BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:	)	
	)	
STANDARDS FOR THE DISPOSAL	)	
OF COAL COMBUSTION RESIDUALS	)	R 20-19(A)
IN SURFACE IMPOUNDMENTS:	)	
PROPOSED NEW 35 ILL. ADM.	)	(Rulemaking – Water)
CODE 845	)	

NOTICE OF FILING

TO: Mr. Don A. Brown,
Clerk of the Board
Illinois Pollution Control Board
100 West Randolph Street, Suite 11-500
Chicago, Illinois 60601

Vanessa Horton,
Hearing Officer
Illinois Pollution Control Board
60 E. Van Buren Street, Ste. 630
Chicago, Illinois 60605

(SEE PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board, **MIDWEST GENERATION, LLC'S COMMENTS ON THE ENVIRONMENTAL GROUP'S INITIAL COMMENTS AND RECOMMENDED RULES,** a copy of which are hereby served upon you.

Respectfully submitted,

MIDWEST GENERATION, LLC,

By: /s/ Kristen L. Gale

Dated: June 3, 2022

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CERTIFICATE OF SERVICE

I, the undersigned, on oath state the following:

That I have served the attached MIDWEST GENERATION, LLC'S COMMENTS ON THE ENVIRONMENT GROUP'S INITIAL COMMENTS AND RECOMMENDED RULES via electronic mail upon:

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Date: June 3, 2022

/s/ Kristen L. Gale

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	**)**	
	)	
STANDARDS FOR THE DISPOSAL OF	**)**	
COAL COMBUSTION RESIDUALS IN	**)**	**R20-19 (A)**
SURFACE IMPOUNDMENTS: PROPOSED	**)**	**(Rulemaking – Water)**
35 ILL.ADM. CODE PART 845	**)**	
	)	

MIDWEST GENERATION, LLC'S COMMENTS ON THE ENVIRONMENTAL GROUP'S INITIAL COMMENTS AND RECOMMENDED RULES

Midwest Generation, LLC ("Midwest Generation" or "MWG") appreciates the opportunity to provide comments to the Illinois Pollution Control Board ("Board") on the Environmental Law & Policy Center, Little Village Environmental Justice Organization, Prairie River Network, and Sierra Club's ("Environmental Groups") Initial Comments and Recommended Rules ("Proposal")(P.C. #10).[1] The Environmental Groups have proposed both new Part 846 rules and modifications to the existing Part 845 CCR Rules. MWG's interests will be directly and significantly affected by the Proposal.

The Environmental Groups' Proposal is both legally and factually deficient. It does not comply with either the Illinois Environmental Protection Act ("Act") or the Board Rules for a new or modified Board rule. The Proposal lacks required information on how the proposed rules are technically justified, technically feasible, and economically reasonable. Because of the Environmental Groups' failure to follow the applicable requirements under the Act and Board Rules, the Proposal should be dismissed.

Even if the Proposal satisfied the applicable legal requirements, it should be dismissed because it is factually deficient under Board Rule section 102.202(b). (35 Ill. Adm. Code 102.202(b))

[1] The Environmental Groups' Initial Comments and Recommended Rule (P.C. #10) is cited herein as "Env. Com."

Section 102.202(b) requires that the Proposal include a statement of reasons setting forth the environmental, technical, and economic justification for the rule. The Environmental Groups do not provide any economic justification for, or demonstrate the economic reasonableness of, the proposed rule to regulate historic coal ash at power-generating stations as required by Section 102.202(b) of the Board Rules.

The Proposal also does not provide a technical justification for regulating historic areas of coal combustion residuals ("CCR") fill solely at power stations or why power station CCR fill areas should be regulated differently than any other waste fill areas in Illinois, or any areas of CCR fill at locations other than power stations throughout Illinois. Illinois already has an effective program under Title XVII of the Act to investigate and remediate industrial sites, including historic CCR fill areas. There is no technical justification for creating a program solely for one type of industrial waste like CCR at one type of industrial site (*i.e.*, power stations), particularly when it duplicates an existing, successful Illinois cleanup program, which has been used extensively for years.

Similarly, the Environmental Groups' proposed modifications to Part 845 to address CCR storage piles and fugitive dust also lack any persuasive factual support to show they are technically justified or feasible. The Environmental Groups offer only conjecture and speculation to try to justify these proposed rule modifications. They provide no evidence of fugitive CCR dust problems during removal of CCR piles or from CCR surface impoundments that require these modified rules. In MWG's over twenty years of experience in removing CCR from its CCR surface impoundments, no fugitive dust problems or similar issues have been associated with these removals. The primary reason that fugitive dust is not an issue is that the CCR in surface impoundments is wet or damp, which prevents fugitive dust issues when the CCR is moved into piles and removed from those impoundments.

Nor is it technically feasible to monitor only fugitive dust emissions from CCR piles or impoundments. Power stations are surrounded by various industries that are permitted to emit particulate matter. Due to the surrounding "dust" emissions from other industries, differentiating CCR dust from the emissions of adjacent or nearby properties will be extremely difficult if not impossible. The USEPA considered this same issue and rejected the suggested inclusion of a fugitive dust monitoring requirement in the federal CCR rules. It concluded that the numerous sources of fugitive dust in proximity to power stations, prevented the use of conventional measures to monitor fugitive dust associated with CCR surface impoundments and piles.

Because the Environmental Groups fail to provide economic and technical justifications for, or to show how their proposed rules would be technically feasible, Midwest Generation requests that the Board decline to proceed with the Proposal.

I. THE PROPOSAL FAILS TO COMPLY WITH THE ACT AND BOARD RULES.

To proceed with its Proposal, the Environmental Groups must comply with Sections 27 and 28 of the Act and the Board's Rules on Regulatory and Informational Hearings and Proceedings. 415 ILCS 5/27, 28(a); 35 Ill. Adm. Code Part 102. These statutory and regulatory provisions outline the procedures and requirements for a proposal for a new Board rule or modifications to an existing rule. The Environmental Groups' Proposal fails to satisfy these legal requirements.

Section 28(a) of the Act allows any person to present a written proposal for the adoption of a Board rule. 415 ILCS 5/28(a). A proposal must be supported by an adequate statement of reasons, a petition signed by at least 200 people, may not be plainly devoid of merit, or deal with a subject on which a hearing has been held within the preceding six months. 415 ILCS 5/28(a). In Part 102 of the Board Rules, there are additional requirements for proposing regulations of general applicability, including a statement of reasons setting forth the environmental, technical, and

economic justification for the rule. 35 Ill. Adm. Code 102.202(b). The proposal also must discuss the applicable factors in Section 27(a) of the Act, including all affected sources and facilities, and the economic impact of the proposed rule. The proposal must also include a synopsis of all testimony to be presented by the proponent. 35 Ill. Adm. Code 102.202(b), (c).

If a petition fails to comply with the Act and Board rules, the Board will dismiss the petition. The Board has found petitions deficient when they fail to contain required information specified under the Act and Board Rules. *In the Matter of: Proposal of Amerock Corporation, Rockford Facility, for Site-Specific Rulemaking Proposal for Amendment to 35 Ill. Adm. Code 304.303 ("Amerock")*, PCB R01-15 (Jan. 18, 2001).[2] In *Amerock*, the Board found that Amerock failed to provide current data on zoning and surrounding land use, failed to consider the technical feasibility of the compliance options and did not provide the capital and annual operating costs of each option. *Id*., at 3. Other deficiencies included the failure to submit a complete synopsis of all testimony and to justify the unavailability or inapplicability of the information. *Id*., at 5. The Board dismissed the petition. PCB R01-15, (Feb. 21, 2002). Because the Environmental Groups' Proposal suffers from many of the same fatal *Amerock* deficiencies, it too should be dismissed.

a. The Proposed Rule to Regulate Historic Coal Ash Areas Fails to Comply with the Act and Board Rules

Like *Amerock*, the Environmental Groups have not provided a technical justification for why historic areas of coal ash at power stations require more regulation than what already exists under Illinois law. 35 Ill. Adm. Code 102.202(b); Env. Com., pp. 7-8, Appen. 1, p. 1; *See infra* Sec. II.a. The Proposal does not discuss, let alone demonstrate, any threats to drinking water, public health, or environmental harm caused beyond the boundaries of power stations that warrant more

[2] A petition for a site-specific rulemaking is similar to a petition for regulations of general applicability, and must satisfy the same requirements as well as additional site-specific information. 35 Ill. Adm. Code 101.202, 101.210.

regulation. The Proposal provides no explanation of how the proposed rules are technically justified, particularly when Illinois already has a robust and effective cleanup program under Title XVII and its underlying regulations that applies to these same coal ash conditions. Env. Com., pp. 7-8; *See infra* Sec. II.a and b.

Turning to the economic factors that a rule petition must address, the Environmental Groups do not provide any economic justification for or demonstrate the economic reasonableness of the proposed rule to regulate historic coal ash at power-generating stations as required by Sections 27(a) and 28 of the Act, and Section 102.202(b) of the Board's Rules. Env. Com., pp. 7-8. They provide no estimate of costs for the additional investigation, permitting, monitoring, modeling and corrective actions included in the proposed rule. *Id.*

The Environmental Groups' Proposal also fails to include the information required in a rule petition:

- "[T]he universe of the affected sources and facilities, or the economic impact of the proposed rule" (415 ILCS 5/27(a), 35 Ill. Adm. Code 102.202(b).
- A description of the existing physical conditions, the character of the areas involved, including the character of surrounding land uses and zoning classifications (415 ILCS 5/27(a), 35 Ill. Adm. Code 102.202(b)).
- A synopsis of all testimony to be presented regarding the proposed rule (35 Ill. Adm. Code 102.202(c)). This essential requirement allows interested parties to adequately prepare for the presentation of that testimony.
- A petition in support of the proposed rule (415 ILCS 5/28(a), 35 Ill Adm. Code 102.202(g)).

Section 102.202(k) of the applicable Board Rules does allow a petitioner the option to justify why it has failed to provide information required by Section 102.202. The Environmental Groups do not provide any such justification for their Proposal's deficiencies. Accordingly, the Environmental Groups' failure to satisfy these rule petition requirements should result in dismissal of their Proposal.

b. The Proposed Amendments to Part 845 Fail to Comply with the Act and Board Rules.

Similar to the proposed new Part 846 rules deficiencies, the Proposal to amend the Part 845 rules also ignores the requirements for petitions to amend rules of general applicability. The Proposal's omissions warrant dismissal of the proposed amendments to the fugitive dust monitoring and modeling, coal ash piles, and environmental justice provisions of the existing rules.

i. The Proposal Does Not Present a Technical Justification for, or Demonstrate the Technical Feasibility of, the Proposed Amendments.

The Proposal does not provide a technical justification for, or explanation of the technical feasibility of, the proposed amendments to the CCR Rule as required by Section 102.202(b). Env. Com. § III. The Proposal does not address whether it is technically feasible to monitor fugitive emissions specific to CCR activities without including other sources. *Id.* There is no explanation of how fugitive dust monitoring devices can differentiate the particulate matters emitted from CCR versus the particulate matters emitted from neighboring industrial sources. *Id.* The Proposal omits any technical justification for why air modeling should be required. *Id.* It proposes to require webcams on every vehicle required to conduct a CCR removal project without any discussion of the technical feasibility of doing so. *Id.* Nor is there any explanation of the feasibility of the proposed rule to collect, analyze and distribute the voluminous data and records that would be generated by these additional requirements. *Id.*

The same deficiencies are associated with the Proposal's additional regulations for CCR piles, including additional equipment and record keeping requirements. Env. Com. § II. The Environmental Groups speculate that coal ash piles may be too large to be adequately controlled by existing regulatory requirements or that the measures currently taken are otherwise insufficient to prevent fugitive air emissions without providing sufficient evidence to support these claims. The single cited example of a coal ash pile that may have been inadequately contained occurred

over a decade ago, long before any coal ash pile regulations were established. *Id.* p. 11-12. This single instance is insufficient to establish that additional requirements beyond those in existing Part 845 are required.

If the Proposal warranted further consideration, it should have provided information showing that: (1) coal ash piles will be built larger than the storage pads, tarps, or wind barriers currently used to contain the piles; (2) the integrity of the tarps or liners used on coal ash piles cannot be maintained; or (3) that there is a technical justification for the proposed new requirements for drop distance limitations, setbacks from waterways, and additional silt screens. *Id.*

Similarly, the Proposal does not provide a technical justification for the additional environmental justice regulations. Env. Com. § IV. It seems the Environmental Groups believe the Part 845 environmental justice definition's scope is too limited. *Id.* This issue was adequately addressed in the prior Part 845 rulemaking. The Agency explained that the 1-mile buffer zone included in the environmental justice definition provided a margin of error and captured communities that may not fall within the environmental justice census blocks. PCB R20-19 8/13/2020 Tr. p. 195:2-14. The Environmental Groups agree that the existing environmental justice definition appropriately classifies existing power stations. They do not identify any power station that is not currently included in that definition but would be under their proposed amendment to it. Env. Com, p. 33. If all the power stations that should be deemed to be in an environmental justice area are already so regulated under Part 845, there is clearly no need for the proposed amendment.

ii. The Proposal Provides No Economic Justification or Showing of Economic Reasonableness for the Proposed Amendments.

The Environmental Groups also provide no economic justification or showing of economic reasonableness for the proposed amendments. The only economic information provided is an unsubstantiated claim that an air monitoring device costs at most $1,000 and the operation and maintenance of the proposed air monitoring devices would cost $50,000 per year. Env. Com., p. 21. The source of these cost values is undisclosed, preventing any verification of these estimates. *Id.* Other costs associated with the proposed amendments are not addressed. Such costs include personnel costs to collect and evaluate the air monitoring data, to maintain the voluminous monitoring records that would be generated, to include these records in the operating record and to post them on the publicly available website. These things do not happen without adequate personnel to accomplish them. There is also no cost estimate provided for the proposed air modeling nor for the costs to install GPS-enabled, continuously operating webcams on all the trucks, barges or railcars used during a CCR removal project. Similarly, no economic information is provided for the additional equipment and record keeping requirements for the CCR piles or the environmental justice proposed amendments.

iii. Additional Deficiencies in the Proposed Part 845 Amendments.

There are many additional requirements that must be satisfied before proposed amendments to a rule of general applicability may qualify to be heard by the Board. The Proposal fails to comply with these requirements in the following ways:

- The Proposal does not discuss the universe of sources and facilities that would be affected by the additional proposed fugitive dust rules, including the trucking, barge and rail companies that would be affected by the proposed rule applicable to vehicles that move the CCR. *See* 415 ILCS 5/27(a), 35 Ill. Adm. Code 102.202(b). Hence, the Proposal does not provide adequate notice to other affected sources and facilities of its potential applicability.

- There is no description in the Proposal of the existing physical conditions that are subject to the amendments, or the character of the areas involved, including the character of surrounding land uses and zoning classifications. (415 ILCS 5/27(a), 35 Ill. Adm. Code 102.202(b)).
- The required synopsis of all testimony anticipated to be presented regarding the proposed Part 845 amendments for fugitive dust, coal ash piles, and environmental justice is completely absent. (35 Ill. Adm. Code 102.202(c)). This allows interested parties to prepare for the presentation of that testimony.
- A certification that the Proposal would amend the most recent version of Part 845. (35 Ill. Adm. Code 102.202(i)).
- A petition supporting the proposed Part 845 amendments, as required by Section 28 of the Act and Section 102.202(g).
- A complete justification for why the information not provided was inapplicable or unavailable (35 Ill. Adm. Code 102.202(k)).

Because the Environmental Groups' Proposal does not satisfy many of the requirements under Sections 27 and 28 of the Act and the Board's Rules for regulations of general applicability, the Board may not consider it. Instead, under Section 102.212(a), the Board should dismiss the Proposal in its entirety.

II. THE PROPOSED ADDITIONAL RULES TO REGULATE HISTORIC COAL ASH AREAS ARE NOT TECHNICALLY JUSTIFIED NOR TECHNICALLY FEASIBLE.

The Environmental Groups' claims that CCR historic fill areas at power stations must be specially regulated are groundless. The Environmental Groups provide no facts or evidence that the CCR fill at the power stations should be treated any differently than other industrial sites nor other sites that used coal ash fill. The proposed rule is also unjustified because Illinois already effectively remediates contaminated industrial properties, including areas of industrial waste, eliminating any need for a special rule solely for coal ash fill at power-generating stations.

a. There is no Historic Ash "Problem"

The Environmental Groups' claim of a historic ash problem at power stations is baseless. No evidence is presented that impacted groundwater at power stations is harming any potable

groundwater sources or a surface water. Uncontested, expert opinion previously presented to the Board shows there is no harm to drinking water, and no risk to neighboring surface waters from historic CCR at power stations. *See Sierra Club v. MWG*, PCB13-15, Hearing Ex. 904, pp. 14, 17, 20, 22, and Appen. B and Hearing Ex. 907.

The USEPA also considered this issue and concluded there is no historic ash "problem" that needs to be addressed by specific CCR rules. The USEPA did not apply the CCR rule to "CCR landfills that do not accept waste after the effective date [of the CCR rules]" because it was "not aware of any damage cases associated with inactive CCR landfills" and "the risks of release from such units are significantly lower than CCR surface impoundments or active CCR landfills." 40 F.R. 21342.

CCR has been used throughout Illinois as fill for decades. It has not been shown to present unique or significantly more severe threats than any other industrial fill materials. In 2011, the Illinois Department of Transportation ("IDOT") reported that 52,448 tons of fly ash were used in Illinois as a basic building material, including inert fill material to improve cohesion and stability of soil embankments. Ex. A, pp. 7, 17. IDOT further reported that wet-bottom boiler slag (another form of CCR), was used as an aggregate for embankments, trench backfills, sand backfills for underdrains, bedding, porous granular backfills, and snow and ice control, and that it was used extensively by local agencies. *Id.* at 17. IDOT reported the same uses for fly ash and wet-bottom boiler slag in its 2001 report, stating that it used 95,570 tons of fly ash in 2001, and wet-bottom boiler slag was used for and snow and ice control. Ex. B, pp. 6, 14.

There are several other reports showing the widespread use of CCR in ways which would be affected by the Proposal, but which have not caused issues requiring this Proposal. For example, the Melvin E. Amstutz Expressway in Waukegan used 246,000 cubic yards of fly ash as fill

embankment for this four-lane highway. Ex. C, p. I-31. Other have companies disclosed that they "recycled" coal ash "into the building of highways like Interstate 55 and the foundation of the Sears Tower." Ex. D. Fly ash was used to stabilize a 145-acre site to build the Highway Freight Center in Chicago. Ex. E. In sum, fly ash has been used as a base material for highways and roads throughout Illinois. Ex. F.

There is no technical basis to regulate CCR used as fill at power stations differently than CCR used as fill throughout Illinois - - in roads, the base of buildings, embankments and other similar uses at industrial sites. CCR located at power stations is not contaminating drinking water or surface waters and is not a "problem" that needs special regulation. There is no technical justification for the Proposal and the Board should dismiss it.

b. Illinois has an Investigation and Cleanup Program for Historic Areas of Industrial Sites

Historic CCR areas are already adequately regulated under Illinois law. Illinois has a comprehensive investigation and corrective action program that has remediated various industrial sites for over twenty years. There is no reason to "reinvent the wheel" for historic CCR areas.

Section 58 of Title XVII of the Act, the "Site Remediation Program," ("SRP"), and its implementing regulations in Parts 740 and 742 of the Board Rules, together provide a remediation program for sites that require corrective action, including historic areas of waste such as CCR. Section 58 sets forth the legislative intent to use a risk-based approach to site remediation described in Title XVII, which broadly states that: "It is the intent of this Title: (1) To establish a risk-based system of remediation based on protection of human health and the environment relative to present and future uses of the site." Similarly, Section 58.1 states that the legislature intended the risk-based program to be broadly applicable. Section 58.1(a)(1) provides:

> Sec. 58.1. Applicability.
> (a) (1) This Title establishes the procedures for the investigative and remedial activities at sites where there is a release, threatened release, or suspected release of hazardous substances, pesticides, or petroleum and for the review and approval of those activities.

The legislature clearly intended that the Site Remediation Program apply to any "remedial activities" involving a release of a "hazardous substance." CCR is hazardous substances as that term is broadly defined in the Act. A "hazardous substance" is "…any element, compound, mixture, solution, or substance designated pursuant to Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act" ("CERCLA"). 415 ILCS 5/3.215(B); 42 U.S.C. § 9602. Section 102 of CERCLA provides a comprehensive list of "hazardous substances" which include, antimony, arsenic, cadmium, lead, manganese, mercury, and selenium, the same metals identified by Illinois EPA as constituents found in CCR. 40 CFR part 302, Table 302.4, *In the Matter of: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments: Proposed New 35 Ill. Adm. Code 845*, PCB R20-19, Illinois EPA Statement of Reasons, p. 3. Illinois and federal courts have ruled that a mixture or waste that contains any amount of a hazardous substance is a hazardous substance. *See, e.g., Illinois v. Grigoleit Co.*, 104 F. Supp. 2d 967, 977-78 (C.D. Ill. 2000); *Eagle-Picher Indus., Inc. v. U.S. Envtl. Prot. Agency*, 759 F.2d 922, 930-31, (D.C. Cir. 1985) (EPA acted fully within its power under CERCLA when it construed as "hazardous substances" petitioner's mining wastes and fly ash).

The remedial activities required under Section 58.1 of the Act do not exclude areas of historic CCR and provide for both the investigation and remediation of such areas. Section 58.2 of the Act defines "remedial action" to mean "activities associated with compliance with the provisions of Sections 58.6 and 58.7 [of the Act]." Sections 58.6 and 58.7 provide the standards for remedial investigations and reports, including reports demonstrating completion of corrective

actions. For the CCR in fill areas, the remedial activities authorized by the Act are more than adequate to address issues that may arise which warrant investigation, correction and all other remediation activities.

Pursuant to Section 58.3(a), the Board adopted the Tiered Approach to Corrective Objectives ("TACO") regulations and Parts 740 and 742 of the Board Rules for implementing the SRP. The TACO regulations establish a uniform method for developing risk-based remediation objectives for the remediation of constituents of concern at a site.[3] In its adoption of the TACO standards, the Board correctly interpreted the Illinois legislature's intent that the TACO standards broadly apply "to all types of remediation programs," stating:

> The proposed rules create a tiered approach to establishing corrective action, *i.e.*, remediation objectives, based on risks to human health and the environment, allowing consideration of the proposed land use at a subject site. Although this approach is premised upon the statutory mandates in the Site Remediation Program legislation (P.A. 89-431, as amended by P.A. 89-443), it is intended to apply to all types of remediation programs under the Act, including not only the Site Remediation Program, but also the Underground Storage Tank and the Resource Conservation and Recovery Act programs.
> *In the Matter of: Tiered approach to Corrective Action Objectives (TACO): 35 Ill. Adm. Code Part 742*, PCB R97-12(A) (April 17, 1997) at p. 1.

Clearly, the TACO and SRP regulations are applicable to historic CCR areas and provide an adequate regulatory approach that does not need to be replaced or supplemented by the Proposal. The SRP and accompanying TACO standards are used routinely for the cleanup of impacted groundwater sites across the state. Many of these impacted sites involve remediating contaminants of much higher toxicity and cancer exposure risk than constituents commonly associated with CCR. For example, under the SRP, a property contaminated with hazardous waste, including

[3] "The TACO methodology codified at Part 742 is not independent. It must be used in conjunction with remediation programs…" *In the Matter of : Tiered Approach to Corrective Action Objectives (TACO): Amendments to 35 Ill. Adm. Code 742.105,742.200, 742.505, 742.805, and 742.915,* PCB R97-12(B), (Dec. 4, 1997) at p. 2.

mercury, arsenic, and volatile organic chemicals, as well as polychlorinated biphenyl, was remediated. Ex. G, p. 5.

Mr. Richard Gnat, a professional geologist with decades of experience conducting corrective actions at industrial facilities, including under the SRP, similarly concludes that it is the proper remediation program to address historic CCR fill areas. In the attached Exhibit H, Mr. Gnat evaluates the Proposal as it relates to historic areas of coal ash, including groundwater issues. The SRP regulations have "successfully been implemented across the State at numerous old industrial facilities (active and inactive) and Brownfield properties, many of which include materials more hazardous than CCR" such as chlorinated solvents. Ex. H, p. 2. The Proposal's rules for characterizing a CCR fill area do not differ from the requirements for a focused site investigation work plan in the SRP Part 742 regulations and hence, are unnecessary. *Id.*, p. 3.

The Proposal's permitting process would also be unnecessary as well as unreasonably burdensome. The Proposal would create a cumbersome process of applying for a construction permit each time a new location of historic fill is found either during ongoing plant operations or when a plant closes. Until the construction permit is obtained, the identified CCR area could not be excavated or otherwise managed, as it is today under existing Illinois rules. *Id*., p. 3.

Mr. Gnat's expert opinion is that the Proposal's groundwater monitoring program is neither a technically nor scientifically sound approach. Ex. H, p. 4. The Proposal borrows from the CCR rule on surface impoundments, including establishing a statistically based groundwater monitoring program. However, statistically based groundwater monitoring programs are designed for engineered units, such as permitted landfills or surface impoundments, which have liners or other engineered barriers, to evaluate the performance of the liner or engineered barrier. *Id.* This type of program is not appropriate for CCR fill areas that have no such engineered unit, either a liner or

barrier, to evaluate. In contrast, the Part 742 SRP site characterization approach is specifically designed to evaluate the nature and extent of historic fill areas and whether the fill is impacting groundwater. *Id*. Mr. Gnat also points out that the Part 742 requirements relating to contaminant transport and risk evaluations are better suited for CCR historic areas than the Proposal's required groundwater modeling for each area of CCR, regardless of its size. *Id.*, p. 3

The Proposal's corrective action plan and implementation provisions would be substantially duplicative of the SRP, except for the submittal timelines. *Id*., p. 3. Hence, the Proposal would add nothing substantive to the existing SRP regulations. The Proposal's unique and inflexible submittal timelines present technical difficulties because the timeframes to investigate and then implement appropriate corrective action depend upon site-specific facts, such as the size and complexity of a site. *Id.*, p. 4. Establishing arbitrary, regulatory deadlines without any regard to relevant site-specific facts is an unreasonable and unworkable approach to addressing historic CCR areas. *Id*.

Historic areas of CCR at power stations are not differnt from other types of releases to which the SRP and TACO regulations apply that they need their own regulatory program. The breadth and substance of the SRP and TACO regulations are appropriate and adequate to apply to CCR historic areas. There is no scientific, technical or logical need to create a separate, special regulatory program solely for CCR in historic areas at power-generating stations. The Board should reject the Environmental Groups' proposed Part 846.

III. THE PROPOSAL PROVIDES ABSOLUTELY NO BASIS TO FURTHER REGULATE TEMPORARY CCR STORAGE PILES.

The recommended changes to the temporary coal ash pile rules amount to a solution searching for a problem. No facts are presented showing a need for these changes. The Proposal speculates that the storage pad or liner for a temporary pile *could be* inadequate or the tarps or wind barriers used for them *could be* too small. Env. Com, pp. 11-12. Todd Mundorf, the MWG Powerton

Station Manager, with years of experience at two of MWG's stations, including overseeing the removal of CCR from the impoundments, has never seen either of these problems occur. (See Todd Mundorf Affidavit attached as Exhibit I). The CCR in these temporary piles created within CCR surface impoundments is damp when removed, even after the water is drained. Ex. I, ¶¶17-20. Damp CCR poses little or no risk of fugitive dust from working these piles.

The recommended changes in the Proposal constitute an unnecessary micro-management of a power station's operations relating to CCR. It lacks any persuasive facts to demonstrate that the existing Board regulations storage pad and liner requirements are inadequate to protect the environment or human health.

IV. THERE IS NO TECHNICAL OR SCIENTIFIC BASIS FOR THE FUGITIVE DUST MONITORING OR MODELING IN THE PROPOSAL.

The Environmental Groups' proposal for numerous changes and additions to the fugitive dust rule in the Illinois CCR Rule is also a solution searching for a problem. There is no technical justification provided to support these additional requirements for CCR surface impoundments. The fugitive dust control measures implemented under the existing Illinois air regulations and supplemented by the already required CCR fugitive dust plan, are adequate to prevent fugitive dust. There is also a technical feasibility issue with the Proposal's fugitive dust monitor and air modeling requirements because of the numerous surrounding industrial facilities that also emit fugitive dust. The USEPA rejected the extreme measures proposed by the Environmental Groups because they are not technically feasible, and the Board should do so the same.

a. The Proposed Changes to the Fugitive Dust Regulations are Not Technically Justified.

The primary reason fugitive dust emissions during CCR removal is not a problem is the same as discussed above for CCR temporary storage piles. The CCR is wet or at least damp. Wet or damp CCR does not generate fugitive air emissions. And if there are occasions when the CCR

being removed may have been allowed to dry, the existing regulations requiring fugitive dust plans effectively prevent fugitive dust. If there were a problem with fugitive dust that needed to be addressed, there would be evidence of unacceptable levels of fugitive dust emissions under existing regulations. The Proposal identifies none. The excessive, additional fugitive dust measures proposed by the Environmental Groups are not technically justified.

MWG stations are subject to the general fugitive dust regulations in Part 212, Subpart K of the Board rules. They also operate under fugitive dust plans specifically designed for CCR surface impoundments. Ex. I, ¶¶21, 22. These fugitive dust programs and plans effectively prevent fugitive dust emissions from the CCR surface impoundments. *Id.*

The Proposal does not seem to appreciate that the CCR in many surface impoundments is bottom ash, the heavier particles that fall to the bottom of the boilers. To remove the bottom ash, it is mixed with water and sluiced out of the boilers into the CCR surface impoundments. Ex. I, ¶10. When the CCR surface impoundments are in operation, the bottom ash is immersed in water. *Id.*, ¶15. Since MWG began operating the Stations over two decades ago, it has routinely removed the bottom ash from the CCR surface impoundments, continuing the practice of the prior operator. *Id*. ¶16. When a CCR surface impoundment needs to be emptied, the first step is to dewater the pond and drain as much water as possible. *Id.* ¶17. Because the bottom ash is still saturated, it is moved into piles within the pond footprint to allow more water to drain. *Id*. The biggest challenge to removing bottom ash from the ponds is separating the water from the saturated ash to enable it to be loaded into trucks and transported offsite. *Id*, ¶18. Even after draining the water, the bottom ash is not dry, but remains damp during the truck loading process. *Id*., ¶19. The damp, heavier particles of bottom ash present little to no risk of fugitive dust when removed from the surface

impoundments. This explains why in his years of observing surface impoundment CCR removal operations, Mr. Mundorf has not seen fugitive dust emissions. *Id*. ¶20.

Mr. Mundorf also surveyed the health and safety database from MWG's Stations for any reports of an environmental or safety incident or "near misses," which goes back to 2009. There were no references to complaints about dusting or any reported employee safety incidents related to CCR in the surface impoundments or CCR removal. Ex. I, ¶26. And MWG has not received a single citizen complaint related to CCR at the MWG stations. Investigations of two complaints to regulatory agencies of CCR on roads near the Powerton Station found no evidence of CCR. *Id.*, ¶25.

b. Fugitive Dust Monitoring and Air Modeling Around CCR Surface Impoundments is Not Technically Feasible.

The Proposal does not explain how the fugitive dust monitors could feasibly detect only particulate matter potentially released from the CCR surface impoundments or why the USEPA's prior finding that it not technically feasible to do so is wrong. MWG Stations are each in industrial areas surrounded by various industries and thoroughfares where industrial activity gives rise to particulate matter emissions. The Joliet 29 and Joliet 9 Stations (adjacent across the Des Plaines River) are surrounded by various sources of particulate matter. Joliet 29 is adjacent to U.S. Route 6 (Channahon Road), a four-lane highway and a designated major arterial truck route by Will County. The cars and trucks, particularly diesel trucks, which travel on Route 6 are major sources of particulate matter. Ex. J, Appen. L.[4] Directly south of the Joliet 9 Station is an asphalt manufacturer that is permitted to emit particulate matter as part of its regular operations. See Ex. K. Similarly, the Joliet Container Terminal, a grain handling and bulk handling facility, and Zenith Energy Terminal, a bulk oil and gas transfer facility, both located southwest of the Joliet 9 Station,

[4] USEPA Reg. 3, https://www3.epa.gov/region1/airquality/pm-what-is.html

are also permitted particulate matter sources. Exs. L and M. And finally, a concrete plant located southwest of the Joliet 9 Station is permitted to emit 1.66 tons per year (tpy) of particulate matter. Ex. N.

The Powerton Station is also surrounded by industry that emits particulate matter. Directly south of the Powerton Station is a facility with a lifetime operating permit allowing it to emit 8.35 tpy of particulate emissions. Ex. O. To the northwest, a foundry may emit 3.53 tpy (Ex. P) and another facility has an allowed 60% opacity limit for 8- minute intervals in any 60 minute period. Ex. Q.

The same situation exists at the Will County Station. Directly adjacent to the southwest of the Station is an asphalt plant permitted to emit particulate matter. Ex. R. The Citgo Petroleum refinery, directly northeast of the station, has a Title V air permit, and numerous construction air permits for its operations, including one that allows 3.4 tons of particulate matter to be discharged annually. Ex. S. The Will County Station is also surrounded by industrial thoroughfares. The Chicago Sanitary Ship Canal is adjacent to its east, a major industrial route for barge traffic, which typically run on diesel fuel. Illinois Route 53, another major arterial truck route like Route 6 by Joliet 29, is directly to the west of the Will County station and another a major source of particulate matter. Ex. J.

The Waukegan Station presents a similar picture of surrounding particular matter air emissions sources. Adjacent to the south is the North Shore Water Reclamation District ("District"), which has a "Registration of Smaller Source" ("ROSS") air permit, issued pursuant to Section 9.14 of the Act. Ex. S. ROSS permits allow up to 5 tons per year of particulate matter emissions combined with carbon monoxide, nitrogen oxides, sulfur dioxide, and volatile organic material air pollutant emissions. 415 ILCS 5/9.14 (a)(3). At times, the District has had construction

air permits that allowed it to emit 2.25 tons per year of particulate matter. Ex. T. Further to the south is another facility with a Lifetime Operating Air Permit that allows it to emit 25 tpy of regulated pollutants, including particulate matter. *See* Ex. U. Directly to the west is the Union Pacific North railroad line, Pershing Road, and Route 137, each of which carries traffic, including diesel trucks and trains.

The MWG Stations are surrounded by numerous sources of particulate matter, and the Environmental Groups have not presented a technically feasible method to distinguish the particulate matter from the CCR surface impoundments (if any) from the particulate matter emitted from the neighboring industries.

c. USEPA Rejected the Measures Proposed

When promulgating the original Federal CCR rule, USEPA specifically evaluated whether fugitive dust was a serious concern for CCR, and concluded that extreme control measures, such as those suggested here, were not technically justified. The USEPA found that the few studies that evaluated the health impacts by fugitive dust from CCR piles "all failed to prove that fugitive dust was the cause of the documented health concerns." *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities*, 80 Fed. Reg. 21386 (April 17, 2015). Instead, one study found no evidence of long-term arsenic poisoning, and three consecutive state studies established other risk factors as the probable cause for a lung cancer cluster in a location downwind of a CCR landfill and power station. *Id.*, at 21387, *citing Millsboro Inhalation Exposure and Biomonitoring Study.* State of Delaware Department of Natural Resources and Environmental Control, Department of Health and Social Services, Dover (RTI Project 0213061), DE, May 2013.[5] In fact, the *Millsboro Inhalation* study found that the

[5] https://www.dhss.delaware.gov/dhss/dph/dpc/files/millsboro_biomonitoring_study2013.pdf.

predominate source of particulate matter in the area was not the power generating station, but upwind cities, including Baltimore, New York City, and Boston. *Millsboro Inhalation* study, p. 58. The study also found that the indoor particulate matter sources dominated the particulate matter exposure of the residents. *Id*.

The USEPA also acknowledged that fugitive dust is emitted from non-point sources and cannot be easily measured by conventional measures. 80 Fed. Reg. 21387 (April 17, 2015). Nevertheless, it specifically solicited comments on whether there should be air monitoring stations near the CCR landfills and CCR surface impoundments and received none. *Id.*, at 21386.

Ultimately, the USEPA decided that the performance-based standards for fugitive dust control, such as fugitive dust control plans, would "effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust from CCR units, piles, and roads." *Id.* at 21387. The USEPA concluded that the performance standard approach to preventing fugitive dust would "achieve the statutory obligation of 'no reasonable probability of adverse effects on human health and the environment.'" *Id*, quoting 40 US Code §6944.

d. The Facts and Findings of the Proposal's Cited Reference Documents are Mispresented or do not Support the Proposal's Rule Changes.

The Proposal includes misrepresentations of the facts and findings in the documents it relies upon. The 2010 USEPA Draft Fugitive Dust Screening Assessment ("Screening Assessment") is misrepresented as an assessment of "dry storage sites." Env. Com. p. 17. That is not true. The Screening Assessment *only* evaluated the handling of dry ash at *CCR landfills*. Screening Assessment, p. 4. The Screening Assessment had nothing to say about temporary piles of wet CCR removed from CCR surface impoundments. According to the U.S. EPA, even the Screening Assessment's findings on dry ash at CCR landfill particulate emissions are conservative,

with the "levels of particulate matter calculated…likely higher than they actually would be." Screening Assessment, p. 10.

The Proposal also relies upon three USEPA damage cases in Illinois. Env. Com., p. 17-18. These cases do not support the proposed rules. None involved the handling of CCR at a power station – the very thing the Proposal seeks to regulate here. *See* USEPA Damage cases: Fugitive Dust Impact, Dec. 18, 2014, pp. 39-42. Moreover, in one of these cases, the Illinois EPA characterized the complaint of fugitive dust as "bogus." *Id.*, p. 42.

The Proposal's other examples of fugitive dust are outliers. They are not illustrative of reasonably expected conditions at Illinois power generating stations. Env. Com., p. 18. The AES power generating plant in Puerto Rico involved ash dumped outside of ponds that was left there for years. The Kingston TVA spill was a spill of over 5.4 million cubic yards of coal ash involving a dam breach, far different than a routine controlled removal from the smaller impoundments typical of Illinois power stations like MWG's. Finally, in the Arrowhead Landfill example, the USEPA's investigation of potential air-related health impacts concluded that that the disposal of the CCR was safe for both the landfill employees and the neighboring community. Exs. W and X. Following a five-year investigation, the USEPA concluded there was no causal connection between the claimed harms and the operations at the landfill. Ex. X, p. 9. Thus, none of the cited examples provides a persuasive basis for allowing the Proposal to proceed before the Board.

V. CORRECTIONS TO THE PROPOSAL'S FALSE STATEMENTS ABOUT MWG STATIONS.

The Proposal includes factual errors, misrepresentations and exaggerations about the MWG Stations that cannot be allowed to stand uncorrected.

It is unfortunate that the Proposal invokes the Board's Interim Opinion and Order in *Sierra Club v. Midwest Generation LLC*, PCB 13-15. That Order is not yet final, and as the Board knows,

MWG contested many of the factual findings as against the manifest weight of the evidence. The Interim Order is still subject to appeal. See MWG's Memorandum in Support of its Motion to Reconsider ("MWG Memo"), PCB 13-15, Sept. 9, 2019, pp. 23-42. But putting aside MWG's objections and interim nature of the Board's findings, the mere existence of the Board's Interim Opinion and Order belies the need for the Proposal's changes because the Board relied on existing Illinois law.

The Proposal focuses on the Board's findings regarding CCR in the Northwest Area at the Joliet 29 Station. It misleadingly fails to note that out of several areas of CCR fill sampled, the Board correctly concluded that they met the Act's criteria for beneficial reuse, with only one limited area excepted. Interim Order, p. 28. Moreover, for the one area in question, the Board incorrectly stated there was no record that the CCR that tested above the Illinois Class I standards was removed. MWG Memo, p. 24. The evidence presented demonstrated that "approximately 1,068 tons of fill material containing historical ash was excavated and disposed off-site at a landfill during the week of November 21, 2005. The excavation was backfilled using surficial materials near the excavation area." PCB13-15 Hearing Ex. 903, p. 47, *citing* KPRG and Associates Inc. Coal Ash and Slag Removal - Joliet Station #29 Report, December 6, 2005. Waste manifests for the disposal of the over 1,000 tons of CCR were also part of the record (See 2005 KPRG Report, Exhibit 9 to MWG Memo). Following the removal of the CCR, all of the material in the Northwest Area met the beneficial reuse criteria under 415 ILCS 5/3.135 and presented no harm to the environment.

The Proposal also mischaracterizes the conclusions in the Board's Interim Opinion. The Board did *not* find that the historic ash fill areas at the Joliet 29 Station caused groundwater contamination. In discussing the three historic unlined fill areas at Joliet 29, the Board correctly

stated that "no monitoring wells are installed around any of these areas" and that the nearest monitoring wells are "unlikely to show conclusive results of any contaminants emanating from this historical area." Interim Order, p 26-28, *see also* MWG Memo, p. 24. The same is true for the former slag area at the Will County Station, in which the Board acknowledged there were no monitoring wells in this area. Interim Order, p. 57. The Proposal also conveniently ignores the Board's finding that counter its assertions. The Board also found that another area of historic ash, the Former Ash Basin at the Powerton Station, was *not* causing contamination. Interim Order, p. 41. The inaccurate and incomplete manner in which the Proposal presents the Board's Interim Order is perhaps out of necessity because an accurate and complete review of that Order would demonstrate a fundamental flaw, namely that the Environmental Groups' proposed changes are unnecessary under existing Illinois law.

VI. CONCLUSION

The Proposal to promulgate new regulations for historic areas of CCR only at power stations and to the modify existing Part 845 fails to satisfy the requirements of the Act and Board rules to present a rule to the Board. The Proposal's rules and amendments are not technically justified nor technically feasible, as required by Illinois law. The Environmental Groups provided no factual basis to support their contention that historic areas of ash at Illinois power-generating stations and fugitive dust emissions from their CCR piles or CCR surface impoundments are causing harm. Even if there was a threat of harm, existing Illinois laws and regulations already effectively address their concerns. The Illinois SRP program is an established and effective program to investigate and remediate historic areas of waste, including coal ash. Similarly, the final CCR Rule in Part 845 effectively established a robust and extensive regulatory program more than adequate to address the potential risks from operating coal ash surface impoundments in Illinois, including the

risk of fugitive dust and coal ash piles. It also accurately defined and identified environmental justice areas, making the Proposal's amendments to those provisions unnecessary.

There is not a legal basis to continue with this subdocket. Accordingly, MWG requests that the Board decline to adopt the Proposal for the reasons stated in these comments and proceed to close the subdocket.

Respectfully submitted,

Midwest Generation, LLC

By: */s/ Kristen L. Gale*
Kristen L. Gale

Dated: June 3, 2022

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EXHIBITS ATTACHED TO MWG'S COMMENT

A. Utilization of Recycled Materials in Illinois Highway Construction in 2011," Physical Research Report No. 161, August 2012
B. "Utilization of Recycled Materials in Illinois Highway Construction," Illinois Dept. of Trans., Physical Research Report No. 142, May 2002
C. Excerpt of USEPA's Development of Guidelines for Procurement of Highway Construction Products Containing Recovered Material, Vol. II, 1981, p. I-31
D. "Edison's latest pollution control device," Chicago Tribune, Oct. 28, 1991, Sec. 1, p. 13
E. "Trucking-industrial center has roots in once-bad soil," Chicago Tribune, June 10, 1973, Sec. 12.
F. "New techniques may slow soaring cost of road repair," Chicago Tribune, April 21, 1980, Sec. 1, p. 12.
G. "Site Remediation Program Annual Report 2002," Illinois EPA, July 2003
H. R. Gnat, "Comments on Draft Proposed Rule – 35 Ill. Adm. Code 846 (Historic Ash Fill), May 31, 2022.
I. Affidavit of Todd Mundorf, May 25, 2022
J. Will County Community Friendly Freight Mobility Plan, Sept. 2017, Appen. L
K. Gallagher Asphalt Corporation, Authorization to Operate Under a General Permit, Illinois EPA, August 13, 2014.
L. Joliet Container Terminal LLC, Federally Enforceable State Operating Permit (FESOP), Illinois EPA, May 10, 2017
M. Zenith Energy Terminals Joliet Holdings, LLC, Construction Permit – NSPS and NESHAP Source – Revised, Illinois EPA, June 28, 2019
N. Narvick Brothers Lumber Co., Inc., Joint Construction and Lifetime Operating Permit, August 7, 2009
O. Harsco Minerals, Lifetime Operating Permit – NSPS Source – Revised, May 29, 2014
P. Caterpiller Inc. – Mapleton Foundry, Construction Permit – Revised – NESHAP Source, March 2, 2021
Q. Lanxess Corporation, Federally Enforceable State Operating Permit – Revised, Sept. 10, 2021
R. Orange Crush, LLC, Authorization to Operate Under a General Permit, Aug. 13, 2014
S. Citgo Petroleum Corporation, Construction Permit NSPS Source – NESHAP Source, April 5, 2021
T. North Shore Water Reclamation District, ROSS Permit, July 24, 2015
U. North Shore Water Reclamation District, Construction Permit – NESHAP Source – NSPS Source, March 11, 2002
V. LaFarge, "Revised" Lifetime Operating Permit, October 12, 2011.
W. Frequently Asked Questions Regarding the Disposal of Coal Ash at the Perry County Arrowhead Landfill Uniontown, Alabama, USEPA
X. Letter from Lilian S. Dorka, Director, to Marianne Engelman Lado, Re: Closure of Administrative Complaint, EPA File No. 12R-13-R4, March 1, 2018

EXHIBIT A

Utilization of Recycled and Reclaimed Materials in Illinois Highway Construction in 2011

PHYSICAL RESEARCH REPORT NO. 161

AUGUST 2012

Illinois Department of Transportation
Division of Highways / Bureau of Materials and Physical Research
126 East Ash Street / Springfield, Illinois / 62704-4766

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15. Supplementary Notes

16. Abstract

This report is the 2011 version of past reports with a similar title. Included are the types and quantities of recycled and reclaimed materials for calendar year 2011. Revisions include updated quantities, costs, and current applications. Quantities of materials used can vary greatly and are dependent upon the type of projects being constructed in a given year and the size of the highway program. Fluctuations in commodity prices will influence the economic impact of a given recycled material. Material costs in this report were determined using the cost information gathered in early 2012.

IDOT utilizes millions of tons of highway materials annually. The basic building materials in roadway and bridge construction are primarily aggregate, cement, and asphalt binder. The educated use of recycled materials can result in reduced cost potentials and may enhance performance; however, not all recycled materials are well suited for highway applications. The two main reasons for not utilizing a reclaimed material are 1) addition of material is a detriment to highway performance and 2) excessive cost. This report reviews current usage of various recycled materials, as well as discusses reclaimed materials not currently being utilized by the Department.

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UTILIZATION OF RECYCLED AND RECLAIMED MATERIALS IN ILLINOIS HIGHWAY CONSTRUCTION IN 2011

by:

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BUREAU OF MATERIALS AND PHYSICAL RESEARCH
SPRINGFIELD, ILLINOIS

AUGUST 2012

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Introduction

This report is the 2011 version of past reports with a similar title. Included are the types and quantities of recycled and reclaimed materials for calendar year 2011. Revisions include updated quantities, costs, and current applications. Quantities of materials used can vary greatly and are dependent upon the type of projects being constructed in a given year and the size of the highway program. Fluctuations in commodity prices will influence the economic impact of a given recycled material. Material costs in this report were determined using the cost information gathered in early 2012.

IDOT utilizes millions of tons of highway materials annually. The basic building materials in roadway and bridge construction are primarily aggregate, cement, and asphalt binder. The educated use of recycled materials can result in reduced cost potentials and may enhance performance; however, not all recycled materials are well suited for highway applications. The two main reasons for not utilizing a reclaimed material are 1) addition of material is a detriment to highway performance and 2) excessive cost. This report reviews current usage of various recycled materials, as well as discusses reclaimed materials not currently being utilized by the Department.

Use of many materials such as reclaimed asphalt shingles and high percentages of reclaimed asphalt pavement do not have enough documented performance data to determine the true life-cycle savings/cost. It will take several years of usage to determine performance trends. IDOT is in the process of adopting test procedures that will help ensure performance is not compromised.

Fourteen recycled materials that the Department has found to perform favorably as valuable supplements or substitutes for conventional materials include: air-cooled blast furnace slag, by-product lime, crumb rubber, fly ash, glass beads, glass cullet, ground granulated blast furnace slag, microsilica, reclaimed asphalt pavement, reclaimed asphalt shingles, recycled concrete material, steel reinforcement, steel slag, and wet-bottom boiler slag. The information provided for each material outlines the origin, physical properties, engineering value, present application, annual quantities used, and economic impact.

Two additional materials experimented with by other states but currently not considered viable resources in Illinois highways, for economic or technical reasons, are the following: bottom ash and waste foundry sand. Each non-utilized material's origin, physical properties, potential engineering value, potential application, and departmental concerns are outlined herein.

The quantities of recycled and reclaimed materials used—tonnage, in general—indicated within the report and summarized in the appendix are based on materials use as reported to the Materials Integrated System for Test Information and Communication (MISTIC) for calendar year 2011. The MISTIC database provides materials quantities according to contracted use, testing and inspection data, as well as construction pay items, all by major materials categories, such as aggregate, concrete, paint, etc. All quantities have summarily been converted to English units as referenced within the report.

Use of recycled materials varies from year to year depending on construction activity as well as type of construction projects in a given season. Also, the ability to use recycled materials relies on their use economically—depending on availability or feasibility under unique contract circumstances.

In 2011, the Department used more than 1.2 million tons (2.4 billion pounds) of recycled materials in highway construction. It is difficult to grasp what this amount would physically take up in space, so let's put it in perspective. If this material was placed on trucks that were all lined up end to end, it would take 48,000 trucks which would be 500 miles in length. This is a line that would stretch from St. Louis to Joliet and back again on Interstate 55!

RECYCLED AND RECLAIMED MATERIALS UTILIZED IN HIGHWAY CONSTRUCTION

2011

Air-Cooled Blast Furnace Slag

Origin:	Iron ore, as well as scrap iron, is reduced to a molten state by burning coke fuel with fluxing agents of limestone and/or dolomite. Simultaneously during the iron production, slag is developed in the blast furnace. Air-Cooled Blast Furnace Slag (ACBFS), one of various slag products, is formed when the liquid slag is allowed to cool under atmospheric conditions. It may later be crushed and screened with typical aggregate processing equipment to meet gradation specifications. (1)
Physical Properties:	ACBFS is a hard, angular material with textures ranging from rough, porous surfaces to smooth, shell-like fractured surfaces. Though vesicular, the structure's cells are not inter-connected and little absorption to the interior is likely. Physical properties (e.g. unit weight and size) can vary considerably depending on the method of production; for example, high use of scrap iron can lead to higher unit weights. (1, 2)
Engineering Value:	Crushed ACBFS can be used in nearly all applications utilizing natural aggregates, such as hot-mix asphalt (HMA), portland cement concrete (PCC), embankments, or subbases. ACBFS has potentially favorable resistance to polishing, weathering durability, and bearing. However, the material's inherent variability in physical properties can be of concern. For example, included in HMA pavements, this material provides exceptional frictional properties and increased stability, but its tendency for high surface absorption may require greater amounts of asphalt binder. ACBFS provides outstanding durability and weight savings of 10 to 20 percent over natural aggregate materials in the same applications. Of all the blast furnace slag produced in the United States that is reportedly utilized, 90 percent is ACBFS. (1, 2)
Present Application:	ACBFS is incorporated into PCC, HMA, granular bases and subbases, embankments, and fills. As of August 1999, a self-testing producer control program had been added to specifications regarding HMA mixes to eliminate mix issues due to variability. For the most part, slag is tested as though it were a natural aggregate; unless the application pertains to HMA, IDOT will not use slag failing LA abrasion test limits. (3)
Quantity Used:	11,207 tons (2011 MISTIC estimate)
Economic Impact*:	In 2011, the Department spent approximately $61,639 using ACBFS.

* Costs are based upon early 2012 prices.

By-Product Lime

Origin:	Heating limestone (calcium carbonate) in a kiln drives off carbon dioxide and forms lime (calcium oxide). The exhaust gases from the kiln are filtered using electrostatic precipitators, baghouses, or other such methods. The filtered solids are collected and sold as by-product lime. Lime Kiln Dust (LKD) can vary chemically depending on the type of lime manufactured. It can be categorized according to reactivity, which is based on the amount of free lime and magnesia content. The corresponding lime types are calcitic (chemical lime, quicklime, etc.) or dolomitic. (1)
Physical Properties:	By-product lime is a very fine, white powdery material of uniform size containing calcium and magnesium carbonates as its principle mineral constituents. Much of LKD's properties are dependent on plant production: feedstock, kiln design, fuel type, and type of dust control/collection method employed. (1)
Engineering Value:	By-product lime is valued as both a modifying and stabilizing agent in soil treatment. It generally increases the workability of clayey soils by reducing the plasticity index and increasing the optimum moisture content. On the other hand, high levels of free lime content in LKD have shown to result in poorer dimensional stability (shrinkage, expansion). (1)
Present Application:	By-product lime provides a stable, working platform for paving operations. This material aids in the reduction of high moisture borrow soils in embankment construction. LKD can also be used as mineral filler in HMA. (3)
Quantity Used:	8,740 tons (2011 MISTIC estimate)
Economic Impact*:	By-product lime usage is one of the least expensive remedial actions for unstable subgrade soils. In 2011, the Department spent approximately $332,120 using By-Product Lime.

* Costs are based upon early 2012 prices.

Crumb Rubber

Origin:	Crumb rubber (CR) is produced by grinding reclaimed, used/worn out tires to certain gradations and removing unusable debris including steel and fibers. In lieu of grinding, CR can also be cooled cryogenically with nitrogen and crushed with a hammer mill. (1)
Physical Properties:	CR is rubber particles reduced to 100 percent passing the No. 8 sieve. Tire rubber normally contains synthetic rubber, natural rubber, carbon black, steel, polyester, chemicals, and trace metals in varying concentrations. (1)
Engineering Value:	CR can be used in multiple areas of roadway construction. The Department uses CR in a reflective crack control system. While other states allow CR to be used in HMA with a wet or dry process, Illinois only allows the wet process. The wet process uses CR as modifier in the liquid asphalt while the dry process uses it as a fine aggregate replacement. (3, 4)
Potential Application:	Most crack sealants used throughout the state contain a percentage of CR. The Department has experimented with CR in HMA. It was determined that the wet process, while creating a superior pavement to the conventional method, was not cost effective. The dry process was much less costly; however, it was found to be of no benefit to pavement performance. (5, 6) Patents on the wet process have expired, and another method growing in popularity is called Terminal Blending. This method involves blending the CR homogeneously at low temperatures with the asphalt at the asphalt refinery. The blend is then shipped directly to the plant to be combined with the aggregate. (4) The Department is currently reviewing expanding the use of terminal blend asphalt rubber. A high temperature CR product is being marketed outside of Illinois. This product has promise as it can be PG graded using standard tests. However, test results indicate this process degrades many of the desirable properties of a rubber modified asphalt. The low temperature terminal blend has a disadvantage in that it cannot be graded using standard procedures.
Quantity Used:	102,819 lbs (2011 MISTIC estimate)
Economic Impact*:	Results from an earlier study indicated that final bid prices for crumb rubber were considerably higher than traditional HMA mix. As a result of the higher cost and equipment requirements, implementation was not recommended. (5, 6) Currently the Department has a special provision for use of CR. Due to the higher costs of the mix, this option is only used when other modifiers are not available. The quantity listed above was calculated as a percentage of crumb rubber used in hot-poured joint sealant at a rate of 5 percent by weight. In 2011, the Department spent approximately $20,564 using crumb rubber in hot-poured joint sealant.

* Costs are based upon early 2012 prices

Fly Ash

Origin:	Fly ash is a by-product produced in large quantities during the day to day operations of coal-fired power plants. In general, a coal source is pulverized and blown into a burning chamber where it ignites to heat boiler tubes. Heavier particles of ash (bottom ash or slag) fall to the bottom of the burning chamber, while the lighter particles (fly ash) remain suspended in the flue gases. Fly ash is captured from the flue gases using electrostatic precipitators (ESP) or in filter fabric collectors, commonly referred to as baghouses. The physical and chemical characteristics of fly ash vary among combustion methods, coal source, and particle shape. (7) Fly ash is divided into two classes, Classes F and C, based upon the type of coal source. Class F fly ash is produced by burning anthracite or bituminous coal; whereas, Class C fly ash is produced from lignite or sub-bituminous coal. (1)
Physical Properties:	Fly ash is a fine, powdery silt-sized amorphous residue. Varying amounts of carbon affect the color of fly ash. Gray to black represents increasing percentages of carbon, while tan coloring is indicative of lime and/or calcium content. Fly ash may exhibit pozzolanic properties and, in certain types, cementitious properties. (1, 8)
Engineering Value:	In PCC, Class F fly ash has pozzolanic properties when introduced to water, whereas Class C fly ash is naturally cementitious due to its high amount of calcium oxide. Fly ash can be added to PCC to modify pH, change the hydration process (fly ash retards hydration, thus lowering heat of hydration), reduce water demand, and reduce permeability, and generally extends the cement in the mix. (1, 8)
Present Application:	Dry fly ash can be used as an inert fill material or supplementary cementitious material to improve cohesion and stability of soil embankments. In Illinois, fly ash is used as a mineral admixture in concrete mixtures. In combination with sand, fly ash may be a supplement or substitute for cement to make a flowable fill, or as grout for concrete pavement subsealing. Its use is a recommended alternate when mix designs incorporate high alkali cements and potentially reactive aggregates that could result in alkali-silica reaction (ASR). Fly ash can also be used as mineral filler in HMA. (1, 3, 8, 9)
Quantity Used:	52,448 tons (2011 MISTIC estimate)
Economic Impact*:	In 2011, the use of fly ash as a supplementary cementitious material cost the Department approximately $2,097,920, aided in the reduction of landfill space need, and reduced emissions and fuel consumption required for cement production. It should be noted that the sources of usable fly ash in Illinois have been reduced due to power plant modifications to remove mercury from flue gasses. As a result, large quantities of fly ash used are imported from out of state.

* Costs are based upon early 2012 prices.

Glass Beads

Origin:	Virgin glass, in general, is a molten mixture of sand (silicon dioxide, a.k.a. silica), soda ash (sodium carbonate), and/or limestone supercooled to form a rigid solid. (1) Glass beads, in particular, are a product of recycled soda-lime glass. This material's primary source is from manufacturing and post-consumer waste. At recycling centers, recovered glass is hand sorted by color (clear, amber, and green), and then crushed to customized sizes.
Physical Properties:	Glass beads are transparent, sand-sized, solid glass microspheres. (3)
Engineering Value:	Glass beads enhance the nighttime visibility of various objects through the fundamentals of retro-reflectivity - light is reflected back to its source, for instance, vehicle headlights. As pavement markings are applied, the glass beads are applied to the surface. If the beads are over-embedded or under-embedded, the marking becomes less retro-reflective. Outside the Department, glass beads are utilized in various ways, including but not limited to, license plates, movie screens, and reflective fabrics.
Present Application:	The Department uses two types of glass beads, Type A (uncoated) and Type B (silicone coated, moisture resistant), depending on the method of application (drop-on or intermix) and the type of pavement marking paint used (solvent-based, waterborne, or thermoplastic). Glass beads are utilized in many traffic control devices including reflective sheeting decals, pavement striping, and pavement marking tape. Essentially all traffic lines on highways contain glass beads, which improve the overall safety of nighttime highway travel. (3)
Quantity Used:	12,060,400 lbs (2011 estimate from testing quantities)
Economic Impact*:	The use of glass beads, as an alternative to their disposal, has created a market for material recovery facilities specializing in waste glass recycling. Since soda-lime glass cannot be re-melted by glass manufacturers, the production of glass beads avoids the necessity of land filling. (1) In 2011, the Department spent approximately $3,015,100 on glass beads.

* Costs are based upon early 2012 prices.

Glass Cullet

Origin:	Glass Cullet is produced from recycled glass that is crushed and screened to a designated size. In Illinois, only recycled glass food or beverage containers are allowed to be used. There is a percentage limit of ceramics, china dishes, plate glass, and thin walled container glass that can be accepted. Containers that used to contain hazardous or toxic materials, automobile glass, TV monitors, and lighting fixtures are prohibited from use due to their unique chemical compositions. (1)
Physical Properties:	Glass Cullet is recycled glass ground down to 100 percent passing the 3/8-inch sieve. Glass, chemically, is normally close to 70 percent silica with the other 30 percent being comprised of soda ash, limestone, and chemicals to give it desired properties, normally color. For the recycling industry, the varying colors of glass can be a problem during the recycling process. For construction uses however, the color normally does not matter. (1)
Engineering Value:	The use of glass cullet as an aggregate in HMA or PCC is not common. The high silica content invites the risk of ASR in concrete. While the angular surface of glass would suggest positive results in HMA, there is a frequent occurrence of stripping where the asphalt “strips” off the glass, causing a weak mix and poor performance. Glass cullet is most frequently used as a fill material. Its angular characteristics allow it to keep stability when compacted and it retains little to no moisture. (10, 11)
Present Application:	Currently, many other departments use glass cullet for multiple applications. These include uses as a mix in gravel backfill, borrow material, and certain classes of foundation. A recently developed specification allows for use of glass cullet in Illinois as Porous Granular Embankment (PGE) and is available upon request.
Quantity Used:	No quantities used at time of this report.
Economic Impact:	The Department is unable to determine.

Ground Granulated Blast Furnace Slag

Origin:	Blast furnace slags are developed during iron production. Iron ore, as well as scrap iron, is reduced to a molten state by burning coke fuel with fluxing agents of limestone and/or dolomite. Ground Granulated Blast Furnace Slag (GGBFS) is a glassy, granular material resulting from blast furnace slag being rapidly cooled by water immersion, and pulverized to a fine, cement-like material. (1, 2, 3)
Physical Properties:	GGBFS is a glassy, non-crystalline material varying in size depending on its chemical composition and method of production, its own production as well as that of its iron source. (1)
Engineering Value:	When ground to cement-sized fineness, granulated blast furnace slag is pozzolanic; therefore, it can be used in PCC as a mineral admixture, component of blended cement, or substitute for portland cement. Concrete produced with GGBFS has reduced permeability and reduced heat of hydration. Use in the form of GGBFS presumably makes up the remaining 10 percent (when paired up with the 90 percent used as ACBFS) of blast furnace slag produced in the United States. (1, 2)
Present Application:	The primary uses of GGBFS are as a fine aggregate substitute, mineral admixture in concrete mixtures, and component of blended cement. Its use is a recommended alternate when mix designs incorporate high alkali cements and potentially reactive aggregates that could result in ASR. (2, 3)
Quantity Used:	752 Tons (2011 MISTIC estimate)
Economic Impact*:	The use of GGBFS as a supplementary cementitious material aided in the reduction of landfill space need, and reduced emissions and fuel consumption required for cement production. In 2011, the Department spent approximately $41,360 using GGBFS.

* Costs are based upon early 2012 prices.

Microsilica

Origin:	Microsilica, which is also known as Silica Fume, is a by-product of producing silicon metal or ferrosilicon alloys. When silicon metal and alloys are placed in electric furnaces, the smoke from raw materials such as quartz, coal, and woodchips is collected, creating Silica Fume. (12)
Physical Properties:	Microsilica is a gray powdery material primarily consisting of amorphous (non-crystalline) silicon dioxide (SiO_2) and has a mean particle size between 0.1 and 0.2 µm - 100 times finer than portland cement. (12)
Engineering Value:	Microsilica's high silica content is also high in purity and pozzolanic properties. Reacting with calcium hydroxide (products of cement's pozzolanic reaction), microsilica will produce calcium silicates that will result in denser concrete with higher strengths (increasing compressive strengths up to 100 MPa (14,500 psi) or more), lower permeability, and improved durability. In the specific application of bridge deck overlays, the decrease in permeability slows the rate of corrosion on reinforcing members by impeding chloride or sulfate intrusion. To gain the most benefits from using silica fume, the concrete must be cured effectively. (3, 12)
Present Application:	The Department allows the use of microsilica in concrete mixtures. Its use is a recommended alternate when mix designs incorporate high alkali cements and potentially reactive aggregates that could result in ASR. Outside of the Department, microsilica is utilized in multi-story building construction. (3)
Quantity Used:	96,000 lbs / 48 Tons (2011 MISTIC estimate)
Economic Impact*:	Even though the price of microsilica is substantially higher than that of portland cement, the benefits of improved performance of concrete and its elimination from the waste stream outweigh the increase in cost. In 2011 the Department spent approximately $48,000 using microsilica.

* Costs are based upon early 2012 prices including delivery.

Reclaimed Asphalt Pavement

Origin:	Reclaimed Asphalt Pavement (RAP) is HMA material removed and/or reprocessed from pavements undergoing reconstruction or resurfacing. Reclaiming the HMA may involve either cold milling a portion of the existing HMA pavement or full-depth removal. (1, 3)
Physical Properties:	RAP properties largely depend on its existing in-place components. There can be significant variability among existing in-place mixes depending on mix type, and in turn, aggregate quality and size, mix consistency, and asphalt binder content. Depending on the method of processing, RAP can be finer than its original aggregate constituents. (1)
Engineering Value:	RAP is processed by crushing and screening the material. A series of testing is required to determine asphalt binder content, gradation, and quality. As allowed, the RAP is mixed with virgin aggregate and asphalt to produce new HMA. Since millings from different projects will have different characteristics, contractors must maintain separate RAP stockpiles. RAP can also be used in some aggregate applications. (1, 3)
Present Application:	The special provision for RAP has been revised several times as testing and understanding of interaction was understood. For the special provision that was in effect for this reporting period, the allowable amounts of RAP varied between 10 and 50 percent depending on the type of mix and volume of traffic on the project. RAP is allowed in all Department mixes, and the policy is currently being revised to maximize the amount of allowable RAP without adversely affecting performance of the pavement. The Department also allows RAP to be used in place of aggregate or earth in some non-structural backfill situations. (3, 13)
Quantity Used:	706,987 tons (2011 MISTIC estimate)
Economic Impact*:	In 2011, the Department spent approximately $24,320,353 using RAP as a viable aggregate substitute for scarce natural and manufactured resources.

* Costs are based upon early 2012 prices.

Reclaimed Asphalt Shingles

Origin:	Reclaimed Asphalt Shingles (RAS) are waste roofing shingles obtained from shingle manufacturer's scrap or from roofs of apartment buildings (four or fewer units) and/or single family dwellings that are not subject to the National Emission Standards for Hazardous Air Pollution. Material received from the manufacturer is termed manufacturer's salvaged, whereas old shingles removed from residential dwellings are termed post-consumer tear-offs. These materials, kept separate throughout the process, are tested for asbestos, ground to the desired size, and then delivered to asphalt plants ready for incorporation into HMA. (14)
Physical Properties:	Roofing shingles are made of a supporting membrane of organic fibers, glass felt or mat, a saturate of hot asphalt containing mineral fines, and a coating of fine aggregate. This aggregate may include lap granules, backsurfacer sand, slag, and specialized aggregate to prevent the growth of bacteria. Different types of roofing shingles exhibit different material properties. Consequently, tear-off shingles are not as characteristically predictable as manufacturer's salvaged shingles and may contain regulated asbestos-containing material in rare cases. (15)
Engineering Value:	RAS, once screened for asbestos containing material and removal of nails and other debris is complete, can be incorporated into HMA. When ground down to a workable gradation, RAS can be introduced into an asphalt mix during production. RAS contains between 20 and 30 percent asphalt binder, thus reducing the virgin asphalt needed in the mix and resulting in a cost savings to the Department. Further savings are achieved with the incorporation of the fine aggregate and mineral filler that are also found in RAS in lieu of a portion of the volume of these aggregates needed in HMA. However, the addition of RAS will make a stiffer mix than designed. Therefore, it is common to use a softer grade of asphalt binder when producing HMA with RAS. (14, 15) The United States disposes of roughly 11 million tons of asphalt shingles per year. This application provides IDOT an economical process to reuse what would otherwise be discarded. (16)
Present Application:	The Department continues to maintain a specification for the use of RAS in HMA. This specification allows the use of RAS from manufacturer's salvaged or from post-consumer tear-offs. The percentage of RAS allowed in the HMA mix is limited to 5 percent of the mix. A separate report will present further details on use of RAS as required by Public Act 097-0314. (14)
Quantity Used:	3,234 tons (2011 MISTIC estimate)
Economic Impact:	In 2011, the Department spent approximately $129,360 on RAS. However, the replacement of higher cost liquid asphalt resulted in a savings of $258,720.

* Costs are based upon early 2012 prices.

Recycled Concrete Material

Origin:	Recycled Concrete Material (RCM), also known as crushed concrete, is reclaimed PCC from the demolition of existing concrete pavement, bridge structures, curb and gutter, and from central recyclers, who obtain raw feed from commercial/private facilities. This material is crushed by mechanical means into manageable fragments and stockpiled. RCM may include small percentages of subbase soil and related debris. (1)
Physical Properties:	Comprised of highly angular conglomerates of crushed quality aggregate and hardened cement, RCM is rougher and more absorbent than its virgin constituents. Furthermore, differences among concrete mixes and uses result in varying aggregate qualities and sizes; for example, pre-cast concrete is less variable than cast-in-place. (1)
Engineering Value:	Crushed concrete's physical characteristics make it a viable substitute for aggregate and can be used as such, for example in granular bases, as well as a material fill, such as riprap. Ultimately, RCM obtained on site may be employed immediately for project use or stockpiled for future use. The cementitious component has a high amount of alkalinity by nature, and chlorides from deicing salts may be present – a concern regarding steel reinforcement corrosion. RCM may also contain aggregates susceptible to ASR or D-cracking. (1, 3)
Present Application:	The Department has experimented with RCM in HMA. Currently, the Department allows the use of RCM as a coarse aggregate in aggregate surface courses, granular embankments, stabilized bases, and subbase courses, provided the project materials' specifications are not compromised. This material has also been widely used as an aggregate in membrane waterproofing and in drainage layers as protection against erosion. (3, 17)
Quantity Used:	336,648 tons (2011 MISTIC estimate)
Economic Impact*:	The use of RCM impacts the economy as a substitute for natural aggregates by reducing landfill space needs. In 2011, the Department spent approximately $2,356,536 using RCM.

* Costs are based upon an average price of all gradations from early 2012 prices.

Steel Reinforcement

Origin:	Steel reinforcement is made entirely of recycled scrap iron. This material is salvaged from automobiles, appliances, and steel-reinforced structures which include reinforced concrete pavements, bridges, and buildings. Two common forms of steel production are the basic oxygen and electric arc processes. In the electric arc process, "cold" ferrous material, which is generally 100 percent scrap steel, is the major component melted with alloys in an electric furnace. In the basic oxygen process, molten iron is removed from the blast furnace, combined with alloys, and up to 30 percent steel scrap—used as an additive to lower the temperature of the molten composition. In both processes, high-pressure oxygen is blown into the furnace causing a chemical reaction that separates the molten steel and impurities, which can be recycled as slag. (1, 18)
Physical Properties:	The primary components of steel are iron alloyed with various elements, such as silicon, manganese, chromium, nickel, or copper. In production, carbon, phosphorus, and sulfate may also be present and altered, resulting in different grades of steel. (1)
Engineering Value:	Steel reinforcement plays an important role in concrete structures; for example, reinforcing in PCC pavements holds cracks together ensuring high aggregate interlock exists across the pavement. Steel reinforcement may also eliminate the use of joints in pavement—potentially producing a longer lasting, smoother riding surface. These same qualities are also desirable in reinforced concrete structures.
Present Application:	Dowel bars are used in Jointed Plain Concrete (JPC) pavement to create load transfer at uniformly spaced joints. Welded wire fabric is used in pavement, concrete pipe, prestressed/precast products, concrete structures, etc. Steel reinforcing bars (rebar) are used to strengthen concrete structures, such as reinforced PCC pavements and bridge decks. Continuously reinforced concrete (CRC) pavement uses overlapping longitudinal and transverse steel reinforcing bars to control the tight transverse cracks that naturally form throughout the length of the pavement to evenly transfer loads. (3, 18)
Quantity Used:	2,159,872 lbs / 1,080 tons of dowel bar; 535,288 lbs / 268 tons of welded wire fabric; 22,449,567 lbs / 11,225 tons of rebar (2011 MISTIC estimate)
Economic Impact*:	In 2011, the Department spent approximately $12,604,440 on reinforcing steel in highway construction: $1,088,640 using dowel bars; $201,000 using welded wire fabric; and $11,314,800 using rebar.

* Costs are based upon early 2012 prices.

Steel Slag

Origin:	As iron production is to blast furnace slag, so is steel production to steel slag. Impurities (carbon monoxide, silicon, liquid oxides, etc.) are removed from molten steel in a basic oxygen or electric arc furnace, and combined with the fluxing agents to form steel. Depending on the stage of production, several types of steel slag are produced: furnace (or tap) slag, raker slag, ladle (or synthetic) slag, and pit (or cleanout) slag. Ladle slag, which contains high amounts of synthetic fluxing agents, is characteristically different than furnace slag — the primary source of steel slag aggregate product — and is not deemed suitable for aggregate usage. (1, 19)
Physical Properties:	The cooling rates and chemical composition of steel slag production affect physical characteristics, such as density, porosity, and particle size. In general, processed (i.e. crushed) steel slag is more angular, more dense, and harder than comparable natural aggregates. (20)
Engineering Value:	Steel slag has sufficient material properties including favorable frictional properties, high stability, and resistance to stripping and rutting. On the other hand, steel slag may contain amounts of calcium or magnesium oxides, which will hydrate — leading to rapid short-term and long-term expansion, respectively. Also, though normally mildly alkaline, steel slag may be potentially harmful to aluminum or galvanized metals. (1, 19, 20)
Present Application:	Since 1975, steel slag has been available as an aggregate in pavement materials. It is acceptable as both coarse aggregate and fine aggregate for use in high-type HMA mixes and seal coats. However, the variable specific gravity of steel slag in HMA has caused some quality control problems. Currently, a self-testing producer control program has been added to the specifications regarding HMA mixes. The availability of steel slag is dependent on the production of steel, which has been lower in recent years.
Quantity Used:	26,123 Tons (2011 MISTIC estimate)
Economic Impact*:	In 2011, the Department spent approximately $496,337 using steel slag.

