and 217.7 ppm NO_x. The NO_x monitor span was set at 250 ppm. Zero and calibration drift test results were well within 3% of span for each calibration gas. The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

Carbon Monoxide Determination (USEPA Method 10)

Continuous carbon monoxide sampling was conducted in accordance with USEPA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were recorded out on a dual pen strip chart recorder and recorded on ARI's datalogger system.

Certified CO calibration standards and zero air were used to calibrate the CO monitor. The gas standards were introduced directly into the three way valve at the end of the heated sample probe.

CO calibration standards of 5,750, 8,748 and 18,600 in N_2 were used to calibrate the CO monitor. The CO monitor span was set at 20,000 ppm during the testing.

A pretest and post-test measurement system bias test and calibration error test was done after each test repetition. The average zero and calibration drift values obtained during each test run on the monitor were used to correct the data for that test run.

Emission Calculations

The stack particulate emission rate (lbs/cycle) for each of the sampling runs was determined by summing the particulate emission rates (lbs/run) determined for each of the two sampling trains "A" and "B" used during each sampling run. This combined total represented the total stack particulate emissions for each complete BOF emissions cycle.

The total nitrogen oxides and carbon monoxide emission rates were calculated by summing the stack flow rate for each run and calculating the emission rate (lb/run) by multiplying the total flow rate (dscf/run) by the nitrogen oxides and carbon monoxide concentrations (lb/dscf).

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 1
TEST TIME: 0911-0957
BLOW TIME: 0919-0938

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	311.1	313.4
Velocity, fps	76.4	79.7
Volume flow, acfm	545,611.4	569,697.6
Volume flow, scfm db	303,519.9	309,880.3
Volume flow, dscf/run	8,195,036.9	5,577,845.4
Moisture, % by vol	18.1	19.7
CO_2, % by volume	3.8	3.8
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	27.0	18.0
Volume, dscf	13.834	9.418
Particulate collected, mg	11.1	5.8
Isokinetic ratio, %	104.9	105.0
PARTICULATES		
Concentration gr/dscf	0.0124	0.0095
x 10^{-6} lbs/dscf	1.764	1.351
Emission rate lbs/run	14.46	7.54
lbs/cycle (total)	22.00	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 3
TEST TIME: 1230-1310
BLOW TIME: 1237-1254

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	314.2	318.2
Velocity, fps	76.0	82.8
Volume flow, acfm	542,645.7	591,510.8
Volume flow, scfm db	293,391.8	313,670.5
Volume flow, dscf/run	6,601,314.8	5,646,068.2
Moisture, % by vol	20.1	21.2
CO_2, % by volume	4.1	4.1
O_2, % by volume	18.6	18.6
PARTICULATE SAMPLE		
Time, min.	22.5	18.0
Volume, dscf	11.607	9.274
Particulate collected, mg	9.2	5.7
Isokinetic ratio, %	109.3	101.6
PARTICULATES		
Concentration		
gr/dscf	0.0122	0.0094
x 10^{-6} lbs/dscf	1.746	1.346
Emission rate		
lbs/run	11.52	7.60
lbs/cycle (total)	19.12	

FORMAL EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-3
COMPANY: Granite City Steel Division: Granite City, Illinois
LOCATION: BOF Precipitator Exhaust Stack
FAN FLOW: 650,000 cfm

TEST DATE: 8/27/93
TEST RUN: 4
TEST TIME: 1413-1451
BLOW TIME: 1419-1438

SAMPLING TRAIN:	A	B
STACK GAS		
Temperature, °F	310.1	317.8
Velocity, fps	78.7	85.0
Volume flow, acfm	561,878.6	607,439.9
Volume flow, scfm db	326,542.8	326,660.2
Volume flow, dscf/run	5,877,771.3	5,879,882.7
Moisture, % by vol	14.6	20.1
CO_2, % by volume	4.5	4.5
O_2, % by volume	18.1	18.1
PARTICULATE SAMPLE		
Time, min.	18.0	18.0
Volume, dscf	10.499	10.284
Particulate collected, mg	11.1	12.4
Isokinetic ratio, %	102.4	108.8
PARTICULATES		
Concentration gr/dscf	0.0162	0.0185
x 10^{-6} lbs/dscf	2.321	2.648
Emission rate lbs/run	13.64	15.57
lbs/cycle (total)	29.21	

FORMAL PARTICULATE EMISSION TEST PROGRAM
BOF PRECIPITATOR EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-7

TEST DATE:	8/27/93	8/27/93	8/27/93
TEST TIME:	0911-0957	1230-1310	1413-1451
FAN FLOW, CFM:	650,000	650,000	650,000
TEST RUN:	1	3	4
Volume flow, dscf	13,772,882	12,247,383	11,757,654
Nitrogen Oxides (as NO_2)			
Concentration ppmv db	6.2	5.7	6.2
Emission rate, lbs/run	10.2	8.4	8.8
Carbon Monoxide			
Concentration ppmv db	2,133	2,165	2,663
Emission rate, lbs/run	2,135.5	1,926.6	2,275.8