* Costs are based upon early 2012 prices.

Wet-Bottom Boiler Slag

Origin:	Wet-Bottom Boiler Slag (WBBS or “black beauty”) is a by-product of coal burning in wet-bottom boilers. Slag tap boilers burn pulverized coal and retain up to 50 percent of the accumulated ash as slag—the rest being fly ash. Cyclone boilers burn crushed coal and retains as much as 80 percent as boiler slag. In both cases, the bottom ash is held at the bottom of the furnace in a molten liquid state, hence the name wet-bottom. (1)
Physical Properties:	When molten boiler slag comes into contact with water, it immediately fragments, becoming coarse, angular, glassy particles. WBBS is a porous, glassy granular particle that is primarily regarded as a single sized coarse to medium sand. This material is essentially composed of silica, alumina, and iron with small amounts of calcium, magnesium, and sulfates. As long as it is collected from wet-bottom boilers (otherwise it would be considered bottom ash), the composition of the material is governed by the coal source and not by the type of furnace. (1)
Engineering Value:	WBBS is generally a somewhat durable material of uniform size that can be blended with other fine aggregates to meet gradation requirements. This material exhibits less abrasion and soundness loss than bottom ash as a result of its glassy surface texture and lower porosity. In Illinois, WBBS is usually limited to use as a seal coat aggregate on very low volume highways or as an abrasive mixed with deicing salt.
Present Application:	WBBS is allowed to be incorporated as an aggregate in top surface dressing of bituminous surface treatments, embankments, trench backfills, sand backfills for underdrains, bedding, porous granular backfills, membrane water proofing, and snow and ice control. Department use of WBBS varies greatly from year to year. Also, when used for ice control, a material inspection is not required, thus little documentation exists regarding its use in this fashion. Outside of the Department—local agencies especially—WBBS has been utilized as an aggregate in blasting grit, roofing shingle granules, asphalt paving, and in roadway base and subbase applications. (3, 8)
Quantity Used:	Records do not indicate quantities used. IDOT primarily uses this material for snow and ice control, which is not recorded in MISTIC.
Economic Impact:	The Department is unable to determine.

RECYCLED AND RECLAIMED MATERIALS NOT UTILIZED IN HIGHWAY CONSTRUCTION

2011

Bottom Ash

Origin:	Bottom ash is produced in a dry-bottom coal boiler often found in coal-fired electric power plants. The coal is pulverized and blown into a burning chamber where it immediately ignites. The incombustible portion of this material not collected in the flue as fly ash is known as dry bottom ash, which drops down to a water-filled hopper at the bottom of the boiler. (1, 8)
Physical Properties:	Bottom ash is a coarse, typically grey to black in color, angular material of porous surface texture and size ranging from fine gravel to fine sand, predominantly sand-sized. This material is composed of silica, alumina, and iron with small amounts of calcium, magnesium, and sulfate; as a whole, the quality of the material is governed by the coal source, not by the type of furnace. (1)
Engineering Value:	Bottom ash may contain pyrites or “popcorn” particles that result in low specific gravities and high losses during soundness (i.e. freeze-thaw) testing. Due to the inherent salt content — and in some cases, low pH — this material may exhibit corrosive properties. This material is highly susceptible to degradation under compaction and loading; as a result, bottom ash is not an acceptable aggregate for most highway construction applications. (1, 8, 21)
Potential Application:	Bottom Ash is used as a filler material for structural applications and embankments, aggregate in road bases and sub-bases. It is also used as a feed stock in the production of cement, aggregate in lightweight concrete products, and snow and ice traction control material. (1, 8, 21)
Department Concern:	Besides the concerns noted above, bottom ash is considered a problematic debris, which plugs drainage structures when used for snow and ice control.

Waste Foundry Sand

Origin:	Waste foundry sand (WFS) is a by-product of the foundry casting process of ferrous and nonferrous metals; 95 percent of this material is generated from the ferrous casting process. The automotive industry and its suppliers are the primary generators of this material. The presence of heavy metals is of greater concern in nonferrous foundry sands. WFS generated from brass or bronze foundries may contain high concentrations of cadmium, lead, copper, nickel, and zinc. (1, 22)
Physical Properties:	Prior to its use in casting, WFS consists of high quality silica sand or lake sand coated with a thin film of burnt carbon, residual binder, and dust. This material is sub-angular to rounded and has an overall uniform grain size distribution, where the gradations tend to fall within the limits for a poorly graded fine sand. WFS contains metal casting pieces, partially degraded binder, and may also contain some leachable contaminants, including heavy metals and phenols. (1)
Engineering Value:	WFS grain size distribution is more uniform and somewhat finer than conventional concrete sand. The fineness of this substance contributes to good suspension limiting segregation in flowable fills, which are manmade self-leveling, self-compacting backfills. This material may display favorable durability characteristics with resistance to weathering in HMA paving applications. The high amount of silica found in this material may result in stripping of the asphalt cement coating aggregate, which contributes to pavement deterioration. (1, 22)
Potential Application:	The commercial use of this material is extremely limited in the United States. Two main challenges to using waste foundry sand are environmental issues and an engineering value. Transportation cost of foundry sand is the most limiting factor to its use. (1, 22)
Department Concern:	The environmental safety of WFS depends on chemical additives and casted metals utilized with the sand. The Department does not allow use of ferrous foundry waste sand because it is often contaminated with traces of hazardous elements.

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APPENDIX

2011 Recycled and Reclaimed
Materials Quantities

2011 RECYCLED AND RECLAIMED MATERIALS QUANTITIES

MATERIAL	UNIT COST[1]	TOTAL QUANTITY[2]	TOTAL COST TO DEPARTMENT
ACBF SLAG[3]	$5.50/TON	11,207 TONS	$61,639
BY-PRODUCT LIME	$38/TON	8,740 TONS	$332,120
CRUMB RUBBER[4]	$0.20/LB	102,819 LBS	$20,564
FLY ASH	$40/TON	52,448 TONS	$2,097,920
GLASS BEADS	$0.25/LB	12,060,400 LBS	$3,015,100
GGBF SLAG[5]	$55/TON	752 TONS	$41,360
MICROSILICA	$1,000/TON	48 TONS	$48,000
RAP[6]	$34.40/TON	706,987 TONS	$24,320,353
RAS[7]	$40/TON	3,234 TONS	$129,360
RCM[8]	$7/TON	336,648 TONS	$2,356,536
STEEL REINFORCEMENT DOWEL BAR[9]	$1,008/TON	1,080 TONS	$1,088,640
STEEL REINFORCEMENT WELDED WIRE FABRIC[10]	$750/TON	268 TONS	$201,000
STEEL REINFORCEMENT REBAR	$1,008/TON[11]	11,225 TONS	$11,314,800
STEEL SLAG	$19/TON	26,123 TONS	$496,337

[1]Costs are based upon early 2012 prices. See note on each individual summary in report for further details.

[2] Quantities were calculated as the total amount assigned to projects in calendar year 2011. Prior to summation of values, metric values were converted to English values using the conversion factors located in Appendix B of the *Standard Specifications for Road and Bridge Construction.*

[3]ACBF SLAG: Air-Cooled Blast Furnace Slag

[4]CRUMB RUBBER: This material quantity was calculated as 5 percent of the quantity of hot pour joint sealant used in 2011.

[5]GGBF SLAG: Ground Granulated Blast Furnace Slag

[6]RAP: Reclaimed Asphalt Pavement

[7]RAS: Reclaimed Asphalt Shingles

[8]RCM: Recycled Concrete Material

[9]DOWEL BARS: IDOT uses several sizes of dowel bars; however the most common sizes are 1.50 in. and 1.25 in. Quantities were calculated using an average of these two common bars at 1.375 in. Industry tables show that the weight per foot for a 1.375 in. bar is 5.05 lb per ft. Therefore, an 18 in. piece of dowel bar at this diameter would weigh 7.57 lb.

[10]WELDED WIRE FABRIC: The average size of welded wire fabric used by IDOT is a 6X12 W6.5XW4.0. The 6X12 indicates the spacing of the wires and the W6.5XW4.0 is the size of the wires. The Wire Reinforcement Institute has tables that list the weight (lb) per 100 sq yd for each wire size and spacing. According to the table, the weight of a 6X12 W6.5XW4.0 is 62.67 lb per 11.1 sq yd; which is equivalent to 5.6459 lb per sq yd.

[11]Prices are quoted using epoxy coated rebar

EXHIBIT B

142

Utilization of Recycled Materials in Illinois Highway Construction

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16. Abstract

According to the Illinois Environmental Protection Agency's 2000 Annual Landfill Capacity Report "as of Jan. 1, 2001, 53 landfills reported having a combined remaining capacity of 743.4 million gate cubic yards, or 49.3 million gate cubic yards less than on Jan. 1, 2000, a decrease of 6.2 percent." Also, at current waste generation rates "landfill life expectancy in Illinois [is] 15 years barring capacity adjustments." As waste continues to accumulate and availability and capacity of landfill spaces diminish, agencies are increasing application and use of recycled materials in highway construction.

The Illinois Department of Transportation utilizes millions of tons of highway materials annually. The basic building materials in roadway and bridge construction are primarily aggregate, cement, and asphalt. The annual usage of recycled materials is over 1.5 million tons. The educated use of recycled materials can result in reduced cost potentials and may enhance performance; however, not all recycled materials are well suited for highway applications due to limited or compromised performance-based benefits and/or high cost. This report reviews current usage of various recycled materials, as well as discusses reclaimed materials not currently being utilized by the Department.

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UTILIZATION OF RECYCLED MATERIALS IN ILLINOIS HIGHWAY CONSTRUCTION

2002 Report

by:

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&
James M. Krstulovich, Jr.

ILLINOIS DEPARTMENT OF TRANSPORTATION

BUREAU OF MATERIALS AND PHYSICAL RESEARCH

SPRINGFIELD, ILLINOIS

MAY 2002

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Introduction

According to the Illinois Environmental Protection Agency's (IEPA) 2000 Annual Landfill Capacity Report "as of Jan. 1, 2001, 53 landfills reported having a combined remaining capacity of 743.4 million gate cubic yards, or 49.3 million gate cubic yards less than on Jan. 1, 2000, a decrease of 6.2 percent." Also, at current waste generation rates "landfill life expectancy in Illinois [is] 15 years barring capacity adjustments." As waste continues to accumulate and availability and capacity of landfill spaces diminish, agencies are increasing application and use of recycled materials in highway construction.

The Illinois Department of Transportation utilizes millions of tons of highway materials annually. The basic building materials in roadway and bridge construction are primarily aggregate, cement, and asphalt. The annual usage of recycled materials is over 1.5 million tons. The educated use of recycled materials can result in reduced cost potentials and may enhance performance; however, not all recycled materials are well suited for highway applications. The two main reasons for not utilizing a reclaimed material are 1) addition of material is a detriment to highway performance, and 2) excessive cost. This report reviews current usage of various recycled materials, as well as discusses reclaimed materials not currently being utilized by the Department.

Eleven recycled materials that the Department has found to perform favorably as valuable supplements or substitutes for conventional materials include: air-cooled blast furnace slag, by-product lime, fly ash, glass beads, granulated blast furnace slag, microsilica, reclaimed asphalt pavement, recycled concrete pavement, steel reinforcement, steel slag, and wet-bottom boiler slag. The information provided for each material outlines the origin, physical properties, engineering value, present use, annual quantities used, and economic impact.

Five additional materials experimented with by other states but are currently not viable resources in Illinois highways, for economic or technical reasons, are the following: bottom ash, crumb rubber, glass aggregate, waste foundry sand, and roofing shingles. Each material's origin, physical properties, potential engineering value, potential application, and departmental concerns regarding each non-utilized material are outlined herein.

The quantities of reclaimed materials used—tonnage, in general—indicated within the report and summarized by the appendix are based on materials use as reported to the Materials Integrated System for Test Information and Communication (MISTIC) for the year 2001. The MISTIC database provides materials quantities according to contracted use, testing and inspection data, as well as construction pay items, all by major materials categories, such as aggregate, concrete, paint, etc. All quantities have summarily been converted to English units as referenced within the report.

Use of recycled materials varies from year to year depending on construction activity as well as type of construction projects in a given season. Also, the ability to use recycled materials relies on their use economically—depending on availability or feasibility under unique contract circumstances. In 2001, the Department used nearly 1.4 million tons (2.8 billion pounds) of recycled materials in highway construction. That is, based upon the federal EPA's estimates of individual waste generation, usage equivalent to nearly one third of the waste generated annually by individuals in the City of Chicago.

RECYCLED MATERIALS UTILIZED IN HIGHWAY CONSTRUCTION

Air-Cooled Blast Furnace Slag

Origin: Iron ore, as well as scrap iron, is reduced to a molten state by burning coke fuel with fluxing agents of limestone and/or dolomite. Simultaneously during the iron production, slag is developed in the blast furnace. Air-Cooled Blast Furnace Slag (ACBFS), one of various slag products, is formed when the liquid slag is allowed to cool under atmospheric conditions. It may later be broken down with typical aggregate processing equipment to meet gradation specifications (1).

Physical Properties: ACBFS is a hard, angular material with textures ranging from rough, porous surfaces to smooth, shell-like fractured surfaces. Though vesicular, the structure's cells are not inter-connected and little absorption to the interior is likely. Physical properties (e.g. unit weight and size) can vary considerably depending on the method of production; for example, high use of scrap iron can lead to higher unit weights (1, 2).

Engineering Value: Crushed ACBFS can be used in nearly all applications utilizing natural aggregates, such as bituminous and portland cement concretes, embankments, or subbases. ACBFS has potentially favorable resistance to polishing, weathering durability, and bearing. However, the material's inherent variability in physical properties can be of concern. For example, included in bituminous concrete pavements, this material provides exceptional frictional properties and increased stability, but its tendency for high surface absorption may require greater amounts of asphalt binder (1, 2).

Present Application: ACBFS is incorporated into portland cement concrete (PCC), bituminous concrete, granular bases and subbases, embankments, and fills. As of August 1999, a self-testing producer control program had been added to specifications regarding bituminous concrete mixes. For the most part, slag is tested as though it were a natural aggregate; unless the application pertains to bituminous concrete, IDOT will not use slag failing LA Abrasion test limits (3).

Quantity Used: 78,910 tons (2001 MISTIC estimate).

Economic Impact: In 2001, the Department spent approximately $1,200,000 using ACBFS.

By-Product Lime

Origin: Limestone (calcium carbonate) heated in a kiln, drives off carbon dioxide and forms lime (calcium oxide). The kiln's exhaust gasses—filtered using electrostatic precipitators, baghouses, or other such methods—are collected and sold as by-product lime. Lime Kiln Dust (LKD) can vary chemically depending on the type of lime being manufactured. It can be categorized according to reactivity, which is based on the amount of free lime and magnesia content—corresponding to lime types: calcitic (chemical lime, quicklime, etc.) or dolomitic (1).

Physical Properties: By-product lime is a very fine, white powdery material of uniform size containing calcium and magnesium carbonates as its principle mineral constituents. Much of LKD's properties are determined in the plant production: feedstock, kiln design, fuel type, and type of dust control/collection method employed (1).

Engineering Value: By-product lime is valued as both a modifying and stabilizing agent in soil treatment. It generally increases the workability of clayey soils by reducing the plasticity index and increasing the optimum moisture content. On the other hand, high levels of free lime content in LKD have been shown to result in poorer dimensional stability (shrinkage, expansion) (1).

Present Application: By-product lime provides a stable, working platform for paving operations. This material aids in the reduction of high moisture borrow soils in embankment construction (2, 3).

Quantity Used: 46,760 tons (2001 MISTIC estimate).

Economic Impact: By-product lime usage is one of the least expensive remedial actions for unstable subgrade soils. Using this material, the Department spent approximately $701,500 in 2001.

Fly Ash

Origin: Fly ash is a by-product produced in large quantities during the day to day operations of coal-fired power plants. In general, the coal source is pulverized and blown into a burning chamber where it ignites to heat boiler tubes. Heavier particles of ash (bottom ash or slag) fall to the bottom of the burning chamber, while the lighter particles (fly ash) remain suspended in the flue gases. Before leaving the stack, these fly ash particles are removed by electrostatic precipitators, baghouses, or other such dust collectors/air pollution control devices (4).

Fly ash is divided into two classes—Classes F and C—based upon the type of coal source. Class F fly ash is produced by burning anthracite or bituminous coal; whereas, Class C fly ash is produced from lignite or sub-bituminous coal (1).

Physical Properties: Fly ash is a fine, powdery silt-sized amorphous residue. Varying amounts of carbon affect the color of fly ash. Gray to black represents increasing percentages of carbon, while tan coloring is indicative of lime and/or calcium content. Fly ash may exhibit pozzolanic properties and, in certain types, cementitious properties (1, 4).

Engineering Value: In PCC, Class F fly ash has pozzolanic properties when introduced to water, whereas Class C fly ash is naturally cememtitious due to its high amount of calcium oxide. Fly ash can be added to PCC to modify pH, change the hydration process (fly ash retards hydration thus lowering heat of hydration), reduce water demand, and reduce permeability (1, 4).

Present Application: Dry fly ash can be used as an inert fill material or supplementary cemetitious material to improve cohesion and stability of bituminous concrete binder and soil embankments. In Illinois, fly ash is used as a fine aggregate or supplementary cementitious material in PCC; however, the Department limits the use of Class F to no more than 15 percent by weight, and Class C to no more than 20 percent by weight. In combination with sand, fly ash may be a supplement or substitute for cement to make a flowable fill, or as grout for concrete pavement sub-sealing (1, 3, 4).

Quantity Used: 95,570 tons (2001 MISTIC estimate).

Economic Impact: The use of fly ash as a supplementary cementitious material cost the Department approximately $2,630,000, aided in the reduction of landfill space need, and reduced emissions and fuel consumption required for cement production.

Glass Beads

Origin: Virgin glass, in general, is a molten mixture of sand (silicon dioxide—a.k.a. silica), soda ash (sodium carbonate), and/or limestone supercooled to form a rigid solid (1). Glass beads, in particular, are a product of recycled soda-lime glass. This material's primary source is from manufacturing and postconsumer waste. At recycling centers, recovered glass is hand sorted by color (clear, amber, and green), and then crushed to customized sizes.

Physical Properties: Glass beads are transparent, sand-sized, solid glass microspheres (3).

Engineering Value: Glass beads can enhance the nighttime visibility of various objects through the fundamentals of retro-reflectivity—light is reflected back to its source, for instance, vehicle headlights.

Present Application: The Department uses two types of glass beads—Type A (uncoated) and Type B (silicone coated, moisture resistant)—depending on the method of application (drop-on or intermix) and the type of pavement marking paint used (solvent-based, waterborne, or thermoplastic). Glass beads are utilized in many traffic control devices including reflective sheeting decals, pavement striping, and pavement marking tape. Essentially all traffic lines on highways contain glass beads, which improve the overall safety of nighttime highway travel. Outside the Department, glass beads are utilized in license plates, movie screens, and reflective fabrics (3, 5).

Quantity Used: 7,310 tons (2001 MISTIC estimate).

Economic Impact: The use of glass beads, as an alternative to their disposal, has created a market for material recovery facilities specializing in waste glass recycling. Since soda-lime glass cannot be re-melted by glass manufacturers, the production of glass beads avoids the necessity of land filling (1). In 2001, the Department spent approximately $2,490,000 on glass beads.

Ground Granulated Blast Furnace Slag

Origin: Blast furnace slags are developed during iron production. Iron ore, as well as scrap iron, is reduced to a molten state by burning coke fuel with fluxing agents of limestone and/or dolomite. Ground Granulated Blast Furnace Slag (GGBFS) is a glassy, granular material resulting from blast furnace slag being rapidly cooled by water immersion, and pulverized to a fine, cement-like material (1, 2, 3).

Physical Properties: GGBFS is a glassy, non-crystalline material varying in size depending on its chemical composition and method of production—its own production as well as that of its iron source (1).

Engineering Value: When ground down to cement-sized fineness, granulated blast furnace slag is pozzolanic; therefore, it can be used in PCC as a mineral admixture, component of blended cement, or substitute for portland cement (1, 2).

Present Application: The primary uses of GGBFS slag are as a fine aggregate substitute, mineral admixture, and component of blended cement. In blended cements, GGBFS has a low heat of hydration, which slows the chemical reaction responsible for strength gain, resulting in a gradual strengthening of the concrete. Consequently, the Department currently allows no more than 25% to be included in PCC (2, 3).

Quantity Used: 530 tons (2001 MISTIC estimate).

Economic Impact: The use of GGBFS as a supplementary cementitious material aided in the reduction of landfill space need, and reduced emissions and fuel consumption required for cement production.

Microsilica

Origin: Microsilica is a by-product of the production of silicon metal or ferro-silicon alloys. It is supplied in densified bulk trucks, large bags, or provided as a water-based slurry. It is most commonly furnished bagged (6).

Physical Properties: Microsilica (SiO_2), also known as silica fume, is a gray powdery material largely consisting of amorphous silicon dioxide, and has a mean particle size between 0.1 and 0.2 µm—100 times finer than portland cement (6).

Engineering Value: Microsilica's high silica content is also high in purity and pozzolanic properties. Reacting with calcium hydroxide (products of cement's pozzolanic reaction), microsilica will produce calcium silicates that will result in denser concrete with higher strengths—increasing compressive strengths up to 100 MPa (14,500 psi) or more—lower permeability, and improved durability. In the specific application of bridge deck overlays, the decrease in permeability slows the rate of corrosion on reinforcing members by impeding chloride or sulfate intrusion (3, 6).

Present Applications: The Department's primary use for microsilica is in bridge deck overlays. Since the late 1980s, over 150 concrete deck overlays have incorporated microsilica. Small amounts of microsilica are also used in high performance shotcrete for structural repairs. Outside of the Department, microsilica is utilized in multi-story building construction (3).

Quantity Used: 115 tons (2001 MISTIC estimate).

Economic Impact: Even though the price of microsilica is substantially higher than that of portland cement, the Department has contributed approximately $50,600 toward its recycling—eliminating disposal costs. Overall, this material has the potential to extend the life of a structure 25 to 30 years, thus lowering its life cycle cost.

Reclaimed Asphalt Pavement

Origin: Reclaimed Asphalt Pavement (RAP) is bituminous concrete material removed and/or reprocessed from pavements undergoing reconstruction or resurfacing. Reclaiming the bituminous concrete may involve either cold milling a portion of the existing bituminous concrete pavement or full depth removal and crushing (1, 3).

Physical Properties: RAP properties largely depend on its existing in-place components. There can be significant variability among existing in-place mixes depending on type of mix, and in turn, aggregate quality and size, mix consistency, and asphalt content. Due to traffic loading and method of processing, RAP is finer than its original aggregate constituents are; it is finest when milled (1).

Engineering Value: RAP is produced by crushing and screening the material to a 1/4- to 1/2-inch in size. It is tested to ensure that the proper applicable gradation and quality is satisfied, and if so, the RAP is mixed with virgin aggregate and asphalt as needed, then placed. Since millings from different projects will have different characteristics, contractors must maintain separate stockpiles of milled material, and the properties of particular stockpiles will change as it used and reused (1, 3).

Present Applications: As of the new policy brought into effect January 2000, the Department allows incorporating RAP into Superpave mixes. The amount of RAP allowed for low volume roads increased from 25 percent to 30 percent. For some non-critical mixes, such as the shoulder, base, and subbase, up to 50 percent RAP is allowed. For high-type binder courses, up to 25 percent is allowed. For surface courses, the amount allowed ranges from 10 percent to 15 percent for all but the highest volume highways. RAP is not allowed in the Department's highest-class bituminous concrete surface or polymer-modified mixes to maintain acceptable friction requirements (3, 7).

The Department also allows RAP to be used in place of aggregate or earth in some non-structural backfill situations. Last year, RAP was used in approximately 40 to 60 percent of the Department's most common surface and base course mixes, and over 60 percent of total shoulder mix tonnage (3, 7).

Quantity Used: 623,000 tons (2001 MISTIC estimate).

Economic Impact: In 2001, the Department has spent approximately $19,940,000 using RAP as a viable aggregate substitute for scarce bituminous resources.

Recycled Concrete Material

Origin: Recycled Concrete Material (RCM), also known as crushed concrete, is reclaimed PCC pavement material. Primary sources of RCM are demolition of existing concrete pavement, bridge structures, curb and gutter, and from central recyclers, who obtain raw feed from commercial/private facilities. This material is crushed by mechanical means into manageable fragments and stockpiled. RCM may include small percentages of subbase soil and related debris (1).

Physical Properties: Comprised of highly angular conglomerates of crushed quality aggregate and hardened cement, RCM is rougher and more absorbent than its virgin constituents. Furthermore, differences among concrete mixes and uses result in varying aggregate qualities and sizes; for example, pre-cast concrete is less variable than cast-in-place (1).

Engineering Value: Crushed concrete's physical characteristics make it a viable substitute for aggregate and can be used as such, for example in granular bases, as well as a material fill, such as riprap. Ultimately, RCM obtained on site may be employed immediately for project use or stockpiled for future use.

The cementitious component has a high amount of alkalinity by nature, and chlorides from deicing salts may be present—a concern in regards to steel reinforcement corrosion. RCM may also contain aggregates susceptible to alkali-silica reactions or D-cracking (1, 3).

Present Application: The Department allows the use of RCM as a coarse aggregate in aggregate surface courses, granular embankments, stabilized bases, and subbase courses provided the project materials' specifications are not compromised. This material has also been widely used as an aggregate in membrane waterproofing and in drainage layers as protection against erosion (3, 8).

Quantity Used: 321,300 tons (2001 MISTIC estimate).

Economic Impact: The use of RCM impacts the economy as a substitute for natural aggregates by reducing landfill space needs. The use and number of central recyclers have increased over the last few years. In 2001, overall departmental spending was approximately $1,600,000.

Steel Slag

Origin: As iron production is to blast furnace slag, so pig iron manufacturing is to steel slag. Impurities (carbon monoxide, silicon, liquid oxides, etc.) are removed from molten steel in a basic oxygen or electric arc furnace, and combined with the fluxing agents to form steel. Depending on the stage of production, three types of steel slag are produced: furnace (or tap) slag, raker slag, ladle (or synthetic) slag, and pit (or cleanout) slag. Ladle slag, which contains high amounts of synthetic fluxing agents, is characteristically different than furnace slag—primary source of steel slag aggregate product—and is not deemed suitable for aggregate usage (1, 10).

Physical Properties: The cooling rates and chemical composition of steel slag production affect physical characteristics, such as density, porosity, and particle size. In general, processed (i.e. crushed) steel slag is more angular, more dense and harder than comparable natural aggregates (9).

Engineering Value: Steel slag has sufficient material properties including favorable frictional properties, high stability, and resistance to stripping and rutting. On the other hand, steel slag may contain amounts of calcium or magnesium oxides, which will hydrate—leading to rapid short-term and long-term expansion, respectively. Also, though normally mildly alkaline, steel slag may be potentially harmful to aluminum or galvanized metals (1, 9, 10).

Present Application: Since 1975, steel slag has been available as an aggregate in pavement materials. It is acceptable only as a coarse aggregate for use in high-type bituminous concrete mixes and seal coats. However, the characteristics of steel slag in HMA have caused some quality control problems. Currently, a self-testing producer control program has been added to the specifications regarding bituminous concrete mixes.

Quantity Used: 195,000 tons (2001 MISTIC estimate).

Economic Impact: In 2001, the Department spent approximately $3,160,000 toward its recycling.

Steel Reinforcement

Origin: Steel reinforcement is made entirely of recycled scrap iron. This material is salvaged from automobiles, appliances, and steel-reinforced structures which include reinforced concrete pavements, bridges, and buildings. Two common forms of steel production are the basic oxygen and electric arc processes. In the electric arc process, "cold" ferrous material, which is generally 100 percent scrap steel, is the major component melted with alloys in an electric furnace. In the basic oxygen process, molten iron is removed from the blast furnace, combined with alloys, and up to 30 percent steel scrap—used as an additive to lower the temperature of the molten composition. In both processes, high-pressure oxygen is blown into the furnace causing a chemical reaction that separates the molten steel and impurities, which can be recycled as slag (1, 11).

Physical Properties: The primary component of steel is iron alloyed with various elements, such as silicon, manganese, chromium, nickel, or copper. In production, carbon, phosphorus, and sulfate may also be present and altered, resulting in different grades of steel (1).

Engineering Value: Steel reinforcement plays an important role in concrete structures; for example, reinforcing in PCC pavements holds cracks together ensuring high aggregate interlock exists across the pavement. Steel reinforcement may also eliminate the use of joints in pavement—potentially producing a longer lasting, smoother riding surface. These same qualities are also desirable in reinforced concrete drainage structures.

Present Application: Steel reinforcement is used to strengthen concrete structures, such as reinforced PCC pavements and bridge decks. Two types of commonly used reinforced concrete pavements are jointed reinforced concrete (JRC) and continuously reinforced concrete (CRC). JRC pavements utilize welded wire fabric, while CRC consists of overlapping longitudinal and transverse reinforced steel bars (3, 11).

Quantity Used: 15,150 tons of rebar; 582,500 SF of welded wire fabric
(2001 MISTIC estimate)

Economic Impact: Reinforced concrete structures are an integral part of Illinois' transportation system. Overall, reinforcing steel in concrete contributes to the durability and high structural strength of pavements and structures. In 2001, approximately $10,660,000 was spent on reinforcing steel in highway construction.

Wet-Bottom Boiler Slag

Origin: Wet-Bottom Boiler Slag (WBBS or “black beauty”) is a by-product of coal burning in wet-bottom boilers. Slag tap boilers burn pulverized coal and retain up to 50 percent of the accumulated ash as slag—the rest being fly ash. Cyclone boilers burn crushed coal, and retain as much as 80 percent as boiler slag. In both cases, the bottom ash is held at the bottom of the furnace in a molten liquid state, hence the name wet-bottom (1).

Physical Properties: When molten boiler slag comes into contact with water, it immediately fragments becoming coarse, angular, glassy particles. WBBS is a porous, glassy granular particle that is primarily regarded as a single-sized coarse to medium sand. This material is essentially composed of silica, alumina, and iron with small amounts of calcium, magnesium, and sulfates. As long as it is collected from wet-bottom boilers (otherwise it would be considered bottom ash), the composition of the material is governed by the coal source not by the type of furnace (1).

Engineering Value: WBBS is generally a somewhat durable material of uniform size that can be blended with other fine aggregates to meet gradation requirements. This material exhibits less abrasion and soundness loss than bottom ash as a result of its glassy surface texture and lower porosity. In Illinois, WBBS is usually limited to use as a seal coat aggregate on very low volume highways or as an abrasive mixed with deicing salt.

Present Application: WBBS is incorporated as an aggregate in top surface dressing of bituminous surfaces, embankments, trench backfills, sand backfills for underdrains, bedding, porous granular backfills, membrane water proofing, snow and ice control. Department use of WBBS varies greatly from year to year. Also, when used for ice control, a material inspection is not required, thus little documentation exists regarding its use in this fashion. Outside of the Department—local agencies especially—WBBS has been utilized as an aggregate in blasting grit, roofing shingle granules, asphalt paving, and in roadway base and subbase applications (3, 4).

Quantity Used: 0 tons (2001 MISTIC estimate).

Economic Impact: The Department’s records do not indicate utilization of WBBS in 2001, although it was used extensively by local agencies.

RECYCLED MATERIALS NOT UTILIZED IN HIGHWAY CONSTRUCTION

Bottom Ash

Origin: Bottom ash is produced in a dry-bottom coal boiler often found in coal-fired electric power plants. The coal is pulverized and blown into a burning chamber where it immediately ignites; the incombustible portion of this material—not collected in the flue as fly ash—is known as dry bottom ash, which drops down to a water-filled hopper at the bottom of the boiler (1, 4).

Physical Properties: Bottom ash is a coarse, angular material of porous surface texture and size ranging from fine gravel to fine sand, predominantly sand-sized. This material is composed of silica, alumina, and iron with small amounts of calcium, magnesium, and sulfate; as a whole, the quality of the material is governed by the coal source, not by the type of furnace (1).

Engineering Value: Bottom ash may contain pyrites or “popcorn” particles that result in low specific gravities and high losses during soundness (i.e. freeze-thaw) testing. Due to the inherent salt content—and in some cases, low pH—this material may exhibit corrosive properties. This material is highly susceptible to degradation under compaction and loading; as a result, bottom ash is not an acceptable aggregate for most highway construction applications (1, 4, 12).

Potential Application: Other states have utilized bottom ash for snow and ice control, as aggregate in lightweight concrete masonry units, and as raw feed material for portland cement. This material has also been utilized as an aggregate in cold mix emulsified asphalt mixes, base or subbase courses, or in shoulder construction, where the gradation and durability requirements are not as critical. West Virginia and Texas researchers conducted a study in which some of the observations made concluded that performance depends on the amount of pyrites and sulfates present. Also, the quality of the material depends upon how the material was stockpiled before use (1, 4, 12).

Department Concern: Besides the concerns noted above, bottom ash is considered a problematic debris, which plugs drainage structures when used for snow and ice control.

Crumb Rubber

Origin: Shredding waste tires and removing steel debris found in steel-belted tires generates crumb rubber (CR). There are three mechanical methods used to shred apart these tires to CR: the crackermill, granulator, and micromill methods. CR can also be manufactured through the cryogenation method; this method involves fracturing the rubber after reducing the temperature with liquid nitrogen (1).

Physical Properties: CR is fine rubber particles ranging in size from 0.075-mm to no more than 4.75-mm (1).

Engineering Value: CR can be blended into bituminous concrete by either a wet or dry process. In the wet process, the CR acts as an asphalt modifier prior to the addition of aggregates; however, this process requires costly special equipment. In the dry process, CR constitutes a portion of the fine aggregate prior to the addition of the asphalt cement. In this process, limited equipment modification is necessary (1, 13, 14).

Potential Application: During the early Nineties, the Department began efforts to use CR following a mandate—which has since been lifted—imposed by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). To address the mandate, eleven experimental crumb rubber bituminous concrete projects were constructed and evaluated, which included ten dry processes and one wet process. For the dry process projects, the material was added into bituminous concrete at two rates: variable and fixed. The variable rate consisted of adding no more than five pounds of CR per ton of bituminous concrete, whereas the fixed rate consisted of adding at least twenty pounds CR per ton of bituminous concrete. Overall findings concluded that the fixed rate wet process method had shown fewer distresses than the control sections of conventional bituminous concrete. On the other hand, the dry processes compared poorly to conventional bituminous concrete. In addition to this, the fixed rate CR areas are currently displaying, on average, slightly higher smooth tire friction values than both the controlled or remaining test sections (13, 14).

Department Concern: Even though the wet process is the only method that has provided an indication of higher performance, its final bid price was considerably higher (over 100 percent) than the average bid price of projects constructed with conventional bituminous concrete in that same year. Also, bituminous concrete suppliers in Illinois do not yet have the equipment required for the wet process. As a result of the higher cost and equipment requirements, implementation is not recommended (13).

Waste Foundry Sand

Origin: Waste foundry sand (WFS) is a by-product of the foundry casting process of ferrous and nonferrous metals; 95 percent of this material is generated from the ferrous casting process. The automotive industry and its suppliers are the primary generators of this material. The presence of heavy metals is of greater concern in nonferrous foundry sands. WFS generated from brass or bronze foundries may contain high concentrations of cadmium, lead, copper, nickel, and zinc (1, 15).

Physical Properties: WFS prior to its use in casting, consists of high quality silica sand or lake sand coated with a thin film of burnt carbon, residual binder, and dust. This material is sub-angular to rounded and has an overall uniform grain size distribution, where the gradations tend to fall within the limits for a poorly graded fine sand. WFS contains metal casting pieces, partially degraded binder, and may also contain some leachable contaminants, including heavy metals and phenols (1).

Engineering Value: WFS grain size distribution is more uniform and somewhat finer than conventional concrete sand. The fineness of this substance contributes to good suspension limiting segregation in flowable fills, which are manmade self-leveling, self-compacting backfills. This material displays favorable durability characteristics with resistance to weathering in bituminous concrete paving applications. The high amount of silica found in this material may result in stripping of the asphalt cement coating aggregate, which contributes to pavement deterioration (1, 15).

Potential Application: The commercial use of this material is extremely limited in the United States. In conjunction with a northwestern Indiana foundry, Indiana DOT has completed a cooperative venture utilizing WFS as embankment material. The major concerns were environmental risks associated with leaching of heavy metals, compaction of the material, foreign object damage to equipment, and dust control. As a result of careful environmental testing and planning, the material performed satisfactorily. Purdue University conducted a study with bituminous concrete samples containing up to 30 percent WFS; this study concluded that including more than 15 percent WFS lowered the unit weight, increased air voids, decreased the flow and stability of the mixes, and reduced the indirect tensile strength (1, 15).

Department Concern: The environmental safety of WFS depends on chemical additives and casted metals utilized with the sand. The Department does not allow use of ferrous foundry waste sand because it is often contaminated with traces of hazardous elements.

Glass Aggregate

Origin: Glass is formed by supercooling a molten mixture of sand (silicon dioxide), soda ash (sodium carbonate), and/or limestone to form a rigid physical state. Glass aggregate is a product of recycled mixed glass from manufacturing and postconsumer waste (1).

Physical Properties: Glass aggregate, also known as glass cullet, is 100 percent crushed material that is generally angular, flat and elongated in shape. This fragmented material comes in color or colorless forms. The size varies depending on the chemical composition and method of production (1).

Engineering Value: When glass is properly crushed, this material exhibits coefficient of permeability similar to coarse sand. Also, the high angularity of this material, compared to rounded sand, may enhance the stability of asphalt mixes. In general, glass is known for its heat retention properties, which can help decrease the depth of frost penetration (1).

Potential Application: Glass aggregate has been investigated by many state DOTs including New York, Washington, and Pennsylvania.

New York DOT uses a limited amount of this material in embankments and bituminous concrete base and binder courses. This is a non-surface mix material because of concerns that it could result in injury claim liability. New York has experienced problems with stripping—asphalt binder not adhering to aggregate—that may be controlled by adding an anti-stripping agent, which in turn adds costs.

Since the 1960s, Washington DOT has used a portion of glass aggregate in bituminous concrete pavements. This aggregate material is also used in backfill for foundations, pipe bedding, and other applications not subject to heavy repeated loading. Washington State has not utilized this material on any recent projects.

Pennsylvania DOT also allows a portion of this material in nonstructural fills and drainage applications, while experimentation with this material in bituminous concrete has yielded results similar to New York's. (16, 17)

Department Concern: Glass aggregate presents problems in both bituminous concrete and PCC pavements. In concrete pavements, this material is problematic due to the deleterious alkali-silica reaction with the cement paste. In bituminous pavements, this material bonds poorly to the asphalt, which results in stripping and raveling problems. In general, waste glass contains impurities such as ceramics, ferrous metal, paper, plastic, and mixed colored cullet; processing and specifications may limit associated problems.

Roofing Shingles

Origin: Waste roofing shingles are generated during the demolition of existing roofs, and from scraps of trimmed asphalt shingles. Consumer aged waste shingles are referred to as tear-off shingles, whereas manufacturer waste is known as roofing shingle tabs or punch-outs, which includes "out-of-spec" and mis-colored or damaged shingles. Both materials are shredded in two to three stages to achieve the desired size (1, 18).

Physical Properties: Roofing shingles are made of a supporting membrane of organic fibers, glass felt, or mat, a saturate of hot asphalt, and coating of mineral fines. These fines may include ceramic or lap granules, backsurfacer sand, and asphalt stabilizer. Different types of roofing shingles exhibit different material properties. Consequently, tear-off shingles are not as characteristically predictable as manufactured tabs and may contain asbestos (1, 18, 19).

Engineering Value: Roofing shingle tabs are used as an asphalt cement modifier often resulting in a stiffer mix with improved temperature susceptibility and rut resistance. Tear-off shingles may be used in the same way, but are difficult to process due to the presence of foreign materials, and may also be in an irreversible age-hardened state. In general, both types may function as a fine aggregate or mineral filler depending on the size of the shredded material. Roofing shingles may be susceptible to moisture-related damage thus mix designs should include an anti-strip or retained stability test (18, 19, 20, 21).

Potential Application: Waste roofing shingles in combination with bituminous concrete mixes have been investigated by many state DOTs, including Pennsylvania, Minnesota, and Iowa.

Pennsylvania has determined that a bituminous concrete modified with properly shredded fiberglass shingle tabs performs as well as a conventional bituminous pavement. Minnesota has had similar results with both felt and fiberglass shingle tabs. Both states were able to reduce the amount of virgin asphalt cement required—a potential for cost savings. Both states have issued provisional specifications allowing limited amounts of processed shingle tabs in bituminous concrete mixes.

Iowa DOT inspected efforts in utilizing bitumen tear-off shingles. One year after construction, the roadway remained workable and virtually dust free. (18, 19, 20, 21)

Department Concern: The Department has concerns regarding the presence of any asbestos in tear-offs, glass felt tabs, and/or from storage cross-contamination. Also of concern, the presence of any foreign debris from nails, wood, and insulation, and the environmental impact of polynuclear aromatic hydrocarbons—present in roofing tars—on plant and paving site air emissions.

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APPENDIX

2001 RECYCLED MATERIALS QUANTITIES						
MATERIAL	**METRIC UNIT**	**CODE**	**QUANTITY**	**ENG. UNIT**	**CODE**	**QUANTITY**
ACBFS[1]	MTON	014CMM18	3,416	TONS	014CM18	168
	MTON	033CMM13	61,652	TONS	043CA06	617
	MTON	033FAM21	4,329	--	--	
	MTON	043CAM06	626	--	--	
	MTON	053CAMO6	809	--	--	
	SUB-TOTAL (TONS)		78,127			785
	TOTAL (TONS)		**78,912**			
	COST@$15.25/TON		**$1,203,411**			
BY-PRODUCT LIME	MTON	003FAM01	6,477	TONS	003FA01	9,807
	MTON	003FAM02	380	TONS	003FA02	249
	MTON	004MFM02	18,712	TONS	004MF02	1,321
	MTON	004MFM03	5,441	TONS	004MF03	1,183
	SUB-TOTAL (TONS)		34,204			12,560
	TOTAL (TONS)		**46,764**			
	COST@$15/TON		**$701,457**			
FLY ASH	MTON	37801M	41,080	CYD	21605	111,896
	MTON	37802M	5,136	CYD	21622	13,220
	CM	21605M	422,981	CYD	21803	1,327
	CM	21614M	258	--	--	
	CM	21803	2,432	LBS/CYD	Avg. Unit Wt. In PCC	130
	CM	21622M	1,644			
	SUB-TOTAL (MTONS)		79,186			7,456
	TOTAL (MTONS)		**86,642**			
	TOTAL (TONS)		**95,566**			
	COST@$27.50/TON		**$2,628,070**			
GLASS BEADS	LBS	60401	9,768,000	LBS	70601	3,880,800
	LBS	60407	968,000	LBS	70602	
	LBS	70609	1,380	--	--	
	SUB-TOTAL (LB.S)		10,737,380			3,880,800
	TOTAL (LB.S)		**14,618,180**			
	TOTAL (TONS)		**7,309**			
	COST@$0.17/LB		**$2,485,091**			
GGBFS[2]	MTONS	37821M	479	--	--	
	SUBTOTAL (MTONS)		479			
	TOTAL (TONS)		**528**			
	COST@$57/TON		**$30,090**			
MICROSILICA	KG	37852M	111	CYD	21609	1,620
	CM	21609M	2,436	LBS/CYD	Avg. Unit Wt. In PCC	33
	CM	21622M	1,644			
	SUB-TOTAL (LB.S)		176,443			53,460
	TOTAL (TONS)		**115**			
	COST@$440/TON		**$50,579**			
RAP[3]	MTON	017CAM06	14,430	TONS	017CM01	24,026
	MTON	017CAM10	1,027	TONS	017CM11	2,107
	MTON	017CMM01	47,601	TONS	017CM13	37,675
	MTON	017CMM10	2,059	--	--	
	MTON	017CMM11	82,773	--	--	
	MTON	017CMM12	449	--	--	
	MTON	017CMM13	283,106	--	--	
	MTON	017CMM16	61,894	--	--	
	MTON	017CMM18	13,610	--	--	
	SUB-TOTAL (TONS)		559,165			63,808
	TOTAL (TONS)		**622,973**			
	COST@$32/TON		**$19,935,128**			

2001 RECYCLED MATERIALS QUANTITIES						
MATERIAL	**METRIC UNIT**	**CODE**	**QUANTITY**	**ENG. UNIT**	**CODE**	**QUANTITY**
RCP[4]	MTON	014CMM18	209	TONS	019CA06	14,245
	MTON	019CAM06	14,096	TONS	019CM18	47,309
	MTON	019CAM07	18	TONS	059CA06	22,529
	MTON	019CMM18	162,418	--	--	
	MTON	059CAM06	37,715	--	--	
	MTON	059CAM10	394	--	--	
	MTON	059CMM06	229	--	--	
	SUB-TOTAL (TONS)		237,233			84,083
	TOTAL (TONS)		**321,316**			
	COST@$5/TON		**$1,606,578**			
STEEL SLAG	MTON	039CMM11	5,965	TONS	039CM11	6,227
	MTON	039CMM13	115,625	TONS	039CM13	25,113
	MTON	039CMM16	10,364	TONS	039FA20	8,412
	MTON	039FAM20	6,552	TONS	039FM20	380
	MTON	039FMM20	1,659	--	--	
	SUB-TOTAL (TONS)		154,601			40,131
	TOTAL (TONS)		**194,733**			
	COST@$16.25		**$3,164,409**			
REINFORCEMENT STEEL	SM	62803M01	531	SYD	6280301	5,632
	SM	62803M02	22,023	SYD	6280302	31,934
	--	--		SYD	6280304	179
	SUB-TOTAL (SYD)		26,975			37,746
Welded Wire Fabric	**TOTAL (SF)**		**582,484**			
	COST@$0.35/SF		**$203,869**			
	KG	62901M40	8,910	LBS	6290140	41,415
	KG	62901M300	812	LBS	6290160	4,965,656
	KG	62901M400	35,201	LBS	6290940	133,209
	KG	62904M500	204	LBS	6290960	13,055,840
	KG	62901M60	897,510	--	--	
	KG	62909M40	3,471	--	--	
	KG	62909M400	379,214	--	--	
	KG	62909M60	4,163,026	--	--	
	SUB-TOTAL (LBS)		12,101,808			18,196,120
Rebar	**TOTAL (TONS)**		15,149			
	COST@$690/TON		**$10,452,785**			
WBBS[5]	--	--				
	TOTAL (TONS)		**0.00**			
	COST@$5.50/TON		**$0.00**			

[1]ACBFS: Air-Cooled Blast Furnace Slag
[2]GGBFS: Ground Granulated Blast Furnace Slag
[3]RAP: Recycled Asphalt Pavement
[4]RCP: Recycled Concrete Pavement
[5]WBBS: Wet-Bottom Boiler Slag

EXHIBIT C

DATA COLLECTION AND ANALYSES PERTINENT TO EPA'S DEVELOPMENT OF GUIDELINES FOR PROCUREMENT OF HIGHWAY CONSTRUCTION PRODUCTS CONTAINING RECOVERED MATERIAL

Vol. II

1981

DATA COLLECTION AND ANALYSES PERTINENT TO EPA'S DEVELOPMENT OF GUIDELINES FOR PROCUREMENT OF HIGHWAY CONSTRUCTION PRODUCTS CONTAINING RECOVERED MATERIALS

Volume II
Technical Data and Appendices

This report (ms. 2096) describes work performed
for the Office of Solid Waste under contract no. 68-01-6014
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The findings should be attributed to the contractor
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and Emergency Response

U.S. ENVIRONMENTAL PROTECTION AGENCY
1981

Fly ash was hauled to the site in open trucks with no dusting problems during hauling or placement. The ash was tailgated and spread in 9-inch thick lifts and compacted by a rubber-tired vibratory roller to a density of 97 percent or more of Standard Proctor (ASTM D698 or AASHTO T-99) density values. Upon completion of compaction operations, the exposed surface of the fly ash embankment was sealed with a coat of hand-sprayed road tar (Reference I-32).

Melvin E. Amstutz Expressway - Waukegan, Illinois. The Melvin E. Amstutz project (Federal Aid Route 437, Section 8) in Lake County, Illinois involved the construction of a fill embankment for a four-lane divided highway with a 42-foot wide median between Grand and Greenwood Avenues in Waukegan, Illinois, some 40 miles north of Chicago. This is probably the most outstanding example of fly ash use in highway embankment construction thus far in the United States.

A total of 246,000 cubic yards of embankment material were required for this job. Fly ash was selected as an alternate because a nearby Commonwealth Edison power plant offered an available source of material at a potential cost savings. Alternate bids indicated that construction of a fly ash embankment would result in a savings of approximately $62,000 compared to an earth embankment (Reference I-33).

Prior to placement of the fly ash, unsuitable in-place soils were removed and replaced with granular fill to a height of 2 feet above the ground water table. The average height of the fly ash embankment was 3.5 feet, although 18 to 20 foot embankments were built in ramp areas. The fly ash embankment was covered by 8 feet of earth fill on the outside slopes and by 2 feet of earth fill in the median areas.

Fly ash was trucked to the site either from stockpiles located outside the power plant or from closed storage silos and placed in 6 inch layers. Each layer was compacted by means of a 10-ton vibratory single steel drum roller to densities in excess of 85 percent of the maximum dry density at optimum moisture levels of 25 percent.

The contractor added water where necessary to obtain the desired density. Side slopes of 2 to 1 were maintained and are performing satisfactorily.

The fly ash placed in this embankment is stronger than most natural soils because of its age-hardening characteristics. The material was workable and stable with excellent compaction characteristics, provided the proper construction methods and equipment are utilized. The use of fly ash enabled work to proceed under wet conditions when it might not have been possible to work with conventional soils. Moreover, the lighter weight fly ash was found to be advantageous in bridging over weak subsoils (Reference I-33).

EXHIBIT D

A tribal solution to family woes

William Raspberry

WASHINGTON—Kent Amos, a committed family man, wants to say a couple of words on behalf of families: Back off.

Parents—especially single mothers—are taking an undeserved rap for what is happening to our children, he believes, when an important part of the blame may lie closer at hand.

"You keep hearing about what families and parents are doing, or not doing, and how this is the reason today's children are so terrible," he was saying the other day in response to a column I had written on the importance of family.

"I agree with what you say, but take a step back and look at the process by which children have been raised historically. That process is the tribe. Even going back to biblical times, you read of the tribe of this and the tribe of that. All people on this Earth were once tribal, and it was in this context that we historically raised our children.

"The problem with today's children is that the tribe is no longer functioning."

The tribe as he sees it—villages are nothing more than stationary tribes—embodies four vital elements: the core family, the wider community, the political leadership (village elders, councils, mayors) and the religious leadership (mediocre men, soothsayers, priests). The unwritten understanding has been that all four elements were responsible for bringing children to responsible adulthood.

"That covenant," he says, "has been broken—not so much by the family as by the rest of us."

Amos, a one-time Xerox executive who for 10 years has been "father" to a constantly shifting group of D.C. teenagers, evokes the image familiar to adults of his generation.

"I was just in Texas, listening to a white executive talking about growing up on a farm in the middle of Oklahoma, where if he threw a stone and hit somebody, there was always some adult to say, 'Boy, I'm gonna tell your mother what you did.' Well the same thing happened here in D.C. when I grew up, and all across America. There was always someone to tell your mother, or to admonish you directly, or to tell you: 'Now you behave yourself; you know the Amoses are not known for that.' "

But those were the days when adults disciplined (and were respected by) all the children in the community, when families stayed put for years, and where churches served the neighborhoods in which they were located.

"Now," says Amos, "adult neighbors often don't know each other, let alone one another's children. Families are dispersed. There are no neighborhoods and communities as before. The church community is scattered, parishioners often driving many miles to service and then back home, and the churches themselves may be dabbling in everything from politics to real-estate development. The government has lost its ability to serve the needs of its constituents in a covenant relationship, as opposed to a process relationship.

"Even our language suggests distance that keeps us from touching. Instead of taking care of children, we put them in programs. We call them 'youths' rather than children, and if we really want to put distance between us, we call them something like 'at-risk youth.' "

None of what Amos is talking about diminishes the importance of parents in the child-rearing enterprise. Their role was always vital, but, as Kent reminds, it was seldom exclusive. The most competent parents almost always had a hand in guiding and inspiring the neighbors' kids; the least able parents could at least exert tell-your-mother discipline.

The most competent parents almost always had a hand in guiding and inspiring the neighbors' kids; the least able parents could at least exert tell-your-mother discipline.

If we could restore some of that attitude—and Amos believes it is possible—it might be the best thing that could happen for single mothers struggling to raise decent children in a frequently harsh environment.

"Some of it still exists," says Amos. "If you go into the most drug-infested and violent neighborhood in the city, you'll find children who come through in reasonably good shape. Follow them back and you will find a covenant kind of environment, where families and neighbors work together to help bring the children up right. These kinds of environments exist all over the place. We need to hold them up, and do what we can to reinforce them."

Of course we do, and we need to do something else as well. We need to recapture not just the old arrangements but the old attitude that made the well-being of children the No. 1 priority: not to pamper them but to recognize that our children are the means through which we reproduce and preserve the best of ourselves.

Taking the Thomas-Hill story to heart

By Douglas E. Kneeland

Inside the paper

Maybe I'm wrong, but I've always thought most readers look upon those of us in the newspaper business as voyeurs with notebooks and cameras who stand aloof from and untouched by the real world we report on.

With another mega-story winding down—Clarence Thomas has been confirmed and sworn as a justice of the U.S. Supreme Court and Anita Hill is back at her law professorship at the University of Oklahoma—it might be a good time to talk about that.

Most news people are professional enough to keep their coverage even-handed. But it's a lot easier to do that when you're dealing with issues that touch you only intellectually.

Whatever special interest some reporters or editors may have in the CIA, for instance, the issue is not central to their personal lives. But the subject of sexual harassment has a reach so broad in this final decade of the 20th Century that it engages all of us.

Journalists worked hard to maintain their neutrality as they wrote and edited the news emanating from the emotional public conflict between the professor and the judge. But inside, all those I talked with acknowledged, their own feelings were churning.

I don't know how it is at all companies, or at all newspapers, but I have worked at five daily papers in my day, including this one, and I can tell you how it used to be. It's probably true of a lot of trades and professions, but over the years this newspaper business has been a rough-and-tumble one.

At least as recently as two decades ago, there weren't many women in the news departments of papers. And those who were there had to battle continuously for recognition and acceptance. A lot of them at the papers where I worked over most of the last four decades adopted about the only realistic defense they had at the time; they tried their best to be one of the boys. If that took a little cussing, listening to or telling the occasional off-color joke, enduring or exchanging a bit of sexual innuendo, they paid that price. Not always willingly, as I now know better than I knew then.

There are many more women in most newsrooms now and their numbers continue to increase, as do those in executive positions. For these reasons alone, there has been some improvement in the treatment of women in newspaper jobs. Most I know here at the Tribune agree to that, but I don't know any who would say they are dealt with as equals by every man at work in all situations.

Like a lot of other companies, the Chicago Tribune has taken steps in compliance with state and federal regulations to provide its employees "a professional work environment that is totally free of physical, psychological or verbal harassment." And in a policy statement to all employees, it defines harassment as "a pattern of behavior or language that creates or is perceived by an individual to create a hostile, offensive or intimidating work environment." The statement goes on to list such unacceptable things, among many others, as offensive jokes, unwelcome physical contact of any nature, unwelcome and unsolicited sexual advances.

Journalists worked hard to maintain their neutrality as they wrote and edited the news emanating from the conflict between the professor and the judge. But inside, their own feelings were churning.

All in all, the policy seems straightforward and about as clear as it can get. But people sometimes breach it to the point where warnings are necessary, if not action, which can include firing. And Judy Peres, the Tribune's national editor, in an article on this page the other day was moved to report that her male colleagues here were "exceedingly discomfited" by all the talk about sexual harassment that surrounded the Thomas-Hill case, wondering if "they too have been guilty—perhaps unwittingly—of sexual harassment."

Well, if they are like most of us who've been in the business awhile, they probably have been, at least at some time in the past. If they hadn't gotten the message from the rules as posted, they surely should know them by now. But it will probably take time to sort out just how much real understanding has come out of all this.

Associate editor Douglas E. Kneeland is the Tribune's public editor.

A Pandora's box of genetic bigotry

Joan Beck

Are some people genetically unfit to have children?

The question was raised in a vicious, ugly and public way recently in Los Angeles when Jane Norris spent her two-hour radio talk show on KFI-AM arguing that Bree Walker, an anchorwoman for KCBS-TV, should not be having a baby because the child might inherit Walker's finger and toe deformity.

Norris ignored the fact that Walker is beautiful, talented, healthy, intelligent, successful and happily married—and that she was already about eight months pregnant at the time of the verbal attack.

"Is it fair to bring a child into the world that you're pretty sure has a very good chance of having a disfiguring disease?" traped Norris

She carped on and on. "People judge you by your appearance .... God knows they are going to judge you by the shape of your hands and the shape of your body and the shape of your face. They just do."

The genetic abnormality at issue here is ectrodactyly, a condition in which the bones in the fingers and toes are partially fused. Walker was born with the disorder. Because it is inherited in an autosomal dominant pattern, each child she bears has a 50-50 chance of inheriting the problem. Walker and her previous husband already have a daughter with the deformity.

Several weeks after the broadcast, Walker's son with her current husband, Jan Lampley, also a TV anchor, was born—with ectrodactyly. Late in October, Walker, Lampley, other individuals and two dozen national organizations for the disabled filed a complaint with the Federal Communications Commission against KFI-AM, charging that the broadcast was inaccurate and biased.

Besides bias, however, Norris' mean-spirited broadcast does raise troubling questions about genetic and reproductive privacy, especially in the years ahead when new research will probably make all of our DNA an open book, spelling out our individual genetic makeup, our ancestry and our children's genetic potential.

"It's not just Bree," Norris snarled on the air. "It's not just her. We're all involved in this."

Already, bioethicists are expecting the time to come—perhaps in 25 or 30 years—when the human genome will be completely mapped and individual DNA blueprints for each of us will be easy to obtain.

Such personal readouts will warn about errors in genes that could mean serious problems for our offspring. (Scientists have already identified thousands of genetic disorders. Most of them are rare and caused by recessive genes, so don't occur in a child unless both parents have the same faulty gene.)

Our DNA profiles will also tell much more about us than the genetic abnormalities we carry (each of us probably has four to 20 such abnormal genes, scientists say). They will also reveal tendencies and susceptibilities, forecast whether we are likely to grow bald or fat, how resistant our bodies will be to cancer triggers, whether we will suffer from allergies or are likely to become alcoholic.

But who will have a right to such intimate information? To what use will such data be put?

Will prospective parents be given genetic profiles of their unborn children based on a few fetal cells and pressured to abort those who are less than perfect and will require extra medical care? Will "less than perfect" come to include not only the inevitably fatal Tay-Sachs disease, but Huntington's disease (which doesn't cause symptoms until middle age), cystic fibrosis—and ectrodactyly?

Will couples be expected to exchange DNA readouts, to ensure that genetic errors don't match up in ways that could produce a serious genetic disorder in a future offspring? Could a genetic susceptibility to alcoholism or depression be reason to reject a potential marriage partner?

Would a prospective employer have the right to insist on seeing an applicant's genetic profile before offering a job? Would he reject an otherwise qualified candidate because of a genetic tendency toward alcoholism or an illness that might run up health insurance costs? Or because of a susceptibility to certain chemicals he might be exposed to on the job?

Or, for an example posed by Robert Shapiro in his new book, "The Human Blueprint," suppose a congressional committee evaluating a Supreme Court nominee learns that two relatives suffer from manic-depression. If opponents demand he make public his DNA printout to show he has no genetic tendencies toward mental instability, dare he refuse?

In 25 to 30 years, perhaps, our DNA profiles will tell much more about us than the genetic abnormalities we carry. They will also reveal tendencies and susceptibilities. But who will have a right to such intimate information? To what use will such data be put?

As a practical matter, Shapiro notes that because most of our cells contain a full set of our DNA and very few cells are needed for testing, personal data will eventually be easy for others to obtain. It will be possible to get a DNA readout, for example, from hair in a lover's hairbrush, from skin cells rubbed off on a doorknob a job applicant has turned, even from an envelope whose flap a person has licked, he says.

The genome genie will not go back into the bottle. It shouldn't. We need the information about our essential selves that DNA can provide. Many of the most serious ills from which we suffer are caused by genetic factors. Deciphering the DNA code and its individual variations is the next, necessary step toward finding a way to cure and to prevent them.

But along with the scientific challenge comes the equally difficult task of learning to live wisely and fairly with unprecedented and enormously personal new information. It is important to stamp out genetic bigotry and to value each other for our unique selves.

EXHIBIT E

Chicago Tribune (Chicago, Illinois) · Sun, Jun 10, 1973 · Page 116

Chicago Tribune
Sunday, June 10, 1973

Real Estate & Rental Guide

The classified marketplace

Developers are getting the Parkway and will spend $2.5 million to convert; it is condominium.

1983: Architects view building design changes

By Gary Washburn
Tribune Staff Writer

THE CHICAGO SKYLINE is changing. Visions from billionaires and fancy, one-superbuildings grow. But will there be a recession? How high will they go? Of what stuff will they be made?

In 10 years, will the sun cease to be obscured by rainwater?

Crystal balls and fortune telling aren't the stock and trade of architects and the they may even be from green bottles, most agree. The developers say closed cities and new techniques of natural resources will dictate changes in design and types of materials used.

Peyton Klein, directional engineer and chairman of the nineteenth floors Tower, believes "The average size building will be taller." Here, he says, downtown structures average 15 to 20 stories, but in five to 10 years will average 25 to 30 stories.

KLEIN SAYS THE change is environmental. As building spaces taller buildings, more space will be left for greenery, plazas, and open space. High is one engineer who believes buildings taller than the Sears Tower will be constructed if testing elements are changed.

William Brubaker, president of the architectural firm of Perkins & Will, insists buildings will go higher than Chicago's present-day giants. "I think we're going to have a frontline in the height event," he said, adding that it is as many structures "work like a charm" and we'll gradually see more of them.

Brubaker also foresees more tapered buildings like the First National Bank, which has five designed. "They're good both structurally and from a functional standpoint," he said.

Klein also believes that symmetrically shaped buildings like Sears Tower will make traditional square-down rectangular structures take a back seat in the future. Irregularly mouse granite varieties in four years and, consequently, have signed by tenants with special needs, he says.

GRAY'S SEVEN TOWER robot, architect Bruce Graham, a partner in the firm of Skidmore, Owings, and Merrill, doesn't think there will be drastic changes in Chicago's new buildings within the next decade, except he says is the start a time for very much architectural evolution.

Graham does, however, predict the advent of more multipurpose buildings in the world of Michigan Avenue's John Hancock Center. And he isn't alone. Joseph Polivera, a partner in The Office of Max Yan Der Rohe, agrees. So do Brubaker and Klein. They foresee the mixing of residential, commercial, and cultural space in one tower structure.

A common belief is that craftsmen buildings help rejuvenate a city's downtown area by attracting people to a second day shift. "I think they'll make our city live for 24 hours instead of being alive from 8 to 5 and dead other than," Klein said.

"We have to create an environment where families, where people with children will live," he added. "Otherwise, the downtown community gets polarized and expensive and unmanageable." This can be accomplished by serving high rises with both condominiums and apartments with rents low enough to accommodate young families.

"WE MUST CREATE an environment within the city in which middle-income people can live close to work," Graham says, "an environment conducive to raising families . . . Buildings aren't that important. The life of the city is important. Buildings must respond to that."

Architects seem to agree that a continuing energy crisis could have important effects on the future Loop skyscraper.

John Dalin, a consulting engineer says buildings today aren't being designed to conserve energy. "Builders are more interested in selection, finishes, and prices—and in what it takes to heat and cool the building. Unless the builder is going to use the building himself, he doesn't worry about the operating costs."

"I think high rises in the future would have to take energy more into consideration," he said.

"WE'RE VERY CONCERNED about the enormous expenses in using electricity," Klein says. "More and more we're looking at a building's life cycle cost in terms of maintenance and operation instead of just immediately construction costs . . . We have special response abilities and economic realities and we'll respond to them."

Dalin says it's likely environmental design will get more from vast expanses of exterior glass because of land and renting issues. He predicts a trend toward insulated buildings of concrete, steel, or brick. More attention now of double-pane windows to enable possibility, he says.

If a typical hearty high rise had windows consisting of per cent of the exterior rather than 75 per cent, Dalin said, the result would be about a 40 per cent savings in energy for heating and 10 per cent for cooling.

FLORIDA'S DEFENDED THE use of glass, but of the many time predictions on advances in technology that would use fewer on energy less in future glass skyscrapers. To hold to facts by the city when time has gone increasingly complex as the use claims engineer will be used.

Other innovations that present possibilities for conserving energy in the Chicago skyscraper of the future include:

- Use of emergency generators to supplementary power sources during peak load periods.
- Variable volume heating and air conditioning by which only enough fan or cold air is introduced into a room to bring it to the desired temperature.
- Use of interior lights to heat buildings.

INDIRECT HEAT from lights can help bring temperatures to the desired level. Dalin said. Another possibility is installing small water-circulating tubes around light fixtures, with the heated water warming the building.

Admittedly, lack of technology and prohibitive costs make some energy-saving techniques unrealistic now. But if both shortages result in cold buildings in the winter and hot ones in the summer, expense for research and implementation will become justified.

Turning to another aspect of tomorrow's future, Klein predicted the advent of public transportation to solve them.

"PEOPLE MOVERS," as he calls the new transportation, could shuttle people from building to building in the central business district. The cost to the passenger? Nothing, Klein says. Building owners and their tenants could find the cost much the way they do for elevators in their buildings. Or, he said, they could be subject to a small fee.

Brubaker envisions another kind of transportation between downtown buildings—walking. But it would be in enclosed walk above city streets to skyways.

The less serious predictions and fancy conjectures is a closely one, find, in the final analysis, the Chicago of the 1980s isn't only to the hands of architects or engineers. As one architect said, "We don't own the land or the banks."

New inside, old outside

Parkway Hotel gutted for condos

A NEW TWIST in conversions is transforming the old Parkway Hotel at 15th Lincoln Park West in a luxury condominium.

The hotel, built more than 50 years ago, is undergoing the final stages of gutting that will leave only the exterior walls and floors. The interior will be completely reconstructed.

Harold Friedman and Jack Lasker of Lasker, Friedman, and Co., Chicago construction contractors and developers, bought the building for $1.25 million cash six months ago and $1.5 million for conversion. Lasker said they "are actively looking for other structures like this one" and may rehabilitate one material there if their current project proves successful.

"THE INTRINSIC QUALITY of this construction must be the building just can't be duplicated today," Friedman said. "The 1920s exterior is built like a fortress, yet the apartments and facilities will be of the '70s."

The new condo, to be called The Player, will have 58 studios, and three-bedroom units when completed in December. Prices will range from $40,000 to $75,000, with assessments and taxes beginning at about $100 a month.

Owners of the building's six penthouses will be able to customize their units, designing size and placement of each room.

Model apartments are expected to open in August with final occupancy slated for October. Meanwhile, an estate trailer will serve as a sales office as the building is redesigned, rewiring, and given a new roof, elevators, electrical and plumbing systems, and central heating and air conditioning equipment. Architects for the project are Ralph F. Bernardo & Associates.

CONVERTING AN OLD 16-story hotel has both its architectural limitations and possibilities for innovation, the developers say. Large entrances to a degree dictate design, but exceptionally high ceilings in some units will enable construction of library lofts over living rooms.

Lasker said he and Friedman "had a lot of conversations

as studies to test the building down and start from scratch." A new building previously would have been taller than the existing structure with 30 per cent more units, he said.

"We doesn't believe this project," Lasker said, "was that the city doesn't have to be stripped of its architectural landmark to provide opportunities with all of the modern living conveniences. With The Player, we hope to prove there are other ways to successfully reclaim housing than constructing glass and steel towers."

"CERTAIN BUILDINGS attain immortality in this approach," he said. "The architectural favor of the local historical preserves wish to accommodate right across from Lincoln Park."

Amenities will include a various swimming pool and sitting sundeck, a hospitality room with a kitchen and game room, and a health club with exercise rooms and sauna baths.

The hotel's grand ballroom was considered for conversion to bowls, courts, Lasker said, but there wasn't enough space. It will become part of the health club in the form of two handball courts.

Lasker said he expects condo buyers will include young executives who work in the Loop and don't want to live in the suburbs.

THE PARKWAY HOTEL had a long and varied history. It was in the news in 1924 when a Christmas Eve burglary netted $20,000 in jewels. One of the victims was Mrs. Harry Hart, wife of a principal of Hart, Schaffner, & Marx clothiers. Police searched the room with the arrest of George (Bubbs) Conrad, an intimate of gangland chieftain Dion O'Bannion.

Over the years, the hotel's reputation faltered. In 1952, however Chicago Mayor Carter H. Harrison, then 61, "regained all with enthusiasm," according to one account, when he learned of a police vice squad raid at the hotel, where he said his wife had resided for more than 30 years.

"I was startled by the information," the five-term mayor said, "I have always been a stickler for vice and gambling."

Trucking-industrial center has roots in once-bad soil

FLY-ASH, CLAY, and luck has combined to make a new trucking-industrial complex on the South Side possible.

In 1967, Harry Chodnick, prominent Chicago developer, bought the 140-acre site, then known as the Highway Freight Center, from Penrose Coe, Light & Coke Co. Chodnick said the property, near 26th Street and Pulaski Road, had been on the market for several years but potential purchasers had shunned it.

The reason? The land was unstable, with a conglomeration of unsuitable natural components including sand, clay and sludge and "nobody could build on it," Chodnick said.

THE PARCEL, designed for the reuse of its size and [illegible] industrial park," he said. Its street Robert Parcak of Parcak Tarrimony & Associates, Inc. Dan Pearson, in charge up with a solution to the soil problem.

Parcak thought about stripping off the unsuitable soil and using fly-ash, a coal waste product sometimes used as a filler in asphalt and in concrete block manufacture, and clay to fill in the site. Tests were made and their results were beyond his expectations.

The fly-ash used was obtained from a Commonwealth Edison plant—which happened to be just across Pulaski. Its compactness was about 110 degrees and it reacted chemically with the clay and the existing soil to make the ground hard and stable. The best factor was its particles to the reaction, Parcak said.

BY COINCIDENCE, a nearby section of the Stevenson Expressway was under way and provided about 300,000 tons of clay. Both the fly-ash and clay were free for the hauling.

Cost of the land reclamation, including hauling was $.50 a square foot.

The project's success was demonstrated recently when Interstate Foods, which purchased three lots in the park, finished a 60-story frozen food warehouse. Commonwealth Edison Co., the first tenant recently added to the park's corner, intends to build a 500-million-power distribution facility on land it had leased and 10 adjacent acres of park land it purchased.

Here's your guide to the Sunday Tribune Classified Sections

Real Estate & Rental Guide — multimillion-dollar marketplace is the first unit of this section. [Section 12, page 1]

Mid-America Job Guide—the largest selection of job offers in middle America is the second unit of this section. [Section 12, page 42]

The Auto Mart on the fast-growing marketplace for automobiles and trucks is the third unit of this section. [Section 12, page 71]

All Other Classified Advertising including Sports Mart is contained in the back pages of the Sports Section. [Section 3]

Classified Index—for complete Classified Index see the back page of the Sports Section. [Section 3]

Market demand spurs new O'Hare-area office building

THE AREA BETWEEN O'Hare International Airport and the Loop on the Kennedy Expressway is getting its first major office building in three years.

The 16-story structure, to rise at Higgins Rd., has tenant use and is slated for fall occupancy.

Lee Miglin, the developer, said lease negotiations are under way with three nationally prominent firms, two of which might establish corporate headquarters there. He said the building will be named for the major tenant.

MIGLIN SAID construction of the 125,000-square-foot building comes when many developers have stood away from the O'Hare area because of their office building construction moratorium placement for suburban areas including Des Plaines, Schaumburg, and Elk Grove, which would create local competition.

He said, said that another demand finally have caught up with what had been an oversupply of O'Hare office space that accelerated in the three-year waiting house.

Interestingly, construction of the building also comes when occupancy of downtown-area office space is at its lowest point since the late 1960s. A recently released report by the Building Managers Association of Chicago revealed that nearly 11 per cent of downtown office space—more than five million square feet—was vacant in May.

THE SURVEY DEALT with the central business district buildings with areas of almost 40 million square feet. Miglin said O'Hare-area buildings now enjoy occupancy ranging from 85 to 100 per cent. The Time are in unison, Lasker adds Loop buildings, he asserted, they tend to appeal to a somewhat different market. Tenants are impressed in being close to the airport, he said, but also close enough to the Loop so executives can get there in a relatively short time.

At the same time, the booster said, to be far enough away from downtown so they don't become vulnerable to Loop traffic snarls getting to and from their offices.

Miglin, whose rents will range from about $7.50 to $8 a square foot, predicted construction of "a couple more

buildings" close to O'Hare in the Kennedy before the limited amount of land is gobbled up.

His building, designed by Ode & Associates, Inc., of Skokie, has external features unusual, mirrored silver reflective glass, and a double entrance and consecutively treated to passengers the offices from air traffic noise.

A DEPOT HAMILTON gasoline station at their intersection gives the site rest at the building represents a landscaped airways garden surrounded by executive office suites on the top floor. Parking is provided in both underground and surface facilities.

The contractor is Schlenker & Lind Co., Inc., of Chicago. Arthur Rubloff & Co., of which Miglin is a vice president, will handle leasing and management.

Financing was arranged thru Rand & Varner, Inc.

Developer Lee Miglin's 16-story structure is the first major office building to be constructed along the Kennedy Expressway near O'Hare Airport in three years.

EXHIBIT F

Electronic Filing: Received, Clerk's Office 06/03/2022 P.C. #18

New techniques may slow soaring cost of road repair

By David Young

Carey plans probe of mob-clout charge

By Steven Rowley

'Never taken a dime'

I'm clean and willing to testify, Byrne says

Marshall Field's

showcase of savings from Lenox

1/3 off Temper-ware® sets

20-piece set, now $126.50, reg. $190. **45-piece set, now $327,** reg. $501. Charm and convenience. . .combined for very special values. Just look at the beautiful patterns available. And each Temper-ware® piece is freezer-to-oven safe. 20-piece set includes four each: dinner and bread/butter plates, soup/cereal bowls, cups and saucers. 45-piece set includes eight each: dinner and bread/butter plates, soup/cereal bowls, cups and saucers; plus oval platter, open bowl, creamer and covered sugar bowl. Come see the exciting new Lenox patterns, also at savings. Prices return to regular June 1. China, Second Floor, State Street store; and all stores

1. Fire Flower
2. Quakertown
3. Magic Garden
4. Merriment
5. Floral Fantasy
6. Fancy Free
7. Sketchbook
8. Blue Breeze

20% off casual stemware

Let these sparkling savings join your table setting for very attractive results. All patterns are available in goblet, sherbet and wine. Prices return to regular June 1. Glassware, Second Floor, State Street store; and all stores

	Reg.	Sale
9. Antique in clear, blue, brown or yellow, set of 4	$42	$33.60
10. Impromptu in delft blue, pebble brown, or sunshine gold, set of 4	30	24.00
11. Clarion in nassau blue, spice brown or sesame gold, set of 4	34	27.20

EXHIBIT G

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Springfield, IL 62794-9276

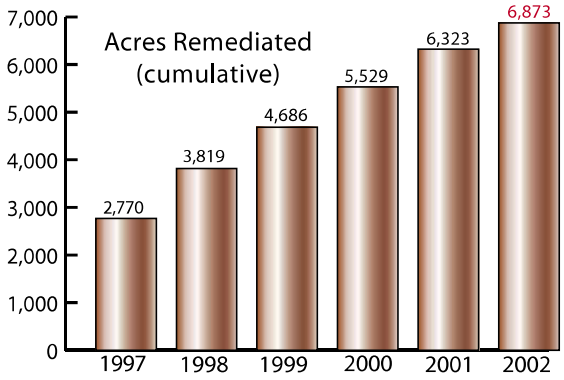
July 2003

IEPA/BOL/03-011

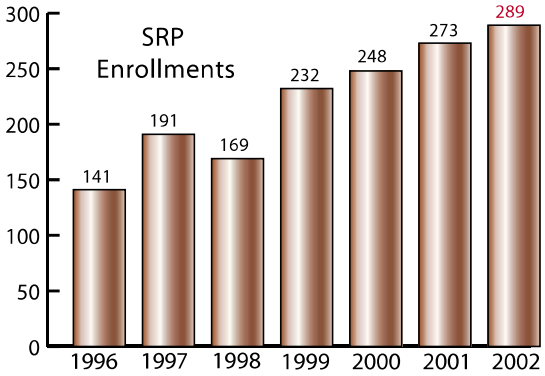
Site Remediation Program Annual Report 2002

Brownfields redevelopment reduces urban sprawl, conserves resources, and improves local neighborhoods. The Site Remediation Program helps to reduce the environmental costs and uncertainties associated with these projects.

2002 ACHIEVEMENTS



The Site Remediation Program offers a framework for the performance of voluntary cleanups and provides No Further Remediation Letters for completed projects.



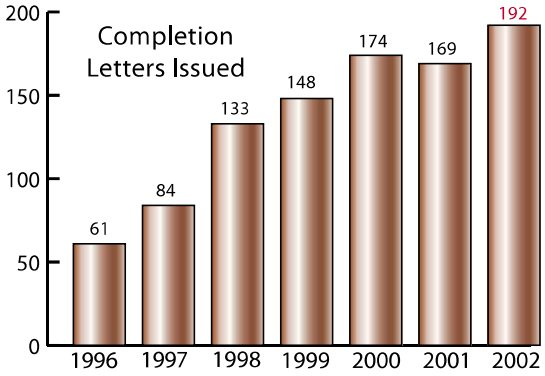


Table of Contents

The Illinois EPA continues its commitment to assist in the cleanup of petroleum and hazardous contamination by working with landowners and developers to develop site-specific plans for corrective action. Remediation Applicants may draw upon the services of the Illinois EPA's Site Remediation Program to review reports and action plans designed by the applicant that are comprehensive, risk-based, and achievable.

The past year marked the implementation of regulations to allow for soil management zones that provide new options for site remediation. Additionally, procedures were established for continued monitoring of sites issued No Further Remediation Letters that rely on institutional controls to limit exposure to contaminated soil and groundwater.

This Site Remediation Program Annual Report for 2002 highlights projects where the Program partnered with Remediation Applicants to clean up sites for productive reuse. These projects helped to build strong community ties by establishing new homes, retail shops, and an arts center in old neighborhoods.

Thank you for letting me share our successes with you.

Renee Cipriano

Director, Illinois EPA

SUCCESS STORIES

Participation in the Site Remediation Program (SRP) can be tailored to help Remediation Applicants achieve their goals for site redevelopment by obtainining No Further Remediation (NFR) Letters. Complex variables of project financing, scheduling, and construction are routinely integrated into the SRP process. Below are examples of projects completed in 2002 that showcase the flexibility of the SRP.

BP Products North America, Inc.

LPC#: 0316755032
Location: Chicago
Enrolled: June 2000
NFR Letter: November 2002
Area: 0.55 acre

The BP Products North America, Inc. (BP) site was a retail gasoline and service station from the early 1950s through the mid 1990s. Recognized environmental conditions at the site included seven (7) underground storage tanks, two (2) 300-gallon hydraulic-fluid storage tanks and four (4) hydraulic lift cylinders. Associated chemicals of concern included volatile organic compounds, polynuclear aromatic hydrocarbons and metals.

Removing an Underground StorageTank
(Photo Courtesty of Delta Environmental Consultants, Inc.)

Although a No Further Action Letter was issued by the Illinois EPA in 1996 confirming that all requirements regarding releases from regulated underground storage tanks at the site had been properly addressed, residual soil and groundwater impact still remained onsite. Therefore, as a conservative measure and to be more fully protective of human health and the environment, BP subsequently remediated 2,921 tons of contaminated soil using conventional remediation methods. In addition, BP also secured a highway authority agreement with the Illinois Department of Transportation as an off-site institutional control.

Beverly Arts Center
(Photo Courtesty of Delta Environmental Consultants, Inc.)

The NFR Letter provided the assurances needed to incorporate the site as part of the new 2.1 acre Beverly Arts Center, a not-for-profit cultural and educational institute. Construction on this facility started in April 2001 and the grand opening was held on September 21, 2002.

Remediation Applicant: BP Products North America, Inc.
Consultant: Delta Environmental Consultants, Inc.
Illinois EPA Project Manager: Tom Williams

C.P. Clare

LPC#: 0316020001
Location: Chicago
Enrolled: April 1995
NFR Letters: April 1998, May 2002, and October 2002
Area: 5.9 acres

C.P. Clare operated the site as a manufacturing facility for electronic components from 1952 to the early 1990s. Hazardous chemicals used or produced during the manufacturing process included heavy metals, solvents, and corrosive compounds. Although the site was almost completely paved with asphalt and concrete, except where a 65,000 square foot single-story building stood, contaminated soils exceeding the residential remediation objectives were discovered at various on- and off-site locations during a 1995 site assessment. Mercury and arsenic contamination were found in soils beneath the building and along a discharge line to the city sewer. Volatile organic compounds (VOCs) were discovered in soils adjacent to the building and next to buried sewer lines. Polychlorinated biphenyls (PCBs) were detected in a small area where transformers had existed. Finally, the VOCs had migrated west and south of the property boundaries and contaminated soils of two neighboring commercial properties. No contamination was detected in residential homes east of the site.

Between 1996 and 2002, the SRP worked with the Remediation Applicants to chose a combination of remediation technologies in coordination with future land use restrictions, site boundaries, and schedules. This flexibility improved the cleanup process and resulted in the issuance of three NFR Letters for the site.

The property was redeveloped into 42 new detached single-family homes by Parkside Estates, LLC.

Excavation of Contaminated Soils
(Photo Courtesty of MACTEC Engineering & Consulting, Inc.)

New Single-Family Homes
(Photo Courtesty of MACTEC Engineering & Consulting, Inc.)

1995-1998
Remediation Applicant : CP Clare and General Instrument
Consultant: Goodwin, Proctor & Hoar
Illinois EPA Project Manager: Tim Murphy

1998-2002
Remediation Applicant 2: Parkside Estates, LLC
Consultant: MACTEC Engineering & Consulting, Inc.
Illinois EPA Project Manager: Tim Murphy

Triangle Properties

LPC#: 0311530012, 0311535040, 0311535100, 0311530008
Location: LaGrange
Enrolled: April 1995
NFR Letter: April 1998, May 2002, and October 2002
Area: 5.9 acres

Triangle Redevelopment Site Plan
Graphic courtesy of the Village of LaGrange and Triangle Properties, LLC

With the assistance of an Illinois EPA Municipal Brownfields Redevelopment Grant, the Village investigated environmental conditions at 11 commercial properties in a six-acre downtown revitalization area known as the Triangle Properties. Between 2000 and 2001, the Village incorporated the 11 commercial properties into four sites and enrolled each separately in the SRP. By 2003, each site had each received an NFR Letter.

The first site (LPC#0311530012), a 1.4-acre area comprised of four contiguous properties on the western end of Triangle Properties, received an NFR Letter in August 2001. Site remediation required removal of a 2,000-gallon underground storage tank, residual contents and 84 tons of contaminated soils.

The second site (LPC#0311535040), a 0.3-acre former service station on the northwest corner of Triangle Properties, received an NFR Letter in November 2001. Prior to enrollment in the SRP, five underground storage tanks and associated contaminated soil were excavated and removed. Potential exposure to residual groundwater contamination has been effectively eliminated by the adoption of a Village ordinance prohibiting the use of water wells and by the installation of engineered barriers at the site.

The third site (LPC#0311535100), a 3-acre area comprised of five contiguous properties in the middle section of Triangle Properties, known as LaGrange Crossing, received an NFR Letter in November 2002. Site remediation required removal of 16 underground storage tanks and 5,000 tons of contaminated soil attributed to a former dry cleaning operation. Buildings and pavement on the site serve as engineered barriers to eliminate exposure to any localized residual soil contamination.

The fourth site (LPC#0311530008), a 1.3-acre area former laundry on the eastern end of Triangle Properties, received an NFR Letter in June 2003. Site remediation required the removal of three previously closed-in-place underground storage tanks and 438 tons of soil. The Village ordinance prohibiting the use of water wells and the installation of engineered barriers (concrete, asphalt, three feet of clean soil and a building) ensure that any residual contamination remaining at the site poses no threat.

New retail shops (e.g., Borders Books, Pier 1, Trader Joe's Grocery) have opened with more businesses and new residential housing planned for the four sites. The Village anticipates that Triangle Properties will rejuvenate the downtown area, increase property and sales tax revenues, add new jobs, and improve the neighborhood's appearance.

Remediation Applicant: Village of LaGrange
Consultant: Patrick Engineering
Illinois EPA Project Manager: Tom Williams

LaGrange Crossing
Graphic courtesy of the Village of LaGrange and Triangle Properties, LLC

University of Illinois-Chicago

LPC#: 0316315221
Location: Chicago
Enrolled: June 2000
NFR Letters: December 2001, February 2002, May 2002, July 2002, October 2002, December 2002, January 2003, February 2003, March 2002, June 2003.
Area: 25 acres

Remediation work south of 14th Place (Winter 2001)
Graphic courtesy of the South Campus Development Team, LLC

During 2000, the Board of Trustees of the University of Illinois (UIC) entered the SRP and began remedial activities as part of the $230 million development known as University Village. This 25-acre site is being privately developed by the South Campus Development Team (SCDT), LLC for 930 residential homes comprised of townhomes and several types of condominiums. The site is ideally located, just south of the UIC campus and immediately west of the Dan Ryan Expressway near downtown Chicago. Historically, commercial and light industrial businesses occupied the property, including a gas station, auto repair facility, junkyard, and a railroad trestle embankment.

Sundial Park at University Village, south of 14th Place (Fall 2002)
Graphic courtesy of the South Campus Development Team, LLC

The remediation portion of the project is proceeding in phases during the construction of University Village. UIC and SCDT requested the SRP issue a series of comprehensive NFR letters for each parcel as the construction work is completed and prior to selling the individual units. This innovation has allowed the SCDT to market and sell the completed units in a timely manner, and demonstrate to buyers proof of the completed remedial action.

An extensive remedial investigation identified the target areas of contamination at each parcel; remedial actions have included underground storage tank removals, contaminated soil removal, and railroad embankment removal. UIC and SCDT anticipate up to 30 NFR Letters encompassing the University Village development will be issued by completion of the project. The SRP has issued 11 NFR Letters to UIC as of June 2003. Construction activities are scheduled for completion in 2006.

Remediation Applicant: University of Illinois
Consultants: Camp Dresser & McKee, Inc. and Pioneer Engineering & Environmental Services, Inc.
Illinois EPA Project Manager: Todd Gross

FACTS AND FIGURES

The Illinois EPA's Site Remediation Program (SRP) is one of the oldest state voluntary cleanup programs in the nation.

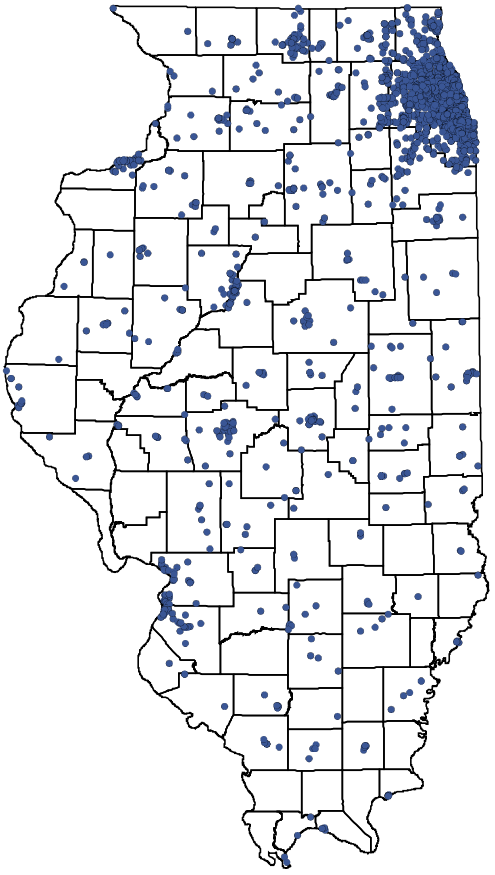
Remediation Applicants (RAs) may elect to clean up all contamination at a site (comprehensive remediation) or specific chemicals (focused remediation). Remediation objectives are developed by the RA using a risk-based approach that allows the use of engineered barriers and institutional controls. Successful completion of all SRP requirements results in a completion letter [i.e., a No Further Remediation Letter or 4(y) Letter] for the site.

The SRP is part of the Illinois EPA's Bureau of Land, which is responsible for the protection and restoration of land and groundwater resources in Illinois. The Bureau is comprised of the Division of Land Pollution Control and the Division of Remediation Management. The Division of Remediation Management is responsible for the administration of federal and state-funded hazardous substances and petroleum cleanup programs. These programs are managed by three sections:Remedial Project Management Section, Leaking Underground Storage Tank Section, and Federal Site Remediation Section.

Statutory and Regulatory Authority

In 1989, legislation establishing the Pre-Notice Site Cleanup Program was enacted to provide technical assistance in voluntary cleanups. In 1995, the Illinois General Assembly replaced the Pre-Notice Site Cleanup Program with the SRP.

The SRP is administered under the authority of 415 Illinois Compiled Statutes 5/58, more commonly known as Title XVII of the Illinois Environmental Protection Act. The SRP's regulatory authority comes from 35 Illinois Administrative Code Parts 740 (SRP) and 742 (Tiered Approach to Corrective Action Objectives, or TACO).



Close to 2,000 SRP SItes Enrolled

Eligibility

Enrollment in the SRP is available to any person or business conducting site investigation or remediation. However, participation in the SRP may not be allowed for activities:

- At National Priorities List (Superfund sites);
- Required under state or federal waste permits; or
- Required by a federal court order or U.S. EPA order.

Available Services

The SRP provides a variety of services for RAs for a wide range of industries (e.g., public utilities, drycleaners, railroads, etc.). Sites vary in size from 0.1 acres to 550 acres. These services include:

- Review and evaluation of site investigation reports, remediation objective reports, remedial action plans, and remedial action completion reports;
- Sample collections and analyses;
- Assistance with community relations;
- Coordination and communication between the RA and other governmental entities; and
- Other activities as requested

SRP Cleanup Process

The SRP rules (35 Ill. Adm. Code 740) establish procedures and standards for RAs to investigate and clean up a site. The rules also establish procedures that the Illinois EPA must follow when reviewing and approving investigative and cleanup activities.

1. Enroll in the SRP

Completion of the SRP Application and Services Agreement Form is required of persons requesting enrollment into the Program. This form requires information on the remediation site, the RA, the property owner, and project objectives. In addition, the RA will be required to make an advance partial payment, generally $500.

AlliedSignal, a former steel mill site, is the future home of a new automotive supply manufacturing campus in Chicago. The seawall was installed to stabilize the ground along the Calumet River.

2. Conduct a site investigation

The site investigation must identify the extent and concentration of contaminants in the soil and groundwater. Site investigation activities include, but are not limtied to: records review (e.g., review of historical sources to determine past uses of the site and surrounding areas); topographic work (e.g., site base map and legal description); and field work (e.g., soil and groundwater sampling, field and laboratory analyses).

3. Develop cleanup levels

The SRP requires RAs to use the TACO methodology (35 Ill. Adm. Code 742) for developing remediation objectives (i.e., cleanup levels).

4. Plan the cleanup (if necessary)

After the remediation objectives are established using the TACO procedure, the RA may: (1) reduce the contaminant concentrations to meet established objectives through active remediation (e.g., removal of contaminated soil); (2) restrict human exposure to contaminated soil and/or groundwater by using engineered barriers or institutional controls; (3) take no action, if contaminant concentrations are not above the remediation objectives; or (4) use a combination of the options above.

5. Perform and document the cleanup

Upon completion of all corrective actions, the RA must submit a report demonstrating that all remediation objectives, site-specific response actions and SRP data quality objectives have been successfully attained.

6. Record the NFR Letter

Within 45 days of the Illinois EPA's issuance of the NFR Letter to the RA, the Letter must be recorded with the Office of the Recorder of the county in which the site is located. Within 30 days of recording, the RA must obtain and submit to the Illinois EPA a copy of the recorded letter demonstrating that the Letter has been properly recorded.

7. Reimburse Illinois EPA for project costs and NFR assessment fee

RAs are required to reimburse the Illinois EPA for the costs of services performed. In addition to costs of services performed, the RA is also required to pay a variable NFR assessment fee equal to Illinois EPA-incurred costs, up to a maximum of $2,500.

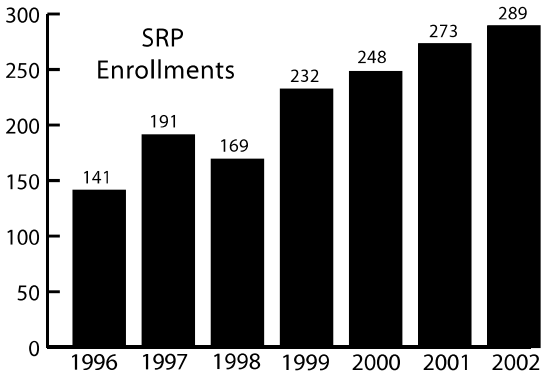
8. Monitor and maintain land use restrictions, institutional controls, and engineered barriers

The property owner, operator, RA or any subsequent transferee must monitor and maintain any land use restrictions, institutional controls, or engineering controls (e.g., parking lot cover) that are conditions and terms of the NFR Letter.

Since 1996, approximately 50% of the SRP sites enrolled were issued an NFR Letter within one year of enrollment.

Enrollment

Increased enrollments in the SRP may be due to greater awareness of the SRP, endorsements from RAs and consultants participating in the SRP, brownfields redevelopment and other sector-specific incentives (e.g., Dry Cleaner Environmental Response Trust Fund), and more lenders or developers requiring NFR Letters for real estate transactions.

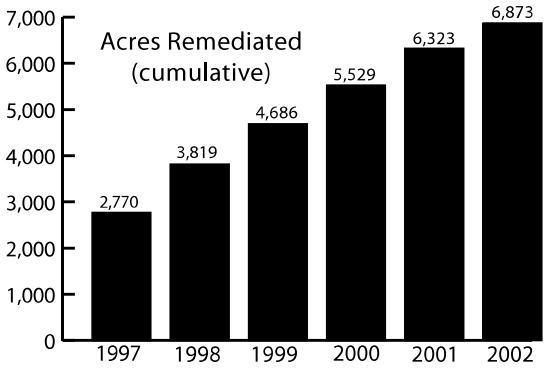


Stricter requirements for chemical analysis in the SRP were expected to slow enrollment, at least in the short term. However, this is not the case and SRP enrollments increased 17% through the first half of 2003 over the same period in 2002.

Risk-Based Cleanups

The Tiered Approach to Corrective Action Objectives (TACO) regulations (35 Ill. Adm. Code 742) are the procedures for developing risk-based remediation objectives. These remediation objectives are based on risks to humans through exposure and by toxicity of hazardous substances. In some cases, sites will be remediated by removing all of the contaminants. However, under TACO, sites can be managed to protective and acceptable human risk levels without removing all of the contaminants by using institutional controls and engineered barriers.

Institiutional controls are administrative mechanisms which impose restrictions and conditions on land use. These controls may include environmental land use controls, ordinances adopted by a unit of local government, or agreements between a property owner and a highway authority. The conditions or restrictions imposed by institutional controls all serve to limit human activities that might result in exposure to contaminants remaining at a site.



Engineered barriers are physical structures designed to reduce exposure to contaminants. A barrier may be natural or human-made, but its effectiveness must be ensured through the use of accepted engineering practices.

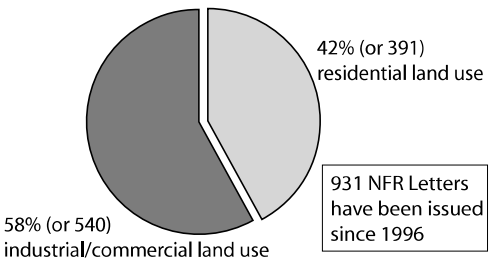
The NFR Letter will identify any such controls and barriers. Since the NFR Letter is filed with the property's deed, subsequent owners are informed of the necessity to maintain these controls. Illinois EPA periodically re-evaluates SRP sites relying on institutional controls and engineered barriers as a condition of their NFR determination. These re-evaluations are conducted through site investigations and review of public records. Failure to meet any of the required conditions may result in voidance of their NFR Letter by the Illinois EPA.

Remediation Objectives Achieved

Under TACO, the RA can develop remediation objectives based on the future use of the land (industrial/commercial or residential), which in turn influences the level of cleanup required.

Residential property is any real property that is used for habitation by individuals or properties where children have the opportunity for exposure to contaminants through ingestion or inhalation at educational facilities, health care facilities, child care facilities, or playgrounds. Residential objectives are generally more stringent than industrial/commercial objectives.

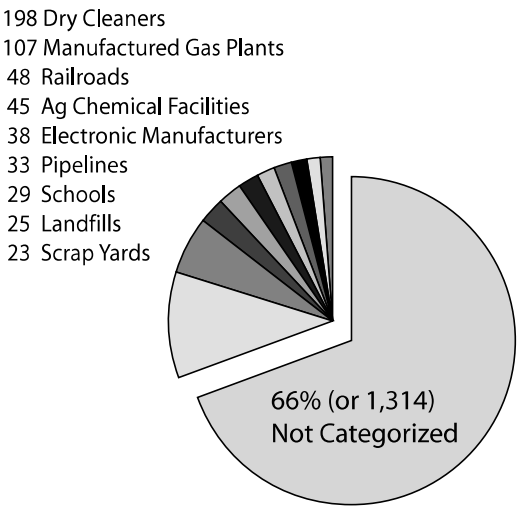
Industrial/Commercial property is any real property that does not meet the definition of residential property, conservation property, or agricultural property. Because exposure is expected to be of shorter duration, the objectives are not as stringent as residential.



The land use categories in TACO do not necessarily correlate to local planning and zoning codes, but rather identify the cleanup level achieved.

Types of sites

Types of SRP cleanup projects

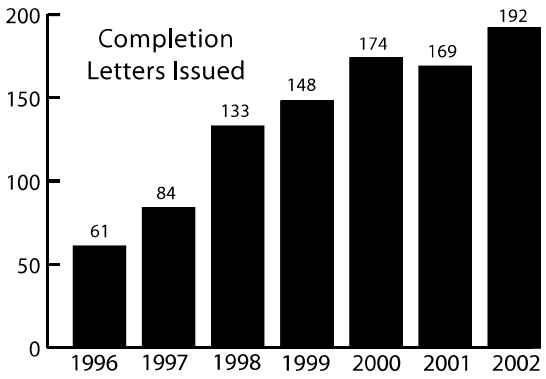


A wide variety of industries have served the state throughout Illinois history. Some, such as the manufactured gas plant industry, ceased operation many years ago and no longer exist. However, their environmental legacy lives on. Other types of industries, such as drycleaners, continue to operate, but owners and operators are now becoming aware of and addressing the contamination that sometimes occurs from their activities.

Approximately 34% of the SRP sites are represented in eight major industrial categories: dry cleaners, manufactured gas plants, railroads, electronic manufacturers, metal finishers and platers, pipelines, agricultural chemical facilities, and landfills.

The remaining 66% of the SRP sites are not identified by the RAs at the time of enrollment or represent miscellaneous industries (e.g., petroleum releases, lumber yards, firing ranges, foundries, etc.).

Completion letters



The SRP issues two types of completion letters: a 4(y) letter and a No Further Remediation (NFR) Letter. Prior to 1996, the Illinois EPA was authorized only to issue 4(y) letters [415 ILCS 5/4(y)] to persons for completion of voluntary cleanups. The Illinois EPA was authorized to issue NFR Letters [415 ILCS 5/58.10] in 1996. The Illinois EPA is still authorized to issue 4(y) letters, but does so on a very limited basis.

A 4 (y) merely denotes that a specific action (e.g., tank or drum removal, lagoon, or chemical spill cleanup) has been successfully completed. It does <u>not</u> imply that all risks to human health and environment at a site have been properly addressed.

The NFR Letter is *prima facie* evidence that a site does not constitute a threat to human health and the environment for contaminants addressed by the RA and the site does not require further remediation under the Illinois Environmental Protection Act as long as the site is used in accordance with the terms of the NFR Letter (e.g., future land use).

A <u>comprehensive NFR Letter</u> affirms that <u>all</u> recognized environmental conditions (releases or threatened release of contaminants) at a site have been addressed and do not constitute a significant risk of harm to human health and the environment, as long as the site is used in accordance with the terms and conditions of the NFR Letter.

A <u>focused NFR Letter</u> affirms that a <u>specific</u> chemical or set of chemicals (e.g., benzene, toluene, xylene) at a site has been addressed and does not constitute a significant risk of harm to human health and the environment, as long as the site is used in accordance with the terms and conditions of the NFR Letter. A focus NFR Letter is more limited than a comprehensive NFR Letter only in terms of contaminants investigated and cleaned up.

Review Times and Costs

The time and cost figures presented here are for information only. Individual project costs and duration are highly variable. Costs for any SRP projects are impossible to predict, because of (1) the level of cleanup necessary (e.g., site size, extent of contamination, future use of the site, comprehensive or focused site investigation conducted), and (2) the project costs beyond those incurred by the Illinois EPA (e.g., RA's consultant fees, RA's attorney fees, laboratory costs, waste disposal costs) are not available to the Illinois EPA and generally represent the bulk of remediation costs.

Since 1996, over 50% of the SRP projects were issued an NFR Letter within one year of enrollment. The approximate median Illinois EPA service cost per project was $7,000.

2003 Outlook

LABORATORY ACCREDITATION

Beginning in 2003, participation in the SRP requires the use of laboratories certified by the Illinois Environmental Laboratory Accreditation Program. This requirement helps ensure that national standards for data quality are maintained.

REGULATORY AMENDMENTS

Illinois EPA will introduce amendments to the Tiered Approach to Corrective Action Objectives (TACO) regulations consistent with anticipated changes in the U.S. EPA's Soil Screening Level (SSL) framework. Recent updates to ASTM's Risk-Based Corrective Action (RBCA) procedures will also be considered for incorporation.

New ecological risk assessment regulations are being developed currently for the SRP. These regulations are intended to provide additional protection for valuable ecological resources.

Amendments to the Municipal Brownfields Redevelopment Grant Program regulations will require participation in the SRP as a grant condition. This help to ensure that grant money is used in the most effective manner.

NEW INTERNET FEATURE

The Illinois EPA will provide a geographic information system web page identifying the location and status of all SRP sites.

CHALLENGES

Despite budgetary reductions and increased enrollments in 2003, the SRP is committed to maintaining the resources necessary to provide the services expected by all Remediation Applicants.

Cover (Clockwise from top left): University of Illinois at Chicago (graphic courtesy of South Campus Development Team, LLC), BP Products North America, Inc. (photo courtesy of Delta Environmental Consultants, Inc.), Triangle Properties (photo courtesy of Village of LaGrange and Triangle Properties, LLC), and CP Clare (photo courtesy of MACTEC Engineering & Consulting, Inc.).

Where to Go for More Information:

FOR QUESTIONS ABOUT THE SITE REMEDIATION PROGRAM:

Illinois EPA - Bureau of Land, VSRU
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62702
Phone: 217/782-6761
Fax: 217-782-3258

www.epa.state.il.us/land/site-remediation/index.html

TO OBTAIN INFORMATION ABOUT INDIVIDUAL SRP SITES:

Illinois EPA - Freedom of Information Act Unit
Phone: 217/782-9878
Fax: 217/782-9290
e-mail: FOIA@epa.state.il.us

CREDITS

The Site Remediation Program Annual Report is produced by the Illinois Environmental Protection Agency, Renee Cipriano, Director, and is published by the Agency's Office of Public Information, Dennis McMurray, Manager.

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Contributors: Greg Dunn, Todd Gross, Rick Lucas, Tim Murphy, Heather Nifong, Gregg Sanders, and Thomas Rivera.

Special thank you to: Delta Environmental Consultants, Inc., MACTEC Engineering & Consulting, Inc., Village of LaGrange, Triangle Properties, LLC, University of Illinois-Chicago, and South Campus Development Team.

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July 2003
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EXHIBIT H

K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

MEMORANDUM

From: Richard Gnat, P.G., KPRG and Associates, Inc.

Date: May 31, 2022

Re: Comments on Draft Proposed Rule - 35 Ill. Adm. Code 846 (Historic Ash Fill)

****

The Illinois Pollution Control Board (IPCB) opened a sub-docket A in the Illinois CCR Rulemaking (docket R20-19(A)) to address certain issues concerning CCR, requesting comments by interested parties. On August 6, 2021, the Environmental Group provided comments, including proposed modifications to Part 845 and a new Part 846 to specifically address the historic coal ash only at power-generating stations. On March 3, 2022, the IPCB requested comments on the Environmental Group's proposed rules. My comments are specifically on the groundwater aspects of the proposed new Part 846 and other notes observations based upon my experience as a hydrogeologist and environmental consultant.

General Comments and Discussion on the Proposed Part 846

The proposed Part 846 is structured to mirror the existing Part 845 State CCR Rule. This of itself reflects a fundamental lack of understanding, or willingness to understand, the technical nuances between the presence of historic CCR fill materials at power generating facilities versus CCR formally being managed within engineered surface impoundments. The recently adopted Part 845 State CCR Rule was specifically developed and implemented to assist in regulating, managing and overseeing the operation, maintenance and closure of surface impoundments that are specifically developed for the storage, either temporary or permanent, of CCR materials. It is a new permitting program for the operation, maintenance and closure of CCR surface impoundments which provides the requirements for new surface impoundment siting, construction and operation, existing (active and inactive) surface impoundment locational and construction evaluation criteria and retrofitting or closure requirements as necessary. As such, Part 845 establishes a permitting program consisting of an Operation Permit and a Construction Permit for these engineered surface impoundments as regulated units. The associated statistical groundwater monitoring program requirements are specifically established to provide a measure of the engineered CCR materials storage units performance (i.e., is the unit leaking). In other words, the groundwater monitoring program establishes a "performance standard" used to evaluate the "performance" of an engineered unit, such as a CCR surface impoundment or a landfill. The performance standards and the statistical analysis of the performance are not necessary or appropriate for addressing groundwater impacts potentially associated with areas/pockets of historic ash placement on power

generating station property since these areas do not have constructed or engineered structures for which performance is being evaluated.

The "historic ash" that was specifically excluded from the Part 845 State CCR Rule is ash located outside the boundaries of the regulated surface impoundments, including but not limited to ash placed on the ground surface or beneficially reused for various engineering purposes, all of which occurred prior to CCR regulation and in many cases prior to overall environmental regulations that were established in the 1970s and early 1980s. This is no different than historic waste placement or handling issues at old industrial facilities across Illinois and potential environmental impacts associated with those historic practices prior to regulation. Illinois has established a remediation program to properly address these types of issues - Title XVII of the Illinois Environmental Protection Act and the underlying regulations under the Ill. Adm. Code Part 740 – Site Remediation Program (SRP) and Ill. Adm. Code Part 742 – Tiered Approach to Corrective Action Measures (TACO). Both the statute and the regulations specify site investigation/characterization and remedial action requirements with deliverables including Site Investigation Reports, Determination of Remediation Objectives/Remediation Objectives Reports, Remedial Action Plans and Remedial Action Completion Reports. Part 740 also specifies the Standards for Review for each of these submittals. These regulations have been successfully implemented across the State at numerous old industrial facilities (active and inactive) and Brownfields properties many of which include materials more hazardous than CCR (e.g., chlorinated solvent impacted properties). This existing regulatory construct is the proper pathway for addressing the characterization (nature and extent), remediation and management of historic CCR issues at power generating facilities.

An additional concern relative to the potential of carving out historic CCR placement at electrical power stations and developing a regulatory permitting construct for each potential pocket or area of former ash placement is that it will set a precedent for establishing new permitting programs each targeted for individual industry specific issues associated with former waste handling practices. For example, will a separate set of regulations be established to permit and manage historic waste/filling practices at old tannery facilities and another set of permitting regulations established to address old foundry issues? This type of permitting approach for historic impact issues at industrial facilities would not be tenable for the regulatory agency or the regulated community.

Specific Comments on Proposed Part 846

Subpart A: Historic Ash Fill

Section 846.100 (b) – Scope and Applicability – add "or Part 845" after Part 811 reference. I am suggesting this because right now it states that this proposed rule will not apply for CCR permitted under Part 811 which is for landfills. Therefore, it should also clearly state that it does not apply under permitted Part 845 which would be surface impoundments.

Section 846.110 – Definitions – There is a new term and definition added for "Uppermost saturated zone" which does not appear in Part 845. It is very broad in definition and will include all perched water zones regardless of their size, isolation or potential intermittent nature. This term

has been added to proposed Part 846.300 – Location Restrictions and goes beyond the intent of Part 845.300 for location restrictions for CCR surface impoundments.

Section 846.130(a-b) – Characterization of a CCR Fill Area – This basically specifies a requirement to develop a focused site investigation work plan which is already covered under the existing Part 742 regulations. There is no need to establish a separate regulation for this item. Subsection (b) requires the Agency to make available the work plan for public comment and to formally respond to those comments. Obtaining public comment/input at each step of the overall process is not technically justified. Instead, it will only add to Agency time and cost and unnecessarily extend the overall project timeframes.

Subpart B: Permitting – Sections 846.200 through 846.280 – This entire Subpart establishes the procedures for a new permitting program requirement focused on historic CCR fill areas. It prohibits any type of CCR fill disturbance/remediation without obtaining a construction permit. This type of new permitting program in unnecessary. These activities are adequately covered under existing Part 742 regulations which specify the development of Remedial Alternative Objectives/Remediation Objectives Reports, the development of a Remedial Action Plan (which includes a proposed implementation schedule) and quality assurance/quality control documentation requirements as needed for the selected remedial alternative. This process has been proven successful and effective for historic fill and other waste sites throughout the State without the need for a formal burdensome, time consuming and costly permitting process. This process would also potentially need to be repeated multiple times at the same site as previously unknown CCR placement areas may be identified during either ongoing plant operations or as plant closures and decommissioning starts to occur. As presently written, entire decommissioning projects/operations can come to a standstill awaiting the approval of a focused construction permit for a previously unknown/documented pocket of CCR material which otherwise could simply be excavated and transported for disposal, or otherwise managed.

Under proposed Section 846.220(b)(2) there is a requirement for numerical groundwater modeling as part of the required Construction Permit application. Establishing numerical groundwater models for each potential pocket of CCR identified on site is not technically justified in most cases, and not economically reasonable. This requirement is within the Part 845 State CCR Rule, however, that requirement is for evaluation of corrective action or specific closure options for actual engineered and regulated units. Evaluation of remedial alternative effectiveness for historic fill materials at industrial facilities are better evaluated using the analytical solutions for contaminant transport and risk evaluations. This process is detailed under the existing Part 742 TACO regulations. This approach has been successfully used in the development and implementation of remedial actions at old industrial facilities across the State.

Subpart C: Location Restrictions – Sections 846.300 through 846.330 – As noted in the Section 846.110 – Definitions comment, this Subpart includes additional wording regarding "Uppermost Saturated Zone" which is not included under the location restrictions in Part 845.

Subpart D: Groundwater Monitoring and Corrective Action – Sections 846.400 through 846.480 – The overall proposed groundwater monitoring program, which mirrors requirements under the existing CCR Rule Section 845 Subpart F, is misguided. The concept and purpose of a

statistically based groundwater monitoring program is for the monitoring and performance evaluation of engineered containment structures such as permitted landfills, or in the case of the CCR Rule, surface impoundments. Areas in which historic CCR may be present will not have been specifically engineered for CCR containment and most likely will not include liners, etc. for which such a monitoring program is implemented to assist in evaluating liner performance based on statistical evaluations of upgradient and downgradient groundwater quality. The site characterization approach used under the existing Part 742 regulations is specifically tailored to such historic fill issues. The site characterization determines the nature and extent of fill and whether the fill in question is impacting groundwater. This is accomplished via both sampling of the fill materials as well as placement of groundwater monitoring wells both upgradient and downgradient of the area. A geologic/hydrogeologic characterization is part of this process and includes an evaluation of potential migration pathways. If groundwater impacts are identified, the full extent of these impacts must be defined and assessed. However, developing a statistically based groundwater monitoring approach as specified in this proposed rule for each potential individual CCR fill area is not necessary to develop and appropriate remedial action plan for implementation, if needed.

Sections 846.430 through 846.450 – As stated in the general discussion above, the proposed rules to treat historic fill areas the same as engineered units is not a technically nor scientifically sound approach. The groundwater monitoring systems and sampling/analysis requirements, including statistical water quality evaluation requirements, required in Sections 846.430 through 846.450 are not useful for historic fill assessments. That type of program and statistical analysis requirement is intended for assisting in engineered containment unit performance evaluations, and not useful for historic fill areas. Instead, historic fill areas are better addressed by conducting hydrogeologic studies in support of evaluating appropriate potential remedial alternatives and subsequently developing a remedial action plan. That process is already developed under the existing Part 740.405 through 740.435 and has been proven successful at industrial sites across the State.

Section 846.460 through 846.490 – These subsections outline the assessment of corrective action, corrective action plan development and corrective action implementation. These are merely duplicative of the already established processes in the existing Part 740, Sections 740.440 (Determination of Remedial Action Objectives), 740.445 (Remedial Objectives Report), 740.450 (Remedial Action Plan) and 740.455 (Remedial Action Completion Report). The only real difference is the establishment of the submittal requirement timeframes, which is not technically justified and may not be technically feasible. The timeframes to investigate and conduct any corrective actions depend upon the size of a site and complexity of any contamination at the site. It is not technically feasible to dictate arbitrary deadlines, and the program under the existing Part 740, has proven successful in conducting corrective actions at industrial facilities without the need for regulatory deadlines, or a permitting program.

Subpart F: Removal

Section 456.600 (a)(1)(A) – This references the newly proposed term “uppermost saturated zone”. As noted previously, this additional wording should be removed.

Environmental Groups – Proposed Amendments to Existing Part 845 CCR Rule

Section 845.740(c)(3)(A-F) – This is a new proposed addition to the State CCR Rule with specific requirements relative to the monitoring for potential fugitive dust associated with the transport of CCR to off-site disposal facilities. The proposed monitoring requirements surpass any existing State or Federal regulations for hazardous materials or waste transport. The proposed amendment includes, among other items, performing dust monitoring at the disposal facility to which the CCR is being transported, video and dust monitoring including a GPS-enabled, continuously operating video camera of each truck, barge or railcar at all times. The video camera footage is to be uploaded on a monthly basis to the facility's State CCR website. This level of control and documentation requirement is unprecedented and KPRG is not sure how reliably implementable and unnecessarily burdensome it will be. Shipments of hazardous waste being moved across the country on a daily basis do not have these requirements. These types of unnecessarily onerous requirements will only provide further justification for closure in-place alternatives. In addition, the receiving facility will probably take exception to additional fugitive dust monitoring to their existing operations just for this specific waste stream. The unintended consequence of this could result in off-site disposal facilities refusing to accept CCR materials thereby limiting or eliminating all together off-site disposal options.

EXHIBIT I

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
STANDARDS FOR THE DISPOSAL OF	)	
COAL COMBUSTION RESIDUALS IN	)	**R20-19 (A)**
SURFACE IMPOUNDMENTS: PROPOSED	)	**(Rulemaking – Water)**
35 ILL.ADM. CODE PART 845	)	
	)	

AFFIDAVIT OF TODD MUNDORF

I, Todd Mundorf, being first duly sworn on oath, depose and state as follows:

1. I am over the age of 18 years and am a resident of Illinois.

2. The information in this Affidavit is based on my personal knowledge or belief in my capacity as the Station Manager at the Powerton Station located in Pekin, Illinois, and my experience with Midwest Generation, LLC ("MWG").

3. I have worked for MWG since 2005.

4. As the Powerton Station Manager, I oversee all of the Station operations, including power generation, procurement, and removal of the coal combustion residual ("CCR") from the CCR surface impoundments. Before I was the Station Manager, from 2017 until 2022, I was the Operations Manager, overseeing the effective operation of the coal fired generating station, including oversight of the removal of the coal ash from the CCR surface impoundments.

5. Before I worked at the Powerton Station, I was the Operations Manager at the Waukegan Station, located in Waukegan, Illinois from 2010 to 2017. As the Operations Manager, I was responsible for the effective operation of 689mw coal fired generating station. As part of my responsibilities, I oversaw the removal of coal ash from the Waukegan CCR surface impoundments. I was also the Midwest Generation Safety Initiative Project Management Lead, from 2008 to 2010, in which I was responsible for the safety performance improvement across

MWG. I began my career with MWG as the Waukegan Station Administration Manager, in which I was responsible for procurement, accounts payable, training, and human resources.

6. As part of my experience with MWG, I am familiar with the operations at the Joliet 29 Station in Joliet, Illinois and the Will County Station, located in Romeoville, Illinois, including the CCR collection and removal processes.

7. MWG began operating the Powerton Station, Waukegan Station, Joliet 29 Station, and Will County Station (collectively the "Stations") in 1999.

8. The Stations generate two types of CCR from the burning of the coal to generate electricity: fly ash and bottom ash.

9. The fly ash is collected via a dry system using electrostatic precipitators. The fly ash is temporarily collected in fly ash silos, where it is then loaded directly into enclosed trucks within a partial enclosure and then hauled offsite for beneficial reuse. In 2016, Joliet 29 converted its operations to burn natural gas instead of coal, and ceased generating CCR. Because Joliet 29 does not generate energy using coal, Joliet 29 does not generate fly ash. However, when Joliet 29 burned coal, it also collected fly ash using electrostatic precipitators and removed the fly ash for beneficial reuse.

10. Bottom ash consists of heavier particles that fall to the bottom of the furnaces and is mixed with water and sluiced out of the furnaces.

11. At the Powerton Station, the bottom ash is sluiced to the dewatering bins, which collect approximately 98% of the bottom ash. The fine CCR that did not drop out of the transport water in the dewatering bins flows into either the Ash Surge Basin or the Bypass Basin for settlement. The Powerton Station also has a concrete pad that occasionally holds CCR removed during routine plant maintenance activities. The concrete pad is below-grade, which prevents exposure to windy

conditions. Typically, the CCR is wet, and MWG allows it to partially dry on the pad to facilitate removal.

12. At the Waukegan Station, the bottom ash is sluiced to one of the two CCR surface impoundments at the Station.

13. At the Will County Station, the bottom ash is sluiced to one of the two CCR surface impoundments at the Station. The Will County Station also has a concrete pad that occasionally holds CCR removed during routine plant maintenance activities. The concrete pad is at grade level, and has a retaining wall and a windscreen, which prevent exposure to windy conditions. Typically, the CCR is wet, and MWG allows it to partially dry on the pad to facilitate removal.

14. Before Joliet 29 converted to natural gas, the vast majority of the bottom ash at Joliet 29 was sluiced across the Des Plaines River to a permitted landfill in an enclosed pipe system. On the rare occasions when the enclosed pipe system was offline, the bottom ash was sluiced into one of two CCR surface impoundments at Joliet 29. The CCR was removed from the Joliet 29 CCR surface impoundments, so the Station no longer generates nor stores CCR.

15. The CCR surface impoundments accumulate CCR and the water used to move the CCR to the surface impoundments. Unless the surface impoundment is in the CCR removal process, the CCR in the surface impoundments is stored wet with most of the CCR immersed in water.

16. MWG routinely removes the bottom ash from the CCR surface impoundments at the Stations. Under information and belief, the coal ash was also routinely removed from the impoundments long before MWG began operating the Stations.

17. When a CCR surface impoundment needs to be emptied, the first step is to dewater the pond and drain as much water as possible from the impoundment. Then, the equipment operators enter the basin to move the CCR into piles to let more water to drain out of the saturated CCR.

18. One of the biggest challenges to removing the CCR from the surface impoundments is to separate the water from the saturated CCR so that the CCR can be loaded into trucks for transportation offsite beneficial.

19. Even after allowing the water to drain from the CCR in the impoundments, when the CCR is loaded into the trucks, it is not dry, and instead remains damp.

20. In my experience, I have not observed fugitive dust from the CCR during the CCR removal process from the surface impoundments, likely because the CCR is damp.

21. The MWG Stations are subject to the requirements of the Board rules at 35 IAC Part 212 Subpart K and specifically the requirement to have a fugitive operating program, in 35 IAC 212.309.

22. Additionally, pursuant to the Federal CCR Rule (40 CFR §257) and the Illinois CCR Rule (35 Ill. Adm. Code 845), the Stations have fugitive dust control plans and mitigation programs to reduce fugitive dust from Station operations, including from fly ash and bottom ash handling.

23. The fugitive dust operating programs and plans effectively prevent any fugitive dust from emitting from the CCR surface impoundments.

24. Pursuant to the Federal CCR Rule and the Illinois CCR Rule, the fugitive dust plans include a requirement to receive and log any citizen complaints related to CCR.

25. I asked each Station to identify and report to me any citizen complaints regarding fugitive dust from CCR at the MWG Stations. No Station has received a citizen complaint regarding CCR since 2015. In 2019, Illinois EPA received a complaint regarding visible emissions from a truck operating off site near the Powerton Station that contained fly ash, and in 2020, the Tazewell County Health Department received a complaint that ash had spilled onto a road. In both instances,

the Powerton Environmental Coordinator drove the local roads and observed no evidence of ash on the roads.

26. MWG also maintains records of reports of environmental and safety incidents and near misses in its internal health and safety database. I searched the database for all of the MWG Stations back to 2009, the earliest date the records are maintained. Since 2009, there have been no records or reports of external complaints about dusting or any reported employee safety incidents related to CCR in the surface impoundments or CCR removal in the database.

27. If there were any risk to MWG employees at the MWG Stations during their work to remove the fly ash and bottom ash from the Stations, MWG would immediately institute modifications to the health and safety measures in response to the risk.

Under penalties as provided by law pursuant to Section 1-109 of the Code of Civil Procedure, the undersigned certifies that the statements set forth in this instrument are true and correct, except as to matters therein stated to be on information and belief and as to such matters the undersigned certifies as aforesaid that he verily believes the same to be true.

FURTHER AFFIANT SAYETH NOT.

Todd Mundorf

Subscribed and Sworn to before me
On 5/25/, 2022.

Notary Public

My Commission Expires: 03/15/2026

OFFICIAL SEAL
TRACY MORROW
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES MARCH 15,2026

EXHIBIT J

WILL COUNTY
COMMUNITY FRIENDLY
FREIGHT MOBILITY PLAN

CED WILL COUNTY CENTER FOR ECONOMIC DEVELOPMENT

APPENDIX L
TRUCK ROUTES

September 2017

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TRUCK ROUTES

Truck Route	Type	Class	Communities Served
I-55	Interstate	I	Bolingbrook, Romeoville, Joliet, Channahon, Wilmington, Braidwood
I-355	Interstate	I	Boilingbrook, Lemont, Lockport, New Lenox
I-80	Interstate	I	Joliet, New Lenox, Mokena, Tinley Park
I-57	Interstate	I	University Park, Monee, Peotone
IL 126	Major Arterial	II	Plainfield
IL 59	Major Arterial	II	Naperville, Plainfield, Joliet, Shorewood
US 30	Major Arterial	II	Aurora, Plainfield, Joliet, New Lenox, Mokena, Frankfort
IL 53	Major Arterial	II	Bolingbrook, Romeoville, Cresthill, Joliet, Elwood, Wilmington, Braidwood, Godley
IL 7	Major Arterial	II	Homer Glen, Lockport, Cresthill, Joliet
IL 171	Major Arterial	II	Lockport, Joliet
US 45	Major Arterial	II	Mokena, Frankfort
US 52	Major Arterial	III	Joliet, Manhattan
US 6	Major Arterial	II	Joliet, Channahon
IL 113	Major Arterial	II	Coal City, Braidwood
IL 129	Major Arterial	II	Wilmington
IL 102	Major Arterial	II	Wilmington
IL 50	Major Arterial	II	University Park, Monee, Peotone
IL 394	Major Arterial	I	Sauk Village, Crete
CR 1	Major Arterial	II	Steger, Crete, Beecher
Caton Farm Road	Local Arterial	II	Crest Hill
Oakland Avenue	Connector	II	Crest Hill
Division Street	Local Arterial	II	Crest Hill
County Road 54	Local Arterial	II	Joliet
Laraway Road	Local Arterial	II	Joliet
Arsenal Road	Local Arterial	II	Elwood
Kankakee Street	Connector	-	Elwood
Lorenzo Road	Local Arterial	II	Channahon
River Road	Local Arterial	II	Elwood
Wilmington Road	Local Arterial	II	Peotone
Indiana Avenue	Local Arterial	II	Beecher

EXHIBIT K

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	GALLAGHER ASPHALT CORP.
ID No.:	197809ABS
Application No.:	90020083
Category:	03K
Item Date:	8/13/2014

Completed by:	BAD
Date:	___/___/___

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

AUTHORIZATION TO OPERATE
UNDER A GENERAL PERMIT

PERMITTEE

Gallagher Asphalt Corporation
Attn: Steven W. Caraway
18100 South Indiana Avenue
Thornton, Illinois 60476

General Permit No.: G2951A2
Application No.: 90020083 I.D. No.: 197809ABS
Applicant's Designation: Date Received: May 16, 2014
Type of Source: Drum-Mix Asphalt Plant
Date Issued: August 13, 2014 Expiration Date: August 12, 2024
Source Location: 1711 Brandon Road, Joliet, Will County

Authorization is hereby granted to the above-designated Permittee to operate the above source, consisting of a drum-mix asphalt plant (the affected plant) controlled with a baghouse. The affected plant may include, up to eight (8) asphalt storage silos, up to twelve (12) storage tanks, up to five (5) asphalt tank heaters and boilers (total combined heat input of all units no more than 14 million Btu/hour), hot mix asphalt silos with truck loadout, and an aggregate crushing plant (up to three (3) crushers, up to nine (9) screens, up to thirty (30) conveyors with associated transfer points) under a General Permit for the affected plant, pursuant to the above-referenced application.

If you have any questions regarding this authorization, please contact Mike Dragovich at 217/785-1705.

Raymond E. Pilapil EMB

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

Date Signed: 8/13/2014

REP:MJD:psj

cc: Region 1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

GENERAL FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
FOR DRUM-MIX ASPHALT PLANT - NSPS SOURCE

Permit No.: G2951A2
Subject: Drum-Mix Asphalt Plant
Expiration Date: August 12, 2024

This permit is hereby granted to OPERATE a drum-mix asphalt plant as specified below in Findings 1, 2, and 3. The owner or operator must obtain an authorization to operate under this General Permit, by submitting an application, as described in Finding 5, to the Illinois EPA. Authorization, if granted, will be transmitted by letter. A copy of this permit will be included.

Findings

1. This general permit is applicable to drum-mix asphalt plants that meet all of the following criteria:

   a. i. The plant produces no more than 148,333 tons per month and 890,000 tons per year of asphalt.

   ii. The drum mixer is equipped with a baghouse for particulate matter control.

   b. i. The sum of all materials processed by the crushing plant does not exceed 55,000 tons per month and 425,000 tons per year of reclaimed asphalt pavement (RAP) and recycled concrete.

   ii. Water sprays are used on the emission units associated with the crushing plant (crushers, conveyors, and stockpiles) to produce a moisture content of 1.5% by weight or higher in order to control particulate matter emissions, rather than by capture systems and collection devices.

   iii. All normal traffic pattern access areas surrounding storage piles and all normal traffic pattern roads and parking facilities which are located on the property are paved or treated with water, oils or chemical dust suppressants. All paved areas are cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants have the treatment applied on a regular basis, or as needed basis.

   c. i. The only fuels fired in the drum mixer and drum dryer are natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6. The use of used oil for fuel in the drum mixer and drum dryer is allowed only if the owner or operator of the affected drum-mix asphalt plant has received prior written approval from the Illinois EPA and has performed stack testing to verify compliance with all applicable requirements.

ii. A. The only fuels fired in the boilers, and tank heaters are natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6.

B. The total design heat input capacity of any individual boiler or any individual asphalt tank heater does not exceed 10.0 million Btu/hour and the total rated heat input capacity for all such units shall not exceed 14 million Btu/hour.

d. Unless it is otherwise addressed by this permit, any other emission units requiring a permit from the Illinois EPA are not present at this source.

2. For purposes of this permit, an affected drum-mix asphalt plant includes all aggregate transfer, weigh-hopper loading, loading and transferring at the site and is one that does not exceed:

a. One (1) asphalt drum mixer and one (1) drum dryer with a baghouse;

b. Eight (8) asphalt storage silos with truck loadout;

c. Twelve (12) storage tanks each with capacities less than:

i. 19,815 gallons for tanks used to store gasoline; or

ii. 39,889 gallons for tanks used to store materials with a vapor pressure less than 2.17 psi (e.g., asphalt cement, asphalt oil, fuel oils, etc.).

d. Five (5) asphalt tank heaters and boilers (10 mmBtu/hour maximum firing rate per individual unit and a total of 14 mmBtu/hour maximum firing for all such units);

e. RAP/recycled concrete crushing plant comprised of:

i. Three (3) crushers;

ii. Nine (9) screens; and

iii. Thirty (30) conveyors associated with the crushing plant.

3. This permit imposes conditions on activities at the affected drum-mix asphalt plant to assure compliance with applicable requirements of:

a. 40 CFR Part 60, Subparts A, I, and OOO;

b. 40 CFR Part 63, Subparts A and CCCCCC;

c. 35 Ill. Adm. Code Part 212, Subparts E, K, and L;

d. 35 Ill. Adm. Code Part 214, Subparts B and K; and/or

e. 35 Ill. Adm. Code Part 215, Subparts B, K, and Y; 35 Ill. Adm. Code Part 218 Subparts B, G, and Y; or 35 Ill. Adm. Code Part 219 Subparts B, G, and Y.

4. This permit does not excuse the Permittee from obtaining a Construction Permit and/or an Operating Permit for any additional emission units in excess of those units specified in Finding 2.

5. The Illinois EPA will only authorize operation pursuant to this permit if an application includes the following items:

a. A description and location identifying the drum-mix asphalt plant.

b. A statement certifying that the drum-mix asphalt plant meets the criteria in Finding 1.

c. A request for authorization to operate pursuant to this general permit.

d. A statement that the drum-mix asphalt plant is, and will be, operated to comply with 40 CFR Part 60, Subparts A, I, and OOO (if applicable); 40 CFR Part 63, Subparts A and CCCCCC; 35 Ill. Adm. Code Part 212, Subparts E, K, and L; 35 Ill. Adm. Code Part 214, Subparts B and K; 35 Ill. Adm. Code Part 215, Subparts B, K, and Y; 35 Ill. Adm. Code Part 218 Subparts B, G, and Y; or 35 Ill. Adm. Code Part 219 Subparts B, G, and Y; and the Conditions of this permit.

e. A signed certification by the applicant that the information contained in the application is accurate.

6. This federally enforceable state operating permit is issued to limit the emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and other pollutants from the source to less than major source levels, so that the source is excluded from requirements to obtain a permit under the Clean Air Act Permit Program (CAAPP). The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

Conditions

This permit is subject to both the standard conditions attached hereto and the following special condition(s):

1. Source Description

a. This federally enforceable state operating permit (FESOP) is issued:

i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Sulfur Dioxide (SO_2)). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A;

ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, an affected drum-mix asphalt plant, which is located in Chicago area, is excluded from the requirements of 35 Ill. Adm. Code Part 205, Emission Reduction Market System. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A; and

iii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that an affected drum-mix asphalt plant, which is located in Chicago area, is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all operating permit(s) issued for this location.

d. This permit allows the operation and construction of additional emission units of an affected drum-mix asphalt plant (including all aggregate transfer, weigh-hopper loading, loading and transferring at the site) not to exceed:

i. One (1) asphalt drum mixer and one (1) drum dryer with a baghouse;

ii. Eight (8) asphalt storage silos with truck loadout;

iii. Twelve (12) storage tanks each with capacities less than:

A. 19,815 gallons for tanks used to store gasoline; or

B. 39,889 gallons for tanks used to store materials with a vapor pressure less than 2.17 psi (e.g., asphalt cement, asphalt oil, fuel oils, etc.).

iv. Five (5) asphalt tank heaters and boilers (10 mmBtu/hour maximum firing rate per individual unit and a total of 14 mmBtu/hr maximum firing for all such units);

v. RAP/recycled concrete crushing plant comprised of:

A. Three (3) crushers;

B. Nine (9) screens; and

C. Thirty (30) conveyors associated with the crushing plant.

e. This permit does not exempt the Permittee from obtaining a Construction and/or Operating Permit for any additional emission units in excess of those units specified in Condition 1(d), unless such emission units or operations are already exempted from permitting requirements pursuant to 35 Ill. Adm. Code 201.146 and does not affect the source's status with respect to the applicability of Section 39.5 of the Illinois Environmental Protection Act.

2. Applicability Provisions and Applicable Regulations

a. An affected drum-mix asphalt plant, that commences construction or modification after June 11, 1973, is subject to the New Source Performance Standards (NSPS) for Hot Mix Asphalt Facilities, 40 CFR 60, Subparts A and I. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Pursuant to 40 CFR 60.92, on and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, no owner or operator subject to the provisions of 40 CFR 60 Subpart I shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

i. Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf); or

ii. Exhibit 20 percent opacity, or greater.

b. Crushers and grinding mills, as defined in 40 CFR 60.671 and that commence construction, reconstruction, or modification after August 31, 1983, are subject to the New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants, 40 CFR 60 Subparts A and OOO. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Pursuant to 40 CFR 60.670(a)(1), except as provided in 40 CFR 60.670(a)(2), (b), (c) and (d), the provisions of 40 CFR 60 Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket

elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of 40 CFR 60 Subpart OOO.

i. Pursuant to 40 CFR 60.672(b), affected facilities must meet the fugitive emission limits and compliance requirements in Table of 40 CFR 60 Subpart OOO (see also Attachment B) within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11. The requirements in Table 3 of 40 CFR 60 Subpart OOO (see also Attachment B) apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

ii. Pursuant to 40 CFR 60.672(d), truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR 60.672.

iii. Pursuant to 40 CFR 60.672(e), if any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in 40 CFR 60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:

A. Fugitive emissions from any building openings (except for vents as defined in 40 CFR 60.671) must not exceed 7 percent opacity; and

B. Vents (as defined in 40 CFR 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of 40 CFR 60 Subpart OOO.

c. Gasoline tanks associated with an affected drum-mix asphalt plant are subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities, 40 CFR 63, Subparts A and CCCCCC. The Illinois is administrating the NESHAP on behalf of the USEPA under a delegation agreement. Pursuant to 40 63.11111(a), the affected source to which 40 CFR 63 Subpart CCCCCC applies is each gasoline dispensing facility (GDF) that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

i. Pursuant to 40 CFR 63.11111(b), if your GDF has a monthly throughput of less than 10,000 gallons of gasoline, you must comply with the requirements in 40 CFR 63.11116.

ii. Pursuant to 40 CFR 63.11116(a), you must not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

A. Minimize gasoline spills;

B. Clean up spills as expeditiously as practicable;

C. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

D. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

iii. Pursuant to 40 CFR 63.11116(c), you must comply with the requirements of 40 CFR 63 Subpart CCCCCC by the applicable dates specified in 40 CFR 63.11113.

d. Particulate Matter Standards

i. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

ii. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

iii. Pursuant to 35 Ill. Adm. Code 212.206, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hour of actual heat input from

any fuel combustion emission unit (e.g., asphalt tank heaters and boilers associated with an affected drum-mix asphalt plant) using liquid fuel exclusively (0.10 lbs/mmBtu).

iv. Pursuant to 35 Ill. Adm. Code 212.210(a), no person shall cause or allow emissions of PM_{10} into the atmosphere to exceed 12.9 ng/J (0.03 lbs/mmBtu) of heat input from fuels other than natural gas during any one hour period from any industrial fuel combustion emission units, other than in an integrated iron and steel plant, located in the vicinity of Granite City, which area is defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

v. Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.

vi. Pursuant to 35 Ill. Adm. Code 212.306, all normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code 212.304 and all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.

vii. Pursuant to 35 Ill. Adm. Code 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

viii. Pursuant to 35 Ill. Adm. Code 212.308, crushers, grinding mills, screening operations, bucket elevators, conveyor transfer points, conveyors, bagging operations, storage bins and fine product truck and railcar loading operations shall be sprayed with water or a surfactant solution, utilize choke-feeding or be treated by an equivalent method in accordance with an operating program.

ix. Pursuant to 35 Ill. Adm. Code 212.302 (see also Attachment C) and 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and

212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.

x. Pursuant to 35 Ill. Adm. Code 212.310, at a minimum the operating program shall include the following:

A. The name and address of the source;

B. The name and address of the owner or operator responsible for execution of the operating program;

C. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;

D. Location of unloading and transporting operations with pollution control equipment;

E. A detailed description of the best management practices utilized to achieve compliance with 35 Ill. Adm. Code 212 Subpart K, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;

F. Estimated frequency of application of dust suppressants by location of materials; and

G. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

xi. Pursuant to 35 Ill. Adm. Code 212.312, the operating program shall be amended from time to time by the owner or operator so that the operating program is current. Such amendments shall be consistent with 35 Ill. Adm. Code 212 Subpart K and shall be submitted to the Illinois EPA for its review.

xii. Pursuant to 35 Ill. Adm. Code 212.316(a), 35 Ill. Adm. Code 212.316 shall apply to those operations specified in 35 Ill. Adm. Code 212.302 (see also Attachment C) and that are located in areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D) (e.g., McCook, Lake Calumet, and Granite City).

xiii. Pursuant to 35 Ill. Adm. Code 212.316(b), no person shall cause or allow fugitive particulate matter emissions generated by the crushing or screening of slag, stone, coke or coal to exceed an opacity of 10 percent.

xiv. Pursuant to 35 Ill. Adm. Code 212.316(c), no person shall cause or allow fugitive particulate matter emissions from any roadway or parking area to exceed an opacity of 10 percent, except that the opacity shall not exceed 5 percent at quarries with a capacity to produce more than 1 million tons/year of aggregate.

xv. Pursuant to 35 Ill. Adm. Code 212.316(d), no person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent, to be measured four ft from the pile surface.

xvi. Pursuant to 35 Ill. Adm. Code 212.316(f), unless an emission unit has been assigned a particulate matter, PM_{10}, or fugitive particulate matter emissions limitation elsewhere in 35 Ill. Adm. Code 212.316 or in 35 Ill. Adm. Code 212 Subparts R or S, no person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent.

xvii. Pursuant to 35 Ill. Adm. Code 212.321(a), except as further provided in 35 Ill. Adm. Code Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

xviii. Pursuant to 35 Ill. Adm. Code 212.324(b), except as otherwise provided in 35 Ill. Adm. Code 212.324, no person shall cause or allow the emission into the atmosphere, of PM_{10}, from any process emission unit to exceed 68.7 mg/scm (0.03 gr/scf) during any one hour period.

xix. Pursuant to 35 Ill. Adm. Code 212.324(e), no person shall cause or allow emissions of PM_{10} into the atmosphere to exceed 12.9 ng/J (0.03 lbs/mmBtu) of heat input from the burning of fuel other than natural gas at any process emission unit located in the vicinity of Granite City as defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

xx. Pursuant to 35 Ill. Adm. Code 212.700(a), 35 Ill. Adm. Code 212 Subpart UU (Additional Control Measures) shall apply to

those sources in the areas designated in and subject to 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D) or 212.423(a) and that have actual annual source-wide emissions of PM_{10} of at least fifteen (15) tons per year.

e. Sulfur Dioxide Standards

i. Pursuant to 35 Ill. Adm. Code 214.122(b), no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source (e.g., asphalt tank heaters and boilers associated with an affected drum-mix asphalt) with actual heat input smaller than, or equal to, 73.2 MW (250 mmBtu/hour), burning liquid fuel exclusively:

A. To exceed 1.55 kg of sulfur dioxide per MW-hour of actual heat input when residual fuel oil is burned (0.8 lbs/mmBtu); and

B. To exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu).

ii. Pursuant to 35 Ill. Adm. Code 214.301, except as further provided by 35 Ill. Adm. Code Part 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm.

iii. Pursuant to 35 Ill. Adm. Code 214.304, the emissions from the burning of fuel at process emission units located in the Chicago or St. Louis (Illinois) major metropolitan areas shall comply with applicable 35 Ill. Adm. Code 214 Subparts B through F (i.e., 35 Ill. Adm. Code 214.122).

f. Volatile Organic Material Standards

i. Pursuant to 35 Ill. Adm. Code 215.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe, submerged fill, or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code Part 201 or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 215.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 215.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code

215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 215 Subpart K (Use of Organic Material) shall only apply to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 215.583(a) and 215.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gallons or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing facility unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 215.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 215.584(b) or (d).

g. Volatile Organic Material Standards for the Chicago Area

i. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code

218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 218 Subpart G (Use of Organic Material) shall only apply to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 218.583(a) and 218.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gal or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing operation unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 218.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 218.584(b) or (d); and

C. By March 15, 1995, all tank vent pipes are equipped with pressure/vacuum relief valves with the following design specifications:

I. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or

II. The pressure/vacuum relief valve shall meet the requirements of 35 Ill. Adm. Code 218.586(c); and

D. The owner or operator of a gasoline dispensing operation demonstrates compliance with 35 Ill. Adm. Code 218.583(a)(3), by March 15, 1995 or 30 days after installation of each pressure/vacuum relief

valve, whichever is later, and at least annually thereafter, by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate. The owner or operator shall maintain any records required by 35 Ill. Adm. Code 218.583(a)(4) for a period of three years.

h. Volatile Organic Material Standards for the Metro East Area

i. Pursuant to 35 Ill. Adm. Code 219.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 219.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 219.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 219.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 219.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 219.302, 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 219 Subpart G (Use of Organic Material) shall apply only to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 219.583(a) and 219.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gallons or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing facility unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 219.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 219.584(b) or (d); and

C. By March 15, 1995, all tank vent pipes are equipped with pressure/vacuum relief valves with the following design specifications:

I. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or

II. The pressure/vacuum relief valve shall meet the requirements of 35 Ill. Adm. Code 219.586(c); and

D. The owner or operator of a gasoline dispensing operation demonstrates compliance with 35 Ill. Adm. Code 219.583(a)(3), by March 15, 1995 or 30 days after installation of each pressure/vacuum relief valve, whichever is later, and at least annually thereafter, by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate. The owner or operator shall maintain any records required by this 35 Ill. Adm. Code 219.583(a)(4) for a period of three years.

3. Exceptions and Exemptions from Otherwise Applicable Rules

a. NSPS for Nonmetallic Mineral Processing Plants

i. Pursuant to 40 CFR 60.670(a)(2), the provisions of 40 CFR 60 Subpart OOO do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in 40 CFR 60.671).

ii. Pursuant to 40 CFR 60.670(b), an affected facility that is subject to the provisions of 40 CFR 60 Subparts F (Portland

Cement Plants) or I (Hot Mix Asphalt Facilities) or that follows in the plant process any facility subject to the provisions of 40 CFR 60 Subparts F or I is not subject to the provisions of 40 CFR 60 Subpart OOO;

iii. Pursuant to 40 CFR 60.670(c), facilities at the following plants are not subject to the provisions of 40 CFR 60 Subpart OOO:

A. Fixed sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 23 megagrams per hour (25 tons per hour) or less;

B. Portable sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 136 megagrams per hour (150 tons per hour) or less; and

C. Common clay plants and pumice plants with capacities, as defined in 40 CFR 60.671, of 9 megagrams per hour (10 tons per hour) or less.

iv. Pursuant to 40 CFR 60.670(d)(1), when an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR 60.672, 60.674, and 60.675 except as provided for in 40 CFR 60.670(d)(3).

v. Pursuant to 40 CFR 60.670(d)(2), an owner or operator complying with 40 CFR 60.670(d)(1) shall submit the information required in 40 CFR 60.676(a).

vi. Pursuant to 40 CFR 60.670(d)(3), an owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in 40 CFR 60.670(d)(1) and must comply with the provisions of 40 CFR 60.672, 60.674 and 60.675.

b. Particulate Matter Standards:

i. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hour (25 mph). Determination of wind speed for the purposes of 35 Ill. Adm. Code 212.314 shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is

less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

ii. Pursuant to 35 Ill. Adm. Code 212.324(d), the mass emission limits contained in 35 Ill. Adm. Code 212.324(b) shall not apply to those emission units with no visible emissions other than fugitive particulate matter; however, if a stack test is performed, 35 Ill. Adm. Code 212.324(d) is not a defense finding of a violation of the mass emission limits contained in 35 Ill. Adm. Code 212.324(b).

c. Volatile Organic Material Standards:

i. Pursuant to 35 Ill. Adm. Code 215.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 215.122 shall only apply to the loading of volatile organic liquid (VOL) with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

ii. Pursuant to 35 Ill. Adm. Code 218.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

iii. Pursuant to 35 Ill. Adm. Code 219.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 219.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

4. Operational Limits and Work Practice Requirements

a. Pursuant to 40 CFR 60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall to the extent practicable, maintain and operate the affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

b. Pursuant to 35 Ill. Adm. Code 212.324(f), for any process emission unit subject to 35 Ill. Adm. Code 212.324(a) (i.e., sources located in McCook, Lake Calumet, or Granite City), the owner or operator shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards in 35 Ill. Adm. Code 212.324 shall be met at

all times. 35 Ill. Adm. Code 212.324 shall not affect the applicability of 35 Ill. Adm. Code 201.149. Proper maintenance shall include the following minimum requirements:

i. Visual inspections of air pollution control equipment;

ii. Maintenance of an adequate inventory of spare parts; and

iii. Expeditious repairs, unless the emission unit is shutdown.

c. Pursuant to 35 Ill. Adm. Code 212.701(a), those sources subject to 35 Ill. Adm. Code 212 Subpart UU shall prepare contingency measure plans reflecting the PM_{10} emission reductions set forth in 35 Ill. Adm. Code 212.703. These plans shall become federally enforceable permit conditions. Such plans shall be submitted to the Illinois EPA by November 15, 1994. Notwithstanding the foregoing, sources that become subject to the provisions of 35 Ill. Adm. Code 212 Subpart UU after July 1, 1994, shall submit a contingency measure plan to the Illinois EPA for review and approval within ninety (90) days after the date such source or sources became subject to the provisions of 35 Ill. Adm. Code 212 Subpart UU or by November 15, 1994, whichever is later. The Illinois EPA shall notify those sources requiring contingency measure plans, based on the Illinois EPA's current information; however, the Illinois EPA's failure to notify any source of its requirement to submit contingency measure plans shall not be a defense to a violation of 35 Ill. Adm. Code 212 Subpart UU and shall not relieve the source of its obligation to timely submit a contingency measure plan.

d. Pursuant to 35 Ill. Adm. Code 212.703(a), all sources subject to 35 Ill. Adm. Code 212 Subpart UU shall submit a contingency measure plan. The contingency measure plan shall contain two levels of control measures:

i. Level I measures are measures that will reduce total actual annual source-wide fugitive emissions of PM_{10} subject to control under 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 by at least 15%.

ii. Level II measures are measures that will reduce total actual annual source-wide fugitive emissions of PM_{10} subject to control under 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 by at least 25%.

e. Pursuant to 35 Ill. Adm. Code 212.703(b), a source may comply with 35 Ill. Adm. Code 212 Subpart UU through an alternative compliance plan that provides for reductions in emissions equal to the level of reduction of fugitive emissions as required at 35 Ill. Adm. Code 212.703(a) and which has been approved by the

Illinois EPA and USEPA as federally enforceable permit conditions. If a source elects to include controls on process emission units, fuel combustion emission units, or other fugitive emissions of PM_{10} not subject to 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 at the source in its alternative control plan, the plan must include a reasonable schedule for implementation of such controls, not to exceed two (2) years. This implementation schedule is subject to Illinois EPA review and approval.

f. Pursuant to 35 Ill. Adm. Code 212.704(b), if there is a violation of the ambient air quality standard for PM_{10} as determined in accordance with 40 CFR Part 50, Appendix K, the Illinois EPA shall notify the source or sources the Illinois EPA has identified as likely to be causing or contributing to one or more of the exceedences leading to such violation, and such source or sources shall implement Level I or Level II measures, as determined pursuant to 35 Ill. Adm. Code 212.704(e). The source or sources so identified shall implement such measures corresponding to fugitive emissions within ninety (90) days after receipt of a notification and shall implement such measures corresponding to any non-fugitive emissions according to the approved schedule set forth in such source's alternative control plan. Any source identified as causing or contributing to a violation of the ambient air quality standard for PM_{10} may appeal any finding of culpability by the Illinois EPA to the Illinois Pollution Control Board pursuant to 35 Ill. Adm. Code 106 Subpart J.

g. Pursuant to 35 Ill. Adm. Code 212.704(e), the Illinois EPA shall require that sources comply with the Level I or Level II measures of their contingency measure plans, pursuant 35 Ill. Adm. Code 212.704(b), as follows:

   i. Level I measures shall be required when the design value of a violation of the 24-hour ambient air quality standard, as computed pursuant to 40 CFR 50, Appendix K, is less than or equal to 170 ug/m^3.

   ii. Level II measures shall be required when the design value of a violation of the 24-hour ambient air quality standard, as computed pursuant to 40 CFR 50, Appendix K, exceeds 170 ug/m^3.

h. Pursuant to 35 Ill. Adm. Code 215.583(c), each owner of a gasoline dispensing facility shall:

   i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 215.583(a);

   ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance

operations and procedures for prompt notification of the owner in the case of any malfunction of a vapor control system; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

i. Pursuant to 35 Ill. Adm. Code 215.583(d), subject to 35 Ill. Adm. Code 215.583(b), each operator of a gasoline dispensing facility and each delivery vessel operator shall:

i. Maintain and operate each vapor control system in accordance with the owner's instructions;

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and

B. Avoidable leaks of liquid during the filling of storage tanks.

j. Pursuant to 35 Ill. Adm. Code 218.583(c), each owner of a gasoline dispensing operation shall:

i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 215.583(a);

ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

k. Pursuant to 35 Ill. Adm. 218.583(d), each operator of a gasoline dispensing operation shall:

i. Maintain and operate each vapor control system in accordance with the owner's instructions;

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B; and

B. Avoidable leaks of liquid during the filling of storage tanks;

l. Pursuant to 35 Ill. Adm. Code 219.583(c), each owner of a gasoline dispensing facility shall:

i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 219.583(a);

ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

m. Pursuant to 35 Ill. Adm. Code 219.583(d), each operator of a gasoline dispensing operation shall:

i. Maintain and operate each vapor control system in accordance with the owner's instructions;

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when

tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and

B. Avoidable leaks of liquid during the filling of storage tanks; and

n. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.

o. The baghouse associated with the affected drum-mix asphalt plant shall be in operation at all times when the associated drum dryer is in operation and emitting air contaminants.

p. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the baghouse such that the baghouse is kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

q. The surface moisture content of the aggregate to be processed in the crushing plant associated with the affected drum-mix asphalt plant shall be at least 1.5% by weight. The Permittee shall show compliance with this requirement as follows:

i. Water sprays shall be used on the emission units associated with the crushing plant (e.g., crushers, conveyors, and stockpiles, etc.) as necessary, except when weather conditions are below or expected to fall below freezing temperatures, to produce a moisture content of 1.5% by weight or higher to reduce particulate matter emissions; or

ii. Demonstrate compliance with Condition 4(q) by following the testing requirements of Condition 6(c).

iii. All normal traffic pattern access areas surrounding storage piles and all normal traffic pattern roads and parking facilities which are located on the property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, or as needed basis.

r. i. The drum mixer and drum dryer shall only be operated with natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6 as the fuels. The use of used oil for fuel in the drum mixer and drum dryer is authorized by this permit only if the owner or operator of the affected

drum-mix asphalt plant has received prior approval from the Illinois EPA and has performed stack testing to verify compliance with all applicable requirements.

ii. The boilers and tank heaters shall only be operated with natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6 as the fuels.

s. The Permittee shall not keep, store, or use distillate fuel oil (Grades No. 1 and 2) at this source with a sulfur content greater than the larger of the following two values:

i. 0.28 weight percent; or

ii. The wt. percent given by the formula: Maximum wt. percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).

t. The Permittee shall not keep, store or use residual fuel oil (Grades No. 4, 5 and 6) at this source with a sulfur content greater than that given by the formula:

Maximum wt. percent sulfur = (0.00004) x (Gross heating value of oil, Btu/lb).

u. Organic liquid by-products or waste materials shall not be used in an affected drum-mix asphalt plant without written approval from the Illinois EPA.

v. The Illinois EPA shall be allowed to sample all fuels stored at the above location.