BOF EMISSIONS TEST
ESP EXHAUST STACK
8/27/93 - 8/28/93

TSP and PM_{10}

Avg Emission Rate 23.4 lb/cycle

$$\frac{23.4\ lb/cycle}{234.926\ ton/cycle} = 0.0996\ lb/ton\ produced$$

NO_x

Avg Emission Rate 9.133 lb/cycle

$$\frac{9.133\ lb/cycle}{234.926\ ton/cycle} = 0.0389\ lb/ton\ produced$$

CO

Avg Emission Rate 2112.633 lb/cycle

$$\frac{2{,}1126.633\ lb/cycle}{234.926\ ton/cycle} = 8.993\ lb/ton\ produced$$

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-34

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

NOVEMBER 4, 1992 TEST

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located ~~in~~ Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack on November 4, 1992.

The run was completed on November 4, 1992 when the boiler was operating with natural gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Barton, Mr. D. Chapman and Mr. E. Kelly of ARI Environmental. Mr. Jeff Blales of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of the test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler (Natural Gas)

	Run #1
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	73.7
Emission rate, lbs./hr.	32.276

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack November 4, 1992.

Methodology

Sampling was conducted following USEPA Methods 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations, CFR40, Part 60, 1991 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-2

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack (Natural Gas)

TEST DATE: November 4, 1992
TEST TIME: 1223-1333

STACK GAS

Temperature, °F	300.6
Velocity, fps	35.4
Volume flow, acfm	94,999.5
Volume flow, scfm db	61,131.2
Volume flow, dscfh	3,667,873.2
Moisture, % by volume	6.7
CO_2, % by volume	8.1

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	73.7
x 10^{-6} lbs./dscf	8.8
Emission rate	
lbs./hr.	32.276

NO_x EMISSION TEST
12 BOILER STACK
NOVEMBER 4, 1992

Natural Gas Usage 117 MMBTU/hr.

$$\frac{32.276 \text{ lb./hr. } NO_x}{117 \text{ MMBTU/hr.}} = 0.3 \text{ lb./MMBTU } NO_x$$

0.3 lb./MMBTU x 1019 BTU/$ft.^3$ = 306 lb./MM $ft.^3$ NO_x

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
GRANITE CITY, ILLINOIS

ARI PROJECT NO. 436-38

REPORT PREPARED FOR:

GRANITE CITY STEEL DIVISION
NATIONAL STEEL CORPORATION
20TH & STATE STREETS
GRANITE CITY, ILLINOIS

REPORT PREPARED BY:

ARI ENVIRONMENTAL, INC.
951 OLD RAND ROAD, UNIT 106
WAUCONDA, ILLINOIS 60084
(708) 487-1580

FEBRUARY 1, 1993 TEST

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

I. INTRODUCTION AND SUMMARY

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation located in Granite City, Illinois to conduct a nitrogen oxide emission test program on the #12 Boiler exhaust stack on February 1, 1993.

The run was completed on February 1, 1993 with the Boiler operating with blast furnace gas.

Test methods followed those as detailed in the Code of Federal Regulations, CFR40, Part 60, Appendix A; and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Testing was conducted boy Mr. M. Ames, Mr. M. Barton, Mr. D. Chapman and Mr. J. Whitaker of ARI Environmental. Mr. Jeff Blaies of Granite City Steel was present to coordinate the tests and monitor the process conditions.

This report summarizes the test procedures and results of this test. Included, as appendices, is a documentation of all field test data, calculation summary data, strip chart data and logger data.

The results of the test are summarized below:

#12 Boiler

	Blast Furnace Gas
Nitrogen Oxide (as NO_2)	
Concentration, ppmv	15.2
Emission rate, lbs./hr.	7.373

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by the Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a nitrogen oxide emission test on the #12 Boiler exhaust stack February 1, 1993.

Methodology

Sampling was conducted following USEPA Methods 1-4, and 7E as detailed in the Code of Federal Regulations, CFR40, Part 60, 1992 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from two 3" diameter test ports located on the stack exhaust. The test ports were located five diameters downstream and five diameters upstream from the last flow disturbances. The stack diameter at this location was 90.5 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 8 points on two traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas CO_2 and O_2 Determination (USEPA Method 3A)

Continuous carbon dioxide and oxygen sampling was conducted on the exhaust stack in accordance with EPA Method 3A using ARI's Horiba PIR-2000 carbon dioxide analyzer and OFC Infrared Industries Model IR-2000 oxygen monitor. The monitor's results were recorded on ARI's data logger system.

Calibration gas and zero air were introduced directly into the 3-way valve located at the end of the sample probe. The CO_2 monitor span was set at 15% and the O_2 monitor was set at 25% during the testing.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Nitrogen oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a pen strip chart recorder and ARI's data logger system. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift values obtained during each test run on each monitor were used to correct the data for that test run.

NO_x EMISSION TEST
#12 BOILER STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS
SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: #12 Boiler Stack

TEST DATE: 02/01/93
TEST TIME: 1520-1620
CONDITION: Blast Furnace Gas

STACK GAS

Temperature, °F	469.8
Velocity, fps	48.0
Volume flow, acfm	128,744.0
Volume flow, scfm db	67,898.0
Volume flow, dscfh	4,073,882.7
Moisture, % by volume	7.3
CO_2, % by volume	12.6
O_2, % by volume	8.4

NITROGEN OXIDES (as NO_2)

Concentration	
ppmv, db	15.2
x 10^{-6} lbs./dscf	1.810
Emission rate	
lbs./hr.	7.373

NO_x EMISSION TEST
12 BOILER STACK
FEBRUARY 1, 1993

Blast Furnace Gas Fuel Usage Rate 112.4 MMBTU/hr.

$$\frac{7.373 \text{ lb./hr. } NO_x}{112.4 \text{ MMBTU/hr.}} = 0.066 \text{ lb./MMBTU}$$

$.066 \text{ lb./MMBTU} \times 80 \text{ BTU/ft.}^3 = 5.28 \text{ lb./MM ft.}^3 \ NO_x$

NO_x EMISSION TEST
#4 SLAB FURNACE
STACK EMISSION TEST
MAY 12, 1992

Introduction and Summary of Results

On March 19, 1992 the exhaust gas from #4 Slab Furnace was tested for NO_x concentration while burning natural gas. Test Methods followed those detailed in the Code of Federal Regulations, CFR 40, Part 60, Appendix A: and the Quality Assurance Handbook for Air Pollution Measurement. System, Volume III, Stationary Source Specific Methods. The results of the test indicate an average emission rate of .393 lb. NO_x per mmbtu.

Overview

In order to determine the NO_x emissions generated during #4 Slab Furnace was fired on natural gas. Based upon the amount of fuel used during the test and the NO_x lb./hr. obtained by testing the NO_x lb./mmbtu are determined.

Test Methodology and Equipment

Sampling was conducted following USEPA Method 7E. The NO_x monitor used was AIR's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero air was introduced directly into the 3-way valve for calibration of the NO_x monitor.

The average zero and calibration drift valves obtained during each test run on each monitor were used to correct the data for that test run.

Results

Average concentration of NO_x during the tests are as follows:

Run one	=	96.561 lb./hr.
Run two	=	96.256 lb./hr.
Run three	=	100.960 lb./hr.
Average	=	97.925 lb./hr.

Average fuel usage rate = 250.67 mmbtu/hr.

97.925 lb. NO_x/hr./250.67 mmbtu/hr. = 0.393 lb./mmbtu

SAW/CCO
[redacted]:JMR

SO_2, NO_X, CO EMISSION TEST PROGRAM
#4 SLAB FURNACE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

II. TESTING AND ANALYTICAL PROCEDURES

Overview

ARI Environmental, Inc. was retained by Granite City Steel Division of the National Steel Corporation in Granite City, Illinois to conduct a sulfur dioxide, nitrogen oxide and carbon monoxide test program on the #4 Slab Furnace exhaust stack on March 19, 1992.

Methodology

Sampling was conducted following USEPA Method 1-4, 6C, 7E and 10 as detailed in the Code of Federal Regulations CFR40, Part 60, 1991 and Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods.

Sample Location (USEPA Method 1)

Samples were taken from four 3" diameter test ports located on the stack exhaust. The test ports were located three diameters downstream and three diameters upstream from the last flow disturbances. The stack diameter at this location was 180 inches.

Gas Flow and Temperature (USEPA Method 2)

Velocity and volume flow was determined following USEPA Method 2. Velocity and temperature readings were taken on each of 4 points on four traverses for a total of 16 points.

Velocity traverses in the stack were made with a type "S" pitot tube. The velocity head was read on a Dwyer inclined vertical manometer to the nearest 0.01 in H_2O. Temperature measurements in the stack were made with a Chromel-Alumel thermocouple and connected to an Omega Model 170 digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Temperature measurements were determined using a Chromel-Alumel thermocouple connected to an Omega digital direct read-out potentiometer accurate to approximately 1% of the absolute stack temperature.

Stack Gas CO_2, O_2 and N_2 Content (USEPA Method 3)

The stack gas molecular weight was determined following EPA Method 3. Gas samples were collected in a 60 liter Tedlar bag using ARI's integrated bag collection system and analyzed for CO_2, O_2 and N_2 (by difference) using a Hays Orsat type gas analyzer after each sampling run.

Stack Gas Moisture Content (USEPA Method 4)

Moisture sampling was conducted following EPA Method 4 on the exhaust stack.

Sulfur Dioxide Determination - Instrument Method (USEPA Method 6C)

Sulfur dioxide sampling and analyses were performed on a one-hour continuous basis in accordance with USPEA Method 6C.