5. Emission Limitations

a. Emissions and operation of the affected drum-mix asphalt plant shall not exceed the following limits:

i. Asphalt Production Limits:

(Tons/Month)	(Tons/Year)
148,333	890,000

ii. Emissions from Drum Mixer/Dryer:

Pollutant	Emission Factor (lb/Ton)	Emissions (Tons/Month)	(Tons/Year)
CO	0.13	9.64	57.85
NO_x	0.055	4.08	24.48
PM	0.033	2.45	14.69
PM_{10}	0.023	1.71	10.24

Pollutant	Emission Factor (lb/Ton)	Emissions (Tons/Month)	Emissions (Tons/Year)
SO_2	0.058	3.71	25.81
VOM	0.032	2.37	14.24

iii. Emissions from Silo Filling:

Pollutant	Emission Factor (lb/Ton)	Emissions (lbs/Month)	Emissions (Tons/Year)
CO	0.00118	175.03	0.53
PM	0.000586	77.43	0.26
PM_{10}	0.000586	77.43	0.26
VOM	0.0122	1,809.67	5.43

iv. Emissions from Truck Load-out:

Pollutant	Emission Factor (lb/Ton)	Emissions (lbs/Month)	Emissions (Tons/Year)
CO	0.00135	200.25	0.60
PM	0.000522	77.43	0.23
PM_{10}	0.000522	77.43	0.23
VOM	0.00416	617.07	1.85

v. These limits are based on maximum asphalt production and standard emission factors (Tables 11.1-3, 11.1-7, 11.1-8, and 11.1-14, AP-42, Volume I, Fifth Edition, Update 2004, April 2004).

b. Emissions and operation of the asphalt tank heaters and boilers shall not exceed the following limits:

i. Maximum firing rate of any individual unit: 10 mmBtu/hour

ii. Total maximum firing rate for all asphalt tank heaters and boilers: 14 mmBtu/hour

iii. Emissions from asphalt heaters and boilers:

Pollutant	Emission Factor (lb/mmBtu)	Emissions (lbs/Hour)	Emissions (Tons/Year)
CO	0.084	1.18	5.15
NO_x	0.143	2.00	8.76
PM	0.014	0.20	0.88
SO_2	0.2	2.8	12.3
VOM	0.006	0.08	0.34

iii. These limits are based on maximum fuel usage and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth

Edition, Volume I, Supplement D, July 1998 for natural gas combustion and Tables 1.3-1 and 1.3-3, AP-42, Fifth Edition, Volume I, Supplement E, September 1999, corrected May 2010, for distillate fuel oil combustion).

c. Emissions of VOM from the twelve (12) storage tanks shall not exceed 0.5 tons/month and 3.0 tons/year, combined. This limit is based on a maximum throughput of 50,000 gallons/year of gasoline, 200,000 gallons/year of diesel, and 10,000,000 gallons/year of asphaltic cement/year.

d. Emissions and operation of the crushing plant shall not exceed the following limits:

i. Total Reclaimed Asphalt Pavement (RAP) and recycled concrete throughput:

(Tons/Month)	(Tons/Year)
55,000	425,000

ii. Particulate Matter Emissions from the Crushing Plant:

Item of Equipment	PM Emissions (lb/Ton)	PM Emissions (Ton/Mo)	PM Emissions (Tons/Yr)	PM_{10} Emissions (lb/Ton)	PM_{10} Emissions (Ton/Mo)	PM_{10} Emissions (Tons/Yr)
3 Crushers	0.0012	0.10	0.77	0.00054	0.04	0.34
9 Screens	0.0022	0.54	4.21	0.00074	0.18	1.42
30 Conveyors	0.00014	0.12	0.89	0.000046	0.04	0.29
		Totals	5.87			2.05

iii. These limits are based on maximum aggregate throughput and standard, controlled emission factors (Table 11.19.2-2, AP 42, Fifth Edition, Volume I, Update 2004, August 2004).

e. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

6. Testing Requirements

a. The Permittee shall perform all applicable testing for the affected drum-mix asphalt plant as specified by 40 CFR 60.8, 60.93, and 60.675 as follows:

i. Pursuant to 40 CFR 60.8(a), within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility and at such other times as may be required by the Illinois EPA or USEPA under section 114 of the Clean Air Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Illinois

EPA or USEPA a written report of the results of such performance test(s).

ii. Pursuant to 40 CFR 60.8(b), performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart of 40 CFR Part 60 unless the Illinois EPA or USEPA:

A. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology;

B. Approves the use of an equivalent method;

C. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance;

D. Waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Illinois EPA's or USEPA's satisfaction that the affected facility is in compliance with the standard; or

E. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Illinois EPA's or USEPA's authority to require testing under section 114 of the Clean Air Act.

iii. Pursuant to 40 CFR 60.8(c), performance tests shall be conducted under such conditions as the Illinois EPA or USEPA shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Illinois EPA or USEPA such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

iv. Pursuant to 40 CFR 60.8(d), the owner or operator of an affected facility shall provide the Illinois EPA or USEPA at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Illinois EPA or USEPA the opportunity to have an observer present. If after 30 day notice for an initially scheduled

performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Illinois EPA or USEPA as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Illinois EPA or USEPA by mutual agreement.

v. Pursuant to 40 CFR 60.8(e), the owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

A. Sampling ports adequate for test methods applicable to such facility. This includes:

I. Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test 1 methods and procedures; and

II. Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

B. Safe sampling platform(s).

C. Safe access to sampling platform(s).

D. Utilities for sampling and testing equipment.

vi. Pursuant to 40 CFR 60.8(f), unless otherwise specified in the applicable subpart of 40 CFR Part 60, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard under 40 CFR Part 60. For the purpose of determining compliance with an applicable standard under 40 CFR Part 60, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Illinois EPA's or USEPA's approval, be determined using the arithmetic mean of the results of the two other runs.

vii. Pursuant to 40 CFR 60.93(a), in conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in

appendix A of 40 CFR Part 60 or other methods and procedures as specified in 40 CFR 60.93, except as provided in 40 CFR 60.8(b).

viii. Pursuant to 40 CFR 60.93(b), the owner or operator shall determine compliance with the particulate matter standards in 40 CFR 60.92 as follows:

A. Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).

B. Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.

ix. Pursuant to 40 CFR 60.675(a), in conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendices A-1 through A-7 of 40 CFR Part 60 or other methods and procedures as specified in 40 CFR 60.675, except as provided in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in 40 CFR 60.675(e).

x. A. Pursuant to 40 CFR 60.675(c)(1), in determining compliance with the particulate matter standards in 40 CFR 60.672(b) or 40 CFR 60.672(e)(1), the owner or operator shall use Method 9 of Appendix A-4 of 40 CFR Part 60 and the procedures in 40 CFR 60.11, with the following additions:

I. The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

II. The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun (Method 9 of Appendix A-4 of 40 CFR Part 60, Section 2.1) must be followed.

III. For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

B. Pursuant to 40 CFR 60.675(c)(3), when determining compliance with the fugitive emissions standard for any affected facility described under 40 CFR 60.672(b) or 40 CFR 60.672(e)(1), the duration of the Method 9 (40 CFR Part 60, Appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 (see also Attachment B) must be based on the average of the five 6-minute averages.

xi. Pursuant to 40 CFR 60.675(d), to demonstrate compliance with the fugitive emission limits for buildings specified in 40 CFR 60.672(e)(1), the owner or operator must complete the testing specified in 40 CFR 60.675(d)(1) and (2). Performance tests must be conducted while all affected facilities inside the building are operating.

A. If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR Part 60, Appendix A-4) performance test according to 40 CFR 60.675 and 40 CFR 60.11.

B. If the building encloses only affected facilities that commenced construction, modification, or reconstruction before April 22, 2008, and the owner or operator has previously conducted an initial Method 22 (40 CFR part 60, Appendix A-7) performance test showing zero visible emissions, then the owner or operator has demonstrated compliance with the opacity limit in 40 CFR 60.672(e)(1). If the owner or operator has not conducted an initial performance test for the building before April 22, 2008, then the owner or operator must conduct an initial Method 9 (40 CFR Part 60, Appendix A-4) performance test according to this section and 40 CFR 60.11 to show compliance with the opacity limit in 40 CFR 60.672(e)(1).

xii. Pursuant to 40 CFR 60.675(e), the owner or operator may use the following as alternatives to the reference methods and procedures specified in 40 CFR 60.675(c):

A. For the method and procedure of 40 CFR 60.675(c), if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

I. Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

II. Separate the emissions so that the opacity of emissions from each affected facility can be read.

B. A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

I. No more than three emission points may be read concurrently.

II. All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

III. If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

xiii. Pursuant to 40 CFR 60.675(g), for performance tests, there involving only Method 9 (40 CFR Part 60 Appendix A-4) testing, the owner or operator may reduce the 30-day advance notification of performance test in 40 CFR 60.7(a)(6) and 60.8(d) to a 7-day advance notification.

xiv. Pursuant to 40 CFR 60.675(i), if the initial performance test date for an affected facility falls during a seasonal shut down (as defined in 40 CFR 60.671) of the affected facility, then with approval from the permitting authority, the owner or operator may postpone the initial performance test until no later than 60 calendar days after resuming operation of the affected facility.

b. Pursuant to 35 Ill. Adm. Code 201.282, 212.107, 212.109, and 212.110, testing for particulate matter emissions shall be performed as follows:

i. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining

ground level and ambient air concentrations of such air contaminants:

A. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

B. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

ii. Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and non-fugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. 35 Ill. Adm. Code 212 Subpart A shall not apply to 35 Ill. Adm. Code 212.301.

iii. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the

observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged.

iv. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E.

v. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4.

vi. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

c. The moisture content of a representative sample of the aggregate processed in the crushing plant associated with the affected drum-mix asphalt plant shall be measured at least one per week using ASTM Procedures (C566-97) for total moisture content of material.

d. Pursuant to 35 Ill. Adm. Code 215.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits 35 Ill. Adm. Code 215.583(d)(4)(A).

e. Pursuant to 35 Ill. Adm. Code 218.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of 35 Ill. Adm. Code 218.583(d)(4)(A).

f. Pursuant to 35 Ill. Adm. Code 219.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of 35 Ill. Adm. Code 219.583(d)(4)(A).

7. Inspection and Monitoring Requirements

a. Pursuant to 40 CFR 60.674(b), the owner or operator of any affected facility for which construction, modification, or

reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR 60.676(b).

i. If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then **that affected facility is exempt from the 5-year repeat** testing requirement specified in Table 3 of 40 CFR 60 Subpart OOO (see also Attachment B) provided that the affected facility meets the criteria in 40 CFR 60.674(b)(1)(i) and (ii):

A. The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to 40 CFR 60.674(b) and 40 CFR 60.676(b), and

B. The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under 40 CFR 60.11 and 40 CFR 60.675.

ii. If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under 40 CFR 60.676(b) must specify the control mechanism being used instead of the water sprays.

b. Inspections of the affected drum-mix asphalt plant and control systems equipment and operations shall be performed as necessary but at least once per week when the affected drum-mix asphalt plant is in operation to confirm compliance with the requirements of this permit.

c. i. The water supply to the spray equipment shall be equipped with a metering device used to determine water usage for the control of particulate matter emissions.

ii. Inspections of water spray equipment and operation (such as leaking, maintaining adequate flow, clogging of flow lines, etc.) shall be performed at least once per week when the crushing plant associated with the affected drum-mix asphalt plant is in operation.

8. Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected drum-mix asphalt plant so as to demonstrate compliance with the conditions of this permit:

a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

b. Pursuant to 40 CFR 60.7(f), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

c. Pursuant to 40 CFR 60.676(b)(1), owners or operators of affected facilities (as defined in 40 CFR 60.670 and 60.671) for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under 40 CFR 60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Illinois EPA or USEPA upon request.

d. Pursuant to 40 CFR 63.11116(b), you are not required to submit notifications or reports, but you must have records available within 24 hours of a request by the Illinois EPA or USEPA to document your gasoline throughput.

e. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

f. i. Pursuant to 35 Ill. Adm. Code 212.316(g), the owner or operator of any fugitive particulate matter emission unit subject to 35 Ill. Adm. Code 212.316) (i.e., located in McCook, Lake Calumet, or Granite City) shall keep written records of the application of control measures as may be needed for compliance with the opacity limitations of 35 Ill. Adm. Code 212.316 and shall submit to the Illinois EPA an annual report containing a summary of such information.

ii. Pursuant to 35 Ill. Adm. Code 212.316(g)(2), the records required under 35 Ill. Adm. Code 212.316(g) shall include at least the following:

A. The name and address of the source;

B. The name and address of the owner and/or operator of the source;

C. A map or diagram showing the location of all emission units controlled, including the location, identification, length, and width of roadways;

D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;

E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent and, if diluted, percent of concentration, used each day; and

F. A log recording incidents when control measures were not used and a statement of explanation.

iii. Pursuant to 35 Ill. Adm. Code 212.316(g)(4), the records required under 35 Ill. Adm. Code 212.316(g) shall be kept and maintained for at least three (3) years and shall be available for inspection and copying by Illinois EPA representatives during working hours.

g. Pursuant to 35 Ill. Adm. Code 212.324(g), sources subject to 35 Ill. Adm. Code 212.324 (i.e., sources located in McCook, Lake Calumet, or Granite City) shall maintain the following records:

i. Written records of inventory and documentation of inspections, maintenance, and repairs of all air pollution

control equipment shall be kept in accordance with 35 Ill. Adm. Code 212.324(f).

ii. The owner or operator shall document any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation. These records shall include documentation of causes for pollution control equipment not operating or such malfunction and shall state what corrective actions were taken and what repairs were made.

iii. A written record of the inventory of all spare parts not readily available from local suppliers shall be kept and updated.

iv. Copies of all records required by 35 Ill. Adm. Code 212.324(g) shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA.

v. The records required under 35 Ill. Adm. Code 212.324(g) shall be kept and maintained for at least three (3) years and shall be available for inspection and copying by Illinois EPA representatives during working hours.

h. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 218.119 shall maintain readily accessible records of the dimension of the storage vessel and analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

i. Pursuant to 35 Ill. Adm. Code 219.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 219.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provision of 35 Ill. Adm. Code Part 219 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

j. Records addressing the application of control measures taken pursuant to the operating program required by 35 Ill. Adm. Code 212.302 which are used to reduce fugitive particulate matter emissions.

k. Records addressing use of good operating practices for the baghouse:

i. Operating logs for the affected drum-mix asphalt plant dryer baghouse, including operating data (pressure drop or stack condition), daily upon startup;

ii. Records for periodic inspection of the baghouse with date, individual performing the inspection, and nature of inspection; and

iii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

l. The Permittee shall maintain records of excess emissions during malfunctions and breakdowns of the baghouse associated with the affected drum-mix asphalt plant dryer. At a minimum, these records shall include:

i. Date and duration of malfunction or breakdown;

ii. A full and detailed explanation of the cause for such emissions;

iii. The contaminants emitted and an estimate of the quantity of emissions;

iv. The measures used to reduce the quantity of emissions and the duration of the occurrence; and

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity.

m. Records addressing use of good operating practices for the crushing plant:

i. If the Permittee is relying on the requirements of Conditions 4(q)(ii) and 6(c) to demonstrate compliance with Condition 4(q), the Permittee shall maintain records of all moisture content tests performed including date, time, individual performing test, and location of sample (e.g., prior to crushing, stockpiles, etc.);

ii. If the Permittee is relying on Condition 4(q)(i) to demonstrate compliance with Condition 4(q), the Permittee shall maintain operating logs for the water spray equipment, including dates and times of usage, malfunctions (type, date, and measures taken to correct), water pressure, and dates when there was at least 0.25" of rainfall during the preceding 24 hours and the water spray equipment was not operated; and

iii. The Permittee shall maintain weekly records of water consumption in the spray equipment, as determined by the meter required by Condition 7(m)(i) and the amount of precipitation specified in Condition 8(j)(ii).

n. Records addressing use of good operating practices for the storage tanks:

i. Design information for the tanks showing the presence of a permanent submerged loading pipe; and

ii. Maintenance and repair records for the tanks, as related to the repair or replacement of the loading pipe.

o. Production and Operating Records:

i. Asphalt production (tons/month and tons/year);

ii. Aggregate throughput for the crushing plant (tons/month and tons/year);

iii. Fuel Usage Records:

A. Total natural gas usage (million ft^3/month and million ft^3/year);

B. Total liquefied petroleum gas (LPG) usage (gallons/month and gallons/year);

C. Total fuel oil usage (gallons/month and gallons/year) and type of fuel oil used;

D. The sulfur content of the fuel oil used in the affected drum-mix asphalt plant (% by weight), this shall be recorded for each shipment of oil delivered to the source.

iv. Total throughput of each material stored in the tanks present at the source (gallons/month and gallons/year).

p. Monthly and annual CO, NO_x, PM, SO_2, and VOM emissions from the affected drum-mix asphalt plant shall be maintained, based on asphalt production, fuel consumption, crushing plant throughput, and storage tank throughput and the applicable emission factors, with supporting calculations (tons/month and tons/year).

q. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years after the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer

storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to the Illinois EPA or USEPA request for records during the course of a source inspection.

9. Reporting Requirements

a. Pursuant to 40 CFR 60.7(a), any owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Illinois EPA or USEPA written notification or, if acceptable to both the Illinois EPA or USEPA and the owner or operator of a source, electronic notification, as follows:

i. A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

ii. A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

iii. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Illinois EPA or USEPA may request additional relevant information subsequent to this notice.

b. Pursuant to 40 CFR 60.676(a), each owner or operator seeking to comply with 40 CFR 60.670(d) shall submit to the Illinois EPA or USEPA the following information about the existing facility being replaced and the replacement piece of equipment.

i. For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

A. The rated capacity in megagrams or tons per hour of the existing facility being replaced and

B. The rated capacity in tons per hour of the replacement equipment.

ii. For a screening operation:

A. The total surface area of the top screen of the existing screening operation being replaced and

B. The total surface area of the top screen of the replacement screening operation.

iii. For a conveyor belt:

A. The width of the existing belt being replaced; and

B. The width of the replacement conveyor belt.

iv. For a storage bin:

A. The rated capacity in megagrams or tons of the existing storage bin being replaced; and

B. The rated capacity in megagrams or tons of replacement storage bins.

c. Pursuant to 40 CFR 60.676(f), the owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR 60.672, including reports of opacity observations made using Method 9 (40 CFR Part 60, Appendix A-4) to demonstrate compliance with 40 CFR 60.672(b), (e) and (f).

d. Pursuant to 40 CFR 60.676(g), the owner or operator of any wet material processing operation that processes saturated and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. At the time of such change, this screening operation, bucket elevator, or belt conveyor becomes subject to the applicable opacity limit in 40 CFR 60.672(b) and the emission test requirements of 40 CFR 60.11.

e. Pursuant to 40 CFR 60.676(h), the 40 CFR 60 Subpart A requirement under 40 CFR 60.7(a)(1) for notification of the date construction or reconstruction commenced is waived for affected facilities under 40 CFR 60 Subpart OOO.

f. Pursuant to 40 CFR 60.676(i), a notification of the actual date of initial startup of each affected facility shall be submitted to the Illinois EPA or USEPA.

i. For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Illinois EPA or USEPA. The notification shall be postmarked within 15 days after such date and shall include a description of each affected

facility, equipment manufacturer, and serial number of the equipment, if available.

ii. For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

g. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

h. Pursuant to 35 Ill. Adm. Code 212.316(g)(3), copies of all records required by 35 Ill. Adm. Code 212.316(g) shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records.

i. Pursuant to 35 Ill. Adm. Code 212.316(g)(5), a quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this 35 Ill. Adm. Code 212.316. This report shall be submitted to the Illinois EPA thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.

j. Pursuant to 35 Ill. Adm. Code 212.324(g)(6), upon written request by the Illinois EPA, a report shall be submitted to the Illinois EPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating properly, and a statement of what corrective actions were taken and what repairs were made.

k. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35 Ill. Adm. Code 218.208(b) shall submit

records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.

l. The Permittee shall submit notification of the changes to the operation of the source to the Illinois EPA - Air Permit Section ten (10) working days prior to the commencement of such change as follows:

i. The replacement of any emission unit or air pollution control equipment authorized by Condition 1(d) of this permit; or

ii. The addition of any emission unit or air pollution control equipment so long as the source continues to comply with Condition 1(d) of this permit.

m. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall promptly notify the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. In addition to the specific items listed below, the report shall include a description of the exceedance or deviation, the probable cause of any such deviation, emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, a description of any corrective actions or preventive measures taken, and efforts to reduce emissions and occurrences:

i. Emissions of CO, NO_x, PM, SO_2, and/or VOM, in excess of the limits specified in Condition 5, within 30 days of a record showing such an occurrence.

ii. Continued operation of the affected drum-mix asphalt plant with a defect in a baghouse, which may result in emissions of particulate matter in excess of limits in Conditions 2(a), 2(d), or 5(a) within 30 days of such an occurrence.

iii. The use of fuel oil with a sulfur content in excess of the limit specified in Condition 4(s) or 4(t) with the length of time this fuel was used and the effect on emissions of SO_2 within 30 days of this violation being detected.

n. The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 Ill. Adm. Code 201.263, concerning continued operation of the affected drum-mix asphalt plant during malfunction or breakdown of the affected drum-mix asphalt plant with excess emissions:

i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal

working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction, or breakdown.

ii. Upon conclusion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected drum-mix asphalt plant was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected drum-mix asphalt plant was taken out of service.

o. Reporting Addresses

The following addresses should be utilized for the submittal of reports, notifications, and renewals:

i. Two (2) copies of required reports and notifications shall be sent to the Illinois EPA - Air Compliance Section at the following address:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. One (1) copy of required reports and notifications shall be sent to the Illinois EPA's - Air Regional Field Office at the address corresponding to the region the affected drum-mix asphalt plant is located, unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 1
9511 West Harrison
Des Plaines, Illinois 60016

Tel: 847/294-4000 Fax: 847/294-4018

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 2
412 SW Washington Street, Suite D
Peoria, Illinois 61602

Tel: 309/671-3022 Fax: 309/671-3024

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 3
2009 Mall Street
Collinsville, Illinois 62234

Tel: 618/346-5120 Fax: 618/346-5155

iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

Tel: 217-785-1705 Fax: 217-524-5023

iv. USEPA Region 5 - Air Branch

USEPA (A - 18J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

p. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

10. The assembly of this plant at a new location will require a construction permit. This permit must be obtained prior to commencing construction at the new location. For this purpose, a new location is defined as a location in Illinois at which the plant does not have a valid operating permit or authorization letter.

11. The operation of this plant at a location in Illinois other than a location identified in a valid operating permit or an authorization letter requires another operating permit or authorization from the Illinois EPA. This operating permit/authorization must be obtained prior to operating at such location.

12. The Permittee shall notify the Illinois EPA in writing 5 days in advance of either disassembling or reassembling the plant at the source location identified in an authorization letter.

It should be noted that this permit does not authorize the acceptance of waste. The appropriate permit must be obtained from the Bureau of Land before waste can be accepted. If the used oil is not "on-spec" and not burned in a unit for energy recovery as allowed by 35 Ill. Adm. Code 739.161, the used oil will be considered a solid waste and not a fuel. This makes the used oil subject to the manifest requirements of 35 Ill. Adm. Code 809 and the facility subject to the permitting requirements of 35 Ill. Adm. Code 807,

as a solid waste management site. Furthermore, the used oil must provide surplus energy beyond the necessary to sustain combustion to be considered a fuel and not a waste.

If you have any questions on this permit, please call a Permit Analyst at 217/785-1705.

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

REP:RWB:psj

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emission of an affected drum-mix asphalt plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario, which results in maximum emissions from such a plant. This is production of 890,000 tons of asphalt, the processing of 425,000 tons of reclaimed asphalt pavement (RAP) and recycled concrete, and a total maximum rated heat input of 14,000,000 Btu per hour for boilers and asphalt heaters. The resulting maximum emissions are below the levels, (e.g., 100 tons per year of CO, NO_x, and SO_2), at which a plant would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from an affected drum-mix asphalt plant will be less than predicted in this summary to the extent that less materials will be handled by the plant, gaseous fuel is used, and control measures are more effective than required by this permit.

	Annual Emissions (Tons/Year)				
Item of Equipment	CO	NO_x	PM	SO_2	VOM
Drum Mixer/Dryer	57.85	24.48	14.69	25.81	14.24
Asphalt Silo Filling	0.53	----	0.26	----	5.43
Truck Loadout	0.60	----	0.23	----	1.85
Asphalt Heaters and Boilers	5.15	8.76	0.88	12.30	0.34
3 Crushers	----	----	0.77	----	----
9 Screens	----	----	4.21	----	----
30 Conveyors	----	----	0.89	----	----
12 Storage Tanks	----	----	----	----	3.00
Total	64.13	33.24	21.93	38.11	24.86

REP:RWB:psj

Attachment B - Table 3 to Subpart OOO of Part 60 — Fugitive Emission Limits

For	The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in 40 CFR 60.670 and 60.671)	The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used	The owner or operator must demonstrate compliance with these limits by conducting
Affected facilities (as defined in 40 CFR 60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008	10 percent opacity	15 percent opacity	An initial performance test according to 40 CFR 60.11 and 40 CFR 60.675.
Affected facilities (as defined in 40 CFR 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	7 percent opacity	12 percent opacity	An initial performance test according to 40 CFR 60.11 and 40 60.675; and Periodic inspections of water sprays according to 40 CFR 60.674(b) and 40 CFR 60.676(b); and

For	The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in 40 CFR 60.670 and 60.671)	The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used	The owner or operator must demonstrate compliance with these limits by conducting
			A repeat performance test according to 40 CFR 60.11 40 CFR 60.675 within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in 40 CFR 60.674(b) and 40 CFR 60.676(b) are exempt from this 5-year repeat testing requirement.

Attachment C

35 Ill. Adm. Code 212.302 Geographical Areas of Application

1. Pursuant to 35 Ill. Adm. Code 212.302(a), 35 Ill. Adm. Code 212.304 through 212.310 and 212.312 shall apply to all mining operations (SIC major groups 10 through 14), manufacturing operations (SIC major groups 20 through 39 except for those operations subject to 35 Ill. Adm. Code Part 212 Subpart S (Grain-Handling and Grain-Drying Operations) that are outside the areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D), and electric generating operations (SIC group 491), which are located in the areas defined by the boundaries of the following townships, notwithstanding any political subdivisions contained therein, as the township boundaries were defined on October 1, 1979, in the following counties:

Cook:	All townships
Lake:	Shields, Waukegan, Warren
DuPage:	Addison, Winfield, York
Will:	DuPage, Plainfield, Lockport, Channahon, Peotone, Florence, Joliet
Peoria:	Richwoods, Limestone, Hollis, Peoria, City of Peoria
Tazewell:	Fondulac, Pekin, Cincinnati, Groveland, Washington
Macon:	Decatur, Hickory Point
Rock Island:	Blackhawk, Coal Valley, Hampton, Moline, South Moline, Rock Island, South Rock Island
LaSalle:	LaSalle, Utica
Madison:	Alton, Chouteau, Collinsville, Edwardsville, Fort Russell, Godfrey, Granite City, Nameoki, Venice, Wood River
St. Clair	Canteen, Caseyville, Centerville, St. Clair, Stites, Stookey, Sugar Loaf, Millstadt.

2. Pursuant to 35 Ill. Adm. Code 212.302(b), in the geographical areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D), 35 Ill. Adm. Code 212.304 through 212.310, and 212.312, and 35 Ill. Adm. Code 212.316 shall apply to all emission units identified in 35 Ill. Adm. Code 212.302(a), and shall further apply to the following operations: grain-handling and grain-drying (35 Ill. Adm. Code Part 212 Subpart S), transportation, communications, electric, gas, and sanitary services (SIC major groups 40 through 49). Additionally, 35 Ill. Adm. Code 212.304 through 212.310 and 212.312 and 35 Ill. Adm. Code 212.316 shall apply to wholesale trade-farm supplies (SIC Industry No. 5191) located in the vicinity of Granite City, as defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

3. Pursuant to 35 Ill. Adm. Code 212.302(c), emission units must comply with 35 Ill. Adm. Code 212.302(b) by May 11, 1993, or upon initial start-up, whichever occurs later.

Attachment D

35 Ill. Adm. Code 212.324 Process Emission Units in Certain Areas

1. Applicability.

   a. Pursuant to 35 Ill. Adm. Code 212.324(a)(1), 35 Ill. Adm. Code 212.324 shall apply to any process emission unit located in any of the following areas:

      i. That area bounded by lines from Universal Transmercator (UTM) coordinate 428000mE, 4631000mN, east to 435000mE, 4631000mN, south to 435000mE, 4623000mN, west to 428000mE, 4623000mN, north to 428000mE, 4631000mN, in the vicinity of McCook in Cook County, as shown in Illustration D of 35 Ill. Adm. Code Part 212;

      ii. That area bounded by lines from Universal Transmercator (UTM) coordinate 445000mE, 4622180mN, east to 456265mE, 4622180mN, south to 456265E, 4609020N, west to 445000mE, 4609020mN, north to 445000mE, 4622180mN, in the vicinity of Lake Calumet in Cook County, as shown in Illustration E of 35 Ill. Adm. Code Part 212;

      iii. That area bounded by lines from Universal Transmercator (UTM) coordinate 744000mE, 4290000mN, east to 753000mE, 4290000mN, south to 753000mE, 4283000mN, west to 744000mE, 4283000mN, north to 744000mE, 4290000mN, in the vicinity of Granite City in Madison County, as shown in Illustration F of 35 Ill. Adm. Code Part 212.

   b. Pursuant to 35 Ill. Adm. Code 212.324(a)(2), 35 Ill. Adm. Code 212.324 shall not alter the applicability of 35 Ill. Adm. Code 212.321 and 35 Ill. Adm. Code 212.322.

REP:RWB:psj

EXHIBIT L

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Joliet Container Terminal LLC	
ID No.:	197809 ACV	
Application No.:	12 06 0009	
Category:	03K	
Item Date:	5-10-2017	
Keyword:		*
Comment:		*
Part:	of	*

* If applicable

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)

PERMITTEE

Joliet Container Terminal, LLC
Attn: Brian Wanzenried, Director of Environmental
1331 Capitol Avenue
Omaha, Nebraska 68102

Application No.: 12060009 I.D. No.: 197809ACV
Applicant's Designation: Date Received: June 6, 2012
Subject: Grain and DDG Transloading Terminal
Date Issued: May 10, 2017 Expiration Date: May 10, 2027
Location: 1955 Patterson Road, Lot 6 and 6A, Joliet, Will County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Two (2) 300 tph truck dump pits (Pit #1 and #2) controlled by baghouse (CU-2) and with quick closing doors and three sided enclosure
One (1) 300 tph unloading drag conveyor
One (1) 300 tph shipping/DDG receiving leg
One (1) 500 tph top drag conveyor
Two (2) 300 tph reclaim drag conveyors
One (1) 1,000 tons DDG storage pile building
Two (2) 80 tons overhead storage bins with bin vents
Two (2) 300 tph enclosed intermodal container loading areas controlled by baghouses (CU-1 or CU-2)
One (1) 300 tph truck dump pit (Pit #3) controlled by baghouse (CU-1) and with quick closing doors, and three sided enclosure
One (1) 500 tph unloading drag conveyor
One (1) 300 tph receiving leg
Two (2) 300 tph transfer drag conveyors
One (1) 300 tph shipping leg
Two (2) 1,000 bushel surge bins
One (1) 300 tph grain cleaner
One (1) 300 tph truck loading fines at existing truck unloading (Pit #1)
One (1) 2,000 bushel fines bin
One (1) 50,000 bushel grain storage bin
One (1) 30,000 bushel grain storage bin

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Particulate Matter less than 10 microns (PM_{10})). As a result, the source is excluded from the

requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all operating permit(s) for this location.

d. This permit is issued based on the Permittee complying with all terms and conditions of Administrative Consent Order, EPA Order No. EPA-5-15-113(a)-IL-13.

2a. The grain handling and bulk product handling processes at this source are subject to 35 Ill. Adm. Code Part 212 Subpart B (Visible Emissions). Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

c. This source is subject to 35 Ill. Adm. Code Part 212 Subpart K (Fugitive Particulate Matter). Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.

d. The bulk product handling processes at this source are subject to 35 Ill. Adm. Code Part 212 Subpart L (Particulate Matter Emissions from Process Emission Units). Pursuant to 35 Ill. Adm. Code 212.321(a), except as further provided in 35 Ill. Adm. Code Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit for which construction or modification commenced on or after April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

e. The grain handling processes at this source are subject to 35 Ill. Adm. Code Part 212 Subpart S (Agriculture). Pursuant to 35 Ill. Adm. Code

212.462, unless otherwise exempted pursuant to 35 Ill. Adm. Code 212.461(c) or (d), or allowed to use alternate control according to 35 Ill. Adm. Code 212.461(g), existing grain-handling operations with a total annual grain through-put of 300,000 bushels or more shall apply for an operating permit pursuant to 35 Ill. Adm. Code Part 201, and shall demonstrate compliance with the following:

i. Major Dump-Pit Area.

A. Induced Draft.

I. Induced draft shall be applied to major dump pits and their associated equipment (including, but not limited to, boots, hoppers and legs) to such an extent that a minimum face velocity is maintained, at the effective grate surface, sufficient to contain particulate emissions generated in unloading operations. The minimum face velocity at the effective grate surface shall be at least 200 fpm, which shall be determined by using the equation:

$$V = Q/A$$

where:

V = face velocity; and

Q = induced draft volume in scfm; and

A = effective grate area in ft^2; and

II. The induced draft air stream for grain-handling sources having a grain through-put exceeding 2 million bushels per year and located in a major population area shall be confined and conveyed through air pollution control equipment which has an overall rated and actual particulate collection efficiency of not less than 98 percent by weight; and

III. Means or devices (including, but not limited to, quick-closing doors, air curtains or wind deflectors) shall be employed to prevent a wind velocity in excess of 50 percent of the induced draft face velocity at the pit; provided, however, that such means or devices do not have to achieve the same degree of prevention when the ambient air wind exceeds 25 mph. The wind velocity shall be measured, with the induced draft system not operating, at a point midway between the dump-pit area walls at the point where the wind exits the dump-pit area, and at a height above the dump-pit area floor of approximately 2 ft; or

B. Any equivalent method, technique, system or combination thereof adequate to achieve, at a minimum, a particulate matter emission reduction equal to the reduction which could be achieved by compliance with 35 Ill. Adm. Code 212.462(b)(1).

ii. Internal Transferring Area.

A. Internal transferring area shall be enclosed to the extent necessary to prohibit visible particulate matter emissions directly into the atmosphere.

B. Air contaminants collected from internal transfer operations for grain-handling sources having a grain through-put exceeding 2 million bushels per year and located in a major population area shall be conveyed through air pollution control equipment which has a rated and actual particulate removal efficiency of not less than 98 percent by weight prior to release into the atmosphere.

iii. Load-Out Area.

A. Truck and hopper car loading shall employ socks, sleeves or equivalent devices which extend 6 inches below the sides of the receiving vehicle, except for topping off. Choke loading shall be considered an equivalent method as long as the discharge is no more than 12 inches above the sides of the receiving vehicle.

B. Box car loading shall employ means or devices to prevent the emission of particulate matter into the atmosphere to the fullest extent which is technologically and economically feasible.

3. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Prepared Feeds Manufacturing, 40 CFR 63 Subpart DDDDDDD because the source does not conduct prepared feeds manufacturing or use material containing chromium or material containing manganese in production of prepared feeds.

4. This permit is issued based on the source not being subject to the New Source Performance Standards (NSPS) for Grain Elevators, 40 CFR 60 Subpart DD, because the permanent storage capacity is less than 88,100 m^3 (ca. 2.5 million U.S. bushels).

5a. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hr (25 mph). Determination of wind speed for the purposes of this rule shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In

Scott, Jim

From: Barria, German
Sent: Wednesday, May 10, 2017 10:59 AM
To: Chambers, Cassidy; Scott, Jim
Subject: Joliet Container Terminal - ID #197809ACV
Attachments: 12060009 - Joliet Container Terminal LLC (Gavilon Global Ag Holdings LLC) 04-03-2017.docx

Please finalize this permit #12060009.

Thank you.

German Barria
IEPA/Bureau of Air/Permits
Ph: 217-785-0767
Email: German.Barria@illinois.gov

EQ

cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

b. Pursuant to 35 Ill. Adm. Code 212.461(a), 35 Ill. Adm. Code 212.302(a), 212.321, and 212.322 shall not apply to grain-handling and grain-drying operations, portable grain-handling equipment and one-turn storage space.

6a. Housekeeping Practices. Pursuant to 35 Ill. Adm. Code 212.461(b), all grain-handling and grain-drying operations, regardless of size, must implement and use the following housekeeping practices:

i. Air pollution control devices shall be checked daily and cleaned as necessary to insure proper operation.

ii. Cleaning and Maintenance.

A. Floors shall be kept swept and cleaned from boot pit to cupola floor. Roof or bin decks and other exposed flat surfaces shall be kept clean of grain and dust that would tend to rot or become airborne.

B. Cleaning shall be handled in such a manner as not to permit dust to escape to the atmosphere.

C. The yard and surrounding open area, including but not limited to ditches and curbs, shall be cleaned to prevent the accumulation of rotting grain.

iii. Dump Pit.

A. Aspiration equipment shall be maintained and operated.

B. Dust control devices shall be maintained and operated.

iv. Head House. The head house shall be maintained in such a fashion that visible quantities of dust or dirt are not allowed to escape to the atmosphere.

v. Property. The yard and driveway of any source shall be asphalted, oiled or equivalently treated to control dust.

vi. Housekeeping Check List. Housekeeping check lists shall be completed by the manager and maintained on the premises for inspection by Illinois EPA personnel.

7a. Pursuant to Administrative Consent Order, EPA Order No. EPA-5-15-113(a)-IL-13:

i. The Permittee has submitted to USEPA, Region 5 a PM Control Plan (Attachment A of Administrative Consent Order, EPA Order No. EPA-5-15-113(a)-IL-13), that will result in reducing and controlling

PM emissions from all three of the Facility's dump pits and from its intermodal container loadout, using two baghouses and associated ancillary equipment and operations, as specified below.

A. Dump Pit 3 shall be controlled at all times that it is in operation by Baghouse 1. Baghouse 1 was manufactured by MAC Equipment, Inc. and is Model 144 MCF153 Style III. Baghouse 1 has been tested when connected to Pit 3 and met the 98 removal efficiency requirement and the effective face velocity requirements at the time of testing.

B. Dump Pit 1 and 2 shall be controlled at all times that they are in operation by a second baghouse, baghouse 2. Baghouse 2 shall be manufactured by MAC Equipment, Inc. and shall be Model 144MCF153 Style III. Baghouse 2 shall be the same of substantially the same as Baghouse 1. Dump Pits 1 and 2 have previously been controlled by Baghouse 1. During that time Baghouse 1 was tested and shown to meet 98 percent control and the effective face velocity requirements at the time of testing.

C. The intermodal container loadout shall be controlled by either Baghouse 1 or Baghouse 2 at all times that the intermodal container loadout is in operation. Baghouse 1 shall be used when grain is loaded out. Baghouse 2 shall be used when ingredients are loaded out.

D. The Permittee shall install and use quick closing doors on all three dump pits.

E. The Permittee shall install and operate differential pressure monitoring devices on each baghouse.

b. The PM Control Plan, as submitted by the Permittee to USEPA, Region 5 on July 2, 2015, is incorporated herein by reference. The source shall be operated under and shall comply with the provisions of this PM Control Plan and any amendments to the PM Control Plan submitted to USEPA, Region 5 and the Illinois EPA.

c. The Permittee shall keep a copy of the PM Control Plan, any amendments or revisions to the PM Control Plan, and the Permittee shall also keep a record of activities completed according to the PM Control Plan.

8a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in material or installation of controls, in order to eliminate the odor nuisance.

b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the baghouses associated with Dump Pits #1, #2, and #3 such that the baghouses are kept in proper working condition and not causes a

violation of the Environmental Protection Act or regulations promulgated therein.

c. Each dump pit shall be inspected for proper operation while receiving is occurring, at least once each week (Monday through Sunday) when grain is received.

d. The source shall be inspected for presence of visible emissions from internal transfer and cleaning, while such activity is occurring, at least once each week when such activity is performed.

e. Grain load-out socks, sleeves or equivalent devices shall be inspected for proper operation while load-out is occurring, at least once each week when grain load-out is performed.

f. Dump pits #1, #2, and #3 and associated equipment shall only be operated to receive, transfer, handle, store, and load the following materials:

i. corn;

ii. barley;

iii. milo;

iv. oats;

v. soybeans;

vi wheat;

vii. Dried Distillers Grain (DDG);

viii. soybean meal; and

ix. other feed ingredients.

g. This permit does not authorize physical changes to the facility to handle bulk materials. Any such physical change shall require a construction permit from the Illinois EPA.

h. This permit does not excuse the Permittee from obtaining other approvals that may be required from the Illinois EPA, Bureaus of Land or Water, or other state or federal agencies to handle bulk materials.

i. The Permittee shall obtain a construction permit (and revised operating permit) from the Illinois EPA prior to receipt and handling of a new bulk material that is not listed as a bulk material in Condition 8(f) above and that produces an increase in emissions or increases the bulk material throughput. The application shall include, but not be limited to:

i. A description of the material to be handled;

ii. The estimated annual amount of material to be handled;

iii. Any additional work practices or control devices used to reduce emissions;

iv. A copy of a Material Safety Data Sheet (MSDS) for the material to be handled, if available;

v. Type(s) and description of emission control method(s) to be used, if any; and

vi. The estimated potential emissions from the receipt, storage, and handling of the proposed new material including an indication whether the receipt, storage and handling of the proposed new material will result in an exceedance of the emission limits in Condition 9 of this permit. If the emission limits in Condition 9 will be exceeded by the receipt of a new material, the construction permit application shall request new emission limits for the new material.

j. The Permittee shall send a certified letter containing the information listed in Condition 8(i)(i) - (vi) above to the Illinois EPA, Bureau of Air prior to receiving and handling of a new bulk material that is not listed as a bulk material in Condition 8(f) above, that does not produce an increase in emissions, and does not increase the bulk material throughput.

9a. The amount of material handled by the source shall not exceed the following limits:

i. The amount of grain or DDS received, that is, unloaded in the dump pit areas at the terminal shall not exceed 1,200,000 tons per year.

ii. The amount of grain or DDG shipped, that is, loaded into a vehicle in the load-out areas at the elevator shall not exceed 1,306,664 tons per year.

iii. The amount of grain and DDG cleaned shall not exceed 400,000 tons per year.

iv. The amount of grain or DDG handled shall not exceed 2,400,000 tons per year.

b. Emissions from and operation of the source shall not exceed the following limits:

Emission Units	Material Throughput (Ton/Mo)	Material Throughput (Ton/Yr)	Emission Factor PM (lb/Ton)	Emission Factor PM-10 (lb/Ton)	Emission PM(PART) (Ton/Mo)	Emission PM(PART) (Ton/Yr)	Emission PM-10 (Ton/Mo)	Emission PM-10 (Ton/Yr)
RECEIVING:								
Straight/Hopper								
Truck Unloading Pit 1	50,000	400,000	0.18	0.059	0.18	1.43	0.06	0.47
Truck Unloading Pit 2	50,000	400,000	0.18	0.059	0.18	1.43	0.06	0.47
Truck Unloading Pit 3	50,000	400,000	0.18	0.059	0.18	1.43	0.06	0.47
SHIPPING:								
Intermodal Container/Truck Loading	217,777	1,306,664	0.086	0.029	0.28	2.22	0.09	0.75
HANDLING:								
Material Handling Conveyors/Leg	300,000	2,400,000	0.061	0.034	0.36	2.90	0.20	1.62
GRAIN CLEANING:								
Grain Cleaner	50,000	400,000	0.75	0.19	0.74	5.94	0.19	1.50
STORAGE:								
Storage Bin Vents	255,000	2,040,000	0.025	0.0063	3.19	25.50	0.80	6.43
DDG Storage Building - Filling/Emptying	200,000	1,600,000	0.00055	0.0003	0.06	0.44	0.03	0.24
					Total:	41.29		19.95

These limits are based on grain and feed material throughput, standard emission factors (Table 9.9-1, AP-42, Fifth Edition, Volume I, Update May 2003), 98% capture and control efficiency for baghouse controlled dump pits, baghouse controlled grain cleaner, and enclosed internal transfer, and information in the permit application.

c. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of

air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

b. Testing required by Condition 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

11. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA, pursuant to 35 Ill. Adm. Code 212.110(c).

12. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

13a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:

i. Records addressing use of good operating practices for the baghouses associated with Dump Pits #1, #2, and #3:

A. Records for periodic inspection of the baghouses associated with Dump Pits #1, #2, and #3 with date, individual performing the inspection, and nature of inspection; and

B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

ii. Records of housekeeping check lists.

iii. Vendor recommendations at the facility and be available for inspection and copying by the Illinois EPA.

iv. Records for the inspections required by Conditions 8(c), (d), and (f), with date, time and observations if such information is not incorporated in the housekeeping check list.

v. Amount of grain received in dump pits #1, #2, & #3 (tons/month and tons/year);

v. Amount and type of each bulk material product received in dump pits #1, #2 & #3 (tons/month and tons/year);

vii. Amount of grain shipped (tons/month and tons/year);

viii. Amount and type of each bulk material product shipped (tons/month and tons/year); and

ix. Monthly and annual PM and PM_{10} emissions from the source, with supporting calculations (tons/month and tons/year).

b. All records and logs required by Condition 13(a) of this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be available for inspections and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) 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 or USEPA request for records during the course of a source inspection.

14. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

15a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit or otherwise, the Permittee shall submit a report to the Illinois EPA's Bureau of Air Compliance Section in Springfield, Illinois within thirty (30) days after the exceedance or deviation. The report shall identify the duration and the emissions impact of the exceedance or deviation, a copy of the relevant records and information to resolve the exceedance or deviation, and a description of the efforts to reduce emissions from, and the duration of exceedance or deviation, and to prevent future occurrences of any such exceedance or deviation.

b. One (1) copy of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

If you have any questions on this, please call German Barria at 217/785-1705.

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

REP:GB:jws

cc: Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the Grain and DDG Transloading Terminal operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, (e.g., 100 tons/year for PM_{10}) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

	E M I S S I O N S (Tons/Year)	
Emission Unit	PM	PM_{10}
Truck Unloading Pit 1	1.43	0.47
Truck Unloading Pit 2	1.43	0.47
Truck Unloading Pit 3	1.43	0.47
Intermodal Container/Truck Loading	2.22	0.75
Material Handling Conveyors/Leg	2.90	1.62
Grain Cleaning	5.94	1.50
Storage Bin Vents	25.50	6.43
DDG Storage Building -Filling/Emptying	0.44	0.24
Totals	41.29	11.95

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 condition(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 statutes and regulations of the Unites 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 grounds 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 thereunder.

8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. These records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. At 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.

EXHIBIT M

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Zenith Energy Terminals Joliet Holdings LLC
ID No.:	197445AAY
Application No.:	14020012
Category:	03K Air Permit - Final
Item Date:	06/28/2019
Keyword:	
Comment:	
Part:	of

Submitted by: MLM

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 -- NSPS and NESHAP SOURCE - REVISED

PERMITTEE

Zenith Energy Terminals Joliet Holdings, LLC
Attn: Shannon Caldwell
3900 Essex Lane #700
Houston, Texas 77027

Application No.: 14020012 I.D. No.: 197445AAY
Applicant's Designation: Date Received: April 29, 2019
Subject: Joliet Expansion
Date Issued: June 28, 2019
Location: 1035 W. Laraway Road, Joliet, Will County

This permit is hereby granted to the above-designated Permittee to CONSTRUCT emission unit(s) and/or air pollution control equipment consisting of a Vapor Combustion Unit (VCU) (flare) to control emissions from the existing Railcar/Tanker Truck Loadout operations, install nineteen (19) above ground storage tanks (Tanks 07-25), and modification to allow existing and proposed storage tanks to store various products as follows:

Internal Floating Roof Tanks:

Tank #	Capacity (bbl)	Material(s) Stored
01	150,000	Crude/ Natural Gasoline/ Ethanol
02	150,000	Crude/ Natural Gasoline/ Ethanol
07	150,000	Crude/ Natural Gasoline/ Ethanol
08	150,000	Crude/ Natural Gasoline/ Ethanol
09	10,000	Crude/ Natural Gasoline/ Ethanol
11	150,000	Crude/ Natural Gasoline/ Ethanol
12	150,000	Ethanol
13	150,000	Ethanol
14	150,000	Ethanol
15	150,000	Ethanol
16	150,000	Ethanol
17	150,000	Ethanol
18	150,000	Ethanol
23	50,000	Natural Gasoline/ Ethanol

Fixed Roof Tanks:

Tank #	Capacity (bbl)	Material(s) Stored
03	150,000	Asphalt/ VGO/ Biodiesel/ Glycerin
04	150,000	Asphalt/ VGO/ Biodiesel/ Glycerin
05	75,000	Asphalt/ VGO/ Biodiesel/ Glycerin
06	75,000	Asphalt/ VGO/ Biodiesel/ Glycerin
10	80,000	Asphalt/ VGO/ Biodiesel/ Glycerin
19	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin
20	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin
21	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin
22	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin
24	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin
25	50,000	Asphalt/ VGO/ Biodiesel/ Glycerin

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This permit is issued based on the emissions of Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act from the Storage Tanks TANK-01 through TANK-25 and Railcar/Tanker Truck Loadout being less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result, this permit is issued based on the emissions of all HAPs from the above-listed equipment not triggering the requirements of Section 112(g) of the Clean Air Act.

b. This permit is issued based on the construction of Storage Tanks (Tanks 07-25) and modification to existing Storage Tanks and Railcar/Tanker Truck Loadout not constituting a new major source or major modification pursuant to Title I of the Clean Air Act, specifically 35 Ill. Adm. Code Part 203 (Major Stationary Source Construction and Modification). The source has requested that the Illinois EPA establish emission limitations and other appropriate terms and conditions in this permit that limit the emissions of Nitrogen Oxides (NO_x) and Volatile Organic Material (VOM) from the above-listed equipment below the levels that would trigger the applicability of these rules.

c. Operation of the equipment listed above is allowed under this construction permit until final action is taken on the Federally Enforceable State Operating Permit (FESOP) application for this source.

2a. Storage Tanks TANK-01, TANK-02, TANK-07 through TANK-09, TANK-11 through TANK-18 and TANK-23 are subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60 Subparts A and Kb. The Illinois EPA is administering the NSPS in Illinois on behalf of the USEPA under a delegation agreement. Pursuant to 40 CFR 60.110b(a), except as provided in 40 CFR 60.110b(b), the affected facility to which 40 CFR 60 Subpart Kb applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

b. Pursuant to 40 CFR 60.112b(a), the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 (39,889.67 gallons) containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa (0.75 psia) but less than 76.6 kPa (11.1 psia) or with a design capacity greater than or equal to 75 m^3 (19,815.75 gallons) but less than 151 m^3 (39,889.67 gallons) containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa (4.00 psia) but less than 76.6 kPa (11.1 psia), shall equip each storage vessel with the following:

A fixed roof in combination with an internal floating roof meeting the following specifications:

i. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

ii. Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

A. A foam-or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means foam-or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank;

B. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous; or

C. A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

iii. Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

iv. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

v. Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

vi. Rim space vents shall be equipped with a gasket and are to be set

to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

vii. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

viii. Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

ix. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

3a. Railcar/Tanker Truck Loadout controlled by the VCU is subject to 35 Ill. Adm. Code Part 212 Subpart B (Visible Emissions). Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

4a. Storage Tanks TANK-12 through TANK-18 and TANK-23 are subject to 35 Ill. Adm. Code 218.120 (Control Requirements for Storage Containers of VOL). Pursuant to 35 Ill. Adm. Code 218.120(a), every owner or operator storing VOL in a vessel of 40,000 gallons or greater with a maximum true vapor pressure equal to 0.75 psia but less than 11.1 psia shall reduce VOM emissions from storage tanks, reservoirs, or other containers as follows:

Each fixed roof tank shall be equipped with an internal floating roof that meets the following specifications:

i. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied and subsequently refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

ii. Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

A. A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank;

B. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous; or

C. A mechanical shoe seal, which is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

iii. Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

iv. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

v. Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

vi. Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

vii. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

viii. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

b. Storage Tanks TANK-01, TANK-02, TANK-07 through TANK-09, and TANK-11 are subject to 35 Ill. Adm. Code 218.121 (Storage Containers of VPL). Pursuant to 35 Ill. Adm. Code 218.121(b)(1), no person shall cause or allow the storage of any volatile petroleum liquid (VPL) with a vapor pressure of 10.34 kPa (1.5 psia) or greater at 294.3°K (70°F) or any gaseous organic material in any stationary tank, reservoir or other container of more than 151 cubic meters (40,000 gal) capacity unless such tank, reservoir or other container: Is designed and equipped with one of the following vapor loss control devices:

A floating roof which rests on the surface of the VPL and is equipped with a closure seal or seals between the roof edge and the tank wall. Such floating roof shall not be permitted if the VPL has a vapor pressure of 86.19 kPa (12.5 psia) or greater at 294.3°K (70°F). No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tanks, except during sampling or maintenance operations.

c. The railcar/tanker truck loading operations are subject to 35 Ill. Adm. Code 218.122 (Loading Operations). Pursuant to 35 Ill. Adm. Code 218.122(a), no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having through-put of greater than 151 cubic meters per day (40,000 gal/day) into any railroad tank car, tank truck or trailer unless such loading area is equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code Part 201, and further processed consistent with 35 Ill. Adm. Code 218.108.

d. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code Part 201, and further processed consistent with 35 Ill. Adm. Code 218.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).

5a. This permit is issued based on Storage Tanks TANK-03 through TANK-06, TANK-10, TANK-19 through TANK-22, TANK-24 and TANK-25 not being subject to the New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60 Subpart Kb. Pursuant to 40 CFR 60.110b(b), 40 CFR 60 Subpart Kb does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

b. This permit is issued based upon the source not being subject to the New Source Performance Standards (NSPS) for Bulk Gasoline Terminals, 40 CFR 60 Subpart XX, because the facility/source does not handle gasoline.

6a. This permit is issued based on the source not being subject to the NESHAP for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations), 40 CFR 63 Subpart R, because the source is not a bulk gasoline terminal and does not handle gasoline.

b. This permit is issued based upon the source not being subject to the NESHAP for Organic Liquids Distribution (Non-Gasoline), 40 CFR 63 Subpart EEEE, because the organic liquids distribution (OLD) (non-gasoline) operation is not located at, or is not part of, a major source of HAP emissions.

c. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR Part 63 Subpart BBBBBB, because the source does not handle gasoline.

7a. Pursuant to 35 Ill. Adm. Code 218.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.122 shall only apply to the loading of volatile organic liquid with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

b. This permit is issued based on Storage Tanks TANK-01 through TANK 11, TANK 19 through 22, TANK 24 and TANK 25 not being subject to 35 Ill. Adm. Code 218.120 (Control Requirements for Storage Containers of VOL). Pursuant to 35 Ill. Adm. Code 218.119, the limitations of 35 Ill. Adm. Code 218.120 shall apply to all storage containers of volatile organic liquid (VOL) with a maximum true vapor pressure of 0.5 psia or greater in any stationary tank, reservoir, or other container of 151 cubic meters (40,000 gal) capacity or greater, except to vessels as provided below:

i. Vessels with a capacity greater than or equal to 40,000 gallons storing a liquid with a maximum true pressure of less than 0.5 psia; or

ii. Vessels storing petroleum liquids.

iii. Vessels with storage capacity less than 40,000 gallons must comply with 35 Ill. Adm. Code 218.129(f)..

c. This permit is issued based on the Storage Tanks TANK-01 through TANK-25 at this source not being subject to 35 Ill. Adm. Code 218.123(b), Petroleum Liquid Storage Tanks. Pursuant to 35 Ill. Adm. Code 218.123(a), the requirements of 35 Ill. Adm. Code 218.123(b) shall not apply to any stationary storage tank:

i. Subject to New Source Performance Standards for storage vessels of petroleum liquid, 40 CFR 60, as regulations promulgated by the U.S. Environmental Protection Agency under Section 111 of the Clean Air Act (42 USC 7411), as amended. The provisions of Section 111 of the Clean Air Act ... are applicable in this State and are enforceable under [The Environmental Protection Act] (Ill. Rev. Stat., Ch. 111 1/2, par. 1009.1(b)). [415 ILCS 5/9.1(b)]; or

ii. In which volatile petroleum liquid is not stored.

8a. In the event that the operation of these emission units results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in material or installation of controls, in order to eliminate the odor nuisance.

b. The VCU associated with the Railcar/Tanker Truck loading operations shall be in operation at all times when the Railcar/Tanker Truck loading operations are in operation loading crude, ethanol, and natural gasoline and emitting air contaminants.

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the VCU associated with the Railcar/Tanker Truck loading operations such that the VCU is kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

d. The VCU shall be designed for and operated with no visible emissions and with a flame present at all times when operating.

e. Organic liquid by-products or waste materials shall not be used in any emission unit at this source without written approval from the Illinois EPA.

9a. Operation of and emissions from the storage tanks shall not exceed the following limits:

i. Crude Tanks TANK-01, TANK-02, TANK-07 through TANK-09 and TANK-11:

A. Throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
5,840,000	58,400,000	4.30	43.00

B. Single and combined HAP emissions:

Single HAP (Benzene) Emissions		Combined HAP Emissions	
(tons/mo)	(tons/yr)	(tons/mo)	(tons/yr)
0.04	0.43	0.63	6.28

ii. Ethanol Tanks TANK-12 through TANK-18:

A. Throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
1,440,000	14,400,000	0.56	5.57

B. Single and combined HAP emissions:

Single HAP (n-Hexane) Emissions		Combined HAP Emissions	
(tons/mo)	(tons/yr)	(tons/mo)	(tons/yr)
0.01	0.01	0.01	0.08

iii. Natural Gasoline Tank TANK-23:

A. Throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
60,000	600,000	0.44	4.40

B. Single and combined HAP emissions:

Single HAP (Benzene) Emissions		Combined HAP Emissions	
(tons/mo)	(tons/yr)	(tons/mo)	(tons/yr)
0.01	0.01	0.01	0.02

iv. VGO Tanks TANK-03, TANK-04 and TANK-10 throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
720,000	7,200,000	0.18	1.75

v. Asphalt Tanks TANK-05 and TANK-06 throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
357,143	3,571,429	0.20	2.00

vi. Biodiesel Tanks TANK-19 through TANK-22 throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
240,000	2,400,000	0.27	2.73

vii. Glycerin Tanks TANK-24 and TANK-25 throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
120,000	1,200,000	0.04	0.42

viii. These limits are based on the maximum throughput and emission calculations based on Section 7.1 of AP-42 (5th edition, Supplement D, November 2006). The emissions from storage tanks TANK-01 through TANK-25 include emissions resulting from one roof landing per tank per year calculated based on equations from Section 7.1.3.2.2 of AP-42 (Fifth Edition, Supplement D, November 2006).

b. Emissions from and operation of the marine, truck and rail loading operations shall not exceed the following limits:

i. Crude loading:

A. Throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
2,190,000	21,900,000	1.97	19.70

B. Single HAP and Combined HAP emissions:

Single HAP (Benzene) Emission		Combined HAP Emissions	
(tons/mo)	(tons/yr)	(tons/mo)	(tons/yr)
0.30	3.0	0.75	7.50

ii. Ethanol loading throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
14,400,000	1,440,000	0.17	1.66

iii. Natural Gasoline loading throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
60,000	600,000	0.27	2.72

iv. Asphalt and VGO loading throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
360,000	3,600,000	0.07	0.70

v. Biodiesel loading throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
240,000	2,400,000	0.12	1.24

vi. Glycerin loading throughput and VOM emissions:

Throughput		VOM Emissions	
(bbl/mo)	(bbl/yr)	(tons/mo)	(tons/yr)
120,000	1,200,000	0.01	0.01

vii. For crude oil loading, these limits are based on the maximum crude oil throughput, emissions calculated using Equations 2 and 3 from Section 5.2 of AP-42 (Table 5.2-3, Fifth Edition, Volume I, July 2008) and manufacturer's guaranteed VCU control efficiency of 98%. For other materials loading, these limits are based on the maximum material throughput, emissions calculated using Section 5.2 of AP-42 (Table 5.2-3, Fifth Edition, Volume I, July 2008) and manufacturer's guaranteed VCU control efficiency of 98%, where appropriate.

The associated VCU must be operated at all times that crude, ethanol, or natural gasoline is being loaded.

The AP-42 Equations 2 and 3 are as follow:

$$C_L = C_A + C_G \quad \text{(Equation 2)}$$

Where:

C_L = total loading losses (lbs/1,000 gallon of crude oil loaded);

C_A = arrival emission factor (lbs/1,000 gallon of crude oil loaded)
= 0.86 lb/1,000 gal of crude oil loaded for unclean barge (Table 5.2-3, AP-42), and
C_G = general emission factor (lbs/1,000 gallon of crude oil loaded)

$C_G = 1.84(0.44P - 0.42)$ MG/T (Equation 3),

Where:

P = true vapor pressure (Calculated from Figure 7.1-13b (AP-42));

M = molecular weight of vapors (50 from Table 7.1-2 (AP-42));

G = vapor growth factor (1.02); and

T = temperature of vapors, °R

c. Fugitive VOM emissions and combined HAP emissions from the terminal operations shall not exceed 0.9 ton/mo and 8.7 ton/yr and 0.10 ton/mo and 0.80 ton/yr, respectively. Emissions shall be calculated using emission factors from USEPA publication Protocol for Equipment Leak Emission Estimates (EPA-454/R-95-017).

d. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA

Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

b. Testing required by Conditions 11 and 12 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

11. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

12a. Within 180 days after initial startup of the VCU associated with the Railcar/Tanker Truck Loadout, the control efficiency of the VCU and the mass emissions of VOM and speciated HAPs from the VCU shall be measured during conditions which are representative of maximum emissions (such as use of condensate diluted crude oil, if handled). These tests shall determine compliance with 35 Ill. Adm. Code 218.762(a) and Condition 9(b)(vii) (VCU control efficiency of 98%).

b. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B, for USEPA test methods.

Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)	USEPA Method 2
Direct Measurement of Gas Volume Through Pipes and Small Ducts	USEPA Method 2A
Measurement of Gaseous Organic Compound Emissions by Gas Chromatography	USEPA Method 18
Determination of Volatile Organic Compounds Leaks	USEPA Method 21
Determination of Control Device Destruction Efficiency	USEPA Method 25
Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer	USEPA Method 25A*

* USEPA Method 25A may only be used if outlet VOM concentration is less than 50 ppm as carbon (non-methane).

c. At least 60 days prior to the actual date of testing, the Permittee shall submit a written test plan to the Illinois EPA, Compliance Section. This plan shall include as a minimum:

i. The name (or other identification) of the emission unit(s) to be tested and the name and address of the facility at which they are located;

ii. The name and address of the independent testing service(s) performing the tests, with the names of the individuals who may be performing sampling and analysis and their experience with similar tests;

iii. The specific determinations of emissions and/or performance which are intended to be made, including the site(s) in the ductwork or stack at which sampling will occur;

iv. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of the maximum emissions, maximum operating rate, minimum control performance, the levels of operating parameters for the emission unit, including associated control equipment, at or within which compliance is intended to be shown, and the means by which the operating parameters will be determined;

v. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods. The specific sampling, analytical and quality control procedures which will be used, with an identification of the standard methods upon which they are based;

vi. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification;

vii. Any proposed use of an alternative test method, with detailed justification; and

viii. The format and content of the Source Test Report.

d. The Permittee shall provide the Illinois EPA with written notification of testing at least thirty (30) days prior to testing to enable the Illinois EPA to have an observer present. This notification shall include the name of emission unit(s) to be tested, scheduled date and time, and contact person with telephone number.

e. If testing is delayed, the Permittee shall promptly notify the Illinois EPA by e-mail or facsimile, at least five (5) days prior to the scheduled date of testing or immediately, if the delay occurs in the five (5) days prior to the scheduled date. This notification shall

also include the new date and time for testing, if set, or a separate notification shall be sent with this information when it is set.

f. The Permittee shall submit the Final Source Test Report(s) for these tests accompanied by a cover letter stating whether or not compliance was shown, to the Illinois EPA without delay, within thirty (30) days after the test results are compiled, but no later than sixty (60) days after the date of testing or sampling. The Final Source Test Report shall include as a minimum:

i. General information describing the test, including the name and identification of the emission source which was tested, date of testing, names of personnel performing the tests, and Illinois EPA observers, if any;

ii. A summary of results;

iii. Description of test procedures and method(s), including description and map of emission units and sampling points, sampling train, testing and analysis equipment, and test schedule;

iv. Detailed description of test conditions, including:

A. List and description of the equipment (including serial numbers or other equipment specific identifiers) tested and process information (i.e., mode(s) of operation, process rate/throughput, fuel or raw material consumption rate, and heat content of the fuels);

B. Control equipment information (i.e., equipment condition and operating parameters) during testing; and

C. A discussion of any preparatory actions taken (i.e., inspections, maintenance and repair).

v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration. Identification of the applicable regulatory standards and permit conditions that the testing was performed to demonstrate compliance with, a comparison of the test results to the applicable regulatory standards and permit conditions, and a statement whether the test(s) demonstrated compliance with the applicable standards and permit conditions;

vi. An explanation of any discrepancies among individual tests, failed tests or anomalous data;

vii. The results and discussion of all quality control evaluation data, including a copy of all quality control data; and

viii. The applicable operating parameters of the pollution control device(s) during testing (temperature, pressure drop, scrubbant flow rate, etc.), if any, during testing.

g. Satisfactory completion of this test so as to demonstrate compliance with applicable emission standards is a prerequisite to issuance of an operating permit, pursuant to 35 Ill. Adm. Code 201.160(b).

13. Pursuant to 40 CFR 60.113b(a), after installing the control equipment required to meet 40 CFR 60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall:

a. Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

b. For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Illinois EPA or USEPA in the inspection report required in 40 CFR 60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

c. For vessels equipped with a double-seal system as specified in 40 CFR 60.112b(a)(1)(ii)(B):

A. Visually inspect the vessel as specified in 40 CFR 60.113b(a)(4) at least every 5 years; or

B. Visually inspect the vessel as specified in 40 CFR 60.113b(a)(2).

d. Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has

defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in 40 CFR 60.113b(a)(2) and (a)(3(ii) and at intervals no greater than 5 years in the case of vessels specified in 40 CFR 60.113b(a)(3)(i).

14. Pursuant to 35 Ill. Adm. Code 218.127, the owner or operator of each storage vessel specified in Section 218.119 shall comply with the requirements of subsection (a), (b), or (c) below. The applicable subsection for a particular storage vessel depends on the control equipment installed to meet the requirements of this Subpart.

After installing the control equipment necessary for the source to comply with the requirements of 35 Ill. Adm. Code 218.120(a)(1) or (2), each owner or operator shall:

i. Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

ii. For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or if there is liquid accumulated on the roof, or if the seal is detached, or if there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this subsection cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, the owner or operator may request a 30-day extension from the Agency in the inspection report required in 35 Ill. Adm. Code 218.129(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the owner or operator will take that will assure that the control equipment will be repaired or the vessel will be emptied within 30 days.

iii. For vessels equipped with both primary and secondary seals:

A. Visually inspect the vessel as specified in 35 Ill. Adm. Code 218.127(a)(4) at least every 5 years; or

B. Visually inspect the vessel as specified in 35 Ill. Adm. Code 218.127(a)(2).

iv. Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal, or if the seal fabric or the secondary seal has holes, tears, or other openings in the seal, or if the seal fabric or the gaskets no longer close off the liquid surfaces from the atmosphere, or if the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this subsection exists before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in 35 Ill. Adm. Code 218.127(a)(2) and (a)(3)(B) and at intervals no greater than 5 years in the case of vessels specified in 35 Ill.. Adm. Code 218.127(a)(3)(A).

v. Notify the Agency in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by 35 Ill. Adm. Code 218.127(a)(1) and (a)(4) to afford the Agency the opportunity to have an observer present. If the inspection required by 35 Ill. Adm. Code 218.127(a)(4) is not planned and the owner or operator could not have known about the inspection 30 days in advance of refilling the tank, the owner or operator shall notify the Agency at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Agency at least 7 days prior to the refilling.

15a. Pursuant to 35 Ill. Adm. Code 218.768(a), compliance with 35 Ill. Adm. Code 218.762(a)(2) shall be determined by visual inspection and by the leak detection methods contained in 35 Ill. Adm. Code 218.105(g).

b. Pursuant to 35 Ill. Adm. Code 218.768(b), if the control device used to comply with 35 Ill. Adm. Code 218.762(a)(1) is a flare, compliance shall be determined by methods described in 35 Ill. Adm. Code 218.429(c).