A Western Research Model 5R UV monitor was used for the testing zero air and calibration gases were introduced into the 3 way calibration valve located at the end of the heated sample probe.

Nitrogen Oxides Determination (USEPA Method 7E)

Continuous NO_x sampling was conducted following EPA Method 7E. The NO_x monitor used was ARI's TECO Model 10 NO_x monitor. Data was recorded on a dual pen strip chart recorder. Calibration gas and zero was introduced directly into the 3-way valve for calibration of the NO_x monitor.

Carbon Monoxide Determination (USPEA Method 10)

Carbon monoxide sampling and analyses were conducted continuously in accordance with USPEA Method 10. A TECO Model 48 Gas Filter Correlation CO monitor was used for CO analysis. Results were printed out on a dual pen strip chart recorder.

Certified CO calibration standards and zero air were used to calibrate the CO monitor which were introduced directly into the three way valve at the end of the heated sample probe.

SO_2, NO_x, CO EMISSION TEST PROGRAM
#4 SLAB FURNACE EXHAUST STACK
GRANITE CITY STEEL DIVISION: GRANITE CITY, ILLINOIS

SUMMARY OF EMISSION TEST RESULTS

TABLE: III-1

COMPANY: Granite City Steel Division: Granite City, Illinois

LOCATION: Slab Furnace No. 4 Exhaust Stack

TEST DATE: 3/19/92

TEST RUN:	1	2	3	Avg
TEST TIME:	1522-1622	1639-1739	1757-1857	
STACK GAS				
Temperature, ^oF	776.5	789.8	791.1	785.8
Velocity, fps	22.6	23.2	22.7	22.8
Volume flow, acfm	239,771	246,125	240,463	242,120
Volume Flow, scfm, db	89,105	90,503	88,524	89,377
Volume flow, dscfh	5,346,298	5,430,194	5,311,457	5,362,650
Moisture, % by volume	11.4	11.4	11.2	11.3
CO_2, % by volume	6.5	6.6	6.6	6.6
O_2, % by volume	9.1	9.2	9.1	9.1
Sulfur Dioxide				
Concentration				
ppmv db	14.1	15.8	16.1	15.3
x 10^{-6} lbs/dscf	2.3	2.6	2.7	2.5
Emission Rate				
lbs/hr	12.484	14.214	14.231	13.6
Carbon Monoxide				
Concentration				
ppmv,db	5.8	6.3	5.8	6.
x 10^{-6} lbs/dscf	0.4	0.5	0.4	0.
Emission Rate				
lbs/hr	2.263	2.496	2.243	2.
Nitrogen Oxides (As NO_2)				
Concentration				
ppmv, db	151.3	148.5	159.2	153.
x 10^{-6} lbs/dscf	18.1	17.7	19.0	18.
Emission Rate				
lbs/hr	96.561	96.256	100.960	97.

EMISSION CHANGING PROJECTS SINCE 1986 (TPY)

Project	Effective Date	PM_{10}	SO_2	NO_x	CO	VOM
Removal Blast Furnace Slag Spout Hood	January 1990	+4.9				
#2 Caster Production	December 1990	+11.7				
Ingot Teeming Shutdown	April 1991	-22.4				
Installation of NESHAP Controls Coke By-Product	July 1991					-31.63
Shutdown of Blooming Mill	April 1991	-3.38	-0.34	-217.82	-22.12	-0.92
Shutdown of Batch Annealing	December 1991	-0.18	-0.04	-8.72	-1.19	-0.31
Net Change		-9.36	-0.38	-226.54	-23.42	-32.86

REMOVAL OF BLAST FURNACE SLAG SPOUT HOOD - JANUARY 1990

Based on May 8, 1969 submittal for modification of operating permit for "A" and "B" Blast Furnaces.

+4.9 TPY

#2 CASTER PRODUCTION - DECEMBER 1990

Summary of Project Emission Changes (tons/yr)[1] (Assuming all steel produced is continuous cast)

Argon Stirring and Baghouse	4.85
Tundish with Shrouds	--
Powder Addition	7.49
Slab Casting	2.01
Slab Cut-off	9.03
Slab Ripping and Baghouse	2.58
	26.0 tons/yr PM_{10}
Caster #1 Actual Emissions	14.3 tons/yr PM_{10}
Caster #2 Actual Emissions	26.0 - 14.3 = 11.7 tons/yr PM_{10}

INGOT TEEMING SHUTDOWN - APRIL 1991

670,000 tons/yr * 0.067 lbs/ton = 22.4 tons/yr PM_{10} reduction

[1]Reference - March 16, 1988 IEPA "Project Summary for Proposed Issuance of an Air Pollution Control Construction Permit for Continuous Caster"

INSTALLATION OF NESHAP CONTROLS AT COKE BY-PRODUCT PLANT

VOC Emissions Reduction at Coke By-Product Plant after Installation of NESHAPS Controls

It was reported, in Attachment 2 of the October 8, 1991 submittal of additional information in application for modification of Operating Permits for the Granite City Division Emission Reduction Plant Production Increase Project, that the installation of benzene emission controls (NESHAPS) at the Coke By-Product Recovery Plant would provide a reduction of 31.6 TPY VOC other than benzene. The following is a demonstration of the derivation of that VOC emission reduction.

All calculations are based on 1990 coke production of 577,473 tons.

Emission factors are taken from the publication EPA-450/3-83-016a, "Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards." The NESHAPS emission factors contained in this publication are for benzene only. The emissions of other light oil (L.O.) constituents were calculated by taking the ratio of the mole fraction of each L.O. constituent (liquid) times the vapor pressure of that constituent to the mole fraction of benzene (liquid) times the vapor pressure of benzene, then multiplying that ration by the calculated benzene emissions. It is assumed that all emissions are vapors and that the vapors are in equilibrium with the liquid light oil.

Sample calculation:

For the direct water cooling tower, benzene emissions are calculated as follows:

$$(577{,}473 \text{ tons coke}) \times \frac{2000 \text{ lb.}}{\text{ton}} \times \frac{454 \text{g}}{\text{lb.}} \times \frac{1 \text{ Mg}}{10^6 \text{g}} = 524{,}346 \text{ Mg coke}$$

$$\frac{524{,}346 \text{ Mg coke}}{\text{yr.}} \times \frac{270 \text{g}}{\text{Mg}} \times \frac{1 \text{ lb.}}{454 \text{g}} = 311{,}836 \text{ lb./year}$$

where 270g/Mg = uncontrolled benzene emission factor from Table 3 - 7, attached.

From the Light Oil Constituents table, attached,

Benzene: $y(P^*) = .71(96) = 68.16$

where .71 = benzene mole fraction
and 96 = benzene vapor pressure

Similarly,

Toluene: $y(P^*) = .159(30) = 4.77$

Exhibit
Page two

Hence, the toluene emissions, with no controls, from the direct water cooling tower are

$$\frac{4.77}{68.16} \text{ (311,836 lb/yr.)} = 21,823 \text{ lb. toluene/year}$$

Toluene emissions after installation of NESHAPS controls with 100% efficiency are

21,823 lb. toluene (100 - 100) = 0 lb. toluene/yr.

Emission of benzene, toluene, xylene, ethylbenzene and styrene are calculated, as above, for the various emission sources at the By-Product Plant and presented in the table Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the Coke Oven By-Products Plant, attached.

The non-benzene emissions controlled by the NESHAPS project are then calculated, for each light oil constituent considered, by subtracting the total emissions after controls were applied at all sources from the total emissions prior to application of controls at all sources. These calculations are presented in the table entitled Non-Benzene Emissions Controlled by NESHAPS Project, attached.

Non-Benzene Emissions Controlled by NESHAPS Project

	Total Uncontrolled Emissions	-	Total Uncontrolled Emissions after NESHAPS Controls Installed					
Toluene	59,584	-	997	=	58,587 lbs.	x $\frac{1T}{2000}$	=	29.3 tons/yr.
Xylene	2,871	-	48	=	2,823 lbs.	x $\frac{1T}{2000}$	=	1.4 tons/yr.
Ethylbenzene	959	-	10	=	949 lbs.	x $\frac{1T}{2000}$	=	0.5 tons/yr.
Styrene	868	-	9	=	859 lbs.	x $\frac{1T}{2000}$	=	0.4 tons/yr.
								31.6 tons/yr.

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Emissions of Light Oil Constituents after Installation of NESHAPS Controls at the By-Product Plant

By-Product Source	Uncontrolled Benzene Factor (g Mg)	NESHAPS Control	NESHAPS Control Efficiency %	Benzene (lb./yr.) A*	Benzene (lb./yr.) B**	Toluene (lb./yr.) A	Toluene (lb./yr.) B	Xylene (lb./yr.) A	Xylene (lb./yr.) B	Ethylbenzene (lb./yr.) A	Ethylbenzene (lb./yr.) B	Styrene (lb./yr.) A	Styrene (lb./yr.) B
Direct Water Cooling Tower	270	Tar Spray Final Cooler	100	311,836	0	21,823	0	1,050	0	351	0	317	0
Light Oil Condenser Vent	89	Gas Blanket	98	102,790	2,056	7,193	144	346	7	116	2	105	2
Naphthalene Separator	87	Tar Spray	100	100,480	0	7,032	0	339	0	113	0	102	0
Naphthalene Processing	20	Tar Spray	100	23,099	0	1,617	0	78	0	26	0	23	0
Tar-Intercepting Sump	95	Gas Blanket	98	109,720	2,194	7,678	154	370	7	124	3	112	2
Tar Dewatering	21	Steam Blanket	98	24,254	485	1,697	34	82	2	27	1	25	1
Tar Decanter	77	Steam Blanket	98	88,931	1,779	6,224	125	300	6	100	2	90	2
Tar Storage	12	Steam Blanket	98	13,859	277	970	19	47	1	16	0	14	0
Light Oil Sump	15	Gas Blanket	98	17,324	347	1,212	24	58	1	20	0	18	0
Light Oil Storage	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
LTX Storage (TLO)	5.8	Gas Blanket	98	6,699	134	469	9	23	1	8	0	7	0
Leaks	14	Manual Detection	88	16,169	1,940	1,132	136	55	7	18	2	16	2
Flushing Liquor Circulation Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Excess Ammonia Liquor Tank	9	Steam Blanket	98	10,395	208	727	15	35	1	11	0	11	0
Wash Oil Decanter	3.8	Uncontrolled	0	4,389	4,389	307	307	15	15	5	0	5	0
Wash Oil Circulating Tank	3.8	Gas Blanket	98	4,389	88	307	6	15	0	5	0	5	0
				851,428	14,239	59,584	997	2,871	48	959	10	868	0