If the control device is a flare, it shall:

i. Be designed for and operated with no visible emissions as determined by USEPA Reference Method 22, 40 CFR 60, Appendix A (1986), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

ii. Be operated with a pilot flame present at all times and shall be monitored with a thermocouple or any other equivalent device to detect the presence of the pilot flame.

iii. Be steam-assisted, air assisted, or non-assisted.

iv. Be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i,$$

Where:

H_T = Net heating value of the sample in MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25° C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20° C;

K = Constant, 1.740 x 10-7 (1/ppm) (g-mole/scm) (MJ/Kcal), where standard temperature for (g-mole/scm) is 20°C;

Ci = Concentration of sample component i, in ppm, as measured by USEPA Reference Method 18, 40 CFR 60, Appendix A (1986), and ASTM D 2504-83, both incorporated by reference in 35 Ill. Adm. Code 218.112;

H_i = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using ASTM D 2382-83, incorporated by reference in 35 Ill. Adm. Code 218.112, if published values are not available or cannot be calculated.

v. Steam-assisted and non-assisted flares shall be designed and operated with an exit velocity, as determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by USEPA Reference Method 2 or 2A, 40 CFR 60, Appendix A (1986), as appropriate, by the unobstructed (free) cross sectional area of the flare tip, less than 18 m/sec (60 ft/sec).

vi. Air-assisted flares shall be designed and operated with an exit velocity less than the maximum permitted velocity, V_{max}, as determined by the following equation:

$$V_{max} = 8.706 + 0.7084 (H_r);$$

V_{max} = Maximum permitted velocity, m/sec;

8.706 = Constant;

0.7084 = Constant;

H_r = The net heating value as determined in 35 Ill. Adm. Code 218.429(c)(4).

c. Pursuant to 35 Ill. Adm. Code 218.768(d), compliance with 35 Ill. Adm. Code 218.762(b)(3) shall be determined by one of the methods described in 35 Ill. Adm. Code 218.768:

i. A marine vessel loaded in accordance with 35 Ill. Adm. Code 218.762(b)(3)(A) through the use of a vacuum assisted vapor collection system is assumed to be vapor-tight for the purposes of 35 Ill. Adm. Code Part 218 Subpart GG.

ii. A vapor-tightness test for marine vessels shall be conducted to include the final 20 percent of loading of each product tank of the marine vessel, and it shall be applied to any potential sources of vapor leaks on the vessel pursuant to Method 21 of 40 CFR 60, Appendix A. A reading of 10,000 ppmv or greater as methane shall constitute a leak.

iii. As an alternative to 35 Ill. Adm. Code 218.768(d)(2), an owner or operator of a marine terminal may use the vapor-tightness test described in 40 CFR 61.304(f).

d. Pursuant to 35 Ill. Adm. Code 218.768(e), when in the opinion of the Illinois EPA or USEPA it is necessary to conduct testing to demonstrate compliance with or verify effectiveness of the vapor collection and control system required by 35 Ill. Adm. Code 218.762(a), (c)(1), or (c)(3), the owner or operator of a marine terminal shall, at its own expense, conduct such tests in accordance with the applicable test methods and procedures specified in 35 Ill. Adm. Code 218.768(a), (b), or (c), as applicable.

16a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

b. Pursuant to 40 CFR 60.7(f), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on

these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records, except as follows:

The Illinois EPA or USEPA, upon notification to the source, may require the owner or operator to maintain all measurements as required by 40 CFR 60.7(f), if the Illinois EPA or USEPA determines these records are required to more accurately assess the compliance status of the affected source.

17a. Pursuant to 40 CFR 60.115b, the owner or operator of each storage vessel as specified in 40 CFR 60.112b(a) shall keep records and furnish reports as required by 40 CFR 60.115(a), (b), or (c) depending upon the control equipment installed to meet the requirements of 40 CFR 60.112b. The owner or operator shall keep copies of all reports and records required by 40 CFR 60.115, except for the record required by 40 CFR 60.115 (c)(1), for at least 2 years. The record required by 40 CFR 60.115(c)(1) will be kept for the life of the control equipment.

b. Pursuant to 40 CFR 60.115b(a)(2), after installing control equipment in accordance with 40 CFR 60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall keep a record of each inspection performed as required by 40 CFR 60.113b(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

c. Pursuant to 40 CFR 60.116b(a), the owner or operator shall keep copies of all records required by 40 CFR 60.116b, except for the record required by 40 CFR 60.116b(b), for at least 2 years. The record required by 40 CFR 60.116b(b) will be kept for the life of the source.

d. Pursuant to 40 CFR 60.116b(b), the owner or operator of each storage vessel as specified in 40 CFR 60.110b(a) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

e. Pursuant to 40 CFR 60.116b(c), except as provided in 40 CFR 60.116b(f) and (g), the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

f. Pursuant to 40 CFR 60.116b(e), available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

i. For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

ii. For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

A. Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517, unless the Illinois EPA or USEPA specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

B. The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.

iii. For other liquids, the vapor pressure:

A. May be obtained from standard reference texts, or

B. Determined by ASTM D2879-83, 96, or 97; or

C. Measured by an appropriate method approved by the Illinois EPA or USEPA; or

D. Calculated by an appropriate method approved by the Illinois EPA or USEPA.

18. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to Section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information)

that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

19. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

20a. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 218.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

Pursuant to 35 Ill. Adm. Code 218.129(a) after installing control equipment in accordance with Ill. Adm. Code 218.120(a)(1) or (2), the owner or operator shall:

i. Furnish the Agency with a report that describes the control equipment and certifies that the control equipment meets the specifications of Section 218.120(a)(1) and 218.127(a)(1);

ii. Keep a record of each inspection performed as required by 35 Ill. Adm. Code 218.127(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings);

iii. If any of the conditions described in 35 Ill. Adm. Code 218.127(a)(2) are detected during the annual visual inspection required by 35 Ill. Adm. Code 218.127(a)(2), report to the Agency within 30 days after the inspection the identity of the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made; and

iv. After each inspection required by 35 Ill. Adm. Code 218.127(a)(3) where holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 35 Ill. Adm. Code 218.127(a)(3)(B) are discovered, report to the Agency within 30 days after the inspection the identity of the storage vessel and the reason it did not meet the specifications of 35 Ill. Adm. Code 218.120(a)(1) or (2) or 35 Ill. Adm. Code 218.127(a), and list each repair made.

b. Pursuant to 35 Ill. Adm. Code 218.770(a), the owner or operator of sources complying with 35 Ill. Adm. Code 218.762(a) and (b), or (c)(1), or (c)(3) shall maintain records regarding the marine terminal, and each time a marine vessel is loaded during the regulatory control period. The records shall include but are not limited to:

i. The date(s) and the time(s) at which the marine vessel was loaded from the marine terminal;

ii. The name, type, identification number, and owner of the vessel loaded;

iii. The type and amount of liquid loaded into the marine vessel;

iv. Records of any leaks found, repair attempts, and the results of the required fugitive monitoring and maintenance program, including appropriate dates, test methods, instrument readings, repair results, and corrective action taken as required by 35 Ill. Adm. Code 218.762(a)(2) and 218.766;

v. A copy of the Coast Guard certification demonstrating that the marine terminal's vapor collection and control system has been certified as required by Coast Guard regulations found at 33 CFR 154; and

vi. A copy of the Coast Guard certification demonstrating that the marine vessel has been inspected and certified as required by Coast Guard regulations found at 46 CFR 39. If a copy of the Coast Guard certificate is not available at the time of loading, then the date that the marine vessel was last inspected and the authorization that the marine vessel has functioning vapor control equipment must be recorded from the certificate. Further, a copy of the certificate must be obtained by the owner or operator of the marine terminal within 21 days after the loading event.

c. Pursuant to 35 Ill. Adm. Code 218.770(b), owners or operators complying with 35 Ill. Adm. Code 218.762(b)(3)(B), (b)(3)(C), or (b)(3)(D) shall additionally maintain the following records concerning the vapor-tightness of the marine vessel:

i. Test title;

ii. Owner of the marine vessel tested;

iii. The identification number of the marine vessel tested;

iv. Testing location;

v. Tester name and signature;

vi. Witnessing inspector, name, signature, and affiliation; and

vii. Test results.

d. Pursuant to 35 Ill. Adm. Code 218.770(d), owners or operators certifying compliance under 35 Ill. Adm. Code 218.764(c) shall maintain the records specified in 35 Ill. Adm. Code 218.770(a)(1), (a)(2), and (a)(3).

e. Pursuant to 35 Ill. Adm. Code 218.770(e), all records required by 35 Ill. Adm. Code 218.770(a), (b), (c), and (d) shall be maintained for at least three years and shall be made available to the Illinois EPA upon request.

21a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:

i. Records addressing use of good operating practices for the VCUs associated with the marine and truck/rail loadout operations:

A. Records for periodic inspection of the VCU with date, individual performing the inspection, and nature of inspection; and

B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

ii. The material throughput through the marine loading and truck/rail loading operations (barrels/month and barrels/year) and associated temperature (degrees of Fahrenheit);

iii. The material throughput in each storage tank (barrels/month and barrels/year) and associated temperature (degrees of Fahrenheit); and

iv. Monthly and annual emissions of CO, NO_x, SO_2, PM, VOM and HAPs from the source with supporting calculations (tons/month and tons/year).

b. All records and logs required by Condition 21(a) of this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage

device) 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 or USEPA request for records during the course of a source inspection.

22a. Pursuant to 40 CFR 60.7(a), any owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Illinois EPA or USEPA written notification or, if acceptable to both the Illinois EPA and USEPA and the owner or operator of a source, electronic notification, as follows:

i. A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

ii. A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

iii. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Illinois EPA or USEPA may request additional relevant information subsequent to this notice.

23. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

24a. Pursuant to 40 CFR 60.113b(a)(5), after installing the control equipment required to meet 40 CFR 60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall notify the Illinois EPA or USEPA in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by 40 CFR 60.113b(a)(1) and (a)(4) to afford the Illinois EPA or USEPA the opportunity to have an observer present. If the inspection required by 40 CFR 60.113b(a)(4) is not planned and the owner or operator could not have known about the inspection 30 days in advance or refilling the tank, the owner or operator shall notify the Illinois EPA or USEPA at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was

unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Illinois EPA or USEPA at least 7 days prior to the refilling.

b. Pursuant to 40 CFR 60.115b(a), after installing control equipment in accordance with 40 CFR 60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall meet the following requirements.

i. Furnish the Illinois EPA or USEPA with a report that describes the control equipment and certifies that the control equipment meets the specifications of 40 CFR 60.112b(a)(1) and 40 CFR 60.113b(a)(1). This report shall be an attachment to the notification required by 40 CFR 60.7(a)(3).

ii. If any of the conditions described in 40 CFR 60.113b(a)(2) are detected during the annual visual inspection required by 40 CFR 60.113b(a)(2), a report shall be furnished to the Illinois EPA or USEPA within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

iii. After each inspection required by 40 CFR 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 40 CFR 60.113b(a)(3)(ii), a report shall be furnished to the Illinois EPA or USEPA within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 40 CFR 60.112b(a)(1) or 40 CFR 60.113b(a)(3) and list each repair made.

c. Pursuant to 40 CFR 60.116b(d), except as provided in 40 CFR 60.116b(g), the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa shall notify the Illinois EPA or USEPA within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range.

25. Pursuant to 35 Ill. Adm. Code 218.768(f), an owner or operator of a marine terminal planning to conduct a VOM emissions test to demonstrate compliance with 35 Ill. Adm. Code 218.762(a), (c)(1), or (c)(3) shall notify the Illinois EPA of that intent not less than 30 days before the planned initiation of the tests so that the Illinois EPA may observe the test.

26a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit or otherwise, the Permittee shall submit a report to the Illinois EPA's Bureau of Air Compliance Section in Springfield, Illinois within thirty

(30) days after the exceedance or deviation. The report shall identify the duration and the emissions impact of the exceedance or deviation, a copy of the relevant records and information to resolve the exceedance or deviation, and a description of the efforts to reduce emissions from, and the duration of exceedance or deviation, and to prevent future occurrences of any such exceedance or deviation.

b. One (1) copy of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

It shall be noted that this permit has been revised so as to correct typographical errors in this permit such as the listing of the nineteen (19) above ground storage tanks (Tank-07 through Tank-25), revisions to Condition 1(b), Condition 4(c), Condition 6(a), and Condition 7(b).

If you have any questions on this permit, please contact Muhiedin Itani at 217/785-1705.

Raymond E. Pilapil
Manager, Permit Section
Bureau of Air

REP:MI:mlm

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.

EXHIBIT N

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Narvick Brothers Lumber Co., Inc.
ID No.:	197 809 ACU
Application No.:	09 08 0009
Category:	03K
Item Date:	8/7/2009
Keyword:	
Comment:	
Part:	of

Submitted by: KNM

REVIEWER: RDH

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 – (217) 782-2113

DOUGLAS P. SCOTT, DIRECTOR

217/782-2113

JOINT CONSTRUCTION AND LIFETIME OPERATING PERMIT

PERMITTEE

Narvick Brothers Lumber Co., Inc.
Attn: Mike Dillman
1037 Armstrong Street
Morris, IL 60450

Application No.: 09080009 I.D. No.: 197809ACU
Applicant's Designation: Concrete Plant Date Received: August 7, 2009
Subject: Central Mix Concrete Batch Plant Expiration Date: See Condition 1.
Date Issued: August 7, 2009
Location: 1955 Patterson Road, Joliet, Will County

This permit is hereby granted to the above-designated Permittee to CONSTRUCT and OPERATE a Central Mix Concrete Batch Plant consisting of the following emission unit(s) and/or air pollution control equipment:

Two storage silos with baghouse control, aggregate hoppers, aggregate conveyors, three supplemental cement storage units with baghouse control, two supplemental flyash storage units with baghouse control, two cement weigh hoppers, and two central mix drums with dust control

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This operating permit is effective only if the Permittee has complied with all standard conditions of the construction permit.

b. Operation of the emission units included in this permit shall not begin until all associated air pollution control equipment has been constructed and is operational.

c. This operating permit shall expire 180 days after the Illinois EPA sends a written request for the renewal of this permit.

d. This permit shall terminate if it is withdrawn or is superseded by a revised permit.

2. Emissions and operation of the central mix concrete batch plant shall not exceed the following limits:

		Emissions	
	Throughput	PM	PM
Operation	(T/Yr)	(Lbs/Ton)	(T/Yr)
Aggregate Transfer	139,875	0.0069	0.49
Sand Transfer	107,100	0.0021	0.12
Cement Silo/flyash Loading*	36,825	0.00099	0.02
Cement Supplement Loading*	5,475	0.0089	0.03
Weigh Hopper Loading	246,975	0.0051	0.63
Mixer Loading**, *	42,300	0.0173	0.37
		Totals	1.66

* PM control due to baghouse/dust collection system

** Based on cement and cement supplement only

These emissions are based on standard AP-42 emission factors in Table 11.12-2 and the average composition of concrete as detailed in AP-42, Chapter 11.12, and a maximum concrete throughput of 300,000 tons (150,000 cubic yards) per year.

3. This permit does not exempt the Permittee from obtaining a Construction and/or Operating Permit for any additional emission units in excess of those units specified in this permit, unless such emission units or operations are already exempted from permitting requirements pursuant to 35 Ill. Adm. Code 201.146.

4a. The Permittee shall not cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity that is visible beyond the property line of the emission source, pursuant to 35 Ill. Adm. Code 212.301.

b. The Permittee shall comply with the applicable portions of 35 Ill. Adm. Code Part 212 Subparts K and L.

c. The Permittee shall comply with the opacity limitations of 35 Ill. Adm. Code 212.123 and the PM emissions limitations of 35 Ill. Adm. Code 212.321.

5a. The emission units and pollution control equipment shall be operated in accordance with good operating practices to minimize particulate matter emissions.

b. Inspections of the plant and control systems equipment and operations shall be performed as necessary but at least once per week when the plant is in operation to confirm compliance with the above requirements.

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic inspection and maintenance on the equipment covered under this permit such that the equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. Pollution control devices shall be in operation at all times when the associated emission unit(s) is in operation and emitting air contaminants.

6. The Permittee shall maintain monthly records of the following items:

a. Concrete production (tons/month and tons/year);

b. Cement/flyash and cement supplement receipts (tons/month and tons/year); and

c. PM emissions (tons/month and tons/year) with supporting calculations.

7. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records 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 a source inspection.

8. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance/deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.

9. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

10. Persons with lifetime operating permits must obtain a revised permit for any of the following changes at the source:

a. An increase in emissions above the amount the emission unit or the source is permitted to emit;

b. A modification;

c. A change in operations that will result in the source's noncompliance with conditions in the existing permit; or

d. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.

If you have any questions on this permit, please call Charlie Zeal at 217/782-2113.

COPY

Original Signed by
Edwin C. Bakowski, P.E.

Edwin C. Bakowski, P.E. Date Signed: 8-07-2009
Manager, Permit Section
Division of Air Pollution Control

ECB:CAZ:jws

cc: Region 1

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 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.

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

STANDARD CONDITIONS FOR LIFETIME OPERATING PERMITS

July 1, 1993

The Illinois Environmental Protection Act [415 ILCS 5/39 (formerly Illinois Revised Statutes, Chapter 111-1/2, Section 1039)] grants the Illinois Environmental Protection Agency authority to impose conditions on permits which it issues.

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, until the appropriate permit is obtained from the Illinois EPA.

   b. The Permittee shall obtain a new or revised permit under Section 39.5 of the Act, if the source no longer meets the applicability criteria of 35 Ill. Adm. Code 201169 because of changes in emissions units or control equipment.

   c. The Permittee shall obtain a revised permit prior to any of the following changes at the source:

      i. An increase in emissions above the amount the emission unit or the source is permitted to emit; or

      ii. A modification; or

      iii. A change in operations that will result in the source's noncompliance with a condition in the existing permit; or

      iv. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.

4. a. This Permit only covers emission units and control equipment while physically present at the indicated source location. Unless the Permit specifically provides for equipment relocation, this Permit is void for n item of equipment on the day it is removed from the permitted location, or if all equipment is removed.

   b. The Permittee shall notify the Illinois EPA in writing to withdraw the Permit if all operations the source have been permanently discontinued.

5. 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 units 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.

6. The issuance of this Permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted source is 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 source;

   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 source.

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 Illinois EPA 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 startup of any emission unit or continued operation during malfunction or breakdown of any emission unit or related air pollution control equipment if such startup or continued operation would cause a violation of an applicable emission standard or permit limitation if such operation is not allowed as a special condition of this Permit, as required by 35 Ill. Adm. Code 201.149.

10. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.

11. The Permittee shall pay the annual site fee for the source in accordance with Section 9.5 of the Act.

EXHIBIT O

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	HARSCO MINERALS
ID No.:	179473 AAG
Application No.:	05120014
Category:	03K
Item Date:	5/29/2014

Completed by:	BAD
Date:	___/___/___

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

LIFETIME OPERATING PERMIT -- NSPS SOURCE -- REVISED

PERMITTEE

NSPS/NESHAP

Harsco Minerals
Attn: Greg Anderson
5000 Ritter Road, Suite 205
Mechanicsburg, Pennsylvania 17055

Application No.: 05120014 I.D. No.: 179473AAG
Applicant's Designation: PLANT 57 Date Received: February 4, 2014
Subject: Coal Slag Processing Plant
Date Issued: May 29, 2014 Expiration Date: See Condition 1.
Location: 13088 East Manito Road, Pekin, Tazewell County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

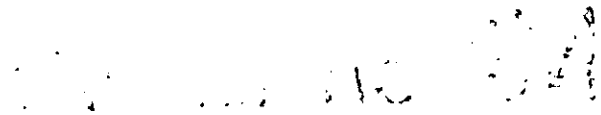
1 Feed Hopper,
1 Scalp Screen,
1 Conveyor to Dryer,
1 Rotary Dryer (Natural Gas Fired) Controlled by Baghouse,
1 Crusher Bucket Elevator Controlled by Baghouse,
1 Primary Crusher Controlled by Baghouse,
1 Primary Bucket Elevator Controlled by Baghouse,
1 Chute to Screens Controlled by Baghouse,
Triple Deck Screens Controlled by Baghouse,
1 Rerun Crusher Controlled by Baghouse,
3 Secondary Bucket Elevators Controlled by Baghouse,
3 Silos Controlled by Baghouse,
3 Drop Chutes Controlled by Baghouse,
1 Load Out Belt Controlled by Baghouse,
1 Load Out Elevator Controlled by Baghouse,
1 Truck Loadout,
1 Rail Car Loadout Controlled by Baghouse,

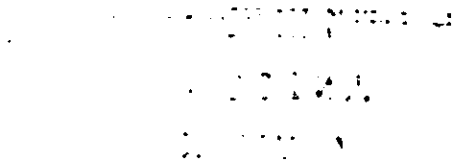
pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This permit shall expire 180 days after the Illinois EPA sends a written request for the renewal of this permit.

b. This permit shall terminate if it is withdrawn or is superseded by a revised permit.

2. The dryer is subject to the New Source Performance Standards for Calciners and Dryers in Mineral Industries 40 CFR Part 60, Subpart A and UUU. The Illinois EPA is administering NSPS in Illinois on behalf of the USEPA under a delegation agreement.





a. At all times, the Permittee shall also, to the extent practicable, maintain and operate the dryer, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.

b. The Opacity from the dryer shall not exceed 10%, pursuant to 40 CFR 60.732

c. Particulate matter (PM) concentration shall not exceed 0.025 gr/dscf, pursuant to 40 CFR 60.732

d. The Permittee shall comply with all applicable reporting and recordkeeping requirements of 40 CFR 60.735.

3a. No person shall cause or allow any visible emissions of fugitive particulate matter from any process, including any material handling or storage activity beyond the property line of the emission source, pursuant to 35 Ill. Adm. Code 212.301.

b. The Permittee shall comply with the opacity limitations of 35 Ill. Adm. Code 212.123 and the particulate matter emission limitations of 35 Ill. Adm. Code 212.321.

4a. The baghouses shall be in operation at all times when the associated emission units are in operation and emitting air contaminants.

b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic inspection and maintenance on the equipment covered under this permit such that the equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

5a. Operation and emissions from the Dryer and all other equipment controlled by the baghouse shall not exceed the following limits:

Throughput			Combined PM Emissions		
(Tons/Hr)	(Tons/Mo)	(Tons/Yr)	(Lbs/Hr)	(Tons/Mo)	(Tons/Yr)
50	43,800	438,000	1.9	0.84	8.33

These limits are based on requested material throughput, process weight rate of 50 tons/hour, exhaust flowrate of 9000 scfm and maximum PM concentration allowed of 0.025 gr/dscf pursuant to 40 CFR 60.732. Compliance with annual limits shall be determined from a running total of 12 months of data.

b. Operation and emissions from all 4 units not controlled by the baghouse, excluding the scalp screen, shall not exceed the following limits:

Throughput			Combined PM Emissions		
(Tons/Hr)	(Tons/Mo)	(Tons/Yr)	(Lbs/Hr)	(Tons/Mo)	(Tons/Yr)
50	43,800	438,000	0.45	0.2	2.0

These limits are based on AP-42 Table 11.19.2-2 uncontrolled emission factor of 0.003 lb/ton for Conveyor Transfer Point.

c. Operation and emissions from the Scalp Screen shall not exceed the following limits:

Throughput			PM Emissions		
(Tons/Hr)	(Tons/Mo)	(Tons/Yr)	(Lbs/Hr)	(Tons/Mo)	(Tons/Yr)
50	43,800	438,000	1.25	0.55	5.5

These limits are based on AP-42 Table 11.19.2-2 uncontrolled emission factor of 0.025 lb/ton.

6a. Natural gas shall be the only fuel combusted in the rotary dryer. Use of any other fuel requires a permit change.

b. Combustion emissions from the rotary dryer shall not exceed the following limits:

				Emission Factor	Emissions	
Fuel	(mmscf/Mo)	(mmscf/Yr)	Pollutant	(Lb/10^3 Gal)	(T/Mo)	(T/Yr)
Natural Gas	4	40	NO_x	100	0.20	2.00
			CO	84	0.17	1.70
			PM	7.6	0.02	0.20
			VOM	5.5	0.02	0.20

These limits are representations of the maximum emissions of NO_x, CO, PM, and VOM and are based on maximum fuel usage and AP-42 Tables 1.4, and 1.4-2 emission factors. Compliance with annual limits shall be determined from a running total of 12 months of data.

7a. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hour (25 mph). Determination of wind speed for the purposes of this rule shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

b. Pursuant to 35 Ill. Adm. Code 212.306, all normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code

212.304 and all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.

c. Pursuant to 35 Ill. Adm. Code 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 and 35 Ill. Adm. Code 212.316 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and 212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.

d. Pursuant to 35 Ill. Adm. Code 212.310, as a minimum the operating program shall include the following:

i. The name and address of the source;

ii. The name and address of the owner or operator responsible for execution of the operating program;

iii. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;

iv. Location of unloading and transporting operations with pollution control equipment;

v. A detailed description of the best management practices utilized to achieve compliance with 35 Ill. Adm. Code 212 Subpart K, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;

vi. Estimated frequency of application of dust suppressants by location of materials; and

vii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

e. Pursuant to 35 Ill. Adm. Code 212.312, the operating program shall be amended from time to time by the owner or operator so that the operating program is current. Such amendments shall be consistent with 35 Ill. Adm. Code 212 Subpart K and shall be submitted to the Illinois EPA for its review.

f. The Permittee shall implement and comply with the Fugitive Dust Control Plan in Attachment A to the September 27, 2013, USEPA Administrative

Consent Order issued to the Reed Minerals Division of Harsco Corporation.

8. This permit is issued based on the Potential to Emit (PTE) for Hazardous Air Pollutants (HAP) as listed in Section 112(b) of the Clean Air Act being less than 10 tons/year of any single HAP and 25 tons/year of any combination of such HAPs. As a result, this permit is issued based on the emissions of all HAPs from this source not triggering the requirements to obtain a Clean Air Act Permit Program Permit (CAAPP), and Section 112(g) of the Clean Air Act.

9. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:

   a. Records addressing use of good operating practices for the baghouses:

      i. Records for periodic inspection of the baghouses with date, individual performing the inspection, and nature of inspection; and

      ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

      iii. A maintenance log for the baghouses detailing all routine and non-routine maintenance performed including dates and duration of any outages.

10. The Permittee shall maintain monthly records of the following items:

   a. Throughput for each equipment/process listed in Condition 5 (tons/month and tons/year);

   b. Natural gas usage for the dryer (mmscf/month and mmscf/year); and

   c. VOM, HAP, PM, NO_x, SO_2 and CO emissions (tons/month and tons/year) with supporting calculations.

11. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records 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 a source inspection.

12. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the

exceedance/deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.

13. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
412 SW Washington Street, Suite D
Peoria, Illinois 61602

14. Persons with lifetime operating permits must obtain a revised permit for any of the following changes at the source:

a. An increase in emissions above the amount the emission unit or the source is permitted to emit;

b. A modification;

c. A change in operations that will result in the source's noncompliance with conditions in the existing permit; or

d. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.

Please note, this permit has been revised to add conditions for fugitive dust control plan, NSPS Subpart UUU, and to update permit, as requested by the Permittee.

If you have any questions on this permit, please contact Randy Solomon at 217/785-1705.

Raymond E Pilapil

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

Date Signed: 5-29-2014

REP:RBS:psj

cc: Region 2

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

STANDARD CONDITIONS FOR LIFETIME OPERATING PERMITS

July 1, 1993

The Illinois Environmental Protection Act [415 ILCS 5/39 (formerly Illinois Revised Statutes, Chapter 111-1/2, Section 1039)] grants the Illinois Environmental Protection Agency authority to impose conditions on permits which it issues.

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, until the appropriate permit is obtained from the Illinois EPA.

   b. The Permittee shall obtain a new or revised permit under Section 39.5 of the Act, if the source no longer meets the applicability criteria of 35 Ill. Adm. Code 201169 because of changes in emissions units or control equipment.

   c. The Permittee shall obtain a revised permit prior to any of the following changes at the source:

      i. An increase in emissions above the amount the emission unit or the source is permitted to emit; or

      ii. A modification; or

      iii. A change in operations that will result in the source's noncompliance with a condition in the existing permit; or

      iv. A change in ownership, company name, or address, so that the application or existing permit is no longer accurate.

4. a. This Permit only covers emission units and control equipment while physically present at the indicated source location. Unless the Permit specifically provides for equipment relocation, this Permit is void for n item of equipment on the day it is removed from the permitted location, or if all equipment is removed.

   b. The Permittee shall notify the Illinois EPA in writing to withdraw the Permit if all operations the source have been permanently discontinued.

5. 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 units 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.

6. The issuance of this Permit:

   a. Shall not be considered as in any manner affecting the title of the premises upon which the permitted source is 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 source;

   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 source.

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 Illinois EPA 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 startup of any emission unit or continued operation during malfunction or breakdown of any emission unit or related air pollution control equipment if such startup or continued operation would cause a violation of an applicable emission standard or permit limitation if such operation is not allowed as a special condition of this Permit, as required by 35 Ill. Adm. Code 201.149.

10. The Permittee shall submit an Annual Emission Report as required by 35 Ill. Adm. Code 201.302 and 35 Ill. Adm. Code Part 254.

11. The Permittee shall pay the annual site fee for the source in accordance with Section 9.5 of the Act.

EXHIBIT P

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Caterpillar Inc	
ID No.:	143 805 AAB	
Application No.:	12 05 0027	
Category:	03K Air Permit - Construction	
Item Date:	3/2/2021	
Keyword:		*
Comment:		*
Part:	of	*

JMS

* If applicable

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]
NESHAP SOURCE

PERMITTEE

Caterpillar Inc. - Mapleton Foundry
Attn: Joel Chapman
8826 West Route 24
Mapleton, Illinois 61547

Application No.: 12050027 I.D. No.: 143805AAB
Applicant's Designation: Facility-Wide Date Received:
Subject: Facility-Wide Project
Date Issued: March 2, 2021
Location: 8826 West Route 24, Mapleton, Peoria County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a facility-wide project, including construction of certain new emission units and modification of certain existing emission units, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions.

If you have any questions on this permit, please call Daniel Rowell at 217/558-4368.

William D. Marr JMS

William D. Marr
Manager, Permit Section
Bureau of Air

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE

APR 02 2021

REVIEWER: SAB

WDM:DBR:tan
DBR
3/2/21

[1] This permit has been revised at the request of the Permittee to provide for increased utilization of centrifugal metal casting equipment at the foundry, which is displacing older casting operations, with establishment of an overall limit for the amount of metal charged to the metal melting furnaces at the foundry. This revised permit also recognizes changes to the coremaking process as a consequence of the Core Room Catalyst Conversion Project addressed by Construction Permit 20060028.
This revised permit no longer addresses certain emission units as they were not constructed, including a treatment station and a casting line. This revised permit no longer includes provisions related to the emissions of greenhouse gases (GHG) consistent with 40 CFR 52.21(b)(49)(iv). In August 2015, USEPA issued a final rule removing provisions requiring a stationary source to obtain a PSD permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds or there is a significant emissions increase of GHGs from a modification. 80 Fed. Reg. 50199 (August 19, 2015).

1. Introduction

This permit authorizes a "facility-wide" project, including construction of certain new units and modification of certain existing units. The project will also involve permanent shutdown of certain units and changes to various non-emitting equipment. The purpose of the project is to facilitate changes to the facility for more flexible and efficient operation, to more effectively compete in new and existing markets for iron castings.

This permit generally addresses emissions of the facility by processes or activity rather than by production line. Based on the application, facility emissions from existing units, including replacement units as defined by 40 CFR 52.21(b)(33), will not increase, comparing past actual emissions and future projected emissions, consistent with 40 CFR 52.21(b)(3) and (r)(6). The potential emissions of new units would not be significant. (See Condition 6(b)(ii) and (iii) and Attachment 3.)

This permit will not affect the applicable emission standards for existing units, as set forth in the Clean Air Act Permit Program (CAAPP) permit for the facility, Permit 96020004 (the "CAAPP Permit"). However, with this project, various emission and operational limits for existing units that are contained in previous permits will no longer apply to the modified facility. (See Attachment 2.)

2.1 Listing of New and Replacement Units and Associated Control Equipment

Unit	Description	Status[1]
Core and Mold Making		
Six Sand Mixers	Mixing resin and catalyst with sand controlled by an existing baghouse	R
Vibratory Table and Rollover	Mold production with air-set resin	N
Four Core Machines	Production of cores, using various resin systems including cold box with triethylamine (TEA),dimethylpropylamine (DMPA) or similar non-HAP catalyst, controlled by a scrubber[2]	R
Refractory application	Application of liquid refractory coating to the surface of molds and cores	N
Core drying oven	Drying of refractory coatings, natural gas fired, rated 10 mmBtu/hr	R
Core drying oven	Drying of refractory coatings, natural gas fired, rated 6 mmBtu/hr	N
Metal Melting and Treating		
Induction furnace	Melting of metal by electric induction, 4,000 pound capacity	R
Casting Area (Metal Pouring, Cooling and Shakeout)		
Centrifugal casting	Casting into rotating molds	N
Finishing Area		
Machining equipment[3]	Additional equipment for machining castings, including descaling & finishing	N
Coating system	Application of rust preventatives to casting and machining equipment	N
Miscellaneous Equipment		
Wood chipper/grinder	Volume reduction for wood waste, e.g., pallets and shipping material, w/engine	N

Table Notes:
1. Status as a new (N) or replacement (R) unit as of original issuance of this permit, November 20, 2012.
2. See also Condition 2.2(b).
3. These units would be insignificant activities pursuant to 35 IAC 201.210(b)(20).

2.2 Construction of New Control Equipment

This permit also authorizes installation of the following new control devices for existing units at the facility:

a. New baghouses on existing Casting Lines 1 and 4, which equipment will replace the existing wet dust collectors on certain sand handling systems, cooling and shakeout operations on these lines.

b. A new TEA scrubber, which will replace two existing TEA scrubbers. As well as controlling new core machines, this new scrubber will control existing core machines in the Core Room and Block Core Complex at the facility when those existing core machines are operating with cold box (phenolic-urethane) resins. Pursuant to Administrative Order EPA-5-13-113(a)-IL-01 issued by the USEPA, this new scrubber must be installed no later than October 23, 2013. (Note: This permit does not address requirements of this order that apply to the existing scrubbers during the period before they are replaced.)

Note: Construction Permit 20060028 provides for the conversion of this scrubber for control of emissions from the use of DMPA catalyst or similar non-HAP catalyst rather than TEA, in the coremaking process.

3.1 Applicability Provisions and Applicable State Emission Standards

a. For the purpose of this permit:

i. The "affected core and mold making area processes" are the processes in the core and mold making area described in Condition 2.1.

ii. The "affected metal melting and treating processes" are the processes in the metal melting and treating area described in Condition 2.1.

iii. The "affected casting area processes" are the processes for casting described in Condition 2.1.

iv. The "affected finishing area processes" are the finishing area processes described in Condition 2.1.

v. The "affected miscellaneous equipment" are the miscellaneous equipment processes described in Condition 2.1.

vi. The "affected units" are the affected units described in Condition 3.1(a)(i) through (v) that are new units, rather than replacement units, unless specifically stated otherwise.

b. The affected units, except for grinding, sandblasting and shotblasting processes, are subject to 35 IAC 212.321(a), which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process unit, either alone or in combination with the emission of particulate matter from all other similar new process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c) [35 IAC 212.321(a) and 212.681].

c. The affected units are subject to 35 IAC 212.123, which provides that no person shall cause or allow emissions of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any such emission unit, except as provided for by 35 IAC 212.123(a) and 212.124.

d. The affected units that process materials containing organic material, are subject to 35 IAC 215.301 and 215.302, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any process emission unit or organic material emissions from the unit shall be controlled by air pollution control equipment approved by the Illinois EPA capable of reducing by 85% or more the uncontrolled organic material that would be otherwise emitted to the atmosphere, provided however, that if no odor nuisance exists these requirements shall apply only to photochemically reactive material. [35 IAC 215.301 and 215.302(c)]

e. The affected units are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

f. The affected units are subject to 35 IAC 212.301, which provides that no person shall cause or allow the emissions of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 25 miles per hour pursuant to 35 IAC 212.301 and 212.314.

3.2 NESHAP Requirements

a. The following operations at the facility are subject to the requirements of National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries, 40 CFR Part 63 Subpart EEEEE (Foundry NESHAP). For purposes of this NESHAP, this facility is an existing affected source, as provided by 40 CFR 63.7682(a), because the facility was in existence on December 22,

2002. As such, the compliance date under the NESHAP was April 23, 2007, except for the work practice standards of 40 CFR 63.7700, for which the compliance date was April 22, 2005.

i. Metal melting furnaces, scrap preheaters, pouring areas, pouring stations, automated conveyor and pallet cooling lines, automated shakeout lines, and mold and core making lines, all as defined by 40 CFR 63.7765.

ii. Fugitive emissions (i.e., emissions that are not discharged through a conveyance) as defined by 40 CFR 63.6675, from iron and steel foundry operations.

b. All operations at the facility that are subject to the Foundry NESHAP (i.e., NESHAP subject operations) shall comply with the applicable emissions standards and control requirements of this NESHAP. In addition, as provided by 40 CFR 63.7746(b), consistent with the requirements of 40 CFR 63.6(e) and 63.7(e)(1), deviations from such standards or requirements that occur during a period of startup, shutdown, or malfunction a subject operation, are not violations if the Permittee demonstrates to the satisfaction of the USEPA and/or Illinois EPA that it was operating in accordance with 40 CFR 63.6(e)(1).

Note: See Attachment 1 for a summary of the emission and control requirements that apply to the affected units.

c. The Permittee shall comply with all compliance requirements of the Foundry NESHAP that are applicable to the specific NESHAP operations at the facility, including the following:

i. As required by 40 CFR 63.6(e)(1)(i), always operate and maintain NESHAP subject operations, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by the Foundry NESHAP. [40 CFR 63.7710(a)]

ii. Operate at all times according to a written operation and maintenance plan for each capture and collection system and control device for a NESHAP subject operation subject to a emissions limit in 40 CFR 63.7690(a), which plan must contain the applicable elements in 40 CFR 63.7710(b)(1) through (6). [40 CFR 63.7710(b)]

iii. Conduct initial and subsequent performance tests for NESHAP subject operations, as provided by 40 CFR 63.7730 and 63.7731, with such tests conducted using the applicable methods and procedures specified by 40 CFR 63.7732.

iv. For each capture system for a NESHAP subject operation that is subject to a limit for VOHAP or TEA (e.g., a TEA cold box mold or core making line), establish site-specific operating limits for the capture system in accordance with

40 CFR 63.7733 and conduct operational monitoring to determine compliance with such operating limits in accordance with 40 CFR 63.7740(a), 63.7741(a) and 63.7742.

v. For each control device for a NESHAP subject operation that is subject to a limit for PM or total metal HAP (e.g., a pouring station) or VOHAP or TEA (e.g., a TEA cold box mold or core making line), operate a bag leak detection system or appropriate parametric monitoring system and conduct other operational monitoring in accordance with 40 CFR 63.7740(b) and (c), 63.7741(b), and 63.7742.

vi. For each NESHAP subject operation, demonstrate initial and continuous compliance with NESHAP limitations, work practice standards, and operation and maintenance requirement in accordance with applicable provisions of 40 CFR 63.7734, 63.7735, 63.7736, 63.7743, 63.7744 and 63.7745.

d. The Permittee shall comply with all general requirements of the Foundry NESHAP that are applicable to the facility, including the following:

i. Reporting deviations in accordance with 40 CFR 63.7746.

ii. Submitting notifications in accordance with 40 CFR 63.7750.

iii. Submitting periodic compliance reports in accordance with 40 CFR 63.7751.

iv. Keeping records in accordance with 40 CFR 63.7752 and 63.7753, including: Copies of each notification and report submitted to comply with the Foundry NESHAP; The records specified in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction; Records of performance tests and performance evaluations as required by 40 CFR 63.10(b)(2)(viii), and Records of the annual quantity of each chemical binder or coating material used to coat or make molds and cores, the MSDS or other documentation that provides the chemical composition of each component, and the annual quantity of HAP used in these chemical binder or coating materials at the foundry as calculated from the recorded quantities and chemical compositions.

4. Non-Applicability Provisions

a. This revised permit is issued based on this project not constituting a major modification under Prevention of Significant Deterioration (PSD) 40 CFR 52.21, because emissions will not increase significantly with the project. (See Attachment 3.)

b. The affected finishing area processes are not subject to 35 IAC 212.321 pursuant to 212.681 which specifically exempts these units. [35 IAC 212.681]

c. When a core machine(s) in the Core and Mold Making area ceases to use TEA and uses DMPA or other non-HAP catalyst, the core machine will no longer be subject to the control requirements of the NESHAP, 40 CFR 63.7690(a)(11).

5. Work Practices

a. The Permittee shall follow good operating and maintenance practices for all emission units at the facility, including associated control equipment, including periodic inspection, routine maintenance and prompt repair of defects.

6. Operational and Emission Limits

a. The operation of affected new units shall not exceed the following limits on usage of materials or operation. Compliance with annual limits established by this permit shall be determined from a running total of 12 consecutive months of data.

Unit	Material	Limits		Terms
		Monthly	Annual	
Vibratory Table & Rollover	Sand	500	5,000	Tons
Refractory Application	Organic Solvent Used[1]	55	550	Tons
Core Drying Oven	Natural Gas Used	5.2	51.53	mmscf
Centrifugal Casting[2]	Iron Poured	4,000	40,000	Tons
Coating System	Organic Solvent Used[1]	1,200	12,000	Gallons
Wood Grinder	Diesel Fuel Used	2,000	10,000	Gallons

Table Notes:

1. Volatile organic material, as defined by 35 IAC 211.7150, in applied coatings and in clean-up materials.

2. Centrifugal casting includes up to five casting units and three melted iron holding furnaces. The three melted iron furnaces are insignificant activities for purposes of the CAAPP pursuant to 35 IAC 201.210.

b. The emission rates of the affected new units shall not exceed the following limits:

Unit	Basis	Limits					
		PM	PM_{10}	$PM_{2.5}$	VOM	CO	NO_x
Vibratory Table & Rollover	lbs/ton sand	0.30	0.25	0.25	-	-	-
Core Drying Oven	lbs/hour	-	-	-	-	0.49	0.59
Centrifugal Casting	lbs/ton iron poured	0.12	0.027	0.027	-	-	-

i. The annual emissions from the affected new units shall not exceed the following limits.

Process Area	Limits (tons/year)						
	PM	PM_{10}	$PM_{2.5}$	VOM	CO	NO_x	SO_2
Vibratory Table & Rollover	0.72	0.63	0.63	1.06	-	-	-
Refractory Application	-	-	-	5.5[a]	-	-	-
Core Drying Oven	0.20	0.02	0.02	0.14	2.16	2.58	0.02
Centrifugal Casting	2.4	0.54	0.54	-	-	-	-
Machining Equipment	0.001	0.001	0.001	-	-	-	-
Coating System	-	-	-	6.78	-	-	-
Wood Grinder:	0.012	0.006	0.004	-	-	-	-
Process Diesel Engine	0.168	0.153	0.153	0.135	3.83	2.87	0.113
Total	3.53	1.35	1.35	13.62	5.99	5.45	0.13

Table Notes:

a. Limit addresses all VOM emissions from the coating, including emissions during application and subsequent emissions during drying.

ii. The total emissions from the affected new units, on a monthly and annual basis, shall not exceed the following limits.

Pollutant	Limits	
	Tons/Month	Tons/Year
PM	0.35	3.53
PM_{10}	0.13	1.35
$PM_{2.5}$	0.13	1.35
VOM	1.36	13.62
CO	0.60	5.99
NO_x	0.54	5.45
SO_2	0.013	0.13

c. i. Other than requirements established in Construction Permit/PSD Approval 00120038, for the 3500 Area at the facility, the emission and operating limits for existing emission units in the conditions of existing construction permits and the current CAAPP Permit for the facility, as listed in Attachment 2, which address the existing configuration of the facility, will no longer apply upon commencement of construction of this project, provided that the Permittee undertakes a program to complete construction of this project in a reasonable time.

ii. This revised construction permit recognizes the conversion of core machines in the 3500 Area of the facility to use DMPA catalyst or other similar non-HAP containing materials, consistent with the Operating Flexibility provided by Condition 2.11(a) of Construction Permit/PSD Approval 00120038. These core machines are controlled by

an existing scrubber that will be converted to control VOM emissions from the use DMPA.

A. For existing core machines in the 3500 Area that use TEA catalyst and associated scrubber, this revised construction permit does not change applicable requirements of the Foundry NESHAP when using TEA, including the control requirements of the NESHAP, 40 CFR 63.7690(a)(11).

B. When all core machines in the 3500 Area cease to use TEA in preparation for conversion to DMPA, the core machines will no longer be subject to the control requirements of the NESHAP.

7. Testing Requirements

In addition to other testing that is required by the Foundry NESHAP, the Permittee shall conduct or have conducted the following testing:

a. i. The Permittee shall conduct initial performance tests for affected units and new control devices, as follows, using the applicable test methods and procedures specified by the Foundry NESHAP.

A. Core machines (TEA scrubber): TEA emissions or efficiency for control of TEA

B. Pouring stations, if any (baghouse or filter): PM or total metal HAP

C. Pouring areas, if any, and other sources of fugitive emissions:

D. Opacity

ii. The timing of the performance tests shall be as follows:

A. Testing for emissions of pollutants shall be conducted within 180 days of initial startup unless prevented by force majeure, which the Permittee shall report to the Illinois EPA in accordance with 40 CFR 63.7(a)(4).

B. Testing for opacity shall be promptly conducted following initial startup.

iii. As part of this testing or in conjunction with this performance testing for the pouring stations, the Permittee shall also conduct testing for emissions of filterable particulate (PM, PM_{10} and $PM_{2.5}$) and condensable particulate. These tests shall be conducted using applicable USEPA methods, including Methods 5, 201, 201A and 202.

iv. For the TEA scrubber, until this performance test has been conducted, the Permittee shall keep a detailed log for the operation of the scrubber in accordance with 40 CFR 63.7720(b).

b. Reserved.

(This condition previously addressed testing for particulates of metal treatment stations, which were not constructed.)

c. The Permittee shall conduct performance tests for the new baghouses on the existing casting lines for emissions of filterable particulate (PM, PM_{10} and $PM_{2.5}$) and condensable particulate. These tests shall be conducted using applicable USEPA methods, including Methods 5, 201, 201A and 202. This testing of the mold line baghouse(s) shall be conducted within 30 months of the initial start of operation of the first baghouse, on one of these baghouses as specified by the Illinois EPA or otherwise as selected at random.

d. i. Upon a written request by the Illinois EPA, the Permittee shall have emissions testing promptly conducted for affected new units and/or existing units for PM, PM_{10}, $PM_{2.5}$, VOM, NO_x, and/or CO for units and pollutants as specified in the request. These tests shall be conducted under representative operation of the emission units unless otherwise specified in the request.

ii. The Permittee shall submit the report for the testing to the Illinois EPA within 60 days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

e. For the purpose of the above testing, unless testing for emissions of filterable PM_{10} and $PM_{2.5}$ is specifically requested by the Illinois EPA, the Permittee need not conduct separate measurements for PM_{10} and $PM_{2.5}$ if the Permittee considers all filterable PM measured by Method 5 to be PM_{10} and $PM_{2.5}$. Separate measurements for filterable $PM_{2.5}$ need be conducted if the Permittee considers all filterable PM_{10} measured by Method 201 or 201A to be $PM_{2.5}$.

Note: As the Permittee has completed this testing, this testing need not be repeated under this revised construction permit.

8. Monitoring and Instrumentation

a. i. The Permittee shall operate and maintain instrumentation to measure pressure drop across the baghouses and filters for emission units that are not subject to the Foundry NESHAP.

ii. For each such control device, the Permittee shall either record the pressure drop measured by this instrumentation

at least once per operating week or automatically record the measured data, on an hourly average basis.

9. Recordkeeping Requirements

The Permittee shall maintain the following records for the facility:

a. The following records for core and mold making operations, which records shall be kept current. Previous versions of these files shall be kept in accordance with general requirements for retention of records.

i. A file of the core making machines and associated ovens identifying the type(s) of resin system (e.g., acrylic/epoxy cold box process, phenolic urethane cold box process, phenolic hot box process, no-bake furan (air set) process, or the no-bake phenolic urethane process) that each unit is designed for or capable of handling, the applicable emission standards that apply for each such resin system, and the control equipment or control measures that must be used to ensure compliance.

ii. A file for transportable equipment used in core making, including sand mixers, vibratory tables, core machines, refractory dip tanks, and core drying ovens, that identifies each such unit, with name and unique designation, and current location or locations, by process or production line, of each such unit at the facility.

iii. A file of the current resin systems being used in each mold making operations.

b. A file for replacement units that identifies each such unit with name and unique designation and documentation that the unit meets the criteria in 40 CFR 52.21(b)(i) through (r).

c. Records for the usage of materials by affected new units, on a monthly and annual basis, as needed to verify compliance with the operational limits in Condition 6(a).

d. The following records related to new emission units with the exception of natural gas combustion:

i. A file containing the emission factors used by the Permittee to determine emissions of NOx, CO, VOM, PM, PM_{10}, and $PM_{2.5}$ from the affected new units and from existing units at the facility, with supporting documentation.

ii. Operating records and operating data in additional to that required by Condition 9(c) as needed to determine emissions from affected new units and existing units using the above emission factors.

iii. For each group of affected new units, records for actual emissions of NOx, CO, VOM, PM, PM_{10} and $PM_{2.5}$ (tons/month and tons/year), with supporting calculations.

iv. The combined emissions of NO_x, CO, VOM, PM, PM_{10}, and $PM_{2.5}$ from affected new units (tons/month and tons/year).

e. Reserved.

(This condition previously addressed records required pursuant to 40 CFR 52.21(r)(6) for emissions of NOx, CO, VOM, PM, PM_{10} and $PM_{2.5}$. This revised permit no longer requires this recordkeeping as it is not applicable to this project because there is no longer a "reasonable possibility" that the increases in PSD-regulated pollutants sum to at least 50 percent of the respective major modification emission rates.)

f. Records addressing use of good operating practices for emission units, including associated control devices, at the facility that are not subject to the Foundry NESHAP, including:

i. Records for any upset in the operation of the unit or associated control devices that may have resulted in additional emissions, including an estimate of any additional emissions that resulted.

ii. Records for periodic inspection of equipment with date, individual performing the inspection, and nature of inspection.

iii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

10. General Requirements for Records and Reports

General requirements of the CAAPP Permit with respect to retention and availability of records or submission of reports shall apply to the general recordkeeping and reporting requirements established by this permit.

11. Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of any deviation from the requirements of this permit, consistent with provisions in its CAAPP permit for reporting of deviations, e.g., reports shall describe the deviations, their probable cause, corrective actions taken, and any preventive measures taken.

b. The Permittee shall notify the Illinois EPA when new control device(s) authorized to be constructed by this permit, to replace an existing control device(s), begin operation, with date and identification of the new control device and the former control device.

c. As part of its obligation under Standard Condition 1 to undertake a program to complete construction of this project in a reasonable time, the Permittee shall submit periodic progress reports, for the semi-annual periods ending on June 30th and December 31st of each year, within 60 days of the end of the reporting period, that shall include at a minimum information detailing the current state of the activities covered by this permit including: dates of commencement of construction of the new and replacement emission units and control devices that are part of this project; completion dates where applicable for purposes of the timing of emission testing, and an updated timeline which estimates approximate construction and completion dates for those activities that have not yet commenced as of the end of the reporting period.

d. Reports required by this permit shall be sent to the Illinois EPA, Air Compliance Section, with a copy sent to the Illinois EPA Air Regional Field Office

12. Authorization to Operate

The Permittee is allowed to operate the facility under this revised construction permit until final action is taken on a revision to or renewal of the CAAPP permit for the facility to address this project. This condition supersedes Standard Condition 6.

Attachment 1

Summary of Emission Limitations and Other Control Requirements of the Foundry NESHAP (40 CFR 63 Subpart EEEEE) That Apply to Affected Units

(This summary is provided for informational purposes. Refer to 40 CFR 63 Subpart EEEEE for the actual requirements of the Foundry NESHAP)

Mold or Core Making

1. The new TEA scrubber and each new core machine when operating as part of a "triethylamine (TEA) cold box mold or making line:"

   a. TEA emissions through conveyances to the atmosphere shall not exceed 1 ppmv or TEA emissions must be reduced by at least 99 percent, as determined by the performance test procedures of 40 CFR 63.7732(g). [40 CFR 63.7790(a)(11)]

   b. Capture and collection system(s) must be installed, operated and maintained on the core machine(s) (core making lines) that meet accepted engineering standards and are operated above the lowest value or settings established in the Operations and Maintenance Plan for the system. [40 CFR 63.7790(b)(1)] Operational monitoring shall be conducted to determine compliance with such operating limits in accordance with 40 CFR 63.7740(a), 63.7741(a) and 63.7742.

   c. The scrubber for the core machine(s) must be operated such that the average scrubbing liquid flow rate and pH of scrubber blow down for the scrubber meet the requirements of 40 CFR 63.7690(b)(5), with operational monitoring conducted to determine compliance with such operating limits in accordance with 40 CFR 63.7740(a), 63.7741(a) and 63.7742.

2. Core machines when operating as part of a "furan warm box mold or core making line" shall not use binder chemical formulations that contain methanol as a specific ingredient of the catalyst formulation, as determined by the Material Safety Data Sheet. This requirement does not apply to the resin portion of the binder system. [40 CFR 63.7700(d))]

Iron and Steel Foundry Operations

1. "Pouring station(s)," as defined by 40 CFR 63.7765, in the new casting processes, if any, and the new induction furnace, if vented through a "conveyance," as defined in 40 CFR 63.7765:

   a. For each new pouring station emissions shall not exceed 0.010 gr/dscf of PM or emissions shall not exceed 0.0008 gr/dscf of total metal HAP. [40 CFR 63.7690(a)(5)]

   b. For each new induction furnace vented through a conveyance to atmosphere emissions shall not exceed 0.005 grains of PM or 0.004 gr/dscf of total metal HAP [40 CFR 63.7690(a)(1)]

c. Bag leak detection system(s) must be installed on the baghouse(s) for the operations(s), which system(s) must be operated at all times to monitor the relative changes in PM emissions, in accordance with 40 CFR 63.7710(b)(4), 63.7740(b), 63.7741(b) and 63.7742.

d. The capture system(s) and the baghouse(s) for the operation(s) shall be inspected on a regular basis, as provided by 40 CFR 63.7710(b)(1) and 63.7740(c).

2. Procedures shall be implemented to provide an ignition source to mold vents of sand mold systems in each pouring station and pouring area unless it determines that the mold vent gases either are not ignitable, ignite automatically, or cannot be ignited due to accessibility or safety issues, as further provided by 40 CFR 63.7710(b)(6).

3. Induction furnaces whose emissions are not discharged through conveyances, pouring area(s), as defined by 40 CFR 63.7765, in casting processes, and other fugitive emissions from foundry operations:

a. Fugitive emissions to the atmosphere from each operation shall not be greater than 20 percent opacity (6-minte average), except for one 6-minute average that does not exceed 27 percent opacity. [40 CFR 63.7690(a)(7)]

b. Performance tests to demonstrate compliance with this opacity limit must be conducted no less frequently that once every 6 months. [40 CFR 63.7731(b)]

Attachment 2

Previous Operating And Emission Limits That Are Affected by This Project

The operating and emission limits for existing emission units set by existing construction permits and in the facility's CAAPP Permit, which address the existing configuration of the facility, will no longer apply upon start of construction of this project, provided that the Permittee undertakes a program to complete construction of this project in a reasonable time. (See Condition 11(b).)

Note: This permit does not affect any conditions of Construction Permit/PSD Approval 00120038, which is not changed by the issuance of this permit.

Conditions in CAAPP Permit 96020004	
CAAPP Permit Condition	State Permit in Which Condition Was Originally Established
7.1.6(a) and (b)	00080072
7.2.6(a)	98120046
7.2.6(b)	99100038
7.2.6(c)	7890029
7.3.6(a) and (b)	98030136
7.4.6(a),(b) and (d)	78090031
7.6.6(a) and (b)	86070019
7.7.6(a) through (f)	85080035
7.9.5(a) and (b)	01110018
7.9.6(a),(b) and(c)	01110018
7.11.5(b)	99100080
7.11.6	99100080

Conditions in Construction Permit 03020021 (last issued 5/8/2003)
3

Conditions in Construction Permit 01110018 (last issued 5/3/2006)
1.5(a) and (b)
1.6(a) and (b)

Conditions in Construction Permit 08070036 (last issued 8/18/2008)
1.5(a) and (b)
1.6(a) and (b)

Conditions in Construction Permit 04010027 (last issued 3/19/2009)
1.6(a) and (b)

Conditions in Construction Permit 09110037 (last issued 7/21/2010)
1.5(a) and(b)
1.6(a), (b) and (c)

Conditions in Construction Permit 06020017 (last issued 7/30/2010)
1.5(a) and (b)
1.6(a), (b) and(c)

Conditions in Construction Permit 20060028 (last issued 9/11/2020)
3-1

Attachment 3

Summary of Changes in Emissions from the Project (Tons/Year)
(Updated February 2021)[1,2]

	PM	PM_{10}	$PM_{2.5}$	VOM	CO	NO_x	SO_2
Existing Units							
Baseline Actual Emissions	402.14	355.59	355.59	354.25	419.36	68.72	9.66
Projected Actual Emissions	402.14	355.59	355.59	354.25	419.36	68.72	9.66
Change	0	0	0	0	0	0	0
New Units							
Potential Increase in Emissions	3.53	1.35	1.35	13.62	5.99	5.45	0.13
Future Emissions (Existing and New)	405.67	356.94	356.94	367.87	425.35	74.17	9.79
Overall Change	3.53	1.35	1.35	13.62	5.99	5.45	0.13
PSD Significant Emission Rate	25	15	10	40	100	40	40
Greater Than Significant?	No	No	No	No	No	No	No

Table Notes:

1. This table been updated to no longer include emission units that were not constructed, including a sand mixer, two treatment stations, a casting line and slag reclamation. In addition, this table addresses the increases in emissions of PM, PM_{10} and $PM_{2.5}$ from increased utilization of centrifugal metal casting equipment at the foundry. This table does not address increases in emissions of VOM from changes to the coremaking process, as these increases are addressed by Construction Permit 20060028.
2. The change in emissions for existing and replacement units is based on the difference between the past actual emissions and the future projected emissions with the project. Past actual emissions were determined based on the 24-month contiguous time period from November 1, 2004 through October 1, 2006.

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.

EXHIBIT Q

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	LANXESS Corporation	
ID No.:	143817AAG	
Application No.:	20030006	
Category:	03 K Air Permit - Operating	
Item Date:	9/10/2021	
Keyword:	FINAL	*
Comment:		*
Part:	1 of 1	*

* If applicable

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- REVISED

PERMITTEE

LANXESS Corporation.
Attn: Bill McKay, Plant Manager
8220 West Route 24
Mapleton, Illinois 61547

Application No.: 20030006 I.D. No.: 143817AAG
Applicant's Designation: Date Received: May 28, 2021
Subject: Metal Organics Manufacturing Plant
Date Issued: September 10, 2021 Expiration Date: October 09, 2030
Location: 8220 West Route 24, Mapleton, Peoria County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Metal Organic Plant (MOP) controlled by two (2) Flares (Flare #1 and #2):
Six (6) Reactors (R-100, R-101, R-102, R-200, R-300, and R-301) controlled by Flare #1;
Two (2) Blend Tanks (T-611 and T-612) controlled by Flare #1;
Seven (7) Ethylene Storage Tanks (T-615, T-618, T-619, T-620, T-621, T-622, and T-623) controlled by Flare #1;
Two (2) Slurry Preparation Tanks (T-103 and T-201) controlled by Flare #1;
Two (2) Suspension Feed Tanks (T-110 and T-203) controlled by Flare #1;
One (1) Triethylaluminum (TEA) Intermediate Storage Tank (T-111) controlled by Flare #1;
One (1) Filter Feed Tank (T-104) controlled by Flare #1;
Filtration (F-104) controlled by Flare #1;
Filtered Product Storage Tank (T-105) controlled by Flare #1;
Three (3) TEA Product Storage Tanks (T-606, T-607, and T-608) controlled by Flare #1;
Two (2) Product Filters (F-11 and F-12) controlled by Flare #1;
Four (4) Storage Tanks (T-600, T-601, T-602, and T-616) controlled by Flare #1;
Eight (8) Vent Seal Drums (T-613, T-617, T-617B, T-624, T-625, T-626, T-629, and T-631) controlled by Flare #1;
One (1) Ethyl Chloride Storage Tank (T-603) controlled by Flare #1;
Five (5) Condensers (X-200, X-300, X-301, X-302, and X-303) controlled by Flare #1;
One (1) Ethylaluminum Sesquichloride (EASC) Crude Storage Tank (T-202) controlled by Flare #1;
Two (2) Distillation Receivers (T-301 and T-302) controlled by Flare #1;
Four (4) Chlorinated Aluminum Alkyl Product Storage Tanks (T-604, T-605, T-609, and T-610) controlled by Flare #1;
Two (2) Knock Out Pots (SEP-300 and SEP-301) controlled by Flare #1;

Two (2) Feed Tanks (T-402 and T-404) controlled by Flare #1;
One (1) Reactor (R-400) controlled by Flare #2;
One (1) Vent Seal Drum (T-627) controlled by Flare #2;
One (1) Emergency Vent Seal Drum (T-628);
One (1) Condenser (X-401) controlled by Flare #2;
One (1) Phase Separator (T-401) controlled by Flare #2;
Container Product Loading controlled by Flare #1; and
Tank Wagon Product Loading controlled by Flare #1;

Aluminum Handling Operation:
Two (2) Process weigh vessels with filter;

Process heater:
One (1) 5.7 mmBtu/hour Natural Gas-Fired Thermal Oil Heater; and

Fugitive Equipment Leaks:
Leaks of VOM and HAPs from equipment in the MOP and thermal oil distribution;

pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This Federally Enforceable State Operating Permit (FESOP) is issued:

i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Volatile Organic Material (VOM), 10 tons/year for any single Hazardous Air Pollutant (HAP), and 25 tons/year for any combination of such HAPs). As a result, the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

ii. To establish federally enforceable production and operating limitations, which restrict the potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP) and 25 tons/year of any combination of such HAPs so that the source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing, 40 CFR 63 Subpart FFFF.

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all operating permit(s) for this location.

2a. The Metal Organic Plant, Aluminum Handling Operation, and Thermal Oil Heater are subject to 35 Ill. Adm. Code Part 212 Subpart B (Visible emission). Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an

opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

c. This source is subject to 35 Ill. Adm. Code Part 212 Subpart K (Fugitive Particulate Matter). Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.

d. Pursuant to 35 Ill. Adm. Code 212.302(a), 35 Ill. Adm. code 212.304 through 212.310 and 212.312 shall apply to all mining operations (SIC major groups 10 through 14), manufacturing operations (SIC major groups 20 through 39 except for those operations subject to 35 Ill. Adm. Code Part 212 Subpart S (Grain-Handling and Grain-Drying Operations) that are outside the areas defined in 35 Ill. Adm. Code 212.324(a)(1)), and electric generating operations (SIC group 491), which are located in the areas defined by the boundaries of the following townships, notwithstanding any political subdivisions contained therein, as the township boundaries were defined on October 1, 1979, in the following counties:

Peoria:	Richwoods, Limestone, Hollis, Peoria, City of Peoria

e. The Metal Organic Plant and Aluminum Handling Operation are subject to 35 Ill. Adm. Code Part 212 Subpart L (Particulate Matter Emissions from Process Emission Units).Pursuant to 35 Ill. Adm. Code 212.321(a), except as further provided in 35 Ill. Adm. Code Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

f. Pursuant to 35 Ill. Adm. Code 212.321(b), interpolated and extrapolated values of the data in 35 Ill. Adm. Code 212.321(c) shall be determined by using the equation:

$$E = A(P)^B$$

where:

P = Process weight rate; and
E = Allowable emission rate; and,

i. Up to process weight rates of 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

ii. For process weight rate greater than or equal to 408 Mg/hr (450 T/hr):

	Metric	English
P	Mg/hr	T/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

g. Pursuant to 35 Ill. Adm. Code 212.321(c), Limits for Process Emission Units for Which Construction or Modification Commenced on or After April 14, 1972:

Metric		English	
P	E	P	E
Mg/hr	kg/hr	T/hr	lbs/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.20	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.35
4.5	2.7	5.00	6.00
9.	3.9	10.00	8.70
13.	4.8	15.00	10.80
18.	5.7	20.00	12.50
23.	6.5	25.00	14.00
27.	7.1	30.00	15.60
32.	7.7	35.00	17.00
36.	8.2	40.00	18.20
41.	8.8	45.00	19.20
45.	9.3	50.00	20.50
90.	13.4	100.00	29.50
140.	17.0	150.00	37.00
180.	19.4	200.00	43.00
230.	22.	250.00	48.50
270.	24.	300.00	53.00
320.	26.	350.00	58.00
360.	28.	400.00	62.00
408.	30.1	450.00	66.00
454.	30.4	500.00	67.00

where:

P = Process weight rate in metric or T/hr, and
E = Allowable emission rate in kg/hr or lbs/hr.

3. Flares #1 and #2 associated with the Metal Organic Plant are subject to 35 Ill. Adm. Code Part 214 Subpart K (Process Emission Sources). Pursuant to 35 Ill. Adm. Code 214.301, except as further provided by 35 Ill. Adm. Code Part 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.

4a. The Storage Tanks associated with the Metal Organic Plant are subject to 35 Ill. Adm. Code Part 215 Subpart B (Organic Emissions from Storage and Loading Operations). Pursuant to 35 Ill. Adm. Code 215.121, no person shall cause or allow the storage of any volatile organic liquid with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3 K (70° F) or any gaseous organic material in any stationary tank, reservoir or other container of more than 151 cubic meters (40,000 gal) capacity unless such tank, reservoir or other container:

i. Is a pressure tank capable of withstanding the vapor pressure of such liquid or the pressure of the gas, so as to prevent vapor or gas loss to the atmosphere at all times.

ii. Is designed and equipped with one of the following vapor loss control devices:

A vapor recovery system consisting of:

A vapor disposal system capable of processing such volatile organic material so as to prevent its emission to the atmosphere. No person shall cause or allow the emission of air contaminants into the atmosphere from any gauging or sampling devices attached to such tank, reservoir or other container except during sampling.

b. Pursuant to 35 Ill. Adm. Code 215.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe, submerged fill, or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code Part 201 or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 215.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 215.121(b)(2).

c. The Hydrolysis Phase Separator associated with the Metal Organics Plant is subject to 35 Ill. Adm. Code 215.141 (Separation Operations). Pursuant to 35 Ill. Adm. Code 215.141(a), No person shall use any single or multiple compartment effluent water separator which receives effluent water containing 757 l/day (200 gal/day) or more of organic material from any equipment processing, refining, treating, storing or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of this subparagraph shall not apply if the vapor pressure of the organic material is below 17.24 kPa (2.5 psia) at 294.3 K (70 F).

d. The Fugitive Equipment Leaks are subject to 35 Ill. Adm. Code 215.142

Subpart C (Pumps and Compressors). Pursuant to 35 Ill. Adm. Code 215.142, no person shall cause or allow the discharge of more than 32.8 ml (2 cu in) of volatile organic liquid with vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3 K (70 F) into the atmosphere from any pump or compressor in any 15 minute period at standard conditions.

e. The Metal Organics Plant is subject to 35 Ill. Adm. Code 215.143 (Vapor Blowdown). Pursuant to 35 Ill. Adm. Code 215.143(b), No person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:

By combustion in a smokeless flare.

f. The Metal Organics Plant is subject to 35 Ill. Adm. Code Part 215 Subpart K (Use of Organic Material). Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 215 Subpart K shall apply only to photochemically reactive material.

g. Pursuant to 35 Ill. Adm. Code 215.302(a), emissions of organic material in excess of those permitted by 35 Ill. Adm. Code 215.301 are allowable if such emissions are controlled by one of the following methods:

Flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water

5a. This permit is issued based on the storage tanks associated with the Metal Organics Plant at this source not being subject to the New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60 Subpart Kb because the storage tanks at this source are either of a with a capacity less than 75 cubic meters (m^3), of a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa), of a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa, or are pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere.

b. The Fugitive Equipment Leaks associated with the Metal Organics Plant at this source not being subject to the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, 40 CFR 60 Subparts VV and VVa because these processes are not used to produce, as intermediates or final products, one or more of the of the chemicals listed in 40 CFR 60.489.

c. This permit is issued based on the Distillation Reactors (R-300 and R-

301) and Distillation Receivers (T-302 and T-303) associated with the Metal Organics Plant at this source not being subject to the NSPS for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, 40 CFR 60 Subpart NNN because Distillation Reactors (R-300 and R-301) and Distillation Receivers (T-302 and T-303) are not part of a process unit that produces any of the chemicals listed in 40 CFR 60.667 as a product, co-product, by-product, or intermediate.

d. This permit is issued based on the Reactors (R-100, R-101, R-102, R-200, R-300, R-301, and R-400) associated with the Metal Organics Plant at this source not being subject to the NSPS for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes, 40 CFR 60 Subpart RRR because the reactor processes at this source are designed and operated do not produce any of the chemicals listed in 40 CFR 60.707 as a product, co-product, by-product, or intermediate.

6a. This permit is issued based on this source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing, 40 CFR 63 Subpart FFFF because the source is not a major source of HAP emissions as defined in Section 112(a) of the Clean Air Act. This is a result of the federally enforceable production and operating limitations, which restrict the potential to emit to less than 10 tons/year for any individual HAP and 25 tons/year of any combination of such HAPs.

b. This permit is issued based on the Thermal Oil Heater at this source not being subject to the NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63 Subpart JJJJJJ. Pursuant to 40 CFR 63.11195(e), a gas-fired boiler as defined in 40 CFR 63 Subpart JJJJJJ are not subject to 40 CFR 63 Subpart JJJJJJ and to any requirements in 40 CFR 63 Subpart JJJJJJ. Pursuant to 40 CFR 63.11237, gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

c. This permit is issued based on this source not being subject to the NESHAP for Chemical Manufacturing Area Sources, 40 CFR 63 Subpart VVVVVV because the Chemical Manufacturing Process Units (CMPU) at this source do not meet the conditions specified in 40 CFR 63.11494(a)(2). Specifically, HAPs listed in Table 1 of 40 CFR 63 Subpart VVVVVV (Table 1 HAP) are not present in CMPU, as specified in 40 CFR 63.11494(a)(2)(i), (ii), (iii), or (iv).

i. The CMPU uses as feedstocks, any material that contains quinoline, manganese, and/or trivalent chromium at an individual concentration greater than 1.0 percent by weight, or any other Table 1 HAP at an individual concentration greater than 0.1 percent by weight. To determine the Table 1 HAP content of feedstocks, you may rely on formulation data provided by the manufacturer or supplier, such as the Material Safety Data Sheet (MSDS) for the material. If the concentration in an MSDS is

presented as a range, use the upper bound of the range.

ii. Quinoline is generates as byproduct and is present in the CMPU in any liquid stream (process or waste) at a concentration greater than 1.0 percent by weight.

iii. Hydrazine and/or Table 1 organic HAP other than quinoline are generated as byproduct and are present in the CMPU in any liquid stream (process or waste), continuous process vent, or batch process vent at an individual concentration greater than 0.1 percent by weight.

iv. Hydrazine or any Table 1 HAP is produced as a product of the CMPU.

d. This permit is issued based on this source not being subject to the NESHAP for Area Sources: Chemical Preparation Industries, 40 CFR 63 Subpart BBBBBBB because the source does not manufacture a chemical preparation. Pursuant to 40 CFR 63.11588, chemical preparation means a target HAP-containing (metal compounds for chromium, lead, manganese, and nickel) product, or intermediate used in the manufacture of other products, manufactured in a process operation described by the NAICS code 325998.

e. The permit is issued based on this source not being subject to the NESHAP for Area Sources: Paints and Allied Products Manufacturing, 40 CFR 63 Subpart CCCCCCC because the source does not perform paints and allied products manufacturing.

7. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hr (25 mph). Determination of wind speed for the purposes of 35 Ill. Adm. Code 212.314 shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to 35 Ill. Adm. Code 212.314 is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

8a. Pursuant to 35 Ill. Adm. Code 215.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 215.122 shall only apply to the loading of volatile organic liquid with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

b. The permit is issued based on the source not being subject to 35 Ill. Adm. Code Part 215 Subpart Q (Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment) because the source does not manufacture the synthetic organic chemicals or polymers listed in Appendix D of 35 Ill. Adm. Code Part 215.

9a. Pursuant to 35 Ill. Adm. Code 212.306, all normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code 212.304 and all normal traffic pattern roads and parking facilities

which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.

b. Pursuant to 35 Ill. Adm. Code 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

c. Pursuant to 35 Ill. Adm. Code 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 and 35 Ill. Adm. Code 212.316 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and 212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.

d. Pursuant to 35 Ill. Adm. Code 212.310, as a minimum the operating program shall include the following:

i. The name and address of the source;

ii. The name and address of the owner or operator responsible for execution of the operating program;

iii. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;

iv. Location of unloading and transporting operations with pollution control equipment;

v. A detailed description of the best management practices utilized to achieve compliance with 35 Ill. Adm. Code Part 212 Subpart K, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;

vi. Estimated frequency of application of dust suppressants by location of materials; and

vii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

e. The Fugitive Particulate Operating Program, as submitted by the Permittee pursuant to 35 Ill. Adm. Code 212.309 on March **5**, 2020 is incorporated herein by reference. The source shall be operated under and shall comply with the provisions of this Fugitive Particulate Operating Program and any amendments to the Fugitive Particulate Operating Program submitted pursuant to Condition 9(c).

f. Pursuant to 35 Ill. Adm. Code 212.312, the operating program shall be amended from time to time by the owner or operator so that the operating program is current. Such amendments shall be consistent with 35 Ill. Adm. Code Part 212 Subpart K and shall be submitted to the Illinois EPA within thirty (30) days of such amendment. Any future revision to the Fugitive Particulate Operating Program made by the Permittee during the permit term is automatically incorporated by reference provided the revision is not expressly disapproved, in writing, by the Illinois EPA. In the event that the Illinois EPA notifies the Permittee of a deficiency with any revision to the Fugitive Particulate Operating Program, the Permittee shall be required to revise and resubmit the Fugitive Particulate Operating Program within thirty (30) days of receipt of notification to address the deficiency.

10a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.

b. The flares shall be in operation at all times when the associated Metal Organics Plant emission units are in operation and emitting air contaminants.