*Uncontrolled emissions

**Emissions after NESHAPS controls installed

R008398

LIGHT OIL CONSTITUENTS

Chemical	Weight fraction (X)	MW	X/MW	Mole fraction (x)	P° at 25°C
nzene	.5925	78.11	.0076	.710	96 mm Hg
luene	.1598	92.13	.0017	.159	30
lene (mixed)	.0336	106.16	.0003	.028	8.2
lbenzene	.0100	106.16	.00009	.008	9.6
ene	.0136	104.14	.0001	.009	7.7
thalene	.005	128.16	.00004	.004	<1
on disulfide	.003	76.14	.00004	.004	366
arin	.0367	118.13	.00031	.029	100
ohexane	.0009	84.16	.00001	.001	98
ohexene	.0276	82.14	.00034	.032	100
opentadiene	.0064	66.10	.00009	.008	600
ene	.0029	70.13	.00004	.004	654
ane	.0014	72.15	.00002	.002	533
phene	.0024	84.13	.00003	.003	79
5-trimethylbenzene	.0028	120.20	.00002	.002	7.0
3-trimethylbenzene	.0130	120.20	.0001	.002	6.8

$\Sigma \frac{X}{MW} = .01071$

* Benzene, toluene, and xylene weight fractions were the average of two analysis OM of light oil samples: Environmetrics on March 1, 1991, and by Doug Stracke of Granite City Steel on March 24, 1985.

Average molecules weight of light oil = ΣyM = 84.47
Average vapor pressure of light oil = ΣyP = 89.67

R008399

SEP 13 '94 04:30PM GCS_ENVIRONMENTAL

Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park NC 27711
EP 450/3-83-016a
May 1984
R008400
Air

EPA

Benzene Emissions from Coke By-Product Recovery Plants - Background Information for Proposed Standards

Draft EIS

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TABLE 3-7. UNCONTROLLED BENZENE EMISSION FACTORS FOR COKE BY-PRODUCT PLANTS

Source	Emission factor (g benzene/Mg coke)	Industry emissions (Mg/yr)[a]
Cooling tower	270	6,340
Direct-water	70	1,090
Tar-bottom	89	4,080
Light-oil condenser vent	87	2,040
Naphthalene separation	20	470
Naphthalene processing	95	5,360
Tar-intercepting sump	21	1,090
Tar dewatering	77	4,350
Tar decanter	12	680
Tar storage	15	760
Light-oil sump	5.8	300
Light-oil storage	5.8	80
BTX storage	5.8	80
Benzene storage	9	510
Flushing-liquor circulation tank	9	510
Excess-ammonia liquor tank	3.8	180
Wash-oil decanter	3.8	180
Wash-oil circulation tank	a	600
Pump seals	a	400
Valves	a	270
Pressure-relief devices	a	30
Exhausters	a	50
Sample connections	a	20
Open-ended lines	a	20
Total (rounded)		29,000

[a] Emissions were estimated on the basis of number of potentially leaking units. Emission factors are listed in Table 3-6.

SHUTDOWN OF BLOOMING MILL - APRIL 1991

Coke oven gas consumed at Soaking Pits, 1,076,926 MMBtu in 1990

The coke oven gas which was consumed at the Blooming Mill Soaking Pits (firing rate 408 MMBtu/hr/furnace) is to be used at the Hot Strip Slab Furnaces (1-3) (firing rate 321.8 MMBtu/hr/furnace) and Slab Furnace 4 (firing rate 495 MMBtu/hr).

The emission reductions for the displaced use of natural gas on the slab reheat furnaces is based on the AIRS 1990 emission factor for natural gas sources greater than 100 MMBtu/hr and the "ACT for NO_x Emissions from Iron and Steel Mills".