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on Flares #1 and #2 associated with the Metal Organics Plant such that the flares are kept in proper working condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

d. The flares shall be operated to meet the requirements of 40 CFR 60.18(b). This includes but is not limited to:

i. The flares shall be operated with a flame present, at all times. For this purpose, Permittee may use a thermocouple or any other equivalent device to detect the presence of a flame.

ii. The flares shall be designed for and operated with no visible emissions as determined by USEPA Method 22, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

iii. The flares shall be operated and maintained in conformance with the manufacturer's design specifications.

e. The Thermal Oil Heater shall only be operated with natural gas as the fuel. The use of any other fuel in the Thermal Oil Heater may require that the Permittee first obtain a construction permit from the Illinois EPA and perform stack testing to verify compliance with all applicable requirements.

11a. Emissions and operation of the Metal Organics Plant shall not exceed the following limits:

i. Production/Throughput Limits:

Product	Production Rate/Throughput (Ton/Month)	(Tons/Year)
Alkyl Aluminums, Non-Chlorinated	200	2,000
Alkyl Aluminums, Chlorinated	520	5,200
Alkyl Aluminum Solvent Blends	125	1,250

ii. Emission Limits:

	PM		VOM		Single HAP		Combined HAPs	
Emission Unit	T/Mo	T/Yr	T/Mo	T/Yr	T/Mo	T/Yr	T/Mo	T/Yr
Metal Organics Plant	0.55	5.54	1.39	13.86	0.03	0.25*	0.03	0.32
Fugitives from Equipment Leaks	--	--	2.40	24.00	0.35	3.50**	0.61	6.10
Totals:		5.54		37.86		3.57**		6.42

*Hydrogen Chloride (HCl)
**Hexane

iii. These limits are based on maximum production rate/throughput for the Metal Organics Plant, flare destruction efficiency (98.0%), and emissions calculated according to the following methods:

A. For ethylene emissions, all delivered ethylene not stoichiometrically consumed in the actual produced product is taken as either a process yield loss or an ethylene delivery venting loss. The yield and delivery venting losses are sent to the flare.

B. For vessels that experience level changes, venting to the flare is calculated using the same methodology for working losses for storage tanks from Section 7.1, AP-42, Fifth Edition, Volume I, June 2020. This includes solvent storage tanks and batch process equipment.

C. For continuous operations at a steady state, venting to the flare is calculated based on the calculated volume of vapor leaving the system, including those from nitrogen used in the process or from gasses generated, and the associated concentration of VOM and metal organic present in the stream based on vapor-liquid equilibrium.

D. For all pressure transfers, venting to the flare is based on the calculated volume of nitrogen blown after the transfer and the associated concentration of VOM and and metal organic present in the stream based on vapor-liquid equilibrium.

E. For all purging of empty equipment and process lines, venting to the flare is based on the calculated volume nitrogen blown and the amount of residual VOM and metal organic material present in the empty vessel or process

line.

F. Fugitive emissions from equipment leaks are calculated using the Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, (November, 1995).

b. Emissions from the combustion of pilot gas in Flares #1 and #2 shall not exceed the following limits:

Pollutant	Emissions (lbs/mmscf)	(lbs/Hr)	(Tons/Yr)
Carbon Monoxide (CO)	84.0	0.01	0.04
Nitrogen Oxides (NO_x)	100.0	0.01	0.04
Particulate Matter (PM)	7.6	0.01	0.01
Sulfur Dioxide (SO_2)	0.6	0.01	0.01
Volatile Organic Material (VOM)	5.5	0.01	0.01
Single HAP**		0.01	0.01
Combined HAPs		0.01	0.01

**Hexane

These limits are based on the maximum pilot gas usage (50 scf/hr for each flare), 8,760 hours/year of operation, and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

c. Emissions from the combustion of natural gas in the Thermal Oil Heater shall not exceed the following limits:

Pollutant	Emission Factor (lbs/mmscf)	Emissions (lbs/Hr)	(Tons/Yr)
Carbon Monoxide (CO)	84.0	0.47	2.06
Nitrogen Oxides (NO_x)	100.0	0.56	2.45
Particulate Matter (PM)	7.6	0.04	0.19
Sulfur Dioxide (SO_2)	0.6	0.01	0.01
Volatile Organic Material (VOM)	5.5	0.03	0.13
Single HAP**	1.8	0.01	0.04
Combined HAPs		0.01	0.05

**Hexane

These limits are based on the maximum firing rate (5.7 mmBtu/hour), natural gas heat content of 1,020 mmBtu/hour, standard emission factors for natural gas combustion (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998), and 8,760 hours/year of operation.

d. This permit is issued based on negligible emissions of Particulate matter (PM) from Aluminum Handling Operation. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

e. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

12a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

b. Testing required by Condition 13 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

13. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

14. The Permittee shall install, calibrate, maintain, and operate following equipment for the flares in accordance with manufacturer's specifications a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

15. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that

his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of five years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

16. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

17a. The Permittee shall records of the following items so as to demonstrate compliance with the conditions of this permit:

i. Records addressing use of good operating practices for Flares #1 and Flare #2 associated with the Metal Organics Plant:

A. Records for periodic inspection of the Flare #1 and Flare #2 with date, individual performing the inspection, and nature of inspection; and

B. Records for prompt repair of defects, with identification and description of defect, observed effect on emissions, whether excess emission occurred, date identified, date repaired, and nature of repair.

C. Records of dates and duration when emergency venting from Reactor R-400 occurs.

D. Records of dates and duration when emissions from Solvent Tanks T-600, T-601, and T-602 bypass the flare.

ii. The Permittee shall keep a copy of the Fugitive Particulate Operating Program, any amendments or revisions to the Fugitive Particulate Operating Program, and the Permittee shall also keep a record of activities completed according to the Fugitive Particulate Operating Program.

iii. A file containing the design specifications for the flares including capacity, scfm, and a demonstration that the flares comply with operating requirements of Condition 10(d).

iv. Metal Organic Plant production (tons/month and tons/year);

v. Records of the engineering calculations used to determine emissions representative of each type of product listed in Condition No. 11(a)(i) for the Metal Organics Plant at its maximum production rate. The calculations shall include supporting documentation such as the process operating parameters. If methods other than those documented in condition 11(a)(iii) are used, the permittee shall document such methods and the justification for their use. For emissions calculation purposes, the Permittee may use data for the highest emitting material in a process;

vi. Natural gas usage of the Thermal Oil Heater and Flares #1 & #2 (mmscf/month and mmscf/year); and

vii. Monthly and annual emissions of CO, NO_x, PM, SO_2, VOM and HAPs from the source, with supporting calculations (tons/month and tons/year).

b. All records and logs required by Condition 17(a) of this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to the Illinois EPA or USEPA request for records during the course of a source inspection.

18. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

19a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit or otherwise, the Permittee shall submit a report to the Illinois EPA's Bureau of Air Compliance Section in Springfield, Illinois within thirty (30) days after the exceedance or deviation. The report shall identify the duration and the emissions impact of the exceedance or deviation, a copy of the relevant records and information to resolve the exceedance

or deviation, and a description of the efforts to reduce emissions from, and the duration of exceedance or deviation, and to prevent future occurrences of any such exceedance or deviation.

b. One (1) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

It should be noted that this permit has revised the VOM emission limits for Metal Organics Plant from 3.47 tons/year to 37.98 tons/year.

If you have any questions on this, please call Mohamed Otry at 217/785-1705.

William D. Marr
Manager, Permit Section
Bureau of Air

WDM:MIO:tan

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from Metal Organic manufacturing plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels (e.g., 100 tons/year for VOM, 10 tons/year for any single HAP, and 25 tons/year for any combination of such HAPs) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

	E M I S S I O N S (Tons/Year)						
Emission Unit	CO	NO_x	PM	SO_2	VOM	Single HAP	Combined HAPs
Metal Organics Plant			5.54		13.86	0.25*	0.32
Fugitives from Equipment Leaks					24.00	3.50**	6.10
Flares #1 and #2	0.04	0.04	0.01	0.01	0.01	0.01**	0.01
Thermal Oil Heater	2.06	2.45	0.19	0.01	0.13	0.04**	0.05
Aluminum Handling Operation	--	--	0.44	--	--	--	--
Totals:	2.10	2.49	6.18	0.02	38.00	3.62**	6.48

*Hydrogen Chloride (HCl)
**Hexane

MIO:tan

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 condition(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 statutes and regulations of the Unites 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 grounds 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 thereunder.

8. The Permittee shall maintain a maintenance record on the premises for each item of air pollution control equipment. These records shall be made available to any agent of the Environmental Protection Agency at any time during normal working hours and/or operating hours. At 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.

EXHIBIT R

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	GRANGE CRUSH, LLC
ID No.:	197810ABK
Application No.:	89110034
Category:	03K
Item Date:	8/13/2014

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

SEP 19 2014

REVIEWER EAV

Completed by:	BAD
Date:	___/___/___

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

AUTHORIZATION TO OPERATE
UNDER A GENERAL PERMIT

PERMITTEE

Orange Crush, LLC
Attn: Mark J. Tubay
321 Center Street
Hillside, Illinois 60162

General Permit No.: G2951A2
Application No.: 89110034 I.D. No.: 197810ABK
Applicant's Designation: Date Received: April 25, 2014
Type of Source: Drum-Mix Asphalt Plant
Date Issued: August 13, 2014 Expiration Date: August 12, 2024
Source Location: 1/4 Mile East of Route 53, One Block North of Taylor Road, Romeoville, Will County

Authorization is hereby granted to the above-designated Permittee to operate the above source, consisting of a drum-mix asphalt plant (the affected plant) controlled with a baghouse. The affected plant may include, up to eight (8) asphalt storage silos, up to twelve (12) storage tanks, up to five (5) asphalt tank heaters and boilers (total combined heat input of all units no more than 14 million Btu/hour), hot mix asphalt silos with truck loadout, and an aggregate crushing plant (up to three (3) crushers, up to nine (9) screens, up to thirty (30) conveyors with associated transfer points) under a General Permit for the affected plant, pursuant to the above-referenced application.

If you have any questions regarding this authorization, please contact Mike Dragovich at 217/785-1705.

Raymond E. Pilapil

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

Date Signed: 8/13/2014

REP:MJD:jws

cc: Region 1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

GENERAL FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) FOR DRUM-MIX ASPHALT PLANT - NSPS SOURCE

Permit No.: G2951A2
Subject: Drum-Mix Asphalt Plant
Expiration Date: August 12, 2024

This permit is hereby granted to OPERATE a drum-mix asphalt plant as specified below in Findings 1, 2, and 3. The owner or operator must obtain an authorization to operate under this General Permit, by submitting an application, as described in Finding 5, to the Illinois EPA. Authorization, if granted, will be transmitted by letter. A copy of this permit will be included.

Findings

1. This general permit is applicable to drum-mix asphalt plants that meet all of the following criteria:

   a. i. The plant produces no more than 148,333 tons per month and 890,000 tons per year of asphalt.

   ii. The drum mixer is equipped with a baghouse for particulate matter control.

   b. i. The sum of all materials processed by the crushing plant does not exceed 55,000 tons per month and 425,000 tons per year of reclaimed asphalt pavement (RAP) and recycled concrete.

   ii. Water sprays are used on the emission units associated with the crushing plant (crushers, conveyors, and stockpiles) to produce a moisture content of 1.5% by weight or higher in order to control particulate matter emissions, rather than by capture systems and collection devices.

   iii. All normal traffic pattern access areas surrounding storage piles and all normal traffic pattern roads and parking facilities which are located on the property are paved or treated with water, oils or chemical dust suppressants. All paved areas are cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants have the treatment applied on a regular basis, or as needed basis.

   c. i. The only fuels fired in the drum mixer and drum dryer are natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6. The use of used oil for fuel in the drum mixer and drum dryer is allowed only if the owner or operator of the affected drum-mix asphalt plant has received prior written approval from the Illinois EPA and has performed stack testing to verify compliance with all applicable requirements.

ii. A. The only fuels fired in the boilers, and tank heaters are natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6.

B. The total design heat input capacity of any individual boiler or any individual asphalt tank heater does not exceed 10.0 million Btu/hour and the total rated heat input capacity for all such units shall not exceed 14 million Btu/hour.

d. Unless it is otherwise addressed by this permit, any other emission units requiring a permit from the Illinois EPA are not present at this source.

2. For purposes of this permit, an affected drum-mix asphalt plant includes all aggregate transfer, weigh-hopper loading, loading and transferring at the site and is one that does not exceed:

a. One (1) asphalt drum mixer and one (1) drum dryer with a baghouse;

b. Eight (8) asphalt storage silos with truck loadout;

c. Twelve (12) storage tanks each with capacities less than:

i. 19,815 gallons for tanks used to store gasoline; or

ii. 39,889 gallons for tanks used to store materials with a vapor pressure less than 2.17 psi (e.g., asphalt cement, asphalt oil, fuel oils, etc.).

d. Five (5) asphalt tank heaters and boilers (10 mmBtu/hour maximum firing rate per individual unit and a total of 14 mmBtu/hour maximum firing for all such units);

e. RAP/recycled concrete crushing plant comprised of:

i. Three (3) crushers;

ii. Nine (9) screens; and

iii. Thirty (30) conveyors associated with the crushing plant.

3. This permit imposes conditions on activities at the affected drum-mix asphalt plant to assure compliance with applicable requirements of:

a. 40 CFR Part 60, Subparts A, I, and OOO;

b. 40 CFR Part 63, Subparts A and CCCCCC;

c. 35 Ill. Adm. Code Part 212, Subparts E, K, and L;

d. 35 Ill. Adm. Code Part 214, Subparts B and K; and/or

e. 35 Ill. Adm. Code Part 215, Subparts B, K, and Y; 35 Ill. Adm. Code Part 218 Subparts B, G, and Y; or 35 Ill. Adm. Code Part 219 Subparts B, G, and Y.

4. This permit does not excuse the Permittee from obtaining a Construction Permit and/or an Operating Permit for any additional emission units in excess of those units specified in Finding 2.

5. The Illinois EPA will only authorize operation pursuant to this permit if an application includes the following items:

a. A description and location identifying the drum-mix asphalt plant.

b. A statement certifying that the drum-mix asphalt plant meets the criteria in Finding 1.

c. A request for authorization to operate pursuant to this general permit.

d. A statement that the drum-mix asphalt plant is, and will be, operated to comply with 40 CFR Part 60, Subparts A, I, and OOO (if applicable); 40 CFR Part 63, Subparts A and CCCCCC; 35 Ill. Adm. Code Part 212, Subparts E, K, and L; 35 Ill. Adm. Code Part 214, Subparts B and K; 35 Ill. Adm. Code Part 215, Subparts B, K, and Y; 35 Ill. Adm. Code Part 218 Subparts B, G, and Y; or 35 Ill. Adm. Code Part 219 Subparts B, G, and Y; and the Conditions of this permit.

e. A signed certification by the applicant that the information contained in the application is accurate.

6. This federally enforceable state operating permit is issued to limit the emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), and other pollutants from the source to less than major source levels, so that the source is excluded from requirements to obtain a permit under the Clean Air Act Permit Program (CAAPP). The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.

Conditions

This permit is subject to both the standard conditions attached hereto and the following special condition(s):

1. Source Description

a. This federally enforceable state operating permit (FESOP) is issued:

i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Sulfur Dioxide (SO_2)). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A;

ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, an affected drum-mix asphalt plant, which is located in Chicago area, is excluded from the requirements of 35 Ill. Adm. Code Part 205, Emission Reduction Market System. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A; and

iii. To establish federally enforceable production and operating limitations, which restrict the potential to emit for VOM to less than 25 tons per year so that an affected drum-mix asphalt plant, which is located in Chicago area, is not subject to the requirements of 35 Ill. Adm. Code Part 218 Subpart TT (Other Emission Units).

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all operating permit(s) issued for this location.

d. This permit allows the operation and construction of additional emission units of an affected drum-mix asphalt plant (including all aggregate transfer, weigh-hopper loading, loading and transferring at the site) not to exceed:

i. One (1) asphalt drum mixer and one (1) drum dryer with a baghouse;

ii. Eight (8) asphalt storage silos with truck loadout;

iii. Twelve (12) storage tanks each with capacities less than:

A. 19,815 gallons for tanks used to store gasoline; or

B. 39,889 gallons for tanks used to store materials with a vapor pressure less than 2.17 psi (e.g., asphalt cement, asphalt oil, fuel oils, etc.).

iv. Five (5) asphalt tank heaters and boilers (10 mmBtu/hour maximum firing rate per individual unit and a total of 14 mmBtu/hr maximum firing for all such units);

v. RAP/recycled concrete crushing plant comprised of:

A. Three (3) crushers;

B. Nine (9) screens; and

C. Thirty (30) conveyors associated with the crushing plant.

e. This permit does not exempt the Permittee from obtaining a Construction and/or Operating Permit for any additional emission units in excess of those units specified in Condition 1(d), unless such emission units or operations are already exempted from permitting requirements pursuant to 35 Ill. Adm. Code 201.146 and does not affect the source's status with respect to the applicability of Section 39.5 of the Illinois Environmental Protection Act.

2. Applicability Provisions and Applicable Regulations

a. An affected drum-mix asphalt plant, that commences construction or modification after June 11, 1973, is subject to the New Source Performance Standards (NSPS) for Hot Mix Asphalt Facilities, 40 CFR 60, Subparts A and I. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Pursuant to 40 CFR 60.92, on and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, no owner or operator subject to the provisions of 40 CFR 60 Subpart I shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

i. Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf); or

ii. Exhibit 20 percent opacity, or greater.

b. Crushers and grinding mills, as defined in 40 CFR 60.671 and that commence construction, reconstruction, or modification after August 31, 1983, are subject to the New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants, 40 CFR 60 Subparts A and OOO. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement. Pursuant to 40 CFR 60.670(a)(1), except as provided in 40 CFR 60.670(a)(2), (b), (c) and (d), the provisions of 40 CFR 60 Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the

first storage silo or bin are subject to the provisions of 40 CFR 60 Subpart OOO.

i. Pursuant to 40 CFR 60.672(b), affected facilities must meet the fugitive emission limits and compliance requirements in Table of 40 CFR 60 Subpart OOO (see also Attachment B) within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11. The requirements in Table 3 of 40 CFR 60 Subpart OOO (see also Attachment B) apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

ii. Pursuant to 40 CFR 60.672(d), truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 CFR 60.672.

iii. Pursuant to 40 CFR 60.672(e), if any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in 40 CFR 60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:

A. Fugitive emissions from any building openings (except for vents as defined in 40 CFR 60.671) must not exceed 7 percent opacity; and

B. Vents (as defined in 40 CFR 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of 40 CFR 60 Subpart OOO.

c. Gasoline tanks associated with an affected drum-mix asphalt plant are subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Source Category: Gasoline Dispensing Facilities, 40 CFR 63, Subparts A and CCCCCC. The Illinois is administrating the NESHAP on behalf of the USEPA under a delegation agreement. Pursuant to 40 63.11111(a), the affected source to which 40 CFR 63 Subpart CCCCCC applies is each gasoline dispensing facility (GDF) that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

i. Pursuant to 40 CFR 63.11111(b), if your GDF has a monthly throughput of less than 10,000 gallons of gasoline, you must comply with the requirements in 40 CFR 63.11116.

ii. Pursuant to 40 CFR 63.11116(a), you must not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time.

Measures to be taken include, but are not limited to, the following:

A. Minimize gasoline spills;

B. Clean up spills as expeditiously as practicable;

C. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

D. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

iii. Pursuant to 40 CFR 63.11116(c), you must comply with the requirements of 40 CFR 63 Subpart CCCCCC by the applicable dates specified in 40 CFR 63.11113.

d. Particulate Matter Standards

i. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

ii. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

iii. Pursuant to 35 Ill. Adm. Code 212.206, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hour of actual heat input from any fuel combustion emission unit (e.g., asphalt tank heaters and boilers associated with an affected drum-mix asphalt plant) using liquid fuel exclusively (0.10 lbs/mmBtu).

iv. Pursuant to 35 Ill. Adm. Code 212.210(a), no person shall cause or allow emissions of PM_{10} into the atmosphere to exceed 12.9 ng/J (0.03 lbs/mmBtu) of heat input from fuels

other than natural gas during any one hour period from any industrial fuel combustion emission units, other than in an integrated iron and steel plant, located in the vicinity of Granite City, which area is defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

v. Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.

vi. Pursuant to 35 Ill. Adm. Code 212.306, all normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code 212.304 and all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.

vii. Pursuant to 35 Ill. Adm. Code 212.307, all unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods.

viii. Pursuant to 35 Ill. Adm. Code 212.308, crushers, grinding mills, screening operations, bucket elevators, conveyor transfer points, conveyors, bagging operations, storage bins and fine product truck and railcar loading operations shall be sprayed with water or a surfactant solution, utilize choke-feeding or be treated by an equivalent method in accordance with an operating program.

ix. Pursuant to 35 Ill. Adm. Code 212.302 (see also Attachment C) and 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and 212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.

x. Pursuant to 35 Ill. Adm. Code 212.310, at a minimum the operating program shall include the following:

A. The name and address of the source;

B. The name and address of the owner or operator responsible for execution of the operating program;

C. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;

D. Location of unloading and transporting operations with pollution control equipment;

E. A detailed description of the best management practices utilized to achieve compliance with 35 Ill. Adm. Code 212 Subpart K, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;

F. Estimated frequency of application of dust suppressants by location of materials; and

G. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.

xi. Pursuant to 35 Ill. Adm. Code 212.312, the operating program shall be amended from time to time by the owner or operator so that the operating program is current. Such amendments shall be consistent with 35 Ill. Adm. Code 212 Subpart K and shall be submitted to the Illinois EPA for its review.

xii. Pursuant to 35 Ill. Adm. Code 212.316(a), 35 Ill. Adm. Code 212.316 shall apply to those operations specified in 35 Ill. Adm. Code 212.302 (see also Attachment C) and that are located in areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D) (e.g., McCook, Lake Calumet, and Granite City).

xiii. Pursuant to 35 Ill. Adm. Code 212.316(b), no person shall cause or allow fugitive particulate matter emissions generated by the crushing or screening of slag, stone, coke or coal to exceed an opacity of 10 percent.

xiv. Pursuant to 35 Ill. Adm. Code 212.316(c), no person shall cause or allow fugitive particulate matter emissions from any roadway or parking area to exceed an opacity of 10 percent, except that the opacity shall not exceed 5 percent at quarries with a capacity to produce more than 1 million tons/year of aggregate.

xv. Pursuant to 35 Ill. Adm. Code 212.316(d), no person shall cause or allow fugitive particulate matter emissions from any storage pile to exceed an opacity of 10 percent, to be measured four ft from the pile surface.

xvi. Pursuant to 35 Ill. Adm. Code 212.316(f), unless an emission unit has been assigned a particulate matter, PM_{10}, or fugitive particulate matter emissions limitation elsewhere in 35 Ill. Adm. Code 212.316 or in 35 Ill. Adm. Code 212 Subparts R or S, no person shall cause or allow fugitive particulate matter emissions from any emission unit to exceed an opacity of 20 percent.

xvii. Pursuant to 35 Ill. Adm. Code 212.321(a), except as further provided in 35 Ill. Adm. Code Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).

xviii. Pursuant to 35 Ill. Adm. Code 212.324(b), except as otherwise provided in 35 Ill. Adm. Code 212.324, no person shall cause or allow the emission into the atmosphere, of PM_{10}, from any process emission unit to exceed 68.7 mg/scm (0.03 gr/scf) during any one hour period.

xix. Pursuant to 35 Ill. Adm. Code 212.324(e), no person shall cause or allow emissions of PM_{10} into the atmosphere to exceed 12.9 ng/J (0.03 lbs/mmBtu) of heat input from the burning of fuel other than natural gas at any process emission unit located in the vicinity of Granite City as defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

xx. Pursuant to 35 Ill. Adm. Code 212.700(a), 35 Ill. Adm. Code 212 Subpart UU (Additional Control Measures) shall apply to those sources in the areas designated in and subject to 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D) or 212.423(a) and that have actual annual source-wide emissions of PM_{10} of at least fifteen (15) tons per year.

e. Sulfur Dioxide Standards

i. Pursuant to 35 Ill. Adm. Code 214.122(b), no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source (e.g., asphalt tank heaters and boilers associated with an affected drum-mix asphalt) with actual

heat input smaller than, or equal to, 73.2 MW (250 mmBtu/hour), burning liquid fuel exclusively:

A. To exceed 1.55 kg of sulfur dioxide per MW-hour of actual heat input when residual fuel oil is burned (0.8 lbs/mmBtu); and

B. To exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu).

ii. Pursuant to 35 Ill. Adm. Code 214.301, except as further provided by 35 Ill. Adm. Code Part 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm.

iii. Pursuant to 35 Ill. Adm. Code 214.304, the emissions from the burning of fuel at process emission units located in the Chicago or St. Louis (Illinois) major metropolitan areas shall comply with applicable 35 Ill. Adm. Code 214 Subparts B through F (i.e., 35 Ill. Adm. Code 214.122).

f. Volatile Organic Material Standards

i. Pursuant to 35 Ill. Adm. Code 215.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe, submerged fill, or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code Part 201 or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 215.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 215.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 215 Subpart K (Use of Organic Material) shall only apply to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 215.583(a) and 215.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gallons or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing facility unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 215.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 215.584(b) or (d).

g. Volatile Organic Material Standards for the Chicago Area

i. Pursuant to 35 Ill. Adm. Code 218.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 218.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 218.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 218.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 218.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 218 Subpart G (Use of Organic Material) shall only apply to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 218.583(a) and 218.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gal or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing operation unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 218.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 218.584(b) or (d); and

C. By March 15, 1995, all tank vent pipes are equipped with pressure/vacuum relief valves with the following design specifications:

I. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or

II. The pressure/vacuum relief valve shall meet the requirements of 35 Ill. Adm. Code 218.586(c); and

D. The owner or operator of a gasoline dispensing operation demonstrates compliance with 35 Ill. Adm. Code 218.583(a)(3), by March 15, 1995 or 30 days after installation of each pressure/vacuum relief valve, whichever is later, and at least annually thereafter, by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate. The owner or operator shall maintain any records required by 35 Ill. Adm. Code 218.583(a)(4) for a period of three years.

h. Volatile Organic Material Standards for the Metro East Area

i. Pursuant to 35 Ill. Adm. Code 219.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 219.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 219.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 219.121(b)(2).

ii. Pursuant to 35 Ill. Adm. Code 219.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 219.302, 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 219 Subpart G (Use of Organic Material) shall apply only to photochemically reactive material.

iii. Pursuant to 35 Ill. Adm. Code 219.583(a) and 219.583(b), no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank with a capacity of 575 gallons or more (unless tank has a capacity of 2,000 gallons or less and was in place and operational prior to January 1, 1979) at a gasoline dispensing facility unless:

A. The tank is equipped with a submerged loading pipe; and

B. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:

I. A vapor collection system that meets the requirements of 35 Ill. Adm. Code 219.583(d)(4); or

II. A refrigeration-condensation system or any other system approved by the Illinois EPA and approved by the USEPA as a SIP revision, that recovers at least 90 percent by weight of all vaporized organic material from the equipment being controlled; and

III. The delivery vessel displays the appropriate sticker pursuant to the requirements of 35 Ill. Adm. Code 219.584(b) or (d); and

C. By March 15, 1995, all tank vent pipes are equipped with pressure/vacuum relief valves with the following design specifications:

I. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or

II. The pressure/vacuum relief valve shall meet the requirements of 35 Ill. Adm. Code 219.586(c); and

D. The owner or operator of a gasoline dispensing operation demonstrates compliance with 35 Ill. Adm. Code 219.583(a)(3), by March 15, 1995 or 30 days after installation of each pressure/vacuum relief valve, whichever is later, and at least annually thereafter, by measuring and recording the pressure indicated by a pressure/vacuum gauge at each tank vent pipe. The test shall be performed on each tank vent pipe within two hours after product delivery into the respective storage tank. For manifold tank vent systems, observations at any point within the system shall be adequate. The owner or operator shall maintain any records required by this 35 Ill. Adm. Code 219.583(a)(4) for a period of three years.

3. Exceptions and Exemptions from Otherwise Applicable Rules

a. NSPS for Nonmetallic Mineral Processing Plants

i. Pursuant to 40 CFR 60.670(a)(2), the provisions of 40 CFR 60 Subpart OOO do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in 40 CFR 60.671).

ii. Pursuant to 40 CFR 60.670(b), an affected facility that is subject to the provisions of 40 CFR 60 Subparts F (Portland Cement Plants) or I (Hot Mix Asphalt Facilities) or that follows in the plant process any facility subject to the provisions of 40 CFR 60 Subparts F or I is not subject to the provisions of 40 CFR 60 Subpart OOO;

iii. Pursuant to 40 CFR 60.670(c), facilities at the following plants are not subject to the provisions of 40 CFR 60 Subpart OOO:

A. Fixed sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 23 megagrams per hour (25 tons per hour) or less;

B. Portable sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 136 megagrams per hour (150 tons per hour) or less; and

C. Common clay plants and pumice plants with capacities, as defined in 40 CFR 60.671, of 9 megagrams per hour (10 tons per hour) or less.

iv. Pursuant to 40 CFR 60.670(d)(1), when an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR 60.672, 60.674, and 60.675 except as provided for in 40 CFR 60.670(d)(3).

v. Pursuant to 40 CFR 60.670(d)(2), an owner or operator complying with 40 CFR 60.670(d)(1) shall submit the information required in 40 CFR 60.676(a).

vi. Pursuant to 40 CFR 60.670(d)(3), an owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in 40 CFR 60.670(d)(1) and must comply with the provisions of 40 CFR 60.672, 60.674 and 60.675.

b. Particulate Matter Standards:

i. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hour (25 mph). Determination of wind speed for the purposes of 35 Ill. Adm. Code 212.314 shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to this rule is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.

ii. Pursuant to 35 Ill. Adm. Code 212.324(d), the mass emission limits contained in 35 Ill. Adm. Code 212.324(b) shall not apply to those emission units with no visible emissions other than fugitive particulate matter; however, if a stack test is performed, 35 Ill. Adm. Code 212.324(d) is not a defense finding of a violation of the mass emission limits contained in 35 Ill. Adm. Code 212.324(b).

c. Volatile Organic Material Standards:

i. Pursuant to 35 Ill. Adm. Code 215.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 215.122 shall only apply to the loading of volatile organic liquid (VOL) with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

ii. Pursuant to 35 Ill. Adm. Code 218.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

iii. Pursuant to 35 Ill. Adm. Code 219.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 219.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).

4. Operational Limits and Work Practice Requirements

a. Pursuant to 40 CFR 60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall to the extent practicable, maintain and operate the affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

b. Pursuant to 35 Ill. Adm. Code 212.324(f), for any process emission unit subject to 35 Ill. Adm. Code 212.324(a) (i.e., sources located in McCook, Lake Calumet, or Granite City), the owner or operator shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards in 35 Ill. Adm. Code 212.324 shall be met at all times. 35 Ill. Adm. Code 212.324 shall not affect the applicability of 35 Ill. Adm. Code 201.149. Proper maintenance shall include the following minimum requirements:

i. Visual inspections of air pollution control equipment;

ii. Maintenance of an adequate inventory of spare parts; and

iii. Expeditious repairs, unless the emission unit is shutdown.

c. Pursuant to 35 Ill. Adm. Code 212.701(a), those sources subject to 35 Ill. Adm. Code 212 Subpart UU shall prepare contingency measure plans reflecting the PM_{10} emission reductions set forth in 35 Ill. Adm. Code 212.703. These plans shall become federally enforceable permit conditions. Such plans shall be submitted to

the Illinois EPA by November 15, 1994. Notwithstanding the foregoing, sources that become subject to the provisions of 35 Ill. Adm. Code 212 Subpart UU after July 1, 1994, shall submit a contingency measure plan to the Illinois EPA for review and approval within ninety (90) days after the date such source or sources became subject to the provisions of 35 Ill. Adm. Code 212 Subpart UU or by November 15, 1994, whichever is later. The Illinois EPA shall notify those sources requiring contingency measure plans, based on the Illinois EPA's current information; however, the Illinois EPA's failure to notify any source of its requirement to submit contingency measure plans shall not be a defense to a violation of 35 Ill. Adm. Code 212 Subpart UU and shall not relieve the source of its obligation to timely submit a contingency measure plan.

d. Pursuant to 35 Ill. Adm. Code 212.703(a), all sources subject to 35 Ill. Adm. Code 212 Subpart UU shall submit a contingency measure plan. The contingency measure plan shall contain two levels of control measures:

   i. Level I measures are measures that will reduce total actual annual source-wide fugitive emissions of PM_{10} subject to control under 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 by at least 15%.

   ii. Level II measures are measures that will reduce total actual annual source-wide fugitive emissions of PM_{10} subject to control under 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 by at least 25%.

e. Pursuant to 35 Ill. Adm. Code 212.703(b), a source may comply with 35 Ill. Adm. Code 212 Subpart UU through an alternative compliance plan that provides for reductions in emissions equal to the level of reduction of fugitive emissions as required at 35 Ill. Adm. Code 212.703(a) and which has been approved by the Illinois EPA and USEPA as federally enforceable permit conditions. If a source elects to include controls on process emission units, fuel combustion emission units, or other fugitive emissions of PM_{10} not subject to 35 Ill. Adm. Code 212.304, 212.305, 212.306, 212.308, 212.316(a) through (e), 212.424 or 212.464 at the source in its alternative control plan, the plan must include a reasonable schedule for implementation of such controls, not to exceed two (2) years. This implementation schedule is subject to Illinois EPA review and approval.

f. Pursuant to 35 Ill. Adm. Code 212.704(b), if there is a violation of the ambient air quality standard for PM_{10} as determined in accordance with 40 CFR Part 50, Appendix K, the Illinois EPA shall notify the source or sources the Illinois EPA has identified as likely to be causing or contributing to one or more of the exceedences leading to such violation, and such source or

sources shall implement Level I or Level II measures, as determined pursuant to 35 Ill. Adm. Code 212.704(e). The source or sources so identified shall implement such measures corresponding to fugitive emissions within ninety (90) days after receipt of a notification and shall implement such measures corresponding to any non-fugitive emissions according to the approved schedule set forth in such source's alternative control plan. Any source identified as causing or contributing to a violation of the ambient air quality standard for PM_{10} may appeal any finding of culpability by the Illinois EPA to the Illinois Pollution Control Board pursuant to 35 Ill. Adm. Code 106 Subpart J.

g. Pursuant to 35 Ill. Adm. Code 212.704(e), the Illinois EPA shall require that sources comply with the Level I or Level II measures of their contingency measure plans, pursuant 35 Ill. Adm. Code 212.704(b), as follows:

   i. Level I measures shall be required when the design value of a violation of the 24-hour ambient air quality standard, as computed pursuant to 40 CFR 50, Appendix K, is less than or equal to 170 ug/m^3.

   ii. Level II measures shall be required when the design value of a violation of the 24-hour ambient air quality standard, as computed pursuant to 40 CFR 50, Appendix K, exceeds 170 ug/m^3.

h. Pursuant to 35 Ill. Adm. Code 215.583(c), each owner of a gasoline dispensing facility shall:

   i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 215.583(a);

   ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in the case of any malfunction of a vapor control system; and

   iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

i. Pursuant to 35 Ill. Adm. Code 215.583(d), subject to 35 Ill. Adm. Code 215.583(b), each operator of a gasoline dispensing facility and each delivery vessel operator shall:

   i. Maintain and operate each vapor control system in accordance with the owner's instructions;

   ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and

B. Avoidable leaks of liquid during the filling of storage tanks.

j. Pursuant to 35 Ill. Adm. Code 218.583(c), each owner of a gasoline dispensing operation shall:

i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 215.583(a);

ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

k. Pursuant to 35 Ill. Adm. 218.583(d), each operator of a gasoline dispensing operation shall:

i. Maintain and operate each vapor control system in accordance with the owner's instructions;

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B; and

B. Avoidable leaks of liquid during the filling of storage tanks;

l. Pursuant to 35 Ill. Adm. Code 219.583(c), each owner of a gasoline dispensing facility shall:

i. Install all control systems and make all process modifications required by 35 Ill. Adm. Code 219.583(a);

ii. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

iii. Repair, replace or modify any worn out or malfunctioning component or element of design.

m. Pursuant to 35 Ill. Adm. Code 219.583(d), each operator of a gasoline dispensing operation shall:

i. Maintain and operate each vapor control system in accordance with the owner's instructions;

ii. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;

iii. Maintain gauges, meters or other specified testing devices in proper working order;

iv. Operate the vapor collection system and delivery vessel unloading points in a manner that prevents:

A. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B, and

B. Avoidable leaks of liquid during the filling of storage tanks; and

n. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.

o. The baghouse associated with the affected drum-mix asphalt plant shall be in operation at all times when the associated drum dryer is in operation and emitting air contaminants.

p. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the baghouse such that the baghouse is kept in proper working

condition and not cause a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

q. The surface moisture content of the aggregate to be processed in the crushing plant associated with the affected drum-mix asphalt plant shall be at least 1.5% by weight. The Permittee shall show compliance with this requirement as follows:

i. Water sprays shall be used on the emission units associated with the crushing plant (e.g., crushers, conveyors, and stockpiles, etc.) as necessary, except when weather conditions are below or expected to fall below freezing temperatures, to produce a moisture content of 1.5% by weight or higher to reduce particulate matter emissions; or

ii. Demonstrate compliance with Condition 4(q) by following the testing requirements of Condition 6(c).

iii. All normal traffic pattern access areas surrounding storage piles and all normal traffic pattern roads and parking facilities which are located on the property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, or as needed basis.

r. i. The drum mixer and drum dryer shall only be operated with natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6 as the fuels. The use of used oil for fuel in the drum mixer and drum dryer is authorized by this permit only if the owner or operator of the affected drum-mix asphalt plant has received prior approval from the Illinois EPA and has performed stack testing to verify compliance with all applicable requirements.

ii. The boilers and tank heaters shall only be operated with natural gas, liquefied petroleum gas (LPG), distillate fuel oil grades No. 1 and 2 (i.e., diesel) or residual fuel oil grades No. 4, 5, and 6 as the fuels.

s. The Permittee shall not keep, store, or use distillate fuel oil (Grades No. 1 and 2) at this source with a sulfur content greater than the larger of the following two values:

i. 0.28 weight percent; or

ii. The wt. percent given by the formula: Maximum wt. percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).

t. The Permittee shall not keep, store or use residual fuel oil (Grades No. 4, 5 and 6) at this source with a sulfur content greater than that given by the formula:

Maximum wt. percent sulfur = (0.00004) x (Gross heating value of oil, Btu/lb).

u. Organic liquid by-products or waste materials shall not be used in an affected drum-mix asphalt plant without written approval from the Illinois EPA.

v. The Illinois EPA shall be allowed to sample all fuels stored at the above location.

5. Emission Limitations

a. Emissions and operation of the affected drum-mix asphalt plant shall not exceed the following limits:

i. Asphalt Production Limits:

(Tons/Month)	(Tons/Year)
148,333	890,000

ii. Emissions from Drum Mixer/Dryer:

Pollutant	Emission Factor (lb/Ton)	Emissions (Tons/Month)	(Tons/Year)
CO	0.13	9.64	57.85
NO_x	0.055	4.08	24.48
PM	0.033	2.45	14.69
PM_{10}	0.023	1.71	10.24
SO_2	0.058	3.71	25.81
VOM	0.032	2.37	14.24

iii. Emissions from Silo Filling:

Pollutant	Emission Factor (lb/Ton)	Emissions (lbs/Month)	(Tons/Year)
CO	0.00118	175.03	0.53
PM	0.000586	77.43	0.26
PM_{10}	0.000586	77.43	0.26
VOM	0.0122	1,809.67	5.43

iv. Emissions from Truck Load-out:

Pollutant	Emission Factor (lb/Ton)	Emissions (lbs/Month)	(Tons/Year)
CO	0.00135	200.25	0.60
PM	0.000522	77.43	0.23
PM_{10}	0.000522	77.43	0.23
VOM	0.00416	617.07	1.85

v. These limits are based on maximum asphalt production and standard emission factors (Tables 11.1-3, 11.1-7, 11.1-8, and 11.1-14, AP-42, Volume I, Fifth Edition, Update 2004, April 2004).

b. Emissions and operation of the asphalt tank heaters and boilers shall not exceed the following limits:

i. Maximum firing rate of any individual unit: 10 mmBtu/hour

ii. Total maximum firing rate for all asphalt tank heaters and boilers: 14 mmBtu/hour

iii. Emissions from asphalt heaters and boilers:

	Emission Factor	Emissions	
Pollutant	(lb/mmBtu)	(lbs/Hour)	(Tons/Year)
CO	0.084	1.18	5.15
NO_x	0.143	2.00	8.76
PM	0.014	0.20	0.88
SO_2	0.2	2.8	12.3
VOM	0.006	0.08	0.34

iii. These limits are based on maximum fuel usage and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998 for natural gas combustion and Tables 1.3-1 and 1.3-3, AP-42, Fifth Edition, Volume I, Supplement E, September 1999, corrected May 2010, for distillate fuel oil combustion).

c. Emissions of VOM from the twelve (12) storage tanks shall not exceed 0.5 tons/month and 3.0 tons/year, combined. This limit is based on a maximum throughput of 50,000 gallons/year of gasoline, 200,000 gallons/year of diesel, and 10,000,000 gallons/year of asphaltic cement/year.

d. Emissions and operation of the crushing plant shall not exceed the following limits:

i. Total Reclaimed Asphalt Pavement (RAP) and recycled concrete throughput:

(Tons/Month)	(Tons/Year)
55,000	425,000

ii. Particulate Matter Emissions from the Crushing Plant:

Item of	PM Emissions			PM_{10} Emissions		
Equipment	(lb/Ton)	(Ton/Mo)	(Tons/Yr)	(lb/Ton)	(Ton/Mo)	(Tons/Yr)
3 Crushers	0.0012	0.10	0.77	0.00054	0.04	0.34
9 Screens	0.0022	0.54	4.21	0.00074	0.18	1.42
30 Conveyors	0.00014	0.12	0.89	0.000046	0.04	0.29
		Totals	5.87			2.05

iii. These limits are based on maximum aggregate throughput and standard, controlled emission factors (Table 11.19.2-2, AP 42, Fifth Edition, Volume I, Update 2004, August 2004).

e. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

6. Testing Requirements

a. The Permittee shall perform all applicable testing for the affected drum-mix asphalt plant as specified by 40 CFR 60.8, 60.93, and 60.675 as follows:

i. Pursuant to 40 CFR 60.8(a), within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility and at such other times as may be required by the Illinois EPA or USEPA under section 114 of the Clean Air Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Illinois EPA or USEPA a written report of the results of such performance test(s).

ii. Pursuant to 40 CFR 60.8(b), performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart of 40 CFR Part 60 unless the Illinois EPA or USEPA:

A. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology;

B. Approves the use of an equivalent method;

C. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance;

D. Waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Illinois EPA's or USEPA's satisfaction that the affected facility is in compliance with the standard; or

E. Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this paragraph shall be construed to abrogate the Illinois EPA's or USEPA's authority to require testing under section 114 of the Clean Air Act.

iii. Pursuant to 40 CFR 60.8(c), performance tests shall be conducted under such conditions as the Illinois EPA or USEPA shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Illinois EPA or USEPA such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

iv. Pursuant to 40 CFR 60.8(d), the owner or operator of an affected facility shall provide the Illinois EPA or USEPA at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Illinois EPA or USEPA the opportunity to have an observer present. If after 30 day notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Illinois EPA or USEPA as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Illinois EPA or USEPA by mutual agreement.

v. Pursuant to 40 CFR 60.8(e), the owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

A. Sampling ports adequate for test methods applicable to such facility. This includes:

I. Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test 1 methods and procedures; and

II. Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

B. Safe sampling platform(s).

C. Safe access to sampling platform(s).

D. Utilities for sampling and testing equipment.

vi. Pursuant to 40 CFR 60.8(f), unless otherwise specified in the applicable subpart of 40 CFR Part 60, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard under 40 CFR Part 60. For the purpose of determining compliance with an applicable standard under 40 CFR Part 60, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Illinois EPA's or USEPA's approval, be determined using the arithmetic mean of the results of the two other runs.

vii. Pursuant to 40 CFR 60.93(a), in conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of 40 CFR Part 60 or other methods and procedures as specified in 40 CFR 60.93, except as provided in 40 CFR 60.8(b).

viii. Pursuant to 40 CFR 60.93(b), the owner or operator shall determine compliance with the particulate matter standards in 40 CFR 60.92 as follows:

A. Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).

B. Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.

ix. Pursuant to 40 CFR 60.675(a), in conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendices A-1 through A-7 of 40 CFR Part 60 or other methods and procedures as specified in 40 CFR 60.675, except as provided in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in 40 CFR 60.675(e).

x. A. Pursuant to 40 CFR 60.675(c)(1), in determining compliance with the particulate matter standards in 40 CFR 60.672(b) or 40 CFR 60.672(e)(1), the owner or operator shall use Method 9 of Appendix A-4 of 40 CFR Part 60 and the procedures in 40 CFR 60.11, with the following additions:

I. The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

II. The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun (Method 9 of Appendix A-4 of 40 CFR Part 60, Section 2.1) must be followed.

III. For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

B. Pursuant to 40 CFR 60.675(c)(3), when determining compliance with the fugitive emissions standard for any affected facility described under 40 CFR 60.672(b) or 40 CFR 60.672(e)(1), the duration of the Method 9 (40 CFR Part 60, Appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 (see also Attachment B) must be based on the average of the five 6-minute averages.

xi. Pursuant to 40 CFR 60.675(d), to demonstrate compliance with the fugitive emission limits for buildings specified in 40 CFR 60.672(e)(1), the owner or operator must complete the testing specified in 40 CFR 60.675(d)(1) and (2). Performance tests must be conducted while all affected facilities inside the building are operating.

A. If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR Part 60, Appendix A-4) performance test according to 40 CFR 60.675 and 40 CFR 60.11.

B. If the building encloses only affected facilities that commenced construction, modification, or reconstruction before April 22, 2008, and the owner or operator has previously conducted an initial Method 22 (40 CFR part 60, Appendix A-7) performance test showing zero visible emissions, then the owner or operator has demonstrated compliance with the

opacity limit in 40 CFR 60.672(e)(1). If the owner or operator has not conducted an initial performance test for the building before April 22, 2008, then the owner or operator must conduct an initial Method 9 (40 CFR Part 60, Appendix A-4) performance test according to this section and 40 CFR 60.11 to show compliance with the opacity limit in 40 CFR 60.672(e)(1).

xii. Pursuant to 40 CFR 60.675(e), the owner or operator may use the following as alternatives to the reference methods and procedures specified in 40 CFR 60.675(c):

A. For the method and procedure of 40 CFR 60.675(c), if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

I. Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

II. Separate the emissions so that the opacity of emissions from each affected facility can be read.

B. A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

I. No more than three emission points may be read concurrently.

II. All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

III. If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

xiii. Pursuant to 40 CFR 60.675(g), for performance tests, there involving only Method 9 (40 CFR Part 60 Appendix A-4) testing, the owner or operator may reduce the 30-day advance notification of performance test in 40 CFR 60.7(a)(6) and 60.8(d) to a 7-day advance notification.

xiv. Pursuant to 40 CFR 60.675(i), if the initial performance test date for an affected facility falls during a seasonal shut down (as defined in 40 CFR 60.671) of the affected facility, then with approval from the permitting authority, the owner or operator may postpone the initial performance test until no later than 60 calendar days after resuming operation of the affected facility.

b. Pursuant to 35 Ill. Adm. Code 201.282, 212.107, 212.109, and 212.110, testing for particulate matter emissions shall be performed as follows:

i. Pursuant to 35 Ill. Adm. Code 201.282; every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:

A. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

B. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.

ii. Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and non-fugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A,

except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. 35 Ill. Adm. Code 212 Subpart A shall not apply to 35 Ill. Adm. Code 212.301.

iii. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged.

iv. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E.

v. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4.

vi. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.

c. The moisture content of a representative sample of the aggregate processed in the crushing plant associated with the affected drum-mix asphalt plant shall be measured at least one per week using ASTM Procedures (C566-97) for total moisture content of material.

d. Pursuant to 35 Ill. Adm. Code 215.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits 35 Ill. Adm. Code 215.583(d)(4)(A).

e. Pursuant to 35 Ill. Adm. Code 218.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of 35 Ill. Adm. Code 218.583(d)(4)(A).

f. Pursuant to 35 Ill. Adm. Code 219.583(d)(5), within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of 35 Ill. Adm. Code 219.583(d)(4)(A).

7. Inspection and Monitoring Requirements

a. Pursuant to 40 CFR 60.674(b), the owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under 40 CFR 60.676(b).

i. If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of 40 CFR 60 Subpart OOO (see also Attachment B) provided that the affected facility meets the criteria in 40 CFR 60.674(b)(1)(i) and (ii):

A. The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to 40 CFR 60.674(b) and 40 CFR 60.676(b), and

B. The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under 40 CFR 60.11 and 40 CFR 60.675.

ii. If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry

required under 40 CFR 60.676(b) must specify the control mechanism being used instead of the water sprays.

b. Inspections of the affected drum-mix asphalt plant and control systems equipment and operations shall be performed as necessary but at least once per week when the affected drum-mix asphalt plant is in operation to confirm compliance with the requirements of this permit.

c. i. The water supply to the spray equipment shall be equipped with a metering device used to determine water usage for the control of particulate matter emissions.

ii. Inspections of water spray equipment and operation (such as leaking, maintaining adequate flow, clogging of flow lines, etc.) shall be performed at least once per week when the crushing plant associated with the affected drum-mix asphalt plant is in operation.

8. Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected drum-mix asphalt plant so as to demonstrate compliance with the conditions of this permit:

a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

b. Pursuant to 40 CFR 60.7(f), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

c. Pursuant to 40 CFR 60.676(b)(1), owners or operators of affected facilities (as defined in 40 CFR 60.670 and 60.671) for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under 40 CFR 60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Illinois EPA or USEPA upon request.

d. Pursuant to 40 CFR 63.11116(b), you are not required to submit notifications or reports, but you must have records available within 24 hours of a request by the Illinois EPA or USEPA to document your gasoline throughput.

e. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.

f. i. Pursuant to 35 Ill. Adm. Code 212.316(g), the owner or operator of any fugitive particulate matter emission unit subject to 35 Ill. Adm. Code 212.316) (i.e., located in McCook, Lake Calumet, or Granite City) shall keep written records of the application of control measures as may be needed for compliance with the opacity limitations of 35 Ill. Adm. Code 212.316 and shall submit to the Illinois EPA an annual report containing a summary of such information.

ii. Pursuant to 35 Ill. Adm. Code 212.316(g)(2), the records required under 35 Ill. Adm. Code 212.316(g) shall include at least the following:

A. The name and address of the source;

B. The name and address of the owner and/or operator of the source;

C. A map or diagram showing the location of all emission units controlled, including the location, identification, length, and width of roadways;

D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;

E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent and, if diluted, percent of concentration, used each day; and

F. A log recording incidents when control measures were not used and a statement of explanation.

iii. Pursuant to 35 Ill. Adm. Code 212.316(g)(4), the records required under 35 Ill. Adm. Code 212.316(g) shall be kept and maintained for at least three (3) years and shall be available for inspection and copying by Illinois EPA representatives during working hours.

g. Pursuant to 35 Ill. Adm. Code 212.324(g), sources subject to 35 Ill. Adm. Code 212.324 (i.e., sources located in McCook, Lake Calumet, or Granite City) shall maintain the following records:

i. Written records of inventory and documentation of inspections, maintenance, and repairs of all air pollution control equipment shall be kept in accordance with 35 Ill. Adm. Code 212.324(f).

ii. The owner or operator shall document any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emissions limitation. These records shall include documentation of causes for pollution control equipment not operating or such malfunction and shall state what corrective actions were taken and what repairs were made.

iii. A written record of the inventory of all spare parts not readily available from local suppliers shall be kept and updated.

iv. Copies of all records required by 35 Ill. Adm. Code 212.324(g) shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA.

v. The records required under 35 Ill. Adm. Code 212.324(g) shall be kept and maintained for at least three (3) years and shall be available for inspection and copying by Illinois EPA representatives during working hours.

h. Pursuant to 35 Ill. Adm. Code 218.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 218.119 shall maintain readily accessible records of the dimension of the storage vessel and analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provisions of 35 Ill. Adm. Code Part 218 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

i. Pursuant to 35 Ill. Adm. Code 219.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 219.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than

40,000 gallons is subject to no provision of 35 Ill. Adm. Code Part 219 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.

j. Records addressing the application of control measures taken pursuant to the operating program required by 35 Ill. Adm. Code 212.302 which are used to reduce fugitive particulate matter emissions.

k. Records addressing use of good operating practices for the baghouse:

i. Operating logs for the affected drum-mix asphalt plant dryer baghouse, including operating data (pressure drop or stack condition), daily upon startup;

ii. Records for periodic inspection of the baghouse with date, individual performing the inspection, and nature of inspection; and

iii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

l. The Permittee shall maintain records of excess emissions during malfunctions and breakdowns of the baghouse associated with the affected drum-mix asphalt plant dryer. At a minimum, these records shall include:

i. Date and duration of malfunction or breakdown;

ii. A full and detailed explanation of the cause for such emissions;

iii. The contaminants emitted and an estimate of the quantity of emissions;

iv. The measures used to reduce the quantity of emissions and the duration of the occurrence; and

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity.

m. Records addressing use of good operating practices for the crushing plant:

i. If the Permittee is relying on the requirements of Conditions 4(q)(ii) and 6(c) to demonstrate compliance with Condition 4(q), the Permittee shall maintain records of all moisture content tests performed including date, time, individual performing test, and location of sample (e.g., prior to crushing, stockpiles, etc.);

ii. If the Permittee is relying on Condition 4(q)(i) to demonstrate compliance with Condition 4(q), the Permittee shall maintain operating logs for the water spray equipment, including dates and times of usage, malfunctions (type, date, and measures taken to correct), water pressure, and dates when there was at least 0.25" of rainfall during the preceding 24 hours and the water spray equipment was not operated; and

iii. The Permittee shall maintain weekly records of water consumption in the spray equipment, as determined by the meter required by Condition 7(m)(i) and the amount of precipitation specified in Condition 8(j)(ii).

n. Records addressing use of good operating practices for the storage tanks:

i. Design information for the tanks showing the presence of a permanent submerged loading pipe; and

ii. Maintenance and repair records for the tanks, as related to the repair or replacement of the loading pipe.

o. Production and Operating Records:

i. Asphalt production (tons/month and tons/year);

ii. Aggregate throughput for the crushing plant (tons/month and tons/year);

iii. Fuel Usage Records:

A. Total natural gas usage (million ft^3/month and million ft^3/year);

B. Total liquefied petroleum gas (LPG) usage (gallons/month and gallons/year);

C. Total fuel oil usage (gallons/month and gallons/year) and type of fuel oil used;

D. The sulfur content of the fuel oil used in the affected drum-mix asphalt plant (% by weight), this shall be recorded for each shipment of oil delivered to the source.

iv. Total throughput of each material stored in the tanks present at the source (gallons/month and gallons/year).

p. Monthly and annual CO, NO_x, PM, SO_2, and VOM emissions from the affected drum-mix asphalt plant shall be maintained, based on asphalt production, fuel consumption, crushing plant throughput,

and storage tank throughput and the applicable emission factors, with supporting calculations (tons/month and tons/year).

q. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years after the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to the Illinois EPA or USEPA request for records during the course of a source inspection.

9. Reporting Requirements

a. Pursuant to 40 CFR 60.7(a), any owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Illinois EPA or USEPA written notification or, if acceptable to both the Illinois EPA or USEPA and the owner or operator of a source, electronic notification, as follows:

i. A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

ii. A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

iii. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Illinois EPA or USEPA may request additional relevant information subsequent to this notice.

b. Pursuant to 40 CFR 60.676(a), each owner or operator seeking to comply with 40 CFR 60.670(d) shall submit to the Illinois EPA or USEPA the following information about the existing facility being replaced and the replacement piece of equipment.

i. For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

A. The rated capacity in megagrams or tons per hour of the existing facility being replaced and

B. The rated capacity in tons per hour of the replacement equipment.

ii. For a screening operation:

A. The total surface area of the top screen of the existing screening operation being replaced and

B. The total surface area of the top screen of the replacement screening operation.

iii. For a conveyor belt:

A. The width of the existing belt being replaced; and

B. The width of the replacement conveyor belt.

iv. For a storage bin:

A. The rated capacity in megagrams or tons of the existing storage bin being replaced; and

B. The rated capacity in megagrams or tons of replacement storage bins.

c. Pursuant to 40 CFR 60.676(f), the owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR 60.672, including reports of opacity observations made using Method 9 (40 CFR Part 60, Appendix A-4) to demonstrate compliance with 40 CFR 60.672(b), (e) and (f).

d. Pursuant to 40 CFR 60.676(g), the owner or operator of any wet material processing operation that processes saturated and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. At the time of such change, this screening operation, bucket elevator, or belt conveyor becomes subject to the applicable opacity limit in 40 CFR 60.672(b) and the emission test requirements of 40 CFR 60.11.

e. Pursuant to 40 CFR 60.676(h), the 40 CFR 60 Subpart A requirement under 40 CFR 60.7(a)(1) for notification of the date construction or reconstruction commenced is waived for affected facilities under 40 CFR 60 Subpart OOO.

f. Pursuant to 40 CFR 60.676(i), a notification of the actual date of initial startup of each affected facility shall be submitted to the Illinois EPA or USEPA.

i. For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Illinois EPA or USEPA. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

ii. For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

g. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

h. Pursuant to 35 Ill. Adm. Code 212.316(g)(3), copies of all records required by 35 Ill. Adm. Code 212.316(g) shall be submitted to the Illinois EPA within ten (10) working days after a written request by the Illinois EPA and shall be transmitted to the Illinois EPA by a company-designated person with authority to release such records.

i. Pursuant to 35 Ill. Adm. Code 212.316(g)(5), a quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this 35 Ill. Adm. Code 212.316. This report shall be submitted to the Illinois EPA thirty (30) calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.

j. Pursuant to 35 Ill. Adm. Code 212.324(g)(6), upon written request by the Illinois EPA, a report shall be submitted to the Illinois EPA for any period specified in the request stating the following: the dates during which any process emission unit was in operation when the air pollution control equipment was not in operation or was not operating properly, documentation of causes for pollution control equipment not operating or not operating

properly, and a statement of what corrective actions were taken and what repairs were made.

k. Pursuant to 35 Ill. Adm. Code 218.990, upon request by the Illinois EPA, the owner or operator of an emission unit which is exempt from the requirements of 35 Ill. Adm. Code 218 Subparts PP, QQ, RR, TT or 35 Ill. Adm. Code 218.208(b) shall submit records to the Illinois EPA within 30 calendar days from the date of the request that document that the emission unit is exempt from those requirements.

l. The Permittee shall submit notification of the changes to the operation of the source to the Illinois EPA - Air Permit Section ten (10) working days prior to the commencement of such change as follows:

i. The replacement of any emission unit or air pollution control equipment authorized by Condition 1(d) of this permit; or

ii. The addition of any emission unit or air pollution control equipment so long as the source continues to comply with Condition 1(d) of this permit.

m. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall promptly notify the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. In addition to the specific items listed below, the report shall include a description of the exceedance or deviation, the probable cause of any such deviation, emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, a description of any corrective actions or preventive measures taken, and efforts to reduce emissions and occurrences:

i. Emissions of CO, NO_x, PM, SO_2, and/or VOM, in excess of the limits specified in Condition 5, within 30 days of a record showing such an occurrence.

ii. Continued operation of the affected drum-mix asphalt plant with a defect in a baghouse, which may result in emissions of particulate matter in excess of limits in Conditions 2(a), 2(d), or 5(a) within 30 days of such an occurrence.

iii. The use of fuel oil with a sulfur content in excess of the limit specified in Condition 4(s) or 4(t) with the length of time this fuel was used and the effect on emissions of SO_2 within 30 days of this violation being detected.

n. The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 Ill. Adm. Code 201.263, concerning

continued operation of the affected drum-mix asphalt plant during malfunction or breakdown of the affected drum-mix asphalt plant with excess emissions:

i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction, or breakdown.

ii. Upon conclusion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected drum-mix asphalt plant was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected drum-mix asphalt plant was taken out of service.

o. Reporting Addresses

The following addresses should be utilized for the submittal of reports, notifications, and renewals:

i. Two (2) copies of required reports and notifications shall be sent to the Illinois EPA - Air Compliance Section at the following address:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. One (1) copy of required reports and notifications shall be sent to the Illinois EPA's - Air Regional Field Office at the address corresponding to the region the affected drum-mix asphalt plant is located, unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 1
9511 West Harrison
Des Plaines, Illinois 60016

Tel: 847/294-4000 Fax: 847/294-4018

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 2
412 SW Washington Street, Suite D
Peoria, Illinois 61602

Tel: 309/671-3022 Fax: 309/671-3024

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 3
2009 Mall Street
Collinsville, Illinois 62234

Tel: 618/346-5120 Fax: 618/346-5155

iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

Tel: 217-785-1705 Fax: 217-524-5023

iv. USEPA Region 5 - Air Branch

USEPA (A - 18J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

p. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

10. The assembly of this plant at a new location will require a construction permit. This permit must be obtained prior to commencing construction at the new location. For this purpose, a new location is defined as a location in Illinois at which the plant does not have a valid operating permit or authorization letter.

11. The operation of this plant at a location in Illinois other than a location identified in a valid operating permit or an authorization letter requires another operating permit or authorization from the Illinois EPA. This operating permit/authorization must be obtained prior to operating at such location.

12. The Permittee shall notify the Illinois EPA in writing 5 days in advance of either disassembling or reassembling the plant at the source location identified in an authorization letter.

It should be noted that this permit does not authorize the acceptance of waste. The appropriate permit must be obtained from the Bureau of Land before waste can be accepted. If the used oil is not "on-spec" and not burned in a unit for energy recovery as allowed by 35 Ill. Adm. Code 739.161, the used oil will be considered a solid waste and not a fuel. This makes the used oil subject to the manifest requirements of 35 Ill. Adm. Code 809 and

the facility subject to the permitting requirements of 35 Ill. Adm. Code 807, as a solid waste management site. Furthermore, the used oil must provide surplus energy beyond the necessary to sustain combustion to be considered a fuel and not a waste.

If you have any questions on this permit, please call a Permit Analyst at 217/785-1705.

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

REP:RWB:jws

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emission of an affected drum-mix asphalt plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario, which results in maximum emissions from such a plant. This is production of 890,000 tons of asphalt, the processing of 425,000 tons of reclaimed asphalt pavement (RAP) and recycled concrete, and a total maximum rated heat input of 14,000,000 Btu per hour for boilers and asphalt heaters. The resulting maximum emissions are below the levels, (e.g., 100 tons per year of CO, NO_x, and SO_2), at which a plant would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from an affected drum-mix asphalt plant will be less than predicted in this summary to the extent that less materials will be handled by the plant, gaseous fuel is used, and control measures are more effective than required by this permit.

	Annual Emissions (Tons/Year)				
Item of Equipment	CO	NO_x	PM	SO_2	VOM
Drum Mixer/Dryer	57.85	24.48	14.69	25.81	14.24
Asphalt Silo Filling	0.53	----	0.26	----	5.43
Truck Loadout	0.60	----	0.23	----	1.85
Asphalt Heaters and Boilers	5.15	8.76	0.88	12.30	0.34
3 Crushers	----	----	0.77	----	----
9 Screens	----	----	4.21	----	----
30 Conveyors	----	----	0.89	----	----
12 Storage Tanks	----	----	----	----	3.00
Total	64.13	33.24	21.93	38.11	24.86

Attachment B - Table 3 to Subpart OOO of Part 60 — Fugitive Emission Limits

For	The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in 40 CFR 60.670 and 60.671)	The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used	The owner or operator must demonstrate compliance with these limits by conducting
Affected facilities (as defined in 40 CFR 60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008	10 percent opacity	15 percent opacity	An initial performance test according to 40 CFR 60.11 and 40 CFR 60.675.
Affected facilities (as defined in 40 CFR 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	7 percent opacity	12 percent opacity	An initial performance test according to 40 CFR 60.11 and 40 60.675; and Periodic inspections of water sprays according to 40 CFR 60.674(b) and 40 CFR 60.676(b); and
			A repeat performance test according to 40 CFR 60.11 40 CFR 60.675 within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in 40 CFR 60.674(b) and 40 CFR 60.676(b) are exempt from this 5-year repeat testing requirement.

Attachment C

35 Ill. Adm. Code 212.302 Geographical Areas of Application

1. Pursuant to 35 Ill. Adm. Code 212.302(a), 35 Ill. Adm. Code 212.304 through 212.310 and 212.312 shall apply to all mining operations (SIC major groups 10 through 14), manufacturing operations (SIC major groups 20 through 39 except for those operations subject to 35 Ill. Adm. Code Part 212 Subpart S (Grain-Handling and Grain-Drying Operations) that are outside the areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D), and electric generating operations (SIC group 491), which are located in the areas defined by the boundaries of the following townships, notwithstanding any political subdivisions contained therein, as the township boundaries were defined on October 1, 1979, in the following counties:

Cook:	All townships
Lake:	Shields, Waukegan, Warren
DuPage:	Addison, Winfield, York
Will:	DuPage, Plainfield, Lockport, Channahon, Peotone, Florence, Joliet
Peoria:	Richwoods, Limestone, Hollis, Peoria, City of Peoria
Tazewell:	Fondulac, Pekin, Cincinnati, Groveland, Washington
Macon:	Decatur, Hickory Point
Rock Island:	Blackhawk, Coal Valley, Hampton, Moline, South Moline, Rock Island, South Rock Island
LaSalle:	LaSalle, Utica
Madison:	Alton, Chouteau, Collinsville, Edwardsville, Fort Russell, Godfrey, Granite City, Nameoki, Venice, Wood River
St. Clair	Canteen, Caseyville, Centerville, St. Clair, Stites, Stookey, Sugar Loaf, Millstadt.

2. Pursuant to 35 Ill. Adm. Code 212.302(b), in the geographical areas defined in 35 Ill. Adm. Code 212.324(a)(1) (see also Attachment D), 35 Ill. Adm. Code 212.304 through 212.310, and 212.312, and 35 Ill. Adm. Code 212.316 shall apply to all emission units identified in 35 Ill. Adm. Code 212.302(a), and shall further apply to the following operations: grain-handling and grain-drying (35 Ill. Adm. Code Part 212 Subpart S), transportation, communications, electric, gas, and sanitary services (SIC major groups 40 through 49). Additionally, 35 Ill. Adm. Code 212.304 through 212.310 and 212.312 and 35 Ill. Adm. Code 212.316 shall apply to wholesale trade-farm supplies (SIC Industry No. 5191) located in the vicinity of Granite City, as defined in 35 Ill. Adm. Code 212.324(a)(1)(C) (see also Attachment D).

3. Pursuant to 35 Ill. Adm. Code 212.302(c), emission units must comply with 35 Ill. Adm. Code 212.302(b) by May 11, 1993, or upon initial start-up, whichever occurs later.

Attachment D

35 Ill. Adm. Code 212.324 Process Emission Units in Certain Areas

1. Applicability.

   a. Pursuant to 35 Ill. Adm. Code 212.324(a)(1), 35 Ill. Adm. Code 212.324 shall apply to any process emission unit located in any of the following areas:

      i. That area bounded by lines from Universal Transmercator (UTM) coordinate 428000mE, 4631000mN, east to 435000mE, 4631000mN, south to 435000mE, 4623000mN, west to 428000mE, 4623000mN, north to 428000mE, 4631000mN, in the vicinity of McCook in Cook County, as shown in Illustration D of 35 Ill. Adm. Code Part 212;

      ii. That area bounded by lines from Universal Transmercator (UTM) coordinate 445000mE, 4622180mN, east to 456265mE, 4622180mN, south to 456265E, 4609020N, west to 445000mE, 4609020mN, north to 445000mE, 4622180mN, in the vicinity of Lake Calumet in Cook County, as shown in Illustration E of 35 Ill. Adm. Code Part 212;

      iii. That area bounded by lines from Universal Transmercator (UTM) coordinate 744000mE, 4290000mN, east to 753000mE, 4290000mN, south to 753000mE, 4283000mN, west to 744000mE, 4283000mN, north to 744000mE, 4290000mN, in the vicinity of Granite City in Madison County, as shown in Illustration F of 35 Ill. Adm. Code Part 212.

   b. Pursuant to 35 Ill. Adm. Code 212.324(a)(2), 35 Ill. Adm. Code 212.324 shall not alter the applicability of 35 Ill. Adm. Code 212.321 and 35 Ill. Adm. Code 212.322.

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 means 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. duration of malfunction, breakdown, or startup,

ii. Full 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.

EXHIBIT S

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	CITGO Petroleum Corp
ID No.:	197090AAI
Application No.:	19020015
Category:	03K Air Permit - Final
Item Date:	04-05-2021
Keyword:	
Comment:	
Part:	of

Submitted by:

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
NSPS SOURCE - NESHAP SOURCE

PERMITTEE

CITGO Petroleum Corporation
Attn: James Lant
135th Street and New Avenue
Lemont, Illinois 60439

Application No.: 19020015 I.D. No.: 197090AAI
Applicant's Designation: Date Received: February 15, 2019
Subject: Requirements for Flaring at the Refinery
Date Issued: April 5, 2021
Location: 135th Street and New Avenue, Lemont, Will County

This Construction Permit is hereby granted to the above-designated Permittee to address requirements for flaring at this refinery pursuant to a Consent Decree entered into by CITGO Petroleum Corporation (the Permittee), pursuant to the above-referenced permit application. This Permit is subject to standard conditions attached hereto and the following conditions.

If you have any questions on this permit, please contact Daniel Rowell at 217/558-4368.

William D. Marr JMS

William D. Marr
Manager, Permit Section
Bureau of Air

WDM:DBR:tan

Table of Contents

Conditions

Attachment 1: Appendicies

Conditions

1. Introduction

a. i. This permit addresses requirements related to flaring at the Permittee's refinery in Lemont pursuant to a Consent Decree, United States of America v. CITGO Petroleum Corporation and PDV Midwest Refining, LLC, 16 C 10484, entered by the United States District Court for the Northern District of Illinois on January 11, 2017 (the "Consent Decree"). The Permittee was required to apply to the Illinois EPA to include these requirements in a federally enforceable non-Title V permit (e.g., a construction permit) that will survive termination of the Consent Decree, pursuant to Paragraphs 45.a, 45.b.v and 45.b.vii of the Consent Decree.

ii. For this purpose, this permit addresses:

A. The existing flares at the refinery are listed below. In this permit, these flares are referred to as the existing flares. In the Consent Decree these existing flares are referred to as the "Covered Flares." These flares are all steam-assisted, elevated flares equipped with water seals.

Existing Flares at the Refinery
Flare C1
Flare C2*
Flare C3*
Flare C4**
Flare C5 (also referred to as the Alky Flare)

* The combination of Flares C2 and C3 may be referred to as the "South Plant Flare System."

** Flare C4, formerly the "Coker Flare," now only serves the Hydrogen Plant (Unit 109).

B. "Portable flares," which would be installed at the refinery, as are also addressed by the Consent Decree. For this purpose, a portable flare is a flare that is not permanently installed at the refinery that receives waste gas that has been redirected to it from one of the existing flares.

Note: This permit does not authorize construction and operation of Portable Flare(s). Unless a permit is not required for the construction or operation of Portable Flare(s) by applicable rules (e.g., 35 IAC 201.146 or 201.210), the Permittee must obtain appropriate permit(s) for installation and operation of any portable flares.

c. The Flare Gas Recovery Systems at the refinery, which systems divert waste gases that would otherwise go to the existing flares for processing and use as refinery fuel gas (RFG). In this regard, the South Plant FGRS now includes both a Primary Compressor and a Secondary Compressor.

b. This permit also increases the permitted emissions of Flares C4 and C5. In particular, the new limits for emission of Volatile Organic Material (VOM) are based on the limits of the Consent Decree. The new limits for emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and fluorides are based on new methodology and emission factors for emissions from refinery flares in USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42.

c. For purposes of this permit:

i. The petroleum refinery in Lemont, Illinois, which is owned or operated by the Permittee, is referred to as the "refinery."

ii. The existing flares at the refinery and portable flares are collectively referred to as the "affected flares."

iii. The Flare Gas Recovery Systems for the affected flares are referred to as the "affected flare gas recovery systems" or "affected FGRS."

2. Coordination with Other Permits

Except as provided, this permit does not affect applicable requirements for the existing flares that are established in the Clean Air Act Permit Program (CAAPP) permit for the source, Permit 96030079, issued January 9, 2006 (the "CAAPP Permit"), or in subsequent construction permits for the projects at the source, whose requirements have not yet been included in the CAAPP Permit.

3. Applicability of Federal Emission Standards to the Affected Flares

a. Flare C4 is subject to the New Source Performance Standards (NSPS) for Petroleum Refineries Which Commenced Construction, Reconstruction, or Modification Commenced After May 14, 2007, 40 CFR 60 Subpart Ja, and the applicable provisions of the General Provisions of the NSPS, 40 CFR 60 Subpart A.

Note: Flares C1, C2 C3 and C5 became subject to the NSPS, 40 CFR 60 Subpart Ja, on November 11, 2015. Applicability of this NSPS is addressed for Flares C1, C2, C3 and C5 in Construction Permits 14070022 (Flare C1), 07090059 (Flares C2 and C3) and 15020014 (Flare C5). This permit does not reiterate the requirements of the NSPS for these flares. Pursuant to the Consent Decree, Flare C4 became subject to this NSPS on December 31, 2016. [From Consent Decree Appendix A Paragraphs A28.b.i. and ii.]

b. For Flare C4, the following requirements of the NSPS, 40 CFR 60 Subpart Ja, apply to the Permittee, as it is the owner or operator of this flare:

i. Flare Management Plan.

A. The owner or operator shall develop and implement a written Flare Management Plan. The flare management plan shall include the information described in 40 CFR 60.103a(a)(1) through (7). [40 CFR 60.103a(a)]

B. The owner or operator shall submit the Flare Management Plan to the USEPA and Illinois EPA as described in 40 CFR 60.103a(b)(1) through (3). [40 CFR 60.103a(b)]

ii. Root Cause Analysis and Corrective Action Analysis.