1990

Coke Oven Gas Soaking Pits - General (< 10 MMBtu/hr)

44,134 * 0.003 * 1/2000 = 0.066 tpy PM_{10} emission reduction
44,134 * 0.0006 * 1/2000 = 0.013 tpy SO_2 emission reduction
44,134 * 0.10 * 1/2000 = 2.21 tpy NO_x emission reduction
44,134 * 0.0053 * 1/2000 = 0.12 tpy VOM emission reduction
44,134 * 0.02 * 1/2000 = 0.44 tpy CO emission reduction

Natural Gas Blooming Mill (< 10 MMBTU/hr)

18,083 * 0.003 * 1/2000 = 0.027 tpy PM_{10} emission reduction
18,083 * 0.0006 * 1/2000 = 0.005 tpy SO_2 emission reduction
18,083 * 0.10 * 1/2000 = 0.90 tpy NO_x emission reduction
18,083 * 0.0053 * 1/2000 = 0.05 tpy VOM emission reduction
18,083 * 0.02 * 1/2000 = 0.18 tpy CO emission reduction

Coke Oven Gas Soaking Pits

1,076,926 * 0.005 * 1/2000 = 2.69 tpy PM_{10} emission reduction
1,076,926 * 0.0006 * 1/2000 = 0.32 tpy SO_2 emission reduction
1,076,926 * 0.399 * 1/2000 = 214.71 tpy NO_x emission reduction
1,076,926 * 0.0014 * 1/2000 = 0.75 tpy VOM emission reduction
1,076,926 * 0.04 * 1/2000 = 21.54 tpy CO emission reduction

Granite City Steel Company
PM-10 Netting Analyses (Unpaved Roads)

Road	Segment	Current						Production Ratio	Proposed and Contemporaneous Reductions				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	B	78.05	78.05	9.91	9.91	39.03	4.96	1.00	78.05	9.91	7.81	0.99	(31.22)	(3.96)
	C	59.03	59.03	7.46	7.46	29.52	3.73	1.00	59.03	7.46	5.90	0.75	(23.61)	(2.98)
Steelworks	E	69.36	69.36	8.79	8.79	34.68	4.40	1.00	69.36	8.79	6.94	0.88	(27.74)	(3.52)
	F***	1,176.07	1,373.66	148.15	173.19	686.83	86.59	Paved	0.00	0.00	0.00	0.00	(686.83)	(86.59)
	G***	31.36	36.66	3.96	4.63	36.66	4.63	Paved	0.00	0.00	0.00	0.00	(36.66)	(4.63)
	H	89.06	89.06	11.24	11.24	89.06	11.24	1.00	89.06	11.24	8.91	1.12	(80.15)	(10.12)
	J	64.03	64.03	8.10	8.10	32.02	4.05	1.00	64.03	8.10	6.40	0.81	(25.61)	(3.24)
	L	1,274.92	1,490.38	161.37	188.64	1,490.38	188.64	1.56	2,322.01	293.90	232.20	29.39	(1,258.18)	(159.25)
	R***	20.31	23.74	2.57	3.00	11.87	1.50	Paved	0.00	0.00	0.00	0.00	(11.87)	(1.50)
BOF	N	219.34	256.41	27.75	32.44	256.41	32.44	1.56	399.48	50.54	39.95	5.05	(216.46)	(27.39)
	P	224.98	263.00	28.44	33.25	131.50	16.62	1.56	409.76	51.80	40.98	5.18	(90.53)	(11.44)
Furnace	V***	518.08	605.64	65.65	76.74	302.82	38.37	Paved	0.00	0.00	0.00	0.00	(302.82)	(38.37)
	W***	59.24	69.26	7.49	8.76	34.63	4.38	Paved	0.00	0.00	0.00	0.00	(34.63)	(4.38)
	X***	1,885.37	2,204.00	238.15	278.40	2,204.00	278.40	Paved	0.00	0.00	0.00	0.00	(2,204.00)	(278.40)
	Y	87.52	87.52	11.06	11.06	87.52	11.06	1.00	87.52	11.06	8.75	1.11	(78.77)	(9.95)
	Z****	345.76	404.19	43.70	51.09	202.10	25.54	1/2-Paved	325.38	41.12	32.54	4.11	(169.56)	(21.43)
Area	D-D	331.41	387.42	41.87	48.95	193.71	24.47	1.61	624.52	78.90	62.45	7.89	(131.26)	(16.58)
	E-E	13.38	15.64	1.69	1.98	7.82	0.99	1.61	25.21	3.18	2.52	0.32	(5.30)	(0.67)
	F-F	12.12	14.17	1.53	1.79	14.17	1.79	1.61	22.84	2.88	2.28	0.29	(11.88)	(1.50)
	CS(1)	107.34	125.48	13.57	15.86	125.48	15.86	Paved	0.00	0.00	0.00	0.00	(125.48)	(15.86)
	CS(2)	66.82	66.82	8.49	8.49	66.82	8.49	1.00	66.82	8.49	6.68	0.85	(60.14)	(7.64)
	G-G	46.43	46.43	5.81	5.81	23.22	2.91	1.00	46.43	5.81	4.64	0.58	(18.57)	(2.32)
	Total:	6,778.98	7,829.94	856.75	989.57	6,100.22	771.06		4,689.50	593.19	468.95	59.32	(5,631.27)	(711.74)

* Proposed controlled emissions include a 90% reduction for dust control measures.