A. The owner or operator shall conduct a Root Cause Analysis and a Corrective Action Analysis for each of the conditions specified below: [40 CFR 60.103a(c)]

I. Any time the SO_2 emissions exceed 227 kilograms (kg) (500 lb) in any 24-hour period; or

II. Any discharge to the flare in excess of 14,160 standard cubic meters (m^3) (500,000 standard cubic feet (scf)) above the baseline, determined in 40 CFR 60.103a(a)(4), in any 24-hour period.

B. The Root Cause Analysis and Corrective Action Analysis shall be completed as soon as possible, but no later than 45 days after a discharge meeting one of the conditions specified in 40 CFR 60.103a(c)(1) through (3). Special circumstances affecting the number of root cause analyses and/or corrective action analyses are provided in 40 CFR 60.103a(d)(1) through (5).

C. The owner or operator shall implement the corrective action(s) identified in the Corrective Action Analysis in accordance with the applicable requirements in 40 CFR 60.103a(e)(1) through (3). [40 CFR 60.103a(e)]

iii. H_2S Concentration Limit.

A. The owner or operator shall not burn in any subject flare any fuel gas that contains H_2S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency

malfunctions is exempt from this limit. [40 CFR 60.103a(h)]

B. The owner or operator is not required to comply with sulfur or H_2S monitoring requirements at 40 CFR 60.107a(a)(1) or (2) for fuel gas streams combusted in a flare that are inherently low in sulfur content. The process unit associated with the C4 flare (Unit 109 hydrogen Plant) is intolerant to sulfur contamination, and the fuel gas streams produced in that unit are inherently low in sulfur content. [40 CFR 60.107a(3) and 40 CFR 60.107a(a)(3)((iii)]

iv. Monitoring of Gas Flow Rate.

For each subject flare, the owner or operator shall operate, calibrate and maintain, in accordance with the specifications in 40 CFR 60.107a(f)(1), a Continuous Parameter Monitoring System (CPMS) to measure and record the flow rate of gas discharged to the flare. [40 CFR 60.107a(f)]

v. Monitoring of Sulfur Content of Gases.

A. For each subject flare that is subject to the monitoring requirements in 40 CFR 60.107a(e) (i.e., Flares C1, C2 and C3), the Permittee shall conduct monitoring in accordance with the requirements in 40 CFR 60.107a(e)(1) through (3), i.e., monitoring for the total reduced sulfur content of gases combusted in the flares.

B. For each subject flare that is exempt from the monitoring requirements in 40 CFR 60.107a(e)(1) through (3) (i.e., Flares C4 and C5), the owner or operator shall use engineering calculations to calculate the SO_2 emissions in the event of a discharge that may trigger a root cause analysis under 40 CFR 60.103a(c)(1). [40 CFR 60.107a(e)(4)]

Note: This permit is issued based on Flares C4 and C5 being exempt from the monitoring requirements in 40 CFR 60.107a(e)(1) through (3) because the fuel gas streams burned in these flares are "inherently low in sulfur content" as described in 40 CFR 60.107a(a)(3)(iii). [40 CFR 60.107a(e)(4)(i)(A)]

vi. Records.

The owner or operator shall comply with the applicable recordkeeping requirements of the NSPS, 40 CFR 60.7 and 60.108a, including maintaining the following records:

A. A copy of the Flare Management Plan. [40 CFR 60.108a(c)(1)]

B. Records of discharges greater than 500 lb SO_2 in any 24-hour period from any affected flare and discharges to a subject flare in excess of 500,000 scf above baseline in any 24-hour period, as required by 40 CFR 60.103a(c). The information specified in 40 CFR 60.108a(c)(6)(i) through (xi) shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds. [40 CFR 60.108a(c)(6)]

vii. Reports.

The owner or operator shall submit an excess emissions report for all periods of excess emissions according to the requirements of 40 CFR 60.7(c) except that the report shall contain the information specified in 40 CFR 60.108a(d)(1) through (7). [40 CFR 60.108a(d)]

viii. Nonapplicability Provisions.

A. For Flare C4, this permit is issued based on the owner or operator not being subject to the requirements of 40 CFR 60.107a(a)(2), i.e., monitoring for the H_2S content of fuel gas going to a subject flare. Flare C4 is exempt from this monitoring because the fuel gas streams combusted in this flare are from a process unit (i.e., a hydrogen plant) that is intolerant of sulfur contamination. [40 CFR 60.107a(a)(3)(iii)]

B. For Flare C4, this permit is issued based on the owner or operator not being subject to the requirements of 40 CFR 60.107a(e)(1) through (3), *i.e.*, monitoring for total sulfur, H2S or SO2. Flare C4 is exempt from this monitoring because the fuel gas streams combusted in this flare are from a process unit (i.e., a hydrogen plant) that is intolerant of sulfur contamination. [40 CFR 60.107a(e)(4)(i)(A)]

c. Flare C4 is subject to General Control Device Requirements of the NSPS, 40 CFR 60.18, pursuant to 40 CFR 60.482-10a. In particular, the following requirements apply:

i. This flare shall be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [40 CFR 60.18(c)(1)]

ii. This flare shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). [40 CFR 60.18(c)(2)]

iii. This flare shall be operated to either adhere to the heat content specifications in 40 CFR 60.18(c)(3)(ii) and the maximum tip velocity specifications in 40 CFR 60.18(c)(4), or adhere to the requirements in 40 CFR 60.18(c)(3)(i). [40 CFR 60.18(c)(3)]

iv. Each steam-assisted or nonassisted flare shall be designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4), that meets the applicable requirements of 40 CFR 60.18(c)(4).

v. The owner or operator shall monitor this flare to ensure that it is operated and maintained in conformance with its design, with specific monitoring conducted in accordance with the relevant provisions of applicable subparts of the NSPS, i.e., 40 CFR 60 Subpart Ja. [40 CFR 60.18(d)]

vi. This flare shall be operated at all times when emissions may be vented to them. [40 CFR 60.18(e)]

d. Flares C1, C2, C3 and C5 are subject to and shall comply with the applicable requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Petroleum Refineries, 40 CFR 63 Subpart CC, including 40 CFR 63.670 and 63.671, and the applicable requirements of the General Provisions of the NESHAP, 40 CFR 63 Subpart A. [From Consent Decree Appendix A Paragraph A29 and Appendix A2.1 Column H]

Note: These flares became subject to these requirements on January 30, 2019.

Note: The requirements in this condition address requirements of Paragraphs A28.b and A29 of Appendix A of the Consent Decree.

4. Nonapplicability Provisions

a. i. Flare C4 is no longer an "affected facility" for purposes of the New Source Performance Standards (NSPS) for Petroleum Refineries, 40 CFR 60 Subpart J, and the applicable requirements of the General Provisions of the NSPS, 40 CFR 60 Subpart A. [From Consent Decree Appendix A Paragraph A28.a]

Note: Under Paragraph A28.a of Appendix A of the Consent Decree, the requirements of the NSPS, 40 CFR 60 Subpart J, ceased to be applicable to Flare C4 on December 31, 2016, when the requirements of 40 CFR 60 Subpart Ja became applicable.

ii. This permit is issued based on Flare C4 not being subject to substantive requirements under the NESHAP, 40 CFR 63 Subpart CC. This because Flare C4, which now only serves a Hydrogen Plant at the refinery, only combusts streams that meet the criteria for a "Group 2 Miscellaneous Process Vent," as defined by 40 CFR 63.671.

b. This permit is issued based on this permit not providing for a modification for purposes of Illinois' rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203, and the federal rules for Prevention of Significant Deterioration. This is because the permit does not provide for increases in actual emissions and the increases in permitted emissions reflect adjustments for use of the methodology required by the Decree for quantification of emissions.

5. Requirements for the Affected Flares and Affected Flare Gas Recovery Systems

a. For Affected Flares and Affected Flare Gas Recovery Systems, the Permittee shall implement and comply with the applicable requirements in Attachment 1 of this permit, including:

i. Operating instrumentation and monitoring systems for the affected flares as required by Sections 1 through 9 of Appendix A of Attachment 1.

Note: Once the Consent Decree is terminated, these requirements may be revised by specific actions during the processing of a modified CAAPP permit for the refinery.

ii. Complying with the requirements related to the operation of the Flare Gas Recovery Systems in Sections 10, 11 and 12 of Appendix A of Attachment 1.

iii. Complying with the limits for the annual VOC emissions of Flare C4 and C5 in Section 13 of Appendix A of Attachment 1.

Note: The limit in Section 13 of Appendix A of Attachment 1 for the VOC emissions of Flare C4 takes the place of limits for emissions of volatile organic material (VOM) of this flare in Condition 3 of Construction Permit 83100013, which are also reflected in Condition 7.7.6 of the CAAPP Permit. The limit in Section 13 of Appendix A of Attachment 1 for the VOC emissions of Flare C5 takes the place of limits for the VOM emissions of this flare in Condition 2 of Construction Permit 85010029, which are also reflected in Condition 7.4.6(a) of the CAAPP Permit.

iv. Complying with the operational standards for the affected flares in Sections 14 and 15 of Appendix A of Attachment 1.

v. Complying with the recordkeeping requirements related to the affected flares in Section 16 of Appendix A of Attachment 1.

b. For purposes of this permit's Attachment 1, the definitions of terms in Appendix D of Attachment 1 shall apply except as otherwise specified in a specific provision of Attachment 1.

6. Emissions

a. Emissions from Flare C4 shall not exceed the following limits:

Limits (Tons/Year)			
NO_x	CO	SO_2	PM
7.6	29.9	0.4	0.8

Note: The above limits for the NO_x and PM emissions of Flare C4 take the place of the limits for this flare in Condition 3 of Construction Permit 83010013, which limits are also reflected in Condition 7.7.6 of the CAAPP Permit.

b. Emissions from Flare C5 shall not exceed the following limits:

Limits (Tons/Year)				
NO_x	CO	SO_2	PM	Fluorides
9.9	34.5	0.3	2.6	1.7

Note: The above limits for the emissions of NO_x, CO and fluorides of Flare C5 take the place of limits for this flare in Condition 2 of Construction Permit 85010029, which limits are also reflected in Condition 7.4.6(a) of the CAAPP Permit.

c. Compliance with the above limits in Conditions 6(a) and (b) shall be determined from a running total of 12 consecutive months of data.

7. Recordkeeping

a. For the calculations addressed in this permit's Attachment 1, Appendices A, C1 and C2, (i.e., Calculations for Net Heating Value of the Combustion Zone Gas, 365-day Rolling Sum Emissions of VOC the C4 and C5 Flares, respectively), the Permittee shall maintain supporting documentation for the information used in these calculations.

b. When the Consent Decree is terminated, the Permittee shall begin maintaining the following records:

i. For the monitoring devices and instrumentation addressed by Sections 1, 2, 3 and 6 and the Flare Gas Recovery Systems addressed by Section 10 of Attachment 1, Appendix A, the Permittee shall maintain inspection and maintenance and repair logs or other records for this equipment to verify

proper operation of this equipment. These records shall include:

A. The date each piece of equipment or instrumentation was inspected.

B. The date the maintenance and repairs were performed and completed, and the specific activities performed.

ii. Records of the information that is reasonably needed to prepare the reports required by Conditions 8(b), (c), (d) and (e) and the notifications required by Condition 9(a).

c. Retention of records when the Consent Decree is terminated:

i. Except for data recorded by video camera(s), 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 made available for inspection and copying by the Illinois EPA upon request. Any records 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 a source inspection.

ii. All data recorded by video camera(s) required by this permit shall be retained at a readily accessible location at the source for at least one year from the date of recording and shall be made available for inspection and copying by the Illinois EPA upon request. Any records 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 a source inspection.

8. Reporting

a. For flares C1, C2, C3, and C5:

i. For purposes of flaring "regulated material" pursuant to 40 CFR 63.670, the Permittee shall submit Periodic Reports as required by the NESHAP, including 40 CFR 63.655(f)(11).

ii. The Permittee shall submit Excess emissions and continuous monitoring system performance report and summary report as required by the NESHAP, 40 CFR 63.10(e)(3).

b. For flares C1, C2, C3, C4, and C5, the Permittee shall submit excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or summary report form(s) (see Condition 8(d)) as required by the NSPS, 40 CFR 60.7(c) and (d).

Note: For flares C1, C2, C3, these reports are expected to only address Total Sulfur continuous monitoring, as flow monitoring is addressed by the NESHAP, 40 CFR 63.670 and 40 CFR 63.10(e)(3). For flare C4, these reports are expected to only address flow measurement, as the flare is exempt from the requirement for total sulfur monitoring or H_2S monitoring, as it is deemed inherently low sulfur. For flare C5, although subject to the NSPS, 40 CFR 60 Subpart Ja, the reports submitted for flow, pursuant to the NESHAP, 40 CFR 63.10(e)(3), will be deemed to satisfy these requirements.

c. For each existing flare, the Permittee shall notify the Illinois EPA of deviations from the following requirements of this permit in semi-annual reports:

i. For deviations related to applicable requirements of the NSPS or NESHAP, follow the applicable reporting requirement of the NSPS or NESHAP as applicable (i.e., include in semi-annual reports).

ii. For deviations when any Supplemental, Sweep, and/or Waste Gas is routed to the respective flare and when unable to demonstrate compliance with the obligation to maintain pilot, maintain no visible emissions, maintain flare tip velocity, and/or maintain the Net Heating Value in the Combustion Zone (NHV_{CZ}), report in semi-annual reports (e.g., CAAPP semi-annual reports). Reports shall describe the deviation, the probable cause of such deviation, the corrective actions taken, and any preventive measures taken.

Note: Inclusion in semi-annual reports is provided here because these reporting items differ only slightly from the requirements of the NSPS or NESHAP, which have a stipulated semi-annual reporting frequency.

iii. For deviations of the Compressor Availability Requirements referenced by Condition 5(a)(ii) (i.e., Attachment 1 Appendix A Section 12), report in semi-annual reports (e.g., CAAPP semi-annual reports).

d. For deviations from this permit other than those reported under Conditions 8(a), 8(b), or 8(c), for each existing flare, the Permittee shall notify the Illinois EPA of deviations from the requirements of this permit. These notifications shall be submitted within 30 days of such occurrence. Reports shall describe the deviation, the probable cause of such deviation, the corrective actions taken, and any preventive measures taken.

e. When the Consent Decree is terminated, the Permittee shall include in its Annual Emission Report the calculated emission of VOC (tons/year) for Flares C4 and C5 for the reporting year, as determined using the methodology in Attachment 1 Appendices C1 and C2 of this permit, respectively.

9. Notifications

a. In addition to the notifications required by Conditions 9 (b) and (c), the Permittee shall notify the Illinois EPA of deviations from the requirements of this permit that are not addressed by reporting pursuant to the NSPS or NESHAP, reporting pursuant to Condition 8(a) or reporting pursuant to Condition (b), (c), (d) or (e). These notifications shall be provided within 30 days of such occurrences. These notifications shall describe the deviation, the probable cause of such deviation, the corrective actions taken, and any preventative measures taken.

b. At least 30 days before the Consent Decree is terminated, as is provided for Part XXI of the Consent Decree, the Permittee shall notify the Illinois EPA of the anticipated termination of the Consent Decree. Thereafter, the Permittee shall submit a copy of the document terminating the Consent Decree, with the actual termination date, within 15 days of the termination date.

c. If after the Consent Decree is terminated, as is provided for Part XXI of the Consent Decree, the Permittee intends to change the method that it uses for an affected flare to calculate the Net Heating Value of gas in the combustion zone (NHV_{cz}), as alternate methods are addressed in Appendix A of Attachment 1 of this permit, the Permittee shall notify the Illinois EPA in advance of such a change, with such notification provided at least 30 days in advance of the change or otherwise as soon as is practical.

10. Use of Emission Reductions

a. The Permittee shall not claim or use emissions reductions from the existing flares that resulted from actions or measures required by the Consent Decree. For this purpose, these reductions shall not be used (1) as part of netting reductions in future projects at the refinery; (2) as emissions offsets; or (3) to apply for, obtain, trade or sell any emissions reduction credits. [Adapted from Consent Decree Paragraph 48]

b. For the existing flares, nothing in Condition 10(a) is intended to prohibit the Permittee from seeking to:

i. Use or generate emission reductions from the existing flares to the extent that the proposed emission reductions represent the difference between current requirements and proposed, more stringent control requirements that the Permittee may elect to accept for flaring. [Adapted from Consent Decree Paragraph 49.a]

ii. Use reductions from the existing flares for compliance with any rules or regulations designed to address regional haze or the non-attainment status of any area (excluding Prevention of Significant Deterioration and non-attainment New Source Review rules, but including, for example, state

emission standards at 35 IAC Subtitle c; provided, however, that the Permittee shall not be allowed to trade or sell any such reductions. [Adapted from Consent Decree Paragraph 49.c]

Note: Any use of emission reductions, as addressed above, would need to be appropriately approved by the Illinois EPA separately from this permit.

11. Additional Provisions Related to the Consent Decree

a. Until the Consent Decree is terminated, if the requirements related to flaring at the refinery in Consent Decree are amended, the terms and conditions of the amended Consent Decree shall govern as of the date that the Consent Decree is amended or on such other date provided in the amendment to the Consent Decree provided that that the Permittee applies for a revision to this permit or the CAAPP Permit for the source within thirty calendar days.

b. Force Majeure.

i. Until the Consent Decree is terminated, the provisions for Force Majeure addressed in Paragraphs 88 through 93 of the Consent Decree shall be applicable. For this purpose, Paragraphs 88 through 93 of the Consent Decree are incorporated into this permit by reference.

ii. When the Consent Decree is terminated, as is provided for by Paragraph 134 of the Consent Decree, the provisions of related to Force Majeure addressed in Paragraphs 88 through 93 of the Consent Decree shall cease to apply and shall no longer be incorporated into this permit by reference.

c. Permits or Approvals Needed to Meet Compliance Obligations.

This permit does not excuse the Permittee from the obligations to apply for and obtain a state or local permit or approval as necessary to comply with the Consent Decree. [Adapted from Consent Decree Paragraph 44]

12. Effectiveness of Permit

This construction permit will take effect 36 days after the date that it is issued. This condition supersedes Standard Condition 1.

Attachment 1: Appendices

Appendix A:	Requirements for Affected Flares and Associated Flare Gas Recovery Systems
Appendix B:	Procedures for Calculating the Net Heating Value of the Combustion Zone (NHV_{cz}) for an Affected Flare
Appendix C1:	Procedures for Calculating the 365-day Rolling Sum Emissions of VOC from Flare C4
Appendix C2:	Procedures for Calculating the 365-day Rolling Sum Emissions of VOC from Flare C5
Appendix D:	Definitions of Terms
Appendix E:	Depiction of Gases Associated with Steam-Assisted Flares

Appendix A

Requirements for Affected Flares and Associated Flare Gas Recovery Systems

This Appendix addresses requirements of Appendix A of the Consent Decree, including monitoring and instrumentation requirements for Affected Flares (Sections 1 through 9 of this Appendix), monitoring requirements for Associated Flare Gas Recovery Systems (Sections 10 through 12 of this Appendix), limitations of VOC emissions of Flares C4 and C5 (Section 13 of this Appendix), operational requirements for Affected Flares (Sections 14 and 15 of this Appendix), and recordkeeping requirements for Affected Flares (Section 16 of this Appendix).

Part 1: Monitoring and Instrumentation Requirements for Affected Flares

Section 1. Vent Gas and Assist Steam Monitoring Systems.

a. The Permittee shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the volumetric flow rate of Vent Gas (which includes Waste, Sweep, Purge, and any Supplemental Gas used) in the header or headers that feed each affected flare. Different flow monitoring methods may be used to measure different gaseous streams that make up the Vent Gas provided that the flow rates of all gas streams that contribute to the Vent Gas are determined. [From Consent Decree Appendix A Paragraph A4.a]

b. The Permittee shall install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the volumetric flow rate of Assist Steam used with each affected flare. [From Consent Decree Appendix A Paragraph A4.b]

c. Each flow rate monitoring system must be able to correct for the temperature and pressure of the system and output parameters in Standard Conditions (i.e., a temperature of 68 °F and a pressure of 1 atmosphere). [From Consent Decree Appendix A Paragraph A4.c]

d. In lieu of a monitoring system that directly measures volumetric flow rate, the Permittee may choose from the following additional options for monitoring any gas stream:

   i. Mass flow monitors may be used for determining the volumetric flow rate of Steam provided that the Permittee converts the mass flow rates to volumetric flow rates pursuant to the methodology in Step 2 of Appendix A; [Adapted from Consent Decree Appendix A Paragraph A4.d.i]

   ii. Mass flow monitors may be used for determining the volumetric flow rate of Vent Gas, provided the Permittee determines the molecular weight of such Vent Gas using compositional analysis data collected pursuant to the monitoring method specified in Section 4(a) or 4(b) and provided that the Permittee converts the mass flow rates to volumetric flow rates pursuant to the methodology in Step 2 of Appendix A; and [Adapted from Consent Decree Appendix A Paragraph A4.d.ii]

iii. Continuous pressure/temperature monitoring system(s) and appropriate engineering calculations may be used in lieu of a continuous volumetric flow monitoring system provided the molecular weight of the gas is known and provided the Permittee complies with the methodology in Step 2 of Appendix A for calculating volumetric flow rates. For Vent Gas, the Permittee must determine molecular weight using compositional analysis data collected pursuant to the monitoring method specified in Section 4(a) or 4(b). [Adapted from Consent Decree Appendix A Paragraph A4.d.iii]

Note: These requirements became effective for Flares C1 and C4 on December 31, 2016 and for Flares C2, C3 and C5 on January 11, 2017.

Section 2. Process Control Equipment for Steam.

This process equipment for each affected flare, including, as necessary, main and trim control valves and piping, shall enable the Permittee to manage Assist Steam flow to the flare in a manner sufficient to ensure compliance. [Adapted from Consent Decree Appendix A Paragraph A5 and Appendix A2.1]

Note: This requirement became effective for Flares C1 and C4 on December 31, 2016 and for Flares C2, C3 and C5 on January 11, 2017.

Section 3. Video Camera.

For the affected flares, the Permittee shall operate and maintain instrumentation, e.g., a video camera(s). This instrument shall record, in digital format, the flame of and any Smoke Emissions from the flare. For this purpose, a single instrument capable of monitoring multiple affected flares, e.g., due to proximity of affected flares, may be used. During outages of a camera, the Permittee may use alternative cameras until the camera is repaired or replaced. [Adapted from Consent Decree Appendix A Paragraph A6]

Note: This requirement became effective January 11, 2017.

Section 4. Vent Gas Compositional Monitoring or Direct Monitoring of Net Heating Value of Vent Gas.

For Flares C1, C2, C3 and C5, the Permittee shall determine the concentration of individual components in the Vent Gas or shall directly monitor the Net Heating Value of the Vent Gas (NHV_{vg}) in compliance with one of the methods specified below. The Permittee may elect to use different monitoring methods (of the methods provided below for different gaseous streams that make up the Vent Gas provided the composition or Net Heating Value of all gas streams that contribute to the Vent Gas are determined. [From Consent Decree Appendix A Paragraph A7]

a. Install, operate, calibrate, and maintain a monitoring system capable of continuously measuring (i.e., at least once every 15 minutes), calculating, and recording the individual component concentrations present in the Vent Gas; or [From Consent Decree Appendix A Paragraph A7.a]

b. Install, operate, and maintain a grab sampling system capable of collecting an evacuated canister sample for subsequent compositional analysis at least once every eight hours while Waste Gas is being sent to the Flare. Subsequent compositional analysis of the samples must be performed according to Method 18 of 40 CFR Part 60, Appendix A-6, ASTM D6420-99 (Reapproved 2010), ASTM D1945-03 (Reapproved 2010), ASTM D1945-14, or ASTM UOP539-12; or [From Consent Decree Appendix A Paragraph A7.b]

c. Install, operate, calibrate, and maintain a calorimeter capable of continuously measuring, calculating, and recording the NHV_{vg} at standard conditions. If the Permittee elects this method, the Permittee may, at its discretion, install, operate, calibrate, and maintain a monitoring system capable of continuously measuring, calculating, and recording the hydrogen concentration in the Vent Gas. [From Consent Decree Appendix A Paragraph A7.c]

Note: These requirements became effective January 30, 2019.

Section 5. Net Heating Value of Purchased Natural Gas Stream.

Notwithstanding Section 4, direct compositional or Net Heating Value monitoring, as specified in Section 4, is not required for purchased natural gas streams. The Net Heating Value of purchased natural gas streams may be determined using annual or more frequent grab sampling at any one representative location. Alternatively, the Net Heating Value of any purchased natural gas stream can be assumed to be 920 Btu/scf. [From Consent Decree Appendix A Paragraph A7.d]

Section 6. Instrumentation and Monitoring Systems: Specifications, Calibration, Quality Control, and Maintenance.

a. The instrumentation and monitoring systems identified in Section 1 and 4 shall: [From Consent Decree Appendix A Paragraph A8.a]

i. Meet or exceed all applicable minimum accuracy, calibration and quality control requirements specified in Table 13 to 40 CFR 63 Subpart CC; [From Consent Decree Appendix A Paragraph A8.a.i of Appendix A]

ii. Have an associated readout (i.e., a visual display or record) or other indication of the monitored operating parameter that is readily accessible onsite for operational control or inspection by the Permittee; [From Consent Decree Appendix A Paragraph A8.a.ii]

iii. Be capable of measuring the appropriate parameter over the range of values expected for that measurement location; and [From Consent Decree Appendix A Paragraph A8.a.iii]

iv. Have associated data recording system(s) that have a resolution that is equal to or better than the required instrumentation/system accuracy. [From Consent Decree Appendix A Paragraph A8.a.iv]

b. The Permittee shall operate, maintain, and calibrate each instrumentation and monitoring system identified in Sections 1 and 4

according to a continuous parametric monitoring system (CPMS) monitoring plan that contains the information listed in 40 CFR 63.671(b)(1) through (5). [From Consent Decree Appendix A Paragraph A8.b]

c. All monitoring systems that fall under the monitoring method in Section 4(a) must also meet the requirements of 40 CFR 63.671(e)(1) through (3). [From Consent Decree Appendix A Paragraph A8.c]

d. For each instrumentation and monitoring system identified in Sections 1 and 4, the Permittee shall comply with the out-of-control procedures described in 40 CFR 63.671(c)(1) and (2), and with the data reduction requirements specified in 40 CFR 63.671(d)(1) through (3). [From Consent Decree Appendix A Paragraph A8.d]

Section 7. Instrumentation and Monitoring Systems: Recording and Averaging Times.

The instrumentation and monitoring systems identified in Sections 1, 3 and 4 shall be able to produce and record data measurements and calculations for each parameter at the following time intervals. Nothing in this provision is intended to prohibit the Permittee from setting up process control logic that uses different averaging times from those in this table provided that the recording and averaging times in this table are available and used for determining compliance. [From Consent Decree Appendix A Paragraph A9]

<table>
<tr><th colspan="2">Instrumentation and Monitoring System</th><th>Recording and Averaging Times</th></tr>
<tr><td colspan="2">Vent Gas (including Waste, Sweep, Purge and Supplemental) and Assist Steam Flow Monitoring Systems</td><td>Measure continuously and record 15-minute block averages</td></tr>
<tr><td rowspan="4">Vent Gas Compositional Monitoring</td><td>Monitoring Methodology</td><td rowspan="2">Measure no less than once every 15 minutes and record that value</td></tr>
<tr><td>Continuous Composition (Section 4(a))</td></tr>
<tr><td>Evacuated Canister or "Grab" Sampling (Section 4(b))</td><td>Measure no less than once every 8 hours and record that value</td></tr>
<tr><td>Continuous Calorimeter (Section 4(c))</td><td>Measure continuously and record 15-minute block averages</td></tr>
<tr><td colspan="2">Video Camera</td><td>Record at a rate of no less than 4 frames per minute</td></tr>
</table>

Section 8. Instrumentation and Monitoring Systems: Operation.

a. Except for periods of Monitoring System Malfunctions, repairs associated with Monitoring System Malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), the Permittee shall operate each of the instruments and monitoring systems required in Sections 1, 3 and 4 and collect data on a continuous basis at all times when the Flare that the instrument and/or monitoring system is associated with is Capable of Receiving Sweep, Supplemental, and/or Waste Gas. [From Consent Decree Appendix A Paragraph A10]

b. In any dispute under Section 8(a) related to whether an event or events were Monitoring System Malfunctions, the Permittee shall have the burden of proving that the event or events should be considered Monitoring System Malfunctions, including showing that the criteria for a Monitoring System Malfunction were met. [Adapted from Consent Decree Appendix A Paragraph A1.y]

Section 9. Portable Flares.

For any Portable Flare, the Permittee shall begin complying with the monitoring and instrumentation requirements of Sections 1 through 8 of Appendix A for such flare by the date that it initially put into service at the refinery. [Adapted from Consent Decree Appendix A Paragraph A11]

Part 2: Requirements for Affected Flare Gas Recovery Systems (FGRS)

Section 10. General Requirement for Affected FGRS.

The Permittee shall operate each affected FGRS in a manner to minimize Waste Gas to the respective affected flare while ensuring safe refinery operations. The Permittee also shall operate each FGRS consistent with good engineering and maintenance practices and in accordance with its design and the manufacturer's specifications. [From Consent Decree Appendix A Paragraph A18.a]

Section 11. Determining Whether an Affected Flare with a Water Seal is Not Receiving Potentially Recoverable Gas Flow

For an existing flare that has a water seal if all of the following conditions are met for such flare, then the flare is not considered to be receiving Potentially Recoverable Gas flow: [Adapted from Consent Decree Appendix A Paragraph A12]

a. For the water seal associated with the flare, the pressure difference between the inlet pressure and the outlet pressure is less than the water seal pressure as set by the static head of water between the opening of the dip tube and the level of the water in the water seal; and

b. Downstream of the water seal, there is no flow of Supplemental Gas directed to the flare.

Section 12. Requirements Related to Compressors Being Available for Operation and/or in Operation for the C1 and South Plant FGRS.

a. For the C1 FGRS, and the South Plant FGRS, the Permittee shall comply with the following requirements when Potentially Recoverable Gas is being generated:

   i. For the South Plant Flare Gas Recovery System, the Permittee shall have the Primary Compressor Available for Operation and/or in operation 90% of the time and shall use best efforts to have the Secondary Compressor Available for Operation and/or in operation at all times that the Primary Compressor is not operating; provided however, that, at a minimum, the Permittee shall have the Secondary Compressor Available for Operation and/or in operation no less than 98% of the time that the Primary

Compressor is not in operation. Periods of maintenance and subsequent restart of the Primary Compressor may be included in the amount of time that the Primary Compressor is Available for Operation when determining compliance with the requirement to have the Primary Compressor Available for Operation and/or in operation 90% of the time, provided that: [From Consent Decree Appendix A Paragraph A18.b.i]

A. These periods do not exceed 1,344 hours in a five-year rolling sum period, rolled daily; [From Consent Decree Appendix A Paragraph A18.b.i.1]

B. The Permittee complies with the requirement to use best efforts to have the Secondary Compressor Available for Operation and/or in operation during these periods; and [From Consent Decree Appendix A Paragraph A18.b.i.2]

C. The Permittee has the Secondary Compressor Available for Operation and/or in operation for at least 98% of the time during these periods. [From Consent Decree Appendix A Paragraph A18.b.i.3]

ii. For the C1 FGRS, the Permittee shall have one Compressor Available for Operation and/or in operation at least 98% of the time and two Compressors Available for Operation and/or in operation at least 90% of the time. Periods of maintenance and subsequent restart on the Compressors within the C1 Flare FGRS may be included in the amount of time that the Compressors are Available for Operation when determining compliance with the requirement to have two Compressors Available for Operation and/or in operation 90% of the time, provided that these periods do not exceed 1,344 hours per Compressor in a five-year rolling sum period, rolled daily. [From Consent Decree Appendix A Paragraph A18.b.ii]

iii. For purposes of calculating compliance with the above requirements for the percentage of time that a Compressor or group of Compressors must be Available for Operation and/or in operation, as required above, the period to be used shall be an 8760-hour rolling sum, rolled hourly, using only hours when Potentially Recoverable Gas was generated during all or part of the hour but excluding hours for flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss. When no Potentially Recoverable Gas was generated during an entire hour, then that hour shall not be used in computing the 8760-hour rolling sum. The rolling sum shall include only the prior 8760 one-hour periods when Potentially Recoverable Gas was generated during all or part of the hour, provided that the Potentially Recoverable Gas was not generated by flows that could not have been prevented through reasonable planning and were in anticipation of or caused by a natural disaster, act of war or terrorism, or External Utility Loss. [From Consent Decree Appendix A Paragraph A18.b.iii]

Part 3. Limitations on VOC Emissions from Flares C4 and C5

Section 13. Limitations on VOC Emissions from Flares C4 and C5

a. For Flares C4 and C5, the Permittee shall not emit more than the following amounts of volatile organic compounds (VOC) on a 365-day rolling sum period, rolled daily. The Permittee shall utilize the procedures and equations set forth in Appendix B1 and Appendix B2, respectively, to calculate the VOC emissions from Flare C4 and from Flare C5 in each given 365-day rolling sum period.

   i. Flare C4: 20 tons/year

   ii. Flare C5: 20 tons/year

b. The Permittee may only seek an increase in these limits, regardless of the amount of the increase, if the Permittee undertakes a Lowest Achievable Emission Rate analysis through the Illinois EPA in order to secure the increase.

[Adapted from Consent Decree Appendix A Paragraphs A22 and A23]

Part 4. Operational Requirements

Section 14. Operational Standards for All Affected Flares

For each affected flare, the Permittee shall comply with the following requirements at all times when the flare is In Operation. For Subsections(b) through (d), the Permittee shall comply with these requirements of 40 CFR 63.670(b) through (d) at any time that an affected flare is In Operation. Language in 40 CFR 63.670(b) through (d), or in any regulatory provision referred to in any of the references in 40 CFR 63.670(b) through (d), that limits the applicability of these regulatory requirements to periods when "regulated material" (as defined in 40 CFR 63.641) is routed to a flare is not applicable for purposes of the requirements in Attachment 1. [Adapted from Consent Decree Appendix A Paragraph A24 and Appendix A2.1]

a. Operation during Vent Gas Venting. The Permittee shall operate each affected flare at all times when Vent Gas may be vented to it. [From Consent Decree Appendix A Paragraph A24.a]

b. Pilot Flame Presence. The Permittee shall comply with the requirements of the NESHAP, including 40 CFR 63.670(b). For this purpose, in the event of a Pilot Gas outage, Supplemental Gas or flare stack Purge Gas may be used as a Pilot Gas to provide a flame to ignite Vent Gas and to satisfy the obligation to maintain the presence of a pilot flame. [Adapted from Consent Decree Appendix A Paragraph A24.b]

c. No Visible Emissions. The Permittee shall comply with the requirements of the NESHAP, including 40 CFR 63.670(c). [From Consent Decree Appendix A Paragraph A24.c]

d. Flare Tip Velocity. The Permittee shall comply with the requirements of the NESHAP, including 40 CFR 63.670(d). [From Consent Decree Appendix A Paragraph A24.d]

e. Monitoring According to Applicable Provisions. The Permittee shall comply with all applicable Subparts of 40 CFR Parts 60, 61, and 63 that state how a particular affected flare must be monitored. [From Consent Decree Appendix A Paragraph A24.e]

f. Good Air Pollution Control Practices. At all times, including during periods of Startup, Shutdown, and/or Malfunction, the Permittee shall implement good air pollution control practices to minimize emissions from each affected flare. [Adapted from Consent Decree Appendix A Paragraph A24.f]

Note: The above NESHAP requirements became effective on January 30, 2019 for Flares C1, C2, C3 and C5. The above Part 40 CFR 60 Subpart Ja requirements were already effective for Flares C1, C2, C3, and C5 as of November 10, 2016 (Date of Lodging of the Consent Decree), and became applicable for Flare C4 on December 31, 2016. [From Consent Decree Appendix A2.1 Columns G and H]

Section 15: Standard for Combustion Zone Net Heating Value (NHVcz)

For each affected flare, other than Flare C4 or a Portable Flare that only receives waste gas redirected to it from Flare C4, at any time that Supplemental, Sweep, and/or Waste Gas is routed to the flare for at least 15 minutes, the Permittee shall operate such flare to maintain the net heating value in the combustion zone (NHV_{cz}) at or above 270 Btu/scf determined on a 15-minute block period basis. The Permittee shall monitor and calculate NHV_{cz} in accordance with the procedures in Appendix 1 of Attachment 1 of this permit. [From Consent Decree Appendix A Paragraph A26 and Appendix A2.1]

Note: This requirement became effective January 20, 2019.

Part 5. Recordkeeping Requirements

Section 16: Recordkeeping Requirements

a. For each affected flare, the Permittee shall calculate and record each of the following parameters: [From Paragraph A27.a of Appendix A of the Consent Decree and Appendix 2.1 of the Consent Decree]

i. Volumetric flow rates of all gas streams that contribute to the Vent Gas volumetric flow rate (in scfm) in 15-minute block averages, calculated in accordance with the requirements of Section 1 and Step 2 of Appendix A of Attachment 1. [From Consent Decree Appendix A Paragraph A27.a.i]

ii. Assist Steam volumetric flow rate (in scfm) in 15-minute block averages, calculated in accordance with the calculation requirements of Section 1 and Step 2 of Appendix A of Attachment 1. [From Consent Decree Appendix A Paragraph A27.a.ii]

iii. Net Heating Value of Vent Gas (NHV_{vg}) (in Btu/scf) in 15-minute block averages, calculated in accordance with Step 1 of Appendix A of Attachment 1. [From Consent Decree Appendix A Paragraph A27.a.iii]

b. For each affected flare, other than Flare C4 or a Portable Flare that only receives waste gas redirected to it from Flare C4, the Permittee shall calculate and record the Net Heating Value in the Combustion Zone (NHV_{cz}) (in Btu/scf) in 15-minute block averages, calculated in accordance with Step 3 of Appendix A of Attachment 1. [From Consent Decree Appendix A Paragraph A27.a.iv and Appendix A2.1]

c. For the affected flares, for deviations from the standards addressed in Sections 13 and 14 of this Appendix A, the Permittee shall record the duration of the deviation, an explanation of the cause(s) of the deviation, and a description of the corrective action(s) that were taken. [Adapted from Consent Decree Appendix A Paragraph A27.b of Appendix A]

Appendix B

Procedures for Calculating Net Heating Value of the Combustion Zone Gas (NHV_{cz}) for an Affected Flare

[From Consent Decree Appendices A1.3]

Note: A glossary of abbreviations used in this Appendix A is provided as Table 2 at the end of this Appendix.

This Appendix sets out the procedures by which Net Heating Value of the Combustion Zone Gas (NHV_{cz}) for an Affected Flare is to be Calculated.

Step 1: Determine the Net Heating Value of the Vent Gas (NHVvg)

For an affected flare, other than Flare C4 or a Portable Flare that only receives Waste Gas redirected to it from Flare C4, the Net Heating Value of the Vent Gas (NHV_{vg}) shall be determined based on composition monitoring data on a 15-minute block average basis according to the following requirements. If the Permittee monitors separate gas streams that combine to comprise the total vent gas flow to an affected flare, the 15-minute block average Net Heating Value shall be determined separately for each measurement location according to the following requirements and a flow-weighted average of the gas stream Net Heating Values shall be used to determine the 15- minute block average Net Heating Value of the cumulative Vent Gas. The NHVvg 15-minute block averages shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

Step 1a: Equation or Output to be Used to Determine NHVvg at a Measurement Location

For any gas stream for which the Permittee complies with Section 4 of Appendix A by collecting compositional analysis data in accordance with the method set forth in Section 4(a) or (b) of Appendix A, Equation 1 shall be used to determine the NHV_{vg} of a specific sample by summing the Net Heating Value for each individual component by individual component volume fractions. Net Heating Values for common components are listed in Table 1 at the end of this appendix.

$$NHV_{vg} = \sum_{i=1}^{n} (x_i \cdot NHV_i) \qquad \textit{Equation 1}$$

For any gas stream for which the Permittee complies with Section 4 of Appendix A by collecting direct Net Heating Value (NHV) monitoring data in accordance with the method set forth in Section 4(c) of Appendix A but for which a Hydrogen Concentration Monitor is not used: Use the direct output (measured value) of the monitoring system(s) (in Btu/scf) to determine the NHVvg for the sample.

For any gas stream for which the Permittee complies with Section 4 of Appendix A by collecting direct Net Heating Value monitoring data in accordance with the method set forth in Section 4(c) of Appendix A and for which a Hydrogen Concentration Monitor is also used: Equation 2 shall be

used to determine the NHV_{vg} for each sample measured via the Net Heating Value monitoring system. Where hydrogen concentration data is collected, Equation 2 performs a net correction for the measured heating value of hydrogen since the theoretical Net Heating Value for hydrogen is 274 Btu/scf, but for the purposes of this procedure, a Net Heating Value of 1,212 Btu/scf may be used (1,212 - 274 = 938 Btu/scf).

$$NHV_{vg} = NHV_{measured} + 938x_{H2} \qquad \textit{Equation 2}$$

Step 1b: Calculation Method to be Used in Applying Equation/Output to Determine NHV_{vg}

For any affected flare, other than a Portable Flare, for which the Permittee complies with Section 4 of Appendix A by using a continuous monitoring system in accordance with the method set forth in Section 4(a) or (c) of Appendix A: the Permittee may elect to determine the 15-minute block average NHV_{vg} may be determined using either the Feed- Forward Calculation Method or the Direct Calculation Method (both described below), as selected by the Permittee. The Permittee need not elect to use the same methodology for all Flares with a continuous monitoring system; however, for each subject Flare, the Permittee must elect one calculation method that will apply at all times, and use that method for all continuously monitored flare vent streams associated with that subject flare.[1]

Feed-Forward Calculation Method. When calculating NHV_{vg} for a specific 15-minute block:

1. Use the results from the first sample collected during an event (for periodic Vent Gas flow events) for the first 15-minute block associated with that event.

2. If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the second 15-minute block associated with that event.

3. For all other cases, use the results that are available from the most recent sample prior to the 15-minute block period for that 15-minute block period for all Vent Gas streams. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:45 AM to 1:00 AM.

[1] Under the Consent Decree, if the Permittee intends to change the calculation method that applies to an affected flare, the Permittee must notify the USEPA 30 days in advance of such a change. When the Consent Decree is terminated, the notification for such a change is to be provided to Illinois EPA prior to the change, with the notification provided either at least 30 days in advance or otherwise as soon as it is practical to provide such notification.

Direct Calculation Method. When calculating NHV_{vg} for a specific 15-minute block:

1. If the results from the first sample collected during an event (for periodic Vent Gas flow events) are not available until after the second 15-minute block starts, use the results from the first sample collected during an event for the first 15-minute block associated with that event.

2. For all other cases, use the arithmetic average of all NHV_{vg} measurement data results that become available during a 15-minute block to calculate the 15-minute block average for that period. For the purpose of this requirement, use the time that the results become available rather than the time the sample was collected. For example, if a sample is collected at 12:25 AM and the analysis is completed at 12:38 AM, the results are available at 12:38 AM and these results would be used to determine compliance during the 15-minute block period from 12:30 AM to 12:45 AM.

For any flare for which the Permittee complies with Section 4 of Appendix A by using a canister or "grab" sampling system in accordance with the method set forth in Section 4(c) of Appendix A: The analytical results from the first grab sample collected for an event shall be used for all 15-minute periods from the start of the event through the 15-minute block prior to the 15-minute block in which a subsequent grab sample is collected. The results from subsequent grab sampling events shall be used for all 15-minute periods starting with the 15-minute block in which the sample was collected and ending with the 15-minute block prior to the 15-minute block in which the next grab sample is collected. For the purpose of this requirement, use the time the sample was collected rather than the time the analytical results become available.

Step 2: Determine Volumetric Flow Rates of Gas Streams

The volumetric flow rate in standard cubic feet (scf) of vent gas, along with the volumetric flow rates (in scf) of any Supplemental Gas, assist steam, and premix assist air, over a 15-minute block average basis shall be determined. The 15-minute block average volumetric flow rates shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

For any gas streams for which the Permittee complies with Section 4 of Appendix A by using a monitoring system that directly records volumetric flow rate: Use the direct output (measured value) of the monitoring system(s) (in scf), as corrected for the temperature and pressure of the system to standard conditions (i.e., a temperature of 68 °F and a pressure of 1 atmosphere) to then calculate the average volumetric flow rate of that gas stream for the 15- minute block period.

For Vent Gas, assist steam, or premix assist air gas streams for which the Permittee complies with Section 4 of Appendix A by using a mass flow monitor to determine volumetric flow rate: Equation 3 shall be used to determine the volumetric flow rate of Vent Gas, premix assist air, or assist steam by converting mass flow rate to volumetric flow at standard conditions (i.e., a temperature of 68 °F and a pressure of 1 atmosphere).

Equation 3 uses the molecular weight of the gas stream as an input to the equation; therefore, if the Permittee elects to use a mass flow monitor to determine volumetric flow rate of Vent Gas, the Permittee must collect compositional analysis data for such Vent Gas in accordance with the method set forth in Section 4(a) or (b) of Appendix A. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. The converted volumetric flow rates at standard conditions from Equation 3 shall then be used to calculate the average volumetric flow rate of that gas stream for the 15-minute block period.[2]

$$Q_{vol} = \frac{Q_{mass} * 385.3}{MWt} \qquad \textit{Equation 3}$$

For gas streams for which the molecular weight of the gas is known and for which the Permittee complies with Section 4 of Appendix A by using continuous pressure/temperature monitoring system(s): Use appropriate engineering calculations to determine the average volumetric flow rate of that gas stream for the 15-minute block period. For assist steam, use a molecular weight of 18 pounds per pound-mole. For assist air, use a molecular weight of 29 pounds per pound-mole. For Vent Gas, molecular weight must be determined by collecting compositional analysis data for such Vent Gas in accordance with the method set forth in Section 4(a) or (b) of Appendix A.

Step 3: Calculate the Net Heating Value of the Combustion Zone Gas (NHVcz)

For any affected flare, other than a Portable Flare, at which: 1) the Feed-Forward Calculation Method is used; 2) gas composition or Net Heating Value monitoring is performed in a location representative of the cumulative vent gas stream; and 3) Supplemental Gas flow additions to the flare are directly monitored: Equation 4 shall be used to determine the 15-minute block average NHVcz based on the 15-minute block average vent gas, supplemental gas, and assist gas flow rates.

$$NHV_{cz} = \frac{(Q_{vg} - Q_{NG2} + Q_{NG1}) * NHV_{vg} + (Q_{NG2} - Q_{NG1}) * NHV_{NG}}{Q_{vg} + Q_s + Q_{a,premix}} \qquad \textit{Equation 4}$$

For the first 15-minute block period of an event, Q_{NG} shall use the volumetric flow value for the current 15-minute block period (i.e., $Q_{NG1} = Q_{NG2}$). NHV_{NG} shall be determined using one of the following methods: 1) direct compositional or Net Heating Value monitoring of the natural gas stream in accordance with Step 1; or 2) for purchased natural gas streams, the Permittee may elect to either: a) use annual or more frequent grab sampling at any one representative location; or b) assume a Net Heating Value of 920 Btu/scf.

For all other affected flares not covered above, other than Portable Flares: Equation 5 shall be used to determine the 15-minute block average NHV_{cz} based on

[2] In Equation 3, "385.3" is a constant to convert from the amount of gas, in lb-mol, in the volume of gas, in scf.

the 15-minute block average vent gas and assist gas flow rates. For periods when there is no Assist Steam flow or Premix Assist Air flow, $NHV_{cz} = NHV_{vg}$.

$$NHV_{cz} = \frac{Q_{vg} * NHV_{vg}}{Q_{vg} + Q_s + Q_{a,premix}} \qquad \textit{Equation 5}$$

Step 4: Compare Calculated NHV_{cz} to 270 Btu/scf

To comply with Section 15 of Appendix A of Attachment 1, the NHV_{cz} of the affected flare must be equal to or above 270 Btu/scf, as determined for each 15-minute block period when Supplemental, Sweep, and/or Waste Gas is routed to the affected flare for at least 15-minutes. Equation 6 shows this relationship.

$$NHV_{cz} \geq 270\ BTU/scf \qquad \textit{Equation 6}$$

Table 1: Properties of Individual Components

Component	Molecular Formula	MW_i (lb/lb-mol)	CMN_i (mol/ mol)	NHV_i (Btu/scf)	LFL_i (volume %)
Acetylene	C_2H_2	26.04	2	1,404	2.5
Benzene	C_6H_6	78.11	6	3,591	1.3
1,2-Butadiene	C_4H_6	54.09	4	2,794	2.0
1,3-Butadiene	C_4H_6	54.09	4	2,690	2.0
iso-Butane	C_4H_{10}	58.12	4	2,957	1.8
n-Butane	C_4H_{10}	58.12	4	2,968	1.8
cis-Butene	C_4H_8	56.11	4	2,830	1.6
iso-Butene	C_4H_8	56.11	4	2,928	1.8
trans-Butene	C_4H_8	56.11	4	2,826	1.7
Carbon Dioxide	CO_2	44.01	1	0	∞
Carbon Monoxide	CO	28.01	1	316	12.5
Cyclopropane	C_3H_6	42.08	3	2,185	2.4
Ethane	C_2H_6	30.07	2	1,595	3.0
Ethylene	C_2H_4	28.05	2	1,477	2.7
Hydrogen	H_2	2.02	0	1,212[a]	4.0
Hydrogen Sulfide	H_2S	34.08	0	587	4.0
Methane	CH_4	16.04	1	896	5.0
Methyl-Acetylene	C_3H_4	40.06	3	2,088	1.7
Nitrogen	N_2	28.01	0	0	∞
Oxygen	O_2	32.00	0	0	∞
Pentane+ (C5+)	C_nH_{2n+2}	72.15	5	3,655	1.4
Propadiene	C_3H_4	40.06	3	2,066	2.16
Propane	C_3H_8	44.10	3	2,281	2.1
Propylene	C_3H_6	42.08	3	2,150	2.4
Water	H_2O	18.02	0	0	∞

Notes:
a. For the purposes of these procedures, a Net Heating Value of 1,212 Btu/scf shall be used for hydrogen, even though the theoretical Net Heating Value for hydrogen is 274 Btu/scf.
b. For a component that is not addressed in this table, the net heating value may be determined using any published value where the net enthalpy per mole is based on combustion at 25 °C and 1 atmosphere (or constant pressure) with water in the gaseous state, but with the standard temperature for determining the volume corresponding to one mole of gas being adjusted for 20 °C.

Appendix C1

Procedures for Calculating the 365-day Rolling Sum Emissions of VOC from Flare C4

[From Consent Decree Appendix A2.3]

Note: A glossary of abbreviations used in this appendix is provided at the end of this appendix.

For the purpose of demonstrating compliance with the Volatile Organic Compound ("VOC") emissions limit for Flare C4 in Section 13 of Appendix A, the block sum of VOC emissions of this flare shall be calculated for each calendar day in accordance with Steps 1 through 5 below, and the 365-day rolling sum, rolled daily, shall be calculated for each day using the daily emission data from the period of 365 consecutive calendar days that ends with that day, in accordance with Step 6 below.

Step 1: Determine Mass Flow Rates of Gas Streams

The mass flow rates of Vent Gas and Assist Steam shall be determined in pounds over a 15-minute block average basis (lb/15 min). The 15-minute block average mass flow rates shall be calculated for set 15-minute time periods starting at 12 midnight to 12:15 AM, 12:15 AM to 12:30 AM and so on, concluding at 11:45 PM to midnight.

For any gas streams for which the Permittee complies with Section 1 of Appendix Aby using a mass flow monitor: Use the direct output (measured value) of the monitoring system(s) (in lb) to then calculate the average mass flow rate of that gas stream for the 15-minute block period.

For any gas streams for which the Permittee complies with Section 1 of Appendix A by using a monitoring system that directly records volumetric flow rate: Equation 1 shall be used to determine the mass flow rate of Vent Gas or Assist Steam by converting volumetric flow rate at standard conditions (i.e., a temperature of 68 °F and a pressure of 1 atmosphere) to mass flow rate. Equation 1 uses the molecular weight of the gas stream as an input to the equation; therefore, if the Permittee elects to use a volumetric flow monitor to determine mass flow rate of Vent Gas, the Permittee must collect compositional analysis data for such Vent Gas in accordance with the method set forth in Section 4(a) or (b) of Appendix A. For natural gas used as Purge Gas and Sweep Gas, use a molecular weight of 17 pounds per pound-mole.[3] For Assist Steam, use a molecular weight of 18 pounds per pound-mole. The converted mass flow rates from Equation 1 shall then be used to calculate the average mass flow rate of that gas stream for the 15-minute block period.[4]

$$\dot{m}_i = \frac{Q_i * MWt}{385.3} \qquad \textit{Equation 1}$$

[3] The molecular weight of natural gas is 17 pounds per pound-mole based on the average of the analyses conducted by Citgo for the natural gas used by the refinery in 2013.

[4] In Equation 1, "385.3" is a constant to convert from the volume of gas, in scf, to the amount of gas, in lb-mol.

For gas streams for which the molecular weight of the gas is known and for which the Permittee complies with Section 1 of Appendix A by using continuous pressure/temperature monitoring system(s): Use appropriate engineering calculations to determine the average mass flow rate of that gas stream for the 15-minute block period. For Vent Gas, molecular weight must be determined by collecting compositional analysis data for such Vent Gas in accordance with the method set forth in Section 4(a) or (b) of Appendix A. For natural gas used as Purge Gas and Sweep Gas, use a molecular weight of 17 pounds per pound-mole. For Assist Steam, use a molecular weight of 18 pounds per pound-mole.

Step 2: Calculate the Steam Mass Flow Rate to Vent Gas Mass Flow Rate Ratio (S/VG_{mass})

Equation 2 shall be used to determine the 15-minute block average S/VG_{mass} based on the 15-minute block average Vent Gas and Assist Steam flow rates.

$$S/VG_{mass} = \frac{\dot{m}_s}{\dot{m}_{vg}} \qquad \textit{Equation 2}$$

Step 3: Calculate the Combustion Efficiency (CE)

For periods when the Vent Gas volumetric flow rate is less than 1 mmcfd, the Vent Gas is expected to be comparable to natural gas used as Purge Gas and Sweep Gas, and the CE shall be determined by Step 3a. For periods when the Vent Gas volumetric flow rate is greater than or equal to 1 mmcfd, the Vent Gas is expected to be comparable to the hydrogen plant design relief case mixture of Pressure Swing Absorber ("PSA") off-gas and natural gas, and the CE shall be determined by Step 3b.

Step 3a: CE Calculation Method for Vent Gas Flow Rates Less than 1 mmcfd

Equation 3 shall be used to determine the 15-minute block average CE based on the 15-minute block average S/VGmass.[5,6]

$$CE = \frac{130.17 - 13.15 * S/VG_{mass}}{131.17 - 12.29 * S/VG_{mass}} \qquad \textit{Equation 3}$$

Step 3b: CE Calculation Method for Vent Gas Flow Rates Greater than or Equal to 1 mmcfd

Equation 4 shall be used to determine the 15-minute block average CE based on the 15-minute block average S/VGmass.[7]

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[5] *"CE"* is equal to zero for S/VGmass values greater than or equal to 9.9 lb/lb. Equation 3 assumes a Net Heating Value of the Vent Gas (NHVvg) of 909 Btu/scf for natural gas used as Purge Gas and Sweep Gas.

[6] The net heating value of natural gas based on the average of the analyses conducted by Citgo for the natural gas used by the refinery in 2013.

$$CE = \frac{144.24 - 8.66 * S/VG_{mass}}{145.24 - 8.09 * S/VG_{mass}} \qquad \textit{Equation 4}$$

CE is equal to zero for S/VGmass values greater than or equal to 16.7 lb/lb.

Step 4: Calculate the 15-Minute Block Sum VOC Emissions

Equation 5 shall be used to determine the 15-minute block sum VOC emissions for each 15-minute period "j".

$$(\dot{m}_{VOC-Emit})_j = \dot{m}_{vg} * w_{VOC} * (1 - CE) \qquad \textit{Equation 5}$$

For Vent Gas flow rates less than 1 mmcfd, the VOC mass fraction (*wvoc*) is 0.009 for natural gas used as Purge Gas and Sweep Gas.[8] For Vent Gas flow rates greater than or equal to 1 mmcfd, *wvoc* is 0.0009 for a mixture of pressure swing absorber (PSA) off-gas from the hydrogen plant and natural gas used as Purge Gas and Sweep Gas.

Step 5: Calculate the Calendar Day Block Sum VOC Emissions

Equation 6 shall be used to determine the block sum mass of VOC emissions from Flare C4 during calendar day "d" as the sum of the 15-minute block sum VOC emissions calculated for each 15-minute period "j" during that calendar day.

$$(\dot{m}_{VOC-Emit})_d = \sum_{j=1}^{96} (\dot{m}_{VOC-Emit})_j \qquad \textit{Equation 6}$$

Step 6: Calculate the Tons per Year of VOC Emissions ($TPY_{VOC-Emit}$)

The results of Equation 6 for each day "d" of the 365-day rolling sum period are summed and converted to tons per year as per Equation 7 below. The result of Equation 7 is used to demonstrate compliance with the emission limit for Flare C4 in Section 13 of Appendix A.

$$TPY_{VOC-Emit} = \frac{\sum_{d=1}^{365} (\dot{m}_{VOC-emit})_d}{2000} \qquad \textit{Equation 7}$$

Glossary of Abbreviations

CE = combustion efficiency (fraction)
MWt = molecular weight of the gas at the flow monitoring location (lb/lb-mol)
$\dot{m}_i$ = mass flow rate of gas stream i (lb/time)

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[7] Equation 4 assumes an NHVvg of 997 Btu/scf for a mixture of PSA off-gas from the hydrogen plant and natural gas used as Purge Gas and Sweep Gas (NHVvg adjusted for hydrogen content).

[8] The mass fraction of VOC in natural gas is "0.009" based on the average of the analyses conducted by Citgo for the natural gas used by the refinery in 2013.

$\dot{m}_s$ = mass flow rate of steam during the 15-minute block period (lb/15 min)
$\dot{m}_{vg}$ = mass flow rate of vent gas during the 15-minute block period (lb/15 min)
$(\dot{m}_{VOC\text{-}Emit})_j$ = VOC mass emissions during the 15-minute block period "j: (lb/15 min)
$(\dot{m}_{VOC\text{-}Emit})_d$ =VOC mass emissions during the calendar day "d" (lb/day)
NHV_{vg} = Net Heating Value of Vent Gas (Btu/scf)
Q_i = volumetric flow rate of gas stream i (scf/time)
S/VG_{mass} = stream mass flow rate to vent gas mass flow rate ratio (lb/lb)
$TPY_{VOC\text{-}Emit}$ = 365-day rolling total VOC mass emissions (ton/year)
W_{voc} = concentration of VOC in Vent Gas (mass fraction)

Appendix C2

Procedures for Calculating the 365-day Rolling Sum Emissions of VOC from Flare C5

[Adapted From Consent Decree Appendix A2.4]

Note: A glossary of abbreviations used in this appendix is provided at the end of this appendix.

For the purpose of demonstrating compliance with the Volatile Organic Compound ("VOC") emissions limit for Flare C5 in Section 13 of Appendix A, the block sum of the VOC emissions of this flare shall be calculated for each calendar day in accordance with Steps 1 and 2 below, and the 365-day rolling sum, rolled daily, shall be calculated for each using the daily emissions data from the period of 365 consecutive calendar days that ends with that day, in accordance with Step 3 below.

Step 1: Determine the Molecular Weight ("MW_i") of each Volatile Organic Compound ("VOC") in the Vent Gas.

Take the *MWi* values for each individual Vent Gas VOC. (Refer to Table 1 in Appendix B of Attachment 1.)

Step 2: Calculate the block sum mass of VOC emitted for each calendar day "r" ("$(M_{VOC\text{-}Emit})_r$")

Step 2a: The mass of VOC in the Vent Gas shall be calculated for each one-hour block sum period "j" of the calendar day "r" as follows using each hourly block average value for Q_{vg} and x_i (for the set "S" of individual Vent Gas constituent VOCs) that day:[9]

$$(\dot{m}_{VOC-vg})_j = \sum_{i \in S} \frac{Q_{vg} * MW_i * x_i}{385.3} \qquad \textit{Equation 1}$$

Step 2b: Calculate the NHV_{cz} for each one-hour block sum period "j" of the calendar day "r" ("$(NHV_{cz})_j$") using the procedures and equations of Appendix B of Attachment 1.

Step 2c: Calculate the Combustion Efficiency of VOC for each one-hour block sum period "j" ("$CE_{VOC})_j$") of calendar day "r":[10]

[9] In Equation 1, "385.3" is the conversion from pound moles to standard cubic feet (385.3 scf/lb-mole)

[10] In Equations 2a and 2b, "0.16": is a combustion efficiency multiplier; and "95" is a value for which any value for NHV_{cz} is less than 95 empirically correlates to a CE_{VOC} of zero (btu/scf)

If $(NHV_{cz})_j < 95$ BTU/scf:

$$(CE_{VOC})_j = 0 \qquad \textit{Equation 2a}$$

If $(NHV_{cz})_j \geq 95\ BTU/scf$:

$$(CE_{VOC})_j = \frac{0.16*\left(-95+(NHV_{cz})_j\right)}{1+0.16*\left(-95+(NHV_{cz})_j\right)}*100 \qquad \textit{Equation 2b}$$

Step 2d: The block sum mass of VOC emissions from Flare C5 during calendar day "r" shall be calculated as shown below in Equation 3 as the sum of the hourly block sum VOC emissions calculated for each hour "j" during that calendar day.

$$(\dot{M}_{VOC-Emit})_r = \sum_{j=1}^{24}\left[\dot{m}_{VOC-vg}*(1-(CE_{VOC})_j/100)\right] \qquad \textit{Equation 3}$$

Step 3: Calculate the tons per year of VOC emissions ("$TPY_{VOC-Emit}$").

The results of Equation 3 for each day "r" of the 365-day rolling sum period are summed and converted to tons per year as per Equation 4 below. The result of Equation 4 is used to demonstrate compliance with the emission limit for Flare C5 in Section 13 of Appendix A.

$$TPY_{VOC-Emit} = \frac{\sum_{r=1}^{365}(\dot{M}_{VOC-Emit})_r}{2000} \qquad \textit{Equation 4}$$

Glossary of Abbreviations

i = individual compound from Component column in Table 1 to Appendix A
j = individually numbered hours in a calendar day
$(\dot{M}_{VOC-Emit})_r$ *= mass of VOC emitted for calendar day*
$\dot{m}_{VOC-vg}$ *= calendar day average mass flow rate of VOC in the Vent Gas (lb/hr)*
$(\dot{m}_{VOC-vg})_j$ *= average mass flow rate of VOC in the Vent Gas during hour "j" (lb/hr)*
MW_i *= molecular weight of individual compound (lb/lb-mole)*
NHV_{cz} *= net heating value of the combustion zone (Btu/scf)*
Q_{vg} *= vent gas volumetric flow rate (scfh)*
r = calendar day
S *= set of individual vent gas VOCs from Component in Table 1 to Attachment 2*
$TPY_{VOC-Emit}$ *= mass flow rate of VOC emissions (tons/yr)*
X_i *= individual compound volume fraction in the vent gas (volume fraction)*

Appendix D

Definitions of Terms for Attachment 1[11]

[Adapted from Paragraph A1 of Appendix A of the Consent Decree]

Introduction

The following definitions of terms shall apply for purposes of Attachment 1 and its appendices except as specifically indicated in specific provision(s).

Definitions

"Assist Steam" shall mean all steam that intentionally is introduced prior to or at a Flare tip through nozzles or other hardware conveyance for the purposes including, but not limited to, protecting the design of the flare tip, promoting turbulence for mixing or inducing air into the flame. Assist Steam includes, but is not necessarily limited to, Center Steam, Lower Steam, and Upper Steam. [From Consent Decree Appendix A Paragraph A1.c]

"Available for Operation" shall mean, with respect to a Compressor within a Flare Gas Recovery System, that the Compressor is capable of commencing the recovery of Potentially Recoverable Gas as soon as practicable but not more than one hour after the Need for the Compressor to Operate arises. The period of time, not to exceed one hour, allowed by this definition for the startup of a Compressor shall be included in the amount of time that a compressor is Available for Operation. [From Consent Decree Appendix A Paragraph A1.d]

"Btu/scf" shall mean British thermal units per standard cubic foot. [From Consent Decree Appendix A Paragraph A1.g]

"C1 Flare Gas Recovery System" or "C1 FGRS" shall mean the Flare Gas Recovery System associated with Flare C1. [From Consent Decree Appendix A Paragraph A1.h]

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[11] This Appendix does not include the definitions for the following terms from Consent Decree Appendix A Paragraph A1. For the term "ambient air," a permit-specific definition is not appropriate. The other terms listed below are only used in provisions of the Consent Decree that are not addressed by this Attachment 1 and are not otherwise used in the provisions of this permit.

Term	Provision in Consent Decree Appendix A Paragraph A1 in Which the Term Is Defined
Ambient Air	a
Assist Air	b
Barrels per day or "bpd"	e
Baseload Waste Gas Flow Rate	f
Duplicate Spare Compressor	q
Operating Design Capacity	ff
Perimeter Assist Air	gg
Premix Assist Air	kk
Prevention Measure	ll
Total Capacity	ww
Waste Gas Minimization Plan	ccc

"C2/C3 Primary Compressor" shall mean the reciprocating Compressor that was installed at the refinery in 1980/1981 and serves Flares C2 and C3. [Adapted from Consent Decree Appendix A Paragraph A1.i]

"C2/C3 Secondary Compressor" shall mean the Compressor that has been installed at the refinery pursuant to the Consent Decree to serve Flares C2 and C3. [Adapted from Consent Decree Appendix A Paragraph A1.j]

"Capable of Receiving Sweep, Supplemental, and/or Waste Gas" shall mean, for a Flare, that the flow of Sweep, Supplemental, and/or Waste Gas is/are not prevented from being directed to the Flare by means of closed valves and/or blinds. [From Consent Decree Appendix A Paragraph A1.k]

"Center Steam" shall mean the portion of Assist Steam introduced into the stack of a Flare to reduce burnback. The meanings of Center, Lower, and Upper Steam are depicted in Attachment 1, Appendix D. [From Consent Decree Appendix A Paragraph A1.l]

"Combustion Zone" shall mean all gases and vapors found after the Flare tip. This gas includes all Vent Gas, Pilot Gas, Total Steam, and Premix Air. [From Consent Decree Appendix A Paragraph A1.m]

"Combustion Zone Gas" shall mean all gases and vapors found after the Flare tip. This gas includes all Vent Gas, Pilot Gas, Total Steam, and Premix Air. [From Consent Decree Appendix A Paragraph A1.n]

"Compressor" shall mean, with respect to a Flare Gas Recovery System, a mechanical device designed and installed to recover gas from a flare header. Types of Flare Gas Recovery System compressors include but are not limited to reciprocating compressors, centrifugal compressors, liquid ring compressors and liquid jet ejectors. [From Consent Decree Appendix A Paragraph A1.o]

"Covered Flare" or "Existing Flare" shall mean each of the following Flares at the refinery: Flare C1, Flare C2, Flare C3, Flare C4 and Flare C5. [Adapted from Consent Decree Appendix A Paragraph A1.p]

"Elevated Flare" shall mean a Flare that supports combustion at a tip that is situated at the upper end of a vertical conveyance (*e.g.*, pipe or duct); the combustion zone is elevated in order to separate the heat generated by combustion from people, equipment, or structures at grade level. [From Consent Decree Appendix A Paragraph A1.r]

"External Utility Loss" shall mean a loss in the supply of electrical power or other third-party utility to the refinery that is caused by events occurring outside the boundaries of the refinery, excluding utility losses due to an interruptible utility service agreement. [From Consent Decree Appendix A Paragraph A1.s]

"Flare" shall mean a combustion device lacking an enclosed combustion chamber that uses air directly from the open atmosphere as combustion air to burn gases. [Adapted from Consent Decree Appendix A Paragraph A1.t]

"Flare Gas Recovery System" (FGRS) shall, except for the purpose of the NSPS, mean a system of one or more compressors, piping, and associated water seal, rupture disk, or similar device used to divert gas from a Flare and direct the gas to a fuel gas system, to a combustion device other than the Flare, or to a product, co-product, by-product, or raw material recovery system. For

the purpose of the NSPS, 40 CFR 60 Subpart Ja, the meaning of the term "flare gas recovery system" shall be as defined in the 40 CFR 60.101a. [Adapted from Consent Decree Appendix A Paragraph A1.u]

"In Operation" or "Being In Operation" or "Operating," with respect to a Flare, shall mean any and all times that Sweep, Supplemental, and/or Waste Gas is or may be vented to a Flare. A Flare that is In Operation is Capable of Receiving Sweep, Supplemental, and/or Waste Gas unless all Sweep, Supplemental, and Waste Gas flow is prevented by means of closed valves and/or blinds. [From Consent Decree Appendix A Paragraph A1.v]

"KSCFH or kscfh" shall mean thousand standard cubic feet per hour. [From Consent Decree Appendix A Paragraph A1.w]

"Lower Steam" shall mean the portion of Assist Steam piped to an exterior annular ring near the lower part of a Flare tip, which then flows through tubes to the Flare tip, and ultimately exits the tubes at the Flare tip. The meanings of Center, Lower, and Upper Steam are depicted in Attachment 1, Appendix D. [From Consent Decree Appendix A Paragraph A1.]

"Malfunction" shall mean, as specified in 40 CFR 60.2, "any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions." For any event or events to be considered a malfunction, the following criteria must be met. [Adapted from Consent Decree Appendix A Paragraph A1.y]

(1) The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;

(2) The excess emissions (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance practices;

(3) To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;

(4) Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;

(5) The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

(6) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

(7) All emission monitoring systems were kept in operation if at all possible;

(8) The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;

(9) The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(10) The owner or operator properly and promptly notified the appropriate regulatory authority.

"Monitoring System Malfunction" shall mean any sudden, infrequent, and not reasonably preventable failure of instrumentation or a monitoring system to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Monitoring System Malfunctions. For any event or events to be considered a monitoring system malfunction, the following criteria must be met. [Adapted from Consent Decree Appendix A Paragraph A1.z]

(1) The instrument or monitoring system downtime was caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;

(2) The instrument or monitoring system downtime (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance practices;

(3) To the maximum extent practicable the instrument or monitoring system was maintained and operated in a manner consistent with good practice for monitoring;

(4) Repairs were made in an expeditious fashion when the operator knew or should have known of the malfunction, including use of off-shift labor and overtime to the extent applicable and practicable, to ensure that such repairs were made as expeditiously as practicable;

(5) The amount and duration of the instrument or monitoring system downtime was minimized to the maximum extent practicable;

(6) The owner or operator's actions during the period of instrument or monitoring system downtime were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and

(7) The instrument or monitoring system downtime was not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

"Need for a Compressor to Operate" shall mean: [From Consent Decree Appendix A Paragraph A1.aa]

(1) For a situation in which no Compressor within the FGRS is recovering gas: When a Potentially Recoverable Gas flow rate (determined on a five-minute block average) to the affected flare(s) serviced by the FGRS exists; or

(2) For a situation in which one or more Compressors within the FGRS already are recovering gas: When the Potentially Recoverable Gas

flow rate (determined on a five-minute block average) exceeds the capacity of the operating Compressor(s).