** Net Change represents the difference in the proposed controlled and the current controlled emissions.

*** Segments are proposed (or recently) paved and emissions are accounted for in the Paved Roads table.

**** Half of the segment is proposed for paving. Proposed emissions reflect only the remaining unpaved portion.

(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

R008403

Granite City Steel Company
PM-10 Netting Analyses (Paved Roads)

Road	Segment	Current						Production Ratio	Proposed				Net Change in Emissions**	
		Uncontrolled Emissions				Controlled Emissions			Uncontrolled Emissions		Controlled Emissions*			
		lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
South Plant	A	142.97	142.97	26.09	26.09	142.97	26.09	1.00	142.97	26.09	71.49	13.05	(71.49)	(13.05)
Steelworks	D	250.54	292.88	45.72	53.45	292.88	53.45	1.56	456.31	83.27	228.15	41.63	(64.73)	(11.81)
	F***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	534.22	97.50	267.11	48.75	267.11	48.75
	G***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	55.62	10.15	27.81	5.08	27.81	5.08
	K	34.13	39.90	6.23	7.28	39.90	7.28	1.56	62.16	11.35	31.08	5.67	(8.82)	(1.61)
	M	40.50	47.34	7.39	8.64	47.34	8.64	1.56	73.76	13.46	36.88	6.73	(10.46)	(1.91)
	R***	0.00	0.00	0.00	0.00	0.00	0.00	1.56	23.74	4.33	11.87	2.17	11.87	2.17
BOF	O	206.10	240.93	37.61	43.97	240.93	43.97	1.56	375.37	68.50	187.69	34.25	(53.25)	(9.72)
Furnace	V***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	72.04	13.15	36.02	6.57	36.02	6.57
	W***	0.00	0.00	0.00	0.00	0.00	0.00	1.10	75.31	13.74	37.66	6.87	37.66	6.87
	X***	0.00	0.00	0.00	0.00	0.00	0.00	1.61	565.75	103.25	282.87	51.62	282.87	51.62
	Z****	0.00	0.00	0.00	0.00	0.00	0.00	1.61	65.96	12.04	32.98	6.02	32.98	6.02
North Plant	S	98.31	98.31	17.84	17.84	98.31	17.84	1.00	98.31	17.84	49.16	8.92	(49.16)	(8.92)
	T	115.56	115.56	21.09	21.09	115.56	21.09	1.00	115.56	21.09	57.78	10.55	(57.78)	(10.55)
Area	CS(1)***	0.00	0.00	0.00	0.00	0.00	0.00	1.00	16.47	3.01	8.24	1.50	8.24	1.50
	Total:	888.11	977.89	161.97	178.35	977.89	178.35		2,733.55	498.76	1,366.78	249.38	388.88	71.02

* Proposed controlled emissions include a 50% reduction for road sweeping dust control measures.

** Net Change represents the difference in the proposed controlled and the current controlled emissions.

*** Segments are currently unpaved and current emissions are accounted for in the Unpaved Roads table.

**** Half of the segment is proposed for paving. Proposed emissions reflect only the paved portion.

(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

R008404

Granite City Steel Company
PM-10 Netting Analyses (Materials Handling)

Material	Current Uncontrolled Emissions				Current Controlled Emissions		Production Ratio	Proposed Uncontrolled Emissions		Proposed Controlled Emissions		Net Change in Emissions *	
	lb/day	lb/day (1)	TPY	TPY (1)	lb/day	TPY		lb/day	TPY	lb/day	TPY	lb/day	TPY
Coal	7.99	9.34	1.45	1.70	9.34	1.70	1.00	9.34	1.70	9.34	1.70	0.00	0.00
Coke	34.89	40.79	6.37	7.45	40.79	7.45	1.56	63.55	11.60	63.55	11.60	22.76	4.16
Coke Breeze	0.06	0.07	0.01	0.01	0.07	0.01	1.56	0.11	0.02	0.11	0.02	0.04	0.01
Pellets	36.67	42.87	6.71	7.84	42.87	7.84	1.56	66.79	12.22	66.79	12.22	23.92	4.38
Limestone	8.82	10.31	1.61	1.88	10.31	1.88	1.56	16.06	2.93	16.06	2.93	5.75	1.05
	88.43	103.37	16.15	18.88	103.37	18.88		155.85	28.47	155.85	28.47	52.47	9.59

* Net Change represents the difference in the proposed controlled and the current controlled emissions.

(1) Adjusted to account for 16.9% increase in production between the 1988 inventory year and the August 1992 through July 1994 base period.

R008405