"Net Heating Value" shall mean the energy released as heat when a compound undergoes complete combustion with oxygen to form gaseous carbon dioxide and gaseous water (also referred to as lower heating value). [From Consent Decree Appendix A Paragraph A1.bb]

"Net Heating Value Analyzer" or "NHV Analyzer" shall mean an instrument capable of measuring the Net Heating Value of Vent Gas in Btu/scf. The sample extraction point of a Net Heating Value Analyzer may be located upstream of the introduction of Supplemental and/or Sweep and/or Purge Gas if the composition and flow rate of any such Supplemental and/or Sweep and/or Purge Gas is a known constant and if this constant then is used in the calculation of the Net Heating Value of the Vent Gas. [From Consent Decree Appendix A Paragraph A1.cc]

"Net Heating Value of Combustion Zone Gas" or "*NHVcz*" shall mean the Net Heating Value, in BTU/scf, of the Combustion Zone Gas in a Flare. *NHVcz* shall be calculated in accordance with Step 3 of Attachment 2. [From Consent Decree Appendix A Paragraph A1.dd]

"Net Heating Value of Vent Gas" or "NHV_{vg}" shall mean the Net Heating Value, in BTU/scf, of the Vent Gas directed to a Flare. *NHVvg* shall be calculated in accordance with Step 1 of Attachment 2. [From Consent Decree Appendix A Paragraph A1.ee]

"Pilot Gas" shall mean gas introduced into a Flare tip that provides a flame to ignite the Vent Gas. [From Consent Decree Appendix A Paragraph A1.hh]

"Portable Flare" shall mean a Flare that is not permanently installed that receives Waste Gas that has been redirected to it from an Existing Flare. [From Consent Decree Appendix A Paragraph A1.ii]

"Potentially Recoverable Gas" shall mean the Sweep Gas, Supplemental Gas introduced prior to a Covered Flare's water seal, and/or Waste Gas (including hydrogen, nitrogen, oxygen, carbon dioxide, carbon monoxide, and/or water) directed to the FGRS of an Existing Flare or group of Existing Flares. Purge Gas and Supplemental Gas introduced between an Existing Flare's water seal and an Existing Flare's tip is not Potentially Recoverable Gas. Hydrogen venting from a steam methane reformer (hydrogen plant) is not Potentially Recoverable Gas. Recycled hydrogen that bypasses the FGRS to reestablish hydrogen balance in the event that hydrogen demand declines or stops rapidly is also not Potentially Recoverable Gas. Excess Fuel Gas and excess gases generated during Shutdown, in turnaround, and during Startup, caused by a gas imbalance that cannot be consumed by Fuel Gas consumers in the refinery, because there is not sufficient demand for the gas, is not Potentially Recoverable Gas provided that when the excess gas is routed around the FGRS, no natural gas is being supplied to the Fuel Gas mix drum. Nitrogen purges of process units that are being Shutdown, in turnaround and during Startup, or the nitrogen purging of operating process units during a partial refinery turnaround scenario, that cause the NHV of the Fuel Gas at the exit of the mix drum to fall below 740 Btu/scf, shall not be considered Potentially Recoverable Gas, and may be routed around the FGRS. [From Consent Decree Appendix A Paragraph A1.jj]

"Purge Gas" for purposes other than the NSPS, 40 CFR 60 Subpart Ja, shall, mean the gas introduced between a Flare header's water seal and the Flare tip to prevent oxygen infiltration (backflow) into the Flare tip. For a Flare with no water seal, the function of Purge Gas is performed by Sweep Gas, and therefore, such a Flare has no Purge Gas. For the purpose of the NSPS, the meaning of the term "purge gas" shall be as defined in the 40 CFR 60.101a. [Adapted from Consent Decree Appendix A Paragraph A1.mm]

"SCFD" or "scfd" shall mean standard cubic feet per day. [From Consent Decree Appendix A Paragraph A1.nn]

"SCFH" or "scfh" shall mean standard cubic feet per hour. [From Consent Decree Appendix A Paragraph A1.oo]

"SCFM" or "scfm" shall mean standard cubic feet per minute. [From Consent Decree Appendix A Paragraph A1.pp]

"Smoke Emissions" shall have the definition set forth in Section 3.5 of Method 22 of 40 CFR Part 60, Appendix A. For purposes of the requirements of this Attachment, Smoke Emissions may be either documented by a video camera or determined by an observer knowledgeable with respect to the general procedures for determining the presence of Smoke Emissions per Method 22. [Adapted from Consent Decree Appendix A Paragraph A1.qq]

"South Plant Flare Gas Recovery System" or "South Plant FGRS" shall mean the Flare Gas Recovery System associated with Flares C2 and C3, which includes both a Primary Compressor and a Secondary Compressor. (The Secondary Compressor was installed in November 2017.)[Adapted from Consent Decree Appendix A Paragraph A1.rr]

"Standard Conditions" shall mean a temperature of 68 °F (20 °C) and a pressure of 1 atmosphere (29.92 inches of mercury). Unless otherwise expressly set forth in a provision of this attachment or its appendices, Standard Conditions shall apply. [Adapted from Consent Decree Appendix A Paragraph A1.ss]

"Steam-Assisted Flare" shall mean a Flare that utilizes steam piped to a Flare tip to assist in combustion. [From Consent Decree Appendix A Paragraph A1.tt]

"Supplemental Gas" shall mean all gas introduced to a Flare in order to improve the combustible characteristics of the Combustion Zone Gas. [From Consent Decree Appendix A Paragraph A1.uu]

"Sweep Gas" for purposes other than the NSPS, 40 CFR Subpart Va, shall mean the following. For the purpose of the NSPS, the meaning of the term "sweep gas" shall be as defined in 40 CFR 60.101a. [From Consent Decree Appendix A Paragraph A1.vv]

(*1*) For a Flare with an FGRS: Gas intentionally introduced into a Flare header system to prevent oxygen buildup in the Flare header. Sweep Gas in these Flares is introduced prior to and recovered by the FGRS; and

(*2*) For a Flare without an FGRS: Gas intentionally introduced into a Flare header system to maintain a constant flow of gas through the flare header and out the flare tip in order to prevent oxygen buildup in the

Flare header and to prevent oxygen infiltration (backflow) into the Flare tip

"Total Steam" shall mean the total of all steam that is supplied to a Flare and includes, but is not limited to, Lower Steam, Center Steam, and Upper Steam. [From Consent Decree Appendix A Paragraph A1.xx]

"Upper Steam" shall mean the portion of Assist Steam introduced via nozzles located on the exterior perimeter of the upper end of a Flare tip. The meanings of Center, Lower, and Upper Steam are depicted in Attachment 1, Appendix D. [From Consent Decree Appendix A Paragraph A1.]

"Vent Gas" shall mean all gas found just prior to the Flare tip. This gas includes all Waste Gas, that portion of Sweep Gas that is not recovered, Purge Gas, and Supplemental Gas, but does not include Pilot Gas, Total Steam, or Assist Air. [From Consent Decree Appendix A Paragraph A1.zz]

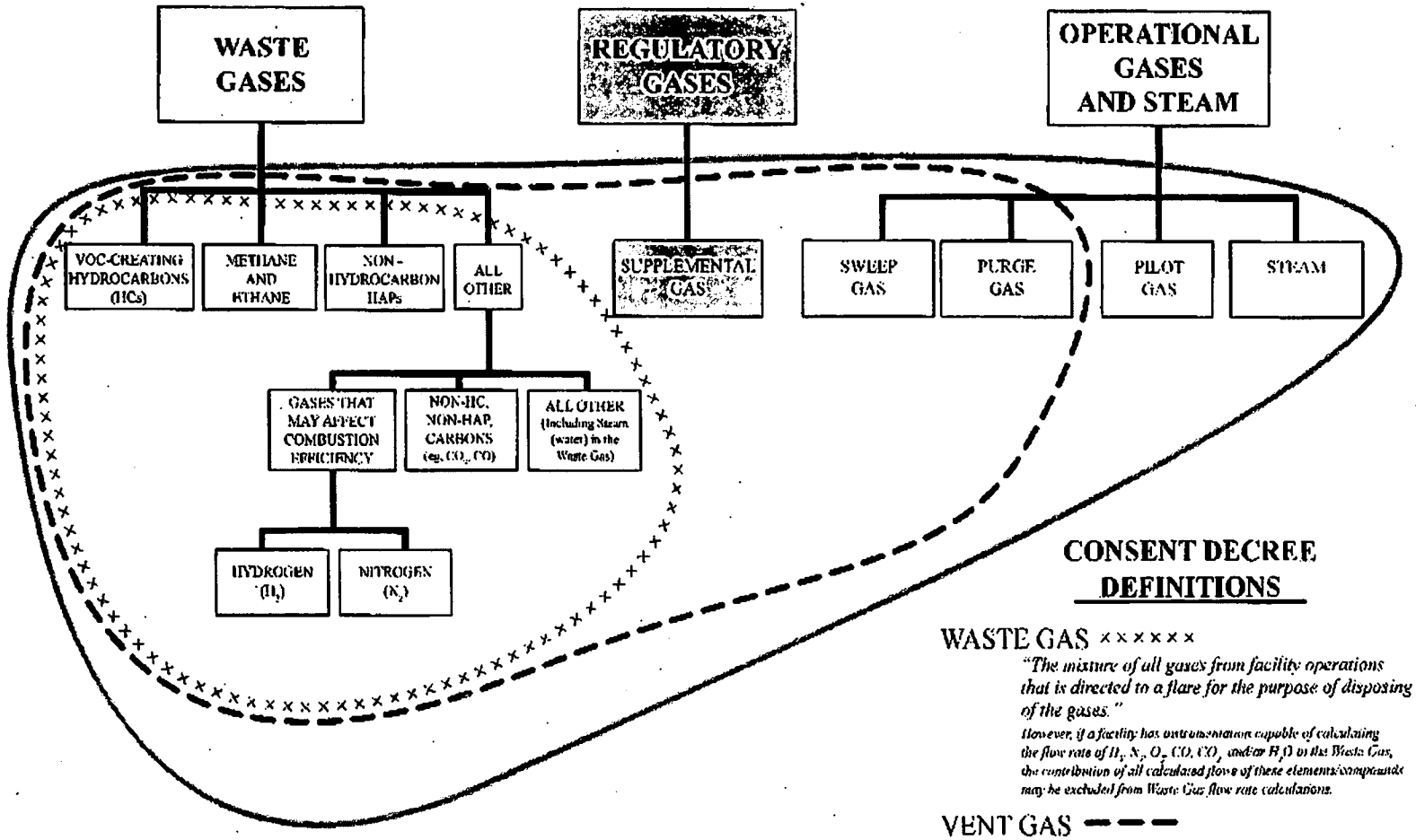
"Visible Emissions" for purposes other than the NSPS, 40 CFR 60 Subpart Ja, shall mean five minutes or more of Smoke Emissions during any two consecutive hours. For the purpose of the NSPS, the meaning of the term "visible emissions" shall be as defined in 40 CFR 60.18. [From Consent Decree Appendix A Paragraph A1.aaa]

"Waste Gas" shall mean the mixture of all gases from facility operations that is directed to a Flare for the purpose of disposing of the gas. "Waste Gas" does not include gas introduced to a Flare exclusively to make it operate safely and as intended; therefore, "Waste Gas" does not include Pilot Gas, Total Steam, Assist Air, or the minimum amount of Sweep Gas and Purge Gas that is necessary to perform the functions of Sweep Gas and Purge Gas. "Waste Gas" also does not include the minimum amount of gas introduced to a Flare to comply with regulatory and/or enforceable permit requirements regarding the combustible characteristics of Combustion Zone Gas; therefore, "Waste Gas" does not include Supplemental Gas. Depending upon the instrumentation that monitors Waste Gas, certain compounds (hydrogen, nitrogen, oxygen, carbon dioxide, carbon monoxide, and/or water (steam)) that are directed to a Flare for the purpose of disposing of these compounds may be excluded from calculations relating to Waste Gas flow. The circumstances in which such exclusions are available are specifically identified in the applicable provisions of Attachment 1 or its appendices. The meaning of "Waste Gas," together with its relation to other gases associated with Flares, is depicted in this permit's Attachment 1, Appendix D. [Adapted from Consent Decree Appendix A Paragraph A1.bbb]

Appendix E

Depiction of Gases Associated With Steam-Assisted Flares
[From Appendix A1.7 of the Consent Decree]

DEPICTION OF GASES ASSOCIATED WITH STEAM-ASSISTED FLARES



CONSENT DECREE DEFINITIONS

WASTE GAS ××××××

"The mixture of all gases from facility operations that is directed to a flare for the purpose of disposing of the gases."

However, if a facility has instrumentation capable of calculating the flow rate of H_2, N_2, O_2, CO, CO_2, and/or H_2O in the Waste Gas, the contribution of all calculated flows of these elements/compounds may be excluded from Waste Gas flow rate calculations.

VENT GAS – – –

"The mixture of all gases found prior to the flare tip. This includes all Waste Gas, Supplemental Gas, Sweep Gas, and Purge Gas."

COMBUSTION ZONE GAS ———

"The mixture of all gases and steam found just after the flare tip. This includes all Vent Gas, Pilot Gas, and Total Steam."

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.

EXHIBIT T

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	North Shore Water Reclamation Dist.
ID No.:	097190 ABI
Application No.:	87110004
Category:	**03K**
Item Date:	7/24/15

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

July 24, 2015

North Shore Water Reclamation District
Attn: Brian Dorn
Post Office Box 750
14770 West Wm. Koepsel Drive
Gurnee, Illinois 60031

I.D. No.: 097190ABI

Dear Mr. Dorn:

Enclosed is a revised ROSS Registration Confirmation which reflects a name change. Please note that if you have changed or intend to change this operation it will be necessary to apply for revision on your registration or air pollution permit(s).

If you have any questions or require any assistance concerning this matter, please contact Lori Pennington at 217/524-0560.

Very truly yours,

Raymond E. Pilapil

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

REP:LP:87110004:psj

Enclosure

cc: Permit File

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

REGISTRATION CONFIRMATION - CHANGED STATUS

July 24, 2015

North Shore Water Reclamation District
Attn: Brian Dorn
Post Office Box 750
14770 West Wm. Koepsel Drive
Gurnee, Illinois 60031

RE: ROSS Program
ID #: 097190ABI
Application #: 87110004
Location: 325 East Dahringer Road, Waukegan, IL

Dear Mr. Dorn:

The Illinois EPA hereby acknowledges receipt of your registration and confirms that your source has been registered in the Registration of Smaller Sources (ROSS) Program. The ROSS Program regulations can be found at 35 Ill. Adm. Code 201.175.

Although the terms and conditions of previously issued air permits do not apply during the period the source is registered as a ROSS eligible source, the source must still comply with all applicable laws and regulations.

If you have changed or intend to change this source in a way that it will no longer be eligible for the ROSS Program, you must notify the Illinois Environmental Protection Agency, Division of Air Pollution Control, Air Permit Section, 1021 N. Grand Avenue East, Springfield, Illinois 62702 in writing as required by 35 Ill. Adm. Code 201.175(g) and comply with the terms of the existing permit(s) for the source. At that time, your source's status will be changed from being a ROSS eligible source back to a permitted source. Please note, however, that if you have or will be making changes to the source such that it includes activities, equipment or emissions that are not consistent with the terms of your existing lifetime operating permit, you may be required to revise your permit or obtain additional permits as required by 35 Ill. Adm. Code 201.175(g).

As a ROSS participant, the annual payment of your Air Pollution Control Site Fee will verify your source's renewed eligibility for the ROSS Program and maintain your registration.

For further information on the ROSS Program please visit the website at www.ienconnect.com/enviro. If you have any questions concerning this, please contact Kunj Patel at 217/785-1710.

Sincerely,

Raymond E. Pilapil

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

REP:LP:psj

cc: Permit File

EXHIBIT U

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	North Shore Sanitary District
ID No.:	097 190 ABI
Application No.:	01 04 0045
Category:	03K Air Permit - Final
Item Date:	March 11, 2002
Keyword:	
Comment:	
Part:	of

Submitted by:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506

RENEE CIPRIANO, DIRECTOR

217/782-2113

CONSTRUCTION PERMIT - NESHAP SOURCE - NSPS SOURCE

PERMITTEE

North Shore Sanitary District
Attn: Brian Jensen
Wm. Koepsel Drive
Gurnee, Illinois 60031

Application No.: 01040045
Applicant's Designation: 010328MELT
Subject: Sludge Dryer, Melter
Date Issued: March 11, 2002
Location: Dahringer Road, Waukegan

I.D. No.: 097190ABI
Date Received: April 12, 2001

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a sludge processing facility, including a sludge receiving and storage area (bins, silos) controlled by two stage packed tower scrubbers, drying process (sludge dryer, double cyclone, condensers, dry granulate silo, truck loadout) controlled by two stage packed tower scrubbers, melting process controlled by a filter and scrubber/condenser, auxiliary heater equipped with low-NO_x burner technology, and associated equipment as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Unit Specific Conditions

1.1 Unit: Sludge Processing Facility
Control: Scrubbers, Filters, Condenser

1.1.1 Description

Wet sludge will be delivered by truck and dumped into one of two receiving pits within an enclosed building. Additional sludge will be pumped directly into the wet sludge silo. The wet sludge will be conveyed from the pit to one of two wet sludge silos for storage until reclaimed for processing.

The sludge dryer is designed to yield a dried granulate of approximately 5% moisture. The dryer is heated indirectly, via a hot oil heat recovery loop from the melter. The dryer exhaust will be routed through a condenser and vented into the dry granulate silo. Dry granulate will be conveyed from the dryer, through a cooler, to a silo. The dry granulate silo will be vented to the odor control scrubber.

Dry granulate is drawn from the dry granulate silo, through a surge hopper, and into the melter. Oxygen is supplied from the air separation unit to support combustion. In the melter, the combustible fraction of the dry granulate burns, while the mineral portion forms molten glass. The glass flows through a drain port where it drops into a quench tank, forming the glass aggregate product. The melter exhaust gas passes through a heat exchanger where recovered energy heats an oil transfer fluid which is used to heat the sludge dryer. After the heat recovery unit, the exhaust passes through particulate and SO_2 emission control devices.

1.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Handling Process	Sludge Receiving and Storage Area (Bins, Silos)	Two stage packed tower scrubbers
Drying Process	Sludge Dryer, Double Cyclone, Condensers, Dry Granulate Silo, Truck Loadout	Two stage packed tower scrubbers
Melting Process	Melter	Filter and Scrubber/ Condenser
Auxiliary Heater	Auxiliary Heater	Low-NO_x Burner

1.1.3 Applicability Provisions and Applicable Regulations

a. The auxiliary heater, which has a maximum design heat input capacity between 10 million Btu/hr and 100 million Btu/hr, is subject to the NSPS for Small Industrial-Commercial Institutional Steam Generating Units, 40 CFR 60 Subparts A and Dc, because the construction commenced after June 9, 1989. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA. Because the auxiliary heater only burns natural gas it is only subject to the following requirements under the NSPS:

The Permittee shall maintain records of the amount of fuel combusted by the auxiliary heater during each day [40 CFR 60.48c(g)].

b. i. The melter is subject to the NESHAP for Mercury, 40 CFR 61 Subparts A and E. The Permittee must comply with all applicable requirements of this NESHAP.

Note: The mercury emissions of the melter are limited by this permit to a level well below that allowed by the NESHAP, (refer to Condition 1.1.6(a)), and

ii. The melting process shall comply with the requirements in the National Emission Standards for Beryllium, 40 CFR Part 61, Subpart C, pursuant to 40 CFR 503.43, under the Clean Water Act.

1.1.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the melting process not being subject to the New Source Performance Standards (NSPS) for Glass Manufacturing Plants, 40 CFR Part 60, Subpart CC.

b. This permit is issued based on the sludge dryer not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Mercury, 40 CFR Part 61, Subpart E, because the sludge dryer is heated indirectly.

1.1.5 Operational Limits and Control Requirements

a. The sludge dryer shall be heated indirectly, via a hot oil heat recovery loop from the melter or auxiliary heater. Accordingly, no combustion emissions will be associated from the dryer.

b. The melter shall utilize an oxygen-rich combustion process via an air separation unit. The melting process shall be operated and maintained to ensure proper oxygen supply to the melter.

Note: The approach of using oxygen versus air to support combustion reduces nitrogen oxides (NO_x) emissions because the nitrogen (in air) is effectively stripped out. The air separation unit is electrically driven.

c. The auxiliary heater shall be equipped, operated, and maintained with a low NO_x burner. The burner shall be operated and maintained in conformance with good air pollution control practices.

d. i. Production rate of the drying process shall not exceed 20,000 pounds wet sludge per hour (daily average).

ii. Production rate of the melting process shall not exceed 3,160 pounds dry sludge per hour (daily average).

iii. The maximum firing rate of the auxiliary heater shall not exceed 20 mmBtu/hr.

e. The average daily concentration of lead and arsenic, cadmium, chromium and nickel in the sewage sludge fed to the melter shall not exceed pollutant limits for the sludge established using the methodology of 40 CFR 503.43(c) and (d).

f. The melting process shall be operated to comply with the applicable operational standards for total hydrocarbons as specified in 40 CFR 503.44.

1.1.6 Emission Limitations

a. Emissions of volatile organic material (VOM), particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and mercury from the melting process shall not exceed the following limits:

Pollutant	Emissions (Lb/Hr)	(Ton/Yr)
VOM	0.28	1.25
PM	0.51	2.25
NO_x	19.55	85.61
CO	0.49	2.15
SO_2	7.58	33.22
Mercury	0.011	0.046

b. Emissions from the auxiliary heater shall not exceed the following limits:

Pollutant	Emissions (Lb/Hr)	(Ton/Yr)
VOM	0.11	0.48
PM	0.15	0.67
NO_x	2.00	8.76
CO	1.68	7.36
SO_2	0.01	0.05

c. Emissions from the sludge receiving and storage area (bins, silos) and the drying process (sludge dryer, double cyclone, condensers, dry granulate silo, truck loadout) all controlled by two stage packed tower scrubbers shall not exceed the following limits:

Pollutant	Emissions (Lb/Hr)	(Ton/Yr)
VOM	1.65	7.22
PM	0.30	1.30
NO_x	0.16	0.72
CO	0.40	1.73

d. Compliance with the annual limits in this permit shall be determined from a running total of 12 months of data.

e. The emission limitations of this permit effectively limit the potential emissions of air pollutants from the facility to less than major source thresholds (i.e., nitrogen oxides to less than 100 tons per year, individual hazardous air pollutants to less than 10 tons per year, and a combination of hazardous air pollutants to less than 25 tons per year). As a result, the facility is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit.

1.1.7 Testing Requirements

a. Emissions Testing

i. Within 90 days of initial startup, the particulate matter emissions from each stack and the emissions of nitrogen oxides, mercury and metals from the melter process shall be measured by an approved testing service at the Permittee's expense while operating at a maximum throughput during conditions that are representative of maximum emissions.

ii. The following methods and procedures shall be used for testing of particulate matter, nitrogen oxides, metals and mercury emissions, unless another USEPA Method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B, for USEPA test methods.

Location of Sample Points:	USEPA Method 1
Gas Flow and Velocity:	USEPA Method 2
Flue Gas Weight:	USEPA Method 3
Moisture:	USEPA Method 4
Particulate Matter	USEPA Method 5
Nitrogen Oxides	USEPA Method 7
Mercury	USEPA Method 101A
Metals	USEPA Method 29

iii. Additional emission testing shall be conducted upon a reasonable request by the Illinois EPA.

b. Sludge Sampling

i. The Permittee shall comply with the sludge sampling requirements of the NESHAP for mercury emissions (40 CFR 61.54). If the amount of mercury in the sludge exceeds 0.046 tons/year, an emission test for mercury from the drying process shall also be performed.

ii. The Permittee shall comply with the applicable sludge monitoring requirements specified in 40 CFR 503.46(a).

c. Air Dispersion Modeling and Emission Testing

The Permittee shall comply with the requirements for air dispersion modeling and emission testing specified in 40 CFR 503.43(e), as necessary to establish pollutant limits for the sludge for purposes of Condition 1.1.5(e).

1.1.8 Monitoring Requirements

a. The Permittee shall maintain an operating and maintenance log for each air pollution control system within the sludge processing facility.

b. i. The Permittee shall measure and record the pressure drop of the melter filter system on at least a daily basis.

ii. The Permittee shall monitor the following information for the packed tower odor scrubber system (C-01):

A. Scrubbant flow rate (gallons/minute); and

B. Gas flow rate through the control system (acfm).

iii. The Permittee shall monitor the following information for the melter scrubber system (C-04):

A. Scrubbant flow rate (gallons/minute); and

B. Pressure drop across the scrubber.

c. Unless the Permittee notifies the Illinois EPA that it will be conducting monitoring for total

hydrocarbons in accordance with Condition 1.1.7(d), below, emissions monitoring shall be conducted as follows, provided however that this emissions monitoring may be waived by the Illinois EPA and the demonstrated performance of the melter as monitored for no less than two years shows consistent compliance with Condition 1.1.8(c)(ii):

i. The exit gas from the melter stack shall be monitored continuously for carbon monoxide, oxygen content and moisture.

ii. The monthly average concentration of carbon monoxide in the exit gas from the melter stack, corrected for zero percent moisture and to seven percent oxygen, shall not exceed 100 parts per million on a volumetric basis.

iii. The Permittee shall retain the following information for five years:

A. The carbon monoxide concentrations in the exit gas; and

B. A calibration and maintenance log for the instrument used to measure the carbon monoxide concentration.

iii. The Permittee shall promptly report to the Illinois EPA following the end of each calendar year the monthly average carbon monoxide concentrations in the exit gas.

d. The Permittee has the option of complying with Condition 1.1.8(d), rather than Condition 1.1.8(c) as provided in 40 CFR 503.40(c):

i. The Permittee shall install, calibrate, operate, and maintain an instrument that continuously measures and records the total hydrocarbons concentration in the melter stack exit gas [40 CFR 503.45(a)(1)].

ii. The total hydrocarbons instrument shall employ a flame ionization detector; shall have a heated sampling line maintained at a temperature of 150 degrees Celsius or higher at all times; and shall be calibrated at least once every 24-hour operating period using propane.

iii. The total hydrocarbons concentration and oxygen concentration in the exit gas from the

melter stack, the information used to measure moisture content in the exit gas, and the combustion temperatures for the melter shall be monitored continuously.

iv. The Permittee shall maintain records of the following:

A. The total hydrocarbons concentrations in the exit gas from the melter stack.

B. A calibration and maintenance log for the instruments used to measure the total hydrocarbons concentration and oxygen concentration in the exit gas from the melter stack, the information needed to determine moisture content in the exit gas, and the combustion temperatures.

1.1.9 Recordkeeping Requirements

a. The Permittee shall keep documentation indicating the maximum firing rate of the auxiliary heater.

b. The Permittee shall maintain the following operational records:

i. Type of scrubbant used in the scrubber systems;

ii. Production rate for the drying process (lb wet sludge/hr, daily average);

iii. Production rate for the melting process (lb dry sludge/hr, daily average); and

iv. The operating combustion temperatures for the melter.

c. The Permittee shall maintain records of the NO_x, CO, VOM, SO_2, PM, and mercury emissions (tons/month and tons/year) based on emission factors and control performance demonstrated by emission testing in accordance with Condition 1.1.7, monitoring data collected pursuant to Condition 1.1.8, and other operating records, with supporting calculations.

d. The Permittee shall comply with the applicable recordkeeping requirements specified in 40 CFR 503.47.

1.1.10 Reporting Requirements

a. The Permittee shall notify the Illinois EPA, Compliance Section, within 30 days, of noncompliance of the sludge processing facility with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

b. Notification of Startup: The Permittee shall furnish the Illinois EPA with written notification as follows:

i. A notification of the anticipated date of initial startup of the melting process not more than 60 days nor less than 30 days before that date.

ii. A notification of the actual date of initial startup of the melting process within 15 days after that date.

c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including as a minimum:

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

ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum throughput and maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.

iii. The specific determinations of emissions and operation 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.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

vi. The format and content of the Source Test Report.

d. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of thirty days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five working days prior to the actual date of the test. 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.

e. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 45 days after the test results are compiled and finalized. The Final Report shall include as a minimum:

i. A summary of results

ii. General information

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

iv. Detailed description of test conditions, including

A. Process information, i.e., mode(s) of operation, process rate, e.g. fuel or raw material consumption

B. Control equipment information, i.e., equipment condition and operating parameters during testing, and

C. A discussion of any preparatory actions taken, i.e., inspections, maintenance and repair

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

vi. An explanation of any discrepancies among individual tests or anomalous data

f. Two copies of reports and notifications required by this permit concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

g. The Permittee shall promptly submit to the Illinois EPA following the end of each calendar year the information specified in 40 CFR 503.47(b) through 40 CFR 503.47(h).

1.1.11 Compliance Procedures

Compliance with the emission limits established in Condition 1.1.6 shall be based on the recordkeeping requirements in Condition 1.1.9 and emission factor based calculations. For particulate calculations, site-specific emission factors derived from the stack tests required by Condition 1.1.7 shall be used.

2a. This permit for the above referenced project does not relieve the Permittee from responsibility to comply with all Local, State and Federal Regulations which are a part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

b. In particulate, this permit does not relieve the Permittee from the responsibility to carry out practices during the construction and operation of the plant, such as application of water or dust suppressant to unpaved traffic areas, to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

3. Operation of the sludge processing facility is allowed under this construction permit for a period of 365 days, during which period shakedown of equipment and emissions testing shall be performed. This period shall begin when sludge is first dried by the facility. This condition supersedes Standard Condition 6b.

If you have any questions on this, please call Jason Schnepp at 217/782-2113.

DES

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

JMS cm
DES:JMS:psj

cc: Region 1

COPY
Original Signed by
Donald E. Sutton, P.E.

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 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.

EXHIBIT V

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Lafarge
ID No.:	097 190 ADQ
Application No.:	83 06 0015
Category:	03K Air Permit - Final
Item Date:	October 12, 2011
Keyword:	
Comment:	
Part:	of

Submitted by: CLG

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/782-2113

October 12, 2011

Lafarge
Attn: Jerry Sullivan
20408 West Renwick Road
Lockport, Illinois 60441

I.D. No.: 097190ADQ

Dear Mr. Sullivan:

Enclosed is a revised permit letter which reflects a change in the permitting program your source is permitted under and a change of ownership.

The Environmental Protection Act was amended in August 1997 to allow the Illinois EPA to issue Lifetime Operating Permits (operating permits without an expiration date) for sources that are not required to apply for a Clean Air Act Permit Program (CAAPP) or Federally Enforceable State Operating Permit (FESOP) permit. This program supersedes the previous Smaller Source Operating Permit program. Please find attached the standard conditions for the Lifetime Operating Permit program.

If you have changed or intend to change this operation it will be necessary to apply for revision of your air pollution permit(s).

If you have any questions concerning this matter, please contact Leeann McCarry at 217-782-6981.

Very truly yours,

COPY

Original Signed by
Edwin C. Bakowski, P.E.

Edwin C. Bakowski, P.E. Date Signed: 10/12/11
Manager, Permit Section
Division of Air Pollution Control

ECB:LMM:83060015:psj

Enclosure

cc: Region 1
I.D. File
Permit File

EPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 11 2017
REVIEWER JRM

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19506, SPRINGFIELD, ILLINOIS 62794-9506 - (217) 782-2113

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/785-1705

"REVISED"
LIFETIME OPERATING PERMIT

PERMITTEE

Lafarge
Attn: Jerry Sullivan
20408 West Renwick Road
Lockport, Illinois 60441

I.D. No.: 097190ADQ
Permit No.: 83060015
Included Permit(s): 83060015
Original Date Issued: May 1, 1996 Expiration Date: See Condition 1.
Revised Date Issued: October 12, 2011
Subject: Smaller Source Operating Permit
Location: 201 Harbor Place, Waukegan

This permit is hereby granted to the above-designated Permittee and shall become effective on the date issued above, to OPERATE emission source(s) and/or air pollution control equipment consisting of the equipment listed in the above referenced permit(s). This permit is subject to standard conditions attached hereto and the following special condition(s):

1. This permit shall expire 180 days after the Agency sends a written request for the renewal of this permit, unless the permit is withdrawn or superseded by a revised permit.

2. This permit is issued based on the total maximum permitted emissions of regulated pollutants not exceeding an aggregate of 25 tons/year and the maximum emissions of any single hazardous air pollutant (HAP) not exceeding 10 tons/year.

3. This permit incorporates the above listed permits by reference and the conditions contained therein. This permit removes your obligation to renew these permit(s) except when required pursuant to Condition 1.

4. The Agency's issuance of this permit does not relieve the Permittee from complying with all applicable regulations including the need to obtain any construction permits prior to the construction of any new emission units and/or air pollution control equipment, and the need to revise this operating permit to include the operation of any equipment that is required to be permitted, that is not currently covered by this permit.

If you have any questions concerning this letter, please contact a Permit Analyst at 217/785-1705.

COPY

Original Signed by
Edwin C. Bakowski, P.E.

Edwin C. Bakowski, P.E. Date Signed: 10/12/11
Manager, Permit Section
Division of Air Pollution Control

ECB:LMM:psj

cc: Region 1

EXHIBIT W

Frequently Asked Questions
Regarding the Disposal of Coal Ash
at the
Perry County Arrowhead Landfill
Uniontown, Alabama

What is coal ash?

Coal ash is a byproduct of burning coal to produce energy. Coal ash is a gray, powdery substance that is composed of the materials that are left over after the coal is burned, including fine sand (called silica), unburned carbon and various metals such as arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc.

Where is the coal ash coming from?

The coal ash was generated at the Tennessee Valley Authority (TVA) Kingston Fossil Fuel Plant in Roane County, Tennessee. On December 22, 2008, the failure of a containment structure at the facility resulted in the release of an estimated 5.4 million cubic yards of coal ash to the Emory River and surrounding areas. On May 11, 2009, TVA and the U.S. Environmental Protection Agency (EPA) entered into an Administrative Order and Agreement on Consent (AOC). Under the order, EPA is responsible for overseeing TVA's comprehensive cleanup of the site, including the removal and disposal of coal ash from the Emory River and surrounding areas. A time-critical response is underway to remove approximately 3 million cubic yards of coal ash from the Emory River.

Why is disposal of the coal ash necessary?

A primary cleanup objective at TVA's Kingston site is to protect human health and the environment by removing the coal ash from the Emory River as quickly as possible, and disposing of it properly, in order to prevent potential flooding and prevent the ash from moving downstream and impacting other areas of the river. The ash poses a significant ecological risk by smothering aquatic life and making the river bottom unsuitable for aquatic insects, and needs to be removed to return the river to its natural state. A time-critical response is underway to remove approximately 3 million cubic yards of coal ash from the Emory River.

How was the Perry County Arrowhead Landfill near Uniontown, Alabama, selected to receive the coal ash?

As part of the AOC, TVA was ordered by the EPA to conduct an analysis of possible disposal options. EPA required that landfills considered for off-site disposal of coal ash include the use of a landfill liner, a system to collect any liquid (leachate) that may run off the landfill, groundwater monitoring, financial assurance, and provisions for long-term maintenance. The TVA analysis also evaluated loading, transportation and unloading options.

Several landfills in Alabama, Georgia, Pennsylvania and Tennessee were evaluated as part of the disposal options analysis. EPA agreed with the TVA selection of the Perry County Arrowhead Landfill near Uniontown, Alabama, based upon a number of reasons, including:

1) The Arrowhead Landfill is a municipal solid waste landfill that is in compliance with all applicable federal and state environmental regulations and is permitted to accept waste materials such as coal ash;
2) The Arrowhead Landfill meets and exceeds all technical requirements specified in EPA's order with TVA in that it is constructed with a compacted clay composite liner, a polyethylene geomembrane liner, a leachate collection system, a protective cover and a 100-foot buffer that surrounds the property. The landfill also conducts regular groundwater monitoring;
3) The Arrowhead Landfill has the capacity to accommodate the volume of coal ash anticipated to be disposed of in the landfill and prevailed in a competitive bidding process; and
4) Norfolk Southern has a direct rail line from the TVA facility to the Arrowhead Landfill. The benefits of rail transport greatly outweighed those of truck transport including reducing potential vehicle accidents, greater fuel efficiency of rail cars versus trucks, and avoiding burdens on local traffic and roads.

How were community impacts considered in selecting the Arrowhead Landfill for coal ash disposal?

Prior to approving the Perry County Arrowhead Landfill as the disposal site for the ash being removed from the Emory River, EPA conducted a thorough review of TVA's options analysis to ensure the selected facility is operating in compliance with solid waste regulations and that potential risks to the community, especially any vulnerable populations, were addressed. Arrowhead Landfill is located 4 to 5 miles from Uniontown, which is the nearest population center. The landfill is in an isolated area, surrounded by large tracts of property, farms and ranches. The site has a 100 foot buffer that surrounds the entire landfill property. No waste is allowed to be placed in the buffer area. The nearest residence is approximately 250 to 300 feet away from the site.

How are residents of Perry County being notified about the decision to dispose coal ash in the Arrowhead Landfill? How can the public comment on this decision?

EPA will conduct outreach in the community to engage residents and local leaders to ensure they are aware of the disposal plan and any possible risks associated with the material being disposed. Though time-critical actions like this by their nature need to begin immediately, the public is invited to comment as work proceeds.

For longer-term response actions, including the removal and disposal of the remaining 2.4 million cubic yards of ash from other tributaries and surface areas from TVA's Kingston site, EPA will engage in public consultation and will provide an opportunity for community feedback on proposed actions before decisions are made.

Comments to EPA should be directed to:

Leo Francendese
EPA On-Scene Coordinator
Sam Nunn Federal Building
U. S. Environmental Protection Agency
Superfund Division – Emergency Response
61 Forsyth Street, SW
Atlanta, GA 30303
Francendese.Leo@epa.gov
1-800-564-7577

Comments to TVA should be directed to:

Anda Ray
TVA Project Coordinator
400 West Summit Hill Drive
Knoxville, TN 37902
865-632-8511
Aaray@tva.gov

How much coal ash will the landfill receive and over what period of time?

Over the next year, as part of the time-critical response, it is expected that approximately three (3) million cubic yards of ash being removed from the Emory River, of the total 5.4 million cubic yards of ash spilled at the Kingston site, will be disposed of in the Arrowhead Landfill. The Arrowhead Landfill has a total capacity of 11 million cubic yards. It is proposed that approximately 9,000 cubic yards of ash will be disposed of daily. This volume may increase as TVA increases the rate of removal of ash from the river.

How will the coal ash be transported to the landfill?

Based on the disposal options analysis, the benefits of rail transport greatly outweighed those of truck transport including reducing potential vehicle accidents, greater fuel efficiency of rail cars versus trucks, and avoiding burdens on local traffic and roads. All of the ash will be transported by Norfolk Southern rail line on a direct route from the TVA Kingston Power Plant to the Arrowhead Landfill, a distance of about 325 miles that takes about three days to travel.

What assurances does the community have that transporting and disposing of coal ash at the Arrowhead Landfill is a safe option?

The Arrowhead Landfill is a modern, rail-served facility, with two liners, a leachate collection system and buffer that conducts regular groundwater monitoring and is permitted to accept waste materials such as coal ash. It is in compliance with all applicable federal and state environmental regulations. The landfill is designed to safely manage large quantities of waste and plans to hire additional personnel to assist in management of the coal ash from TVA's Kingston site. Transporting the coal ash by rail will not add to the traffic burden in the Perry County area and is considered a safer and more efficient means of transporting the material from Tennessee to Alabama than truck transport.

What about the safety of the workers?

Current employees of the Arrowhead Landfill are experienced in handling waste materials. New employees at the Arrowhead Landfill will receive health and safety training, including appropriate job-specific training. Workers at the landfill are required to wear personal protective equipment, including hard hats, safety glasses and earplugs.

Landfill employees who will be responsible for unloading and cleaning out railcars will receive specialized Hazardous Waste Operations and Emergency Response (HAZWOPER) training and will be required to wear protective coveralls and respiratory protection designed to protect them from particulate matter. Ash in the rail cars will be kept moist to prevent dust from spreading when the material is transferred to trucks at the landfill. The trucks will be covered with a tarp as they transport material to the disposal location in the landfill. Arrowhead Landfill will monitor worker's exposure by conducting regular air sampling, and will make adjustments to the levels of protection as information is obtained.

Does radiation from the coal ash pose a risk to workers or the community?

Coal naturally contains small amounts of the radioactive substance radium, which remains in the coal ash after the coal is burned. Radiation levels in the coal ash were compared to EPA and Alabama criteria and guidance for disposal and worker safety, and the analysis showed the material meets all federal and state criteria for disposal at the Arrowhead Landfill. In fact, radiation levels in the coal ash are only slightly above the

level that Alabama allows in materials such as backfill soil or in home building products. The landfill itself is a controlled setting for disposal of the coal ash as it has a liner system, a leachate collection system, groundwater monitoring, limited public access, and provisions for long-term maintenance.

What safeguards are being taken to ensure that the coal ash will not negatively impact local water quality in Perry County?

The Arrowhead Landfill is equipped with two liners, a leachate collection system and a protective cover, to prevent contaminants from entering groundwater. The leachate from the landfill is collected and transported off-site for treatment. Groundwater quality around the landfill is monitored by the periodic collection and analysis of samples from groundwater wells installed at various locations on the landfill site. These protections will ensure that groundwater in the vicinity of the landfill is protected. Landfill management and the groundwater monitoring program are overseen by the Alabama Department of Environmental Management (ADEM).

Who is responsible for overseeing and monitoring the disposal of the coal ash once it reaches the landfill?

The Arrowhead Landfill is managed under the rules and regulations of the Resource Conservation and Recovery Act (RCRA). Subtitle D of RCRA establishes a federal approval process for individual states to manage their own solid waste permitting programs, and Alabama received a Determination of Adequacy for its Subtitle D permitting program in 1996. ADEM will ensure proper disposal of the coal ash at the Arrowhead Landfill. Regular monitoring of the landfill takes place in accordance with RCRA guidelines and regulations, and both the Arrowhead Landfill and ADEM are responsible for regular monitoring. EPA and TVA have taken considerable measures to ensure proper handling of the coal ash is conducted. EPA RCRA staff and ADEM participated in a site visit of the Arrowhead Landfill on June 10, 2009, to become familiar with the facility and surrounding areas.

For further information, please contact:

Stephanie Brown
EPA Community Involvement Coordinator
Sam Nunn Federal Building
U. S. Environmental Protection Agency
Superfund Division - OSPAO
61 Forsyth Street, SW
Atlanta, GA 30303
Brown.StephanieY@epa.gov
1-800-564-7577

EXHIBIT X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE
OFFICE OF GENERAL COUNSEL

March 1, 2018

Return Receipt Requested
Certified Mail #: 7015 3010 0001 1267 2835

In Reply Refer to:
EPA File No. 12R-13-R4

Marianne Engelman Lado
Environmental Justice Clinic
Yale Law School
127 Wall Street
New Haven, Connecticut 06511

Re: Closure of Administrative Complaint, EPA File No. 12R-13-R4

Dear Ms. Engelman Lado:

This letter is to notify you that the U.S. Environmental Protection Agency's (EPA) External Civil Rights Compliance Office (ECRCO) is resolving and closing, as of the date of this letter, the administrative complaint filed with EPA on June 3, 2013, and the retaliation allegation filed on August 19, 2016, against the Alabama Department of Environmental Management (ADEM). The complaints generally alleged that ADEM violated Title VI of the Civil Rights Act of 1964, as amended, 42 United States Code 2000d et seq. (Title VI) and the EPA's nondiscrimination regulation found at 40 Code of Federal Regulations (C.F.R.) Part 7. With respect to the specific issues addressed in this case, EPA ECRCO finds insufficient evidence to conclude that ADEM violated Title VI and EPA's nondiscrimination regulation.

EPA ECRCO is responsible for enforcing several federal civil rights laws that prohibit discrimination on the bases of race, color, national origin (including limited-English proficiency), disability, sex, and age in programs or activities that receive federal financial assistance from the EPA. On June 27, 2013, EPA's Office of Civil Rights (OCR)[1] accepted for investigation two issues raised in a May 2013 complaint (hereinafter referred to as the "May 2013 issues").[2] The two issues were:

> Whether ADEM violated Title VI and EPA's implementing regulations on September 27, 2011, by reissuing Permit No. 53-03 to Perry County Associates, LLC to construct and operate the Arrowhead municipal solid waste landfill in Perry County, Alabama, because the Arrowhead Landfill permit renewal will adversely and disparately impact the

[1] EPA's Office of Civil Rights is now identified as the External Civil Rights Compliance Office.
[2] Letter from Vicki Simons, Director, OCR (signed by Helena Wooden-Aguilar, External Compliance Assistance Director) to David Ludder, Complainant, Acceptance of Administrative Complaint (June 27, 2013).

African-American residents in the nearby community; and

Whether ADEM violated Title VI and EPA's implementing regulations on February 3, 2012, by authorizing a permit modification to expand the disposal area of the Arrowhead municipal solid waste landfill in Perry County, Alabama, by 169.17 acres (66%), because the modification will have the effect of adversely and disparately impacting the African-American residents in the surrounding community.

ECRCO investigated the May 2013 issues and finds that the record evidence does not establish a prima facie case of discrimination based on disparate impact. Accordingly, ECRCO finds insufficient evidence to conclude that ADEM violated Title VI and EPA's nondiscrimination regulation in regard to the 2011 permit reissuance and 2012 permit modification.

While not legally required, ECRCO believes that ADEM could increase its leadership role by bringing together the Arrowhead community, permittees, as well as other local government entities to share important information, ensure that its citizens and stakeholders understand roles, rights and responsibilities and address issues constructively. If ADEM voluntarily chooses to play a leadership role and identify stakeholders in the affected community, although these actions are not legally required, ECRCO recommends ADEM make a concerted effort to create and/or re-engage partnerships with private and public entities to share information on its website and through standard media outlets. Such information sharing would ideally include the relevant community in the geographic area near the Arrowhead Landfill and those individuals and groups that have previously expressed an interest in environmental decision-making activities; environment and environmental justice organizations; religious institutions and organizations; public administration, environmental, law and health departments at colleges and universities; tribal governments; and relevant community service organizations.

In 2016, ECRCO received an additional allegation and accepted for investigation, to be addressed within the existing complaint:

Whether ADEM's actions or inactions, violated 40 C.F.R. § 7.100, which prohibits intimidating, threatening, coercing, or engaging in other discriminatory conduct against any individual or group because of actions taken and/or participation in an action to secure rights protected by the non-discrimination statutes OCR enforces.

ECRCO investigated the retaliation issue and finds insufficient evidence of discrimination based on retaliation. However, as more fully discussed below, although these actions are not legally required, we recommend ADEM improve its nondiscrimination complaint processes for addressing and resolving retaliation complaints. In addition, we believe there are ways for ADEM to improve the underlying processes and environmental complaint determinations which form the basis for some of Complainant's claims of retaliation.

Background

In conducting this investigation, ECRCO reviewed available information, including the original complaint submitted to ECRCO, ADEM's responses to ECRCO's acceptance of the complaint

and requests for information, and all other supplemental information submitted to ECRCO through telephone interviews and conversations, letters, and emails by the Complainant and Recipient pertaining to the Arrowhead Landfill. ECRCO reviewed studies, water sample reports, and air quality modeling and dust sample reports. In addition, ECRCO conducted a site visit to Uniontown in August 2014. During the site visit, ECRCO conducted 14 in-person interviews with the complainants as well as with 6 other witnesses. ECRCO also conducted several telephonic interviews from 2014 to present day.

The ECRCO investigation included a review of ADEM's regulations[3] and administrative codes,[4] permitting documents, and inspection reports. In particular, ECRCO reviewed permit applications and correspondences; facility engineering designs and modification as completed by the facility's primary engineering consulting firms Jordan Jones & Goulding, Inc.; and, Hodges, Harbin, Newberry & Tribble, Inc. (HHNT); monitoring data and inspection reports, air permit applications, wetlands applications and certifications, waste acceptance certifications, operating permits, and public hearing transcripts. ADEM additionally submitted a copy of a legislated solid waste study completed by Auburn University.[5]

During the course of this investigation, ECRCO reviewed the Arrowhead Landfill's original engineering designs, including site suitability study, site layout, original surface and groundwater sampling reports, financial assurances, and host agreements/contracts. According to ECRCO's review, the Arrowhead Landfill is designed to meet the minimum design and operating standards for municipal solid waste (MSW) landfills.[6] For its part, ADEM has conducted regulated inspections of the Arrowhead Landfill and documented compliance and noncompliance issues and reviewed the Arrowhead's Landfill's waste certifications. ADEM has reviewed and approved permitting and operational variances for the Arrowhead Landfill, including operator requirements, alternative daily cover, and leachate recirculation, and has approved alternative daily covers for the Arrowhead Landfill.[7]

I. The May 2013 Issues

Legal Standard

EPA's investigation was conducted under the authority of Title VI of the Civil Rights Act of 1964, and EPA's nondiscrimination regulation (40 C.F.R. Part 7) and consistent with EPA's

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[3] ADEM Admin. Code r. 335-3-19, and 335-13.
[4] The Code of Alabama 1975, Title 22, Chapter 27.
[5] Auburn University, *Administrative & Technical Support in Evaluating Public Input on Potential Enhancements to the State Solid Waste Program, Phase II. Framework for Changing Alabama's Approach to Solid Waste Management* (Final Report), November 3, 2013.
[6] 40 C.F.R. Part 258 and ADEM Admin. Code r. 335-13-4
[7] At the time of ECRCO's review, ECRCO found no Notices of Violations (NOVs) or Administrative Orders (AO) included in the available information reviewed. The reviews of the regulatory website did not show any non-compliance issues related to the state issued permits. Arrowhead Landfill, at the time of ECRCO's review, had permits for solid waste disposal, surface water discharges, wetlands, and air quality. Although no new permits were issued, Prevention of Significant Deterioration (PSD) and New Source Performance Standards (NSPS) evaluations have been completed.

Case Resolution Manual.[8] EPA's regulation at 40 C.F.R. §7.35(b) states, in relevant part, that "A recipient shall not use criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, or national origin."

With respect to the May 2013 issues ECRCO analyzed whether ADEM's methods of administering its permitting program had an adverse and disparate impact on the African-American residents in the surrounding community, in violation of Title VI, under a *disparate impact* or *discriminatory effects* standard.[9] In a disparate impact case, EPA must determine whether the recipient used a facially neutral policy or practice that had a sufficiently adverse (harmful) and disproportionate effect based on race, color, or national origin. This is referred to as the prima facie case. To establish an adverse disparate impact, EPA must:

(1) identify the specific policy or practice at issue;
(2) establish adversity/harm;[10]
(3) establish disparity;[11] and
(4) establish causation.[12]

The focus here is on the consequences of the recipient's policies or decisions, rather than the recipient's intent.[13] The neutral policy or decision at issue need not be limited to one that a recipient formalizes in writing, but also could be one that is understood as "standard operating procedure" by recipient's employees.[14] Similarly, the neutral practice need not be affirmatively

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[8] Case Resolution Manual (Jan. 2017), at https://www.epa.gov/sites/production/files/2017-01/documents/final_epa_ogc_ecrco_crm_january_11_2017.pdf.

[9] *See, e.g. Guardians Ass'n. v. Civil Serv. Comm'n,* 463 U.S. 582, 593 (1983) (concluding that Title VI reaches unintentional, disparate impact as well as intentional discrimination); *Alexander v. Choate*, 469 U.S. 287, 293 (1985) (confirming that, under *Guardians*, agencies enforcing Title VI can address disparate impact discrimination). Many subsequent cases have also recognized the validity of Title VI disparate impact claims. *See, e.g. Villanueva v. Carere*, 85 F.3d 481, 486 (10th Cir. 1996) (*citing Guardians); New York Urban League v. New York*, 71 F.3d 1031, 1036 (2d Cir. 1995); *Chicago v. Lindley*, 66 F.3d 819, 827-28 (7th Cir. 1995); *David K. v. Lane*, 839 F.2d 1265, 1274 (7th Cir. 1988) (internal citations omitted); *Georgia State Conference of Branches of NAACP v. Georgia*, 775 F.2d 1403, 1417 (11th Cir. 1985); *Larry P. v. Riles*, 793 F.2d 969, 982, fn.10 (9th Cir. 1984). In addition, by memorandum dated July 14, 1994, the Attorney General directed the Heads of Departments and Agencies to "ensure that the disparate impact provisions in your regulations are fully utilized so that all persons may enjoy equally the benefits of [f]ederally financed programs." Attorney General Memorandum on the use of the Disparate Impact Standard in Administrative Regulations under Title VI of the Civil Rights Act of 1964 (July 14, 1994) (http://www.justice.gov/ag/attorney-general-july-14-1994-memorandum-use-disparate-impact-standard-administrative-regulations). U.S. EPA's External Civil Rights Compliance Office Toolkit, p. 4 (January 18, 2007). https://www.epa.gov/sites/production/files/2017-01/documents/toolkit-chapter1-transmittal_letter-faqs.pdf

[10] Adversity exists if a fact specific inquiry determines that the nature, size, or likelihood of the impact is sufficient to make it an actionable harm. U.S. EPA's External Civil Rights Compliance Office Toolkit, p. 4

[11] In analyzing disparity, EPA analyzes whether a disproportionate share of the adversity/harm is borne by individuals based on their race, color, national origin, age, disability or sex. A general measure of disparity compares the proportion of persons in the protected class who are adversely affected by the challenged policy or decision and the proportion of persons not in the protected class who are adversely affected. *See Tsombanidis v. W. Haven Fire Dep't*, 352 F.3d 565, 576-77 (2d Cir. 2003) (internal citations omitted).

[12] *See N.Y.C. Envtl. Justice All. v. Giuliani*, 214 F.3d 65, 69 (2d Cir. 2000) (plaintiffs must "allege a causal connection between a facially neutral policy and a disproportionate and adverse impact on minorities").

[13] *Lau v. Nichols*, 414 U.S. 563, 568 (1974).

[14] U.S. EPA's External Civil Rights Compliance Office Toolkit, January 18, 2017. p. 9.

undertaken, but in some instances could be the failure to take action, or to adopt an important policy.[15]

If the evidence establishes a prima facie case of adverse disparate impact, as discussed above, EPA must then determine whether the recipient has articulated a "substantial legitimate justification" for the challenged policy or practice.[16] "Substantial legitimate justification" in a disparate impact case is similar to the Title VII employment concept of "business necessity," which in that context requires a showing that the policy or practice in question is demonstrably related to a significant, legitimate employment goal.[17] The analysis requires balancing recipients' interests in implementing their policies with the substantial public interest in preventing discrimination.[18]

If a recipient shows a substantial legitimate justification for its policy or decision, EPA must also determine whether there are any comparably effective alternative practices that would result in less adverse impact. In other words, are there less discriminatory alternatives?[19] Thus, even if a recipient demonstrates a substantial legitimate justification, the challenged policy or decision will nevertheless violate federal civil rights laws if the evidence shows that less discriminatory alternatives exist.[20]

Analysis

If EPA does not have sufficient evidence to establish a prima facie case of adverse disparate impact, as explained above, it cannot determine that the recipient has engaged in discrimination. To determine whether an adverse disparate impact occurred as a result of ADEM's reissuance and subsequent modification of the permit, ECRCO examined whether the alleged harms were indeed adverse harms and whether there was a causal connection between the specific permitting actions related to the Arrowhead Landfill and the alleged adverse harms. As discussed more specifically below, as to each of the alleged harms relating to the 2011 and 2012, permit reissuance and permit modification, respectively and current Landfill operations, ECRCO finds

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[15] *See, e.g., Maricopa Cty.*, 915 F. Supp. 2d 1073, 1079-81 (D. Ariz. 2012) (finding that plaintiffs stated a claim of disparate impact violation based on national origin where recipient "failed to develop and implement policies and practices to ensure [limited English proficient] Latino inmates have equal access to jail services" and discriminatory conduct of detention officers was facilitated by "broad, unfettered discretion and lack of training and oversight" resulting in denial of access to important services).

[16] *Georgia State Conf.*, 775 F.2d at 1417. *See also, Patterson v. McLean Credit Union*, 491 U.S. 164, 186-87 (noting the framework for proof developed in civil rights cases), *citing, Texas Dept. of Community Affairs v. Burdine*, 450 U.S. 248 (1981); *McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973).

[17] *Wards Cove Packing Inc. v. Antonio*, 490 U.S. 642, 659-660 (1989); *Griggs v. Duke Power Co.*, 401 U.S. 424, 432 (1971). The concept of "business necessity" does not transfer exactly to the Title VI context because "business necessity" does not cover the full scope of recipient practices that Title VI covers, which applies far more broadly to many types of public and non-profit entities. *See Texas Dept. of Hous. and Cmty. Affairs v. Inclusive Communities Project*, 135 S. Ct. 2507, 2522-24 (2015) (recognizing the limitations on extension of the business necessity concept to Fair Housing Act complaints).

[18] *See*, Department of Justice Title VI Legal Manual, Section VII: Proving Discrimination – Disparate Impact, §C.2, https://www.justice.gov/crt/fcs/T6Manual7#U.

[19] *Elston v. Talladega Cty. Bd. of Educ.*, 997 F.2d 1394, 1407 (11th Cir. 1993). U.S. EPA's External Civil Rights Compliance Office Toolkit, p. 9.

[20] U.S. EPA's External Civil Rights Compliance Office Toolkit, p. 9.

insufficient evidence to establish a prima facie case of adverse disparate impact discrimination.

Alleged ADEM Discriminatory Policy or Practice

September 2011 (Permit #53-03)

On September 27, 2011, ADEM made a determination to renew Permit #53-03, which is a Solid Waste Disposal Facility Permit for the Arrowhead Landfill. The permitted facility boundaries consist of approximately 976.97 acres with ~256.151 acres permitted for disposal operations.[21]

February 2012 (Permit #53-03)

On February 3, 2012, ADEM approved the modification that increased the disposal acreage from ~256.151 acres to ~425.33 acres. The modification would result in an increase of 169.179 acres permitted for disposal operations. The permitted facility boundaries remained ~976.97 acres.[22]

The types of waste accepted, service area, and daily accepted waste volumes and the Landfill boundaries that were permitted, remained unchanged during this modification.

The Alleged Harms

The alleged harms that relate to the 2013 accepted issues were identified in two general categories – health-related and non-health related.[23] The health-related impacts included alleged harms stemming from the Landfill's effects on air quality and water quality. During the investigation, complainants also raised concerns about coal ash and its impact on their health and well-being. The non-health related impacts included degradation of the cemetery, increased roaming wild-life and dogs entering and exiting the Landfill property from lack of a fence, and diminution of property values. For purposes of analyzing whether there is a prima facie case of discrimination based on disparate impacts, ECRCO has grouped the alleged harms into health-related and non-health related subject headings to describe its review of evidence gathered to review potential disparate impact.

Health-Related Impacts

- Air Related

Complainants raised concerns during the course of the investigation about the Landfill and its effect on air quality and their health. Some of the described health impacts included aggravation

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[21]Municipal Solid Waste Landfill Permit Renewal 53-03 issued September 27, 2011; ADEM File No. 17668_53-03_105_20110927_PERM_Permit.pdf.

[22]Municipal Solid Waste Permit Modification 53-03 modification date November 4, 2011 and February 3, 2012; ADEM's Enforcement and Compliance Information eFile File Name 17668_53-03_105_20120203_PERM_Permit.pdf.

[23] Title VI Civil Rights Complaint and Petition for Relief or Sanction- Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4) from David A. Ludder, to Vicki Simons, Director, Office of Civil Rights (May 30, 2013).

of asthma, wheezing, shortness of breath, sinus problems, persistent coughing, sore throats, runny eyes, respiratory issues, nosebleeds, headaches, and additional health impacts.[24] Complainants also raised concerns regarding acrid smell; increased dust in the air and negative impacts on vegetation. In regards to odor, Complainants have submitted a number of declarations which describe the smell as "heavy, stinky, horrible, powerful, foul, like ammonia, acrid, stench of rotten eggs, etc."[25] The Complainants have also described the effects of the odor, and stated that it has caused nausea and hindered outside activity.[26]

As part of ECRCO's prima facie analysis of "adverse harm," it reviewed an environmental report submitted by Complainants – the Stone Lions Environmental Corporation Report ("Stone Lions Report")[27] which included an air dispersion modeling study of the atmospheric emissions of total suspended solids, hydrogen sulfide, and non-methane organic compounds from the Arrowhead Landfill and the analysis of dust wipe and water samples submitted by the Complainant.[28] In addition, the Stone Lions Report attempted to correlate its study data to alleged health impacts and other harms in the community. For example, the Stone Lions Report states that hydrogen sulfide (H_2S) and total suspended particulates (TSP) air emissions at the Arrowhead Landfill resulted in a significant negative impact on the neighborhoods near the Landfill boundaries.[29]

In order to review the scientific methodology used for this study and the conclusions reached with respect to environmental and health impacts, ECRCO consulted environmental technical experts across EPA, including the Office of Air and Radiation, Office of Research and Development, Office of Land and Emergency Management, both in EPA headquarters and Region 4.[30] The EPA experts assisted with the assessment of available records and reports; evaluated the Arrowhead Landfill's regulatory compliance; and reviewed the methodology and analysis utilized in the Stone Lions Report.

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[24] *Id.* Information also gathered through telephonic and in-person interviews conducted by ECRCO between 2014 through 2017 with Complainants.

[25] Letter from Marianne Engelman Lado, Senior Staff Attorney to Velveta Golightly-Howell, Director and Jeryl Covington, Acting Assistant Director, Office of Civil Rights, USEPA. (March 8, 2016).

[26] ECRCO did not review Complainants' medical records to confirm the reports of health impacts nor did ECRCO conduct a health survey of the Landfill's adjacent residents as part of this investigation.

[27] Letter from David A. Ludder, Attorney for Complainants to Ms. Vicki Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency. (May 30, 2013). See (Exhibit T3) Stone Lion's Environmental Corporation Report: An Evaluation of Particulate Matter, Hydrogen Sulfide, and Non-Methane Organic Compounds from the Arrowhead Landfill. (August 13, 2012).

[28] Adam Johnston, Creek Keepers' Wipe and Water Sample Results February 24, 2011.

[29] Stone Lions Report, at p.6.

[30] See ECRCO Case Resolution Manual, at Chapter 1 – Deputy Civil Rights Officials and Title VI Case Management Protocol Orders (January 2017), at https://19january2017snapshot.epa.gov/sites/production/files/2017-01/documents/final_epa_ogc_ecrco_crm_january_11_2017.pdf. EPA Orders 47003 and 47014 establish a protocol for processing complaints of discrimination that brings program and regional offices throughout the agency into a collaborative process for coordinating and committing the analytical resources, expertise, and technical support needed to address civil rights compliance. Although ECRCO retains the primary authority and responsibility for carrying out the civil rights program, the orders clearly emphasize a "One-EPA" commitment with the support of a network of Deputy Civil Rights Officials (DCROs) established under Order 4700, to support the civil rights mission and ensure its success throughout EPA. The 2013 protocol (Order 4701) anticipated that ECRCO would develop specific procedures to improve implementation of the protocol and ensure the prompt, effective, and efficient resolution of civil rights cases. *Id.* at p.ii.

Specifically, the EPA experts conducted a review of the air dispersion model and calculations contained in the Stone Lions Report, and the dust wipe and water samples analyses submitted as part of the administrative complaint. Based on the review of this information, the EPA experts identified a number of deficiencies in how the modeling was conducted, including uncontrolled sample collection techniques, improper collection protocols, and inadequate quality control regarding documentation of sample locations and collection and handling methods.[31] Based on the deficiencies identified by the EPA experts, ECRCO determined that it could not rely on the Stone Lions Report modeling data and the Report's attempt to correlate its study data to alleged health impacts and other harms in the community.

To determine the air quality compliance status of the Arrowhead Landfill, the EPA experts assessed the permitting obligations for the Arrowhead Landfill. The Arrowhead Landfill is subject to the New Source Performance Standard (NSPS) Subpart WWW which addresses Standards of Performance for Municipal Solid Waste Landfills that commenced construction, reconstruction or modification on or after May 30, 1991.[32] This rule requires the owner/operator of a MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters to calculate the emission rate of non-methane organic compounds (NMOCs) and provide an annual report to the delegated authority.[33] At time of ECRCO's review and based upon the volume of in-place waste in 2014[34] and the review of available documents, the Arrowhead Landfill had never reported an NMOC emission rate equal to or greater than 50 megagrams per year (Mg/yr.) and therefore has no regulatory requirement for the installation of an active air pollution control device in order to maintain compliance with NSPS Subpart WWW. There were no additional air quality permit requirements at that time.

The EPA experts reviewed the air quality regulatory standards or requirements. Based on this review, there is a daily PM_{10} National Ambient Air Quality Standard (NAAQS) of 150 micrograms per cubic meter ($\mu g/m^3$). In addition to the PM_{10} NAAQS, there is a PM_{10} Prevention of Significant Deterioration (PSD) Class II increment of 30 µg/m3 for 24-hour and 17 µg/m3 for an annual period. The more recent NAAQS standard is $PM_{2.5}$. The NAAQS for $PM_{2.5}$ includes annual (12 $\mu g/m^3$) and 24-hour (35 $\mu g/m^3$) values; and Class II PSD increment includes annual (4 $\mu g/m^3$) and 24-hour (9 $\mu g/m^3$) increments. The Arrowhead MSWLF is located in Perry

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[31] *See* Stone Lions Report, at pp.2-6 (e.g., incorrectly equating total suspended particulates to PM10 throughout the report, calculations and map; analysis assumptions incorrect and/or improperly assumed; assumption of NMOC generation from coal ash is incorrect and the calculations are based on the coal ash emissions being similarly equal to emissions from MSW landfills).

[32] Code of Federal Register Title 40, Chapter I, Subchapter C, Part 60, Subpart WWW (40 C.F.R. 60 Subpart WWW).

[33] Per 40 C.F.R. §60.751 Design capacity means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit.

[34] The in-place waste volume is the maximum composition of volume deposited within the disposal unit. At the time of the ECRCO investigation, the maximum volume of in-place waste occurred in 2014. The in-place waste volume is the determinate to calculate the emission rate of NMOC and to assess the point of compliance for the MSW landfill subject to 40 C.F.R. 60 Subpart WWW.

County, Alabama, which is designated as attainment or unclassifiable/attainment for the PM_{10} and $PM_{2.5}$ NAAQS.[35]

The EPA has monitoring regulations which prescribe the number of required air monitors for individual pollutants as a function of population and ambient concentration levels (i.e., proximity to the NAAQS) – see 40 CFR Part 58, Appendix D. For $PM_{2.5}$ and PM_{10}, there is no requirement that the State of Alabama operate air monitors in Perry County. The PM_{10} measurements taken at the Arrowhead MSWLF during the period when coal ash was being disposed were done voluntarily by the Landfill's contractor.

The Arrowhead Landfill utilizes a SidePak™ Personal Aerosol Monitor to measure particulate matter (PM_{10}).[36] This aerosol monitoring equipment is not a federal reference or equivalent method (FRM/FEM) PM_{10} sampler. Nevertheless, the 2010 PM_{10} data found in the ADEM documents do not appear to have exceeded the daily PM_{10} NAAQS of 150 µg/m3. As noted previously, however, the data were not collected using FRM/FEM samplers and EPA experts would not necessarily consider the data comparable to the daily PM_{10} NAAQS. No monitoring data for $PM_{2.5}$ were provided.

In regards to odor, the Arrowhead Landfill operates 25 solar powered gas vent flares for the Landfill leachate collection system cleanout vents to mitigate odors.[37] The gas vent flares are not required by federal or state regulations, but are recognized mitigation techniques[38] to eliminate the potential release of odors. During past inspections, ADEM inspectors have not noted any problems with these flares during annual compliance evaluations.[39]

Based on the foregoing evidence, ECRCO was not able to establish a causal connection between the adverse harms alleged and the permitting actions underlying the May 2013 issues and the operations of the Arrowhead Landfill. While compliance with environmental laws does not necessarily constitute compliance with federal civil rights laws, EPA recognizes a number of forms and types of evidence that could establish causation, including scientific proof of a direct link, prediction of potentially significant exposures and risks resulting from stressors created by the permitted activities or other sources, and other complex methodologies.[40] In this case, ECRCO also considered the complaint, supplemental information, information from a site visit, interviews, a review of ADEM's regulations and administrative codes, permitting documents,

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[35] An "attainment" designation means the area is meeting the standard and not contributing to a nearby violation. As required by the Clean Air Act, states and tribes submit recommendations to the EPA as to whether or not an area is attaining the national ambient air quality standards (NAAQS) for criteria pollutants. The states and tribes base these recommendations on air quality data collected from monitors at locations in urban and rural settings as well as other information characterizing air quality such as modeling. After working with the states and tribes and considering the information from air quality monitors, and/or models, EPA will "designate" an area as attainment or nonattainment for the standard.

[36] http://www.tsi.com/sidepak-personal-aerosol-monitor-am510/

[37] ADEM's Enforcement and Compliance Information eFile File Name: 17668_53-03_105_20100211_PERM_Gas_Vent_Flares.pdf

[38] EPA/452/B-02-001, VOC Controls (OAQPS Sept. 2000)

[39] ADEM's Enforcement and Compliance Information eFile File Name: 17668_53-03_105_20100211_PERM_Gas_Vent_Flares.pdf

[40] U.S. Department of Justice Title VI Legal Manual, Section VII (Proving Discrimination – Disparate Impact), at (C)(1)(d), at https://www.justice.gov/crt/fcs/T6Manual7.

inspection reports, studies, and air quality modeling and dust sample reports. Here, the site-specific information did not establish that any alleged harms were caused by the permitting actions. Because causation was not established, and therefore no prima facie case of discrimination, ECRCO did not examine disparity and adversity.

- Water Related

Complainants raised concerns about the quality of drinking water from both public drinking water systems and of their personal wells.[41] Specifically, Complainants state that the well water near the Landfill does not smell clean and that city drinking water comes out brown and dirty looking.[42] Complainants state that the uncertainty has led them to drinking bottled water because of their concerns about their water quality since the Landfill arrived.[43] In addition, Complainants state that bathing with city water causes itchiness.[44] Lastly, the alleged adverse impacts include risks of injury to health, the cost of bottled water, and anxiety related to the quality of water. Complainants also stated that "other visitors to the Landfill have noticed water draining from the Landfill in proximity to the mountain of coal ash on the site that appear to be unpermitted."[45]

With regard to water quality, ECRCO found that Arrowhead Landfill conducts detection monitoring of the groundwater, as regulated, on a semi-annual basis.[46] The groundwater analysis is conducted by a third-party, certified laboratory and submitted to ADEM. The detection monitoring system consists of a system of groundwater monitoring wells installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer in a manner that meets the requisite regulatory criteria for groundwater detection monitoring systems.[47] As a permit condition, the Landfill also conducts regular surface water monitoring.[48]

In addition to monitoring, the Landfill, as required by RCRA Subtitle D, utilizes a composite liner, consisting of two components: a flexible membrane liner (FML) made of 60-mil thick high density polyethylene (HDPE), installed in direct and uniform contact with an underlying two-foot layer of compacted soil with a hydraulic conductivity of not more than 1×10^{-7} cm/sec.[49] Constructed on top of the composite liner is a leachate collection system that allows for the removal of leachate from the Landfill for proper treatment and/or disposal.[50]

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[41] Letter from Marianne Engelman Lado, Senior Staff Attorney to Velveta Golightly-Howell, Director and Jeryl Covington, Acting Assistant Director, Office of Civil Rights, USEPA. (March 8, 2016). Information also gathered through telephonic and in-person interviews conducted by ECRCO between 2014 through 2017 with Complainants.
[42] *Id.* at page 8.
[43] *Id.*
[44] *Id.*
[45] *Id.* at page 10.
[46] Detection monitoring for appendix I constituents is required at MSWLF units. The monitoring frequency for all constituents listed in appendix I shall be at least semiannual during the active life of the facility (including closure) and the post-closure period. 40 C.F.R. §258.54 and ADEM Admin. Code r. 335-13-4-.27(3)(b)1.
[47] 40 C.F.R. 258 Subpart E and ADEM Admin. Code r. 335-13-4-.27.
[48] Water Division of ADEM has issued two (2) General National Pollutant Discharge Elimination System (NPDES) storm water permits (ALG160167 and ALG140902).
[49] 40 C.F.R. Part 258.40 and ADEM Admin. Code r. 335-13-1-.03 and 335-13-4-.18
[50] *Id.*

The EPA experts and ECRCO reviewed information from the U.S. Geological Survey to identify the regional geology and the potential subsurface areas of concerns. This review showed that the Landfill location has natural features which provide protection for area groundwater. Specifically, the Arrowhead Landfill is underlain by Late Cretaceous-age Coastal Plain sediments comprised of the Selma Group (primarily chalk formations) overlying the Eutaw Formation (sand). Locally, the Selma Group consists of approximately 440 to 563 feet of lower permeability (1x10-6 to 1x10-8 cm/sec), gray clay and chalk. The upper 10-20 feet near the ground surface at the Landfill site consists of brown clay, which represents the weathered portion of the upper formation. The thick chalk formations of the Selma Group serve as a confining layer for the underlying Eutaw sands. The Eutaw Formation consists of gray, glauconitic, fine to medium grained sand and represents the regional water supply aquifer. Thus, in addition to the Landfill's engineered subsurface liner, each of these naturally-occurring underlying geologic layers have a low permeability which reduces the opportunity for releases impacting the groundwater.[51]

During the course of this investigation, the EPA experts and ECRCO reviewed permitting and site suitability documents related to the Arrowhead Landfill. The site suitability documents show a 2001 investigation[52] to identify water supply wells located within one mile of the then-proposed Landfill site boundaries.[53] The investigation included a reconnaissance by a consultant geologist to identify wells; a review of Geological Society of America (GSA) publications; and interviews with a Perry County Commissioner, City of Uniontown officials, ADEM personnel, and local residents or neighbors. The 2001 investigation reviewed a document entitled, "*Uniontown Utilities Local Wellhead Protection Plan.*" a second reconnaissance of water wells was performed by a consultant geologist in May 2005. The results of the investigation produced the following:

- Fourteen wells were identified within one mile of the Landfill site, and nineteen were identified in the township (*i.e.*, Uniontown).
- Eight of fourteen wells located within a mile of the site were reportedly either not in use or supplied water for agricultural purposes.
- A municipal drinking water system is supplied by three wells (as of 2001-2002) located in and east of Uniontown. The municipal system wells are located between two to three miles northwest of the existing disposal cells of the Landfill, and are hydraulically upgradient and/or hydraulically cross-gradient from the Landfill site. These wells produce groundwater from the Eutaw Formation aquifer and reportedly range in depth from 915 to 1,300 feet.
- Water from the municipal system is used by the Uniontown Utilities District, which supplies water to southern Perry County. The supply system serves the residents and businesses in Uniontown, plus rural residents within about five miles of town.

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[51] Jordan, Jones & Goulding, Inc., Solid Waste Permit Application Volume 1/2 Site Analysis Perry County Associates Landfill Perry County, Alabama, March 2002, ADEM's Enforcement and Compliance Information eFile File Name 17668_53_03_105_20020319_PERM_SW_Permit_App_Vol_1.pdf.

[52] *Id.*

[53] Jordan, Jones &Goulding, Inc., *Solid Waste Permit Application Volume 1/2 Landfill Design & Operations Plan For Perry County Associates Landfill*, September 2005, ADEM's Enforcement and Compliance Information eFile File Name XXX_53-03_105_20050928_PERM_Permit _Application.pdf

- Of the fourteen wells identified within one mile of the Landfill site, local residents or neighbors verified that at least four (4) wells located south and southeast of the then-proposed Landfill site (*i.e.*, along CR-1–Cahaba Road and CR-21) were in use (in 2001-2002). The type(s) of usage of the groundwater from these wells (e.g., agriculture, potable, other) was not identified. The status of two (2) other wells in that specific vicinity was unknown. The investigation confirmed that three (3) other wells in that specific vicinity were no longer in use. Water wells in that specific vicinity (i.e., along CR-1–Cahaba Road and CR-21) for which well information was available were confirmed to be deep wells drilled into the Eutaw Formation regional aquifer.
- According to the Perry County Commissioners Office (in 2001-2002), all of the residents along CR-1 where these wells have been identified received drinking water from the Uniontown Utilities system.
- According to Uniontown officials (in 2001-2002), drinking water was being supplied to all residents near the then-proposed Landfill site from the three wells in town (*i.e.*, via Uniontown Utilities).

Based on their review, the EPA experts concluded that there were no significant potential threat(s) to groundwater resources from the then-proposed landfill project. Furthermore, the Landfill site is situated on a thick, dry, relatively impermeable confining layer (Selma Group chalks) that serves as a substantial natural barrier between the landfill's waste units and the underlying regional Eutaw Formation sand aquifer, and no surficial aquifer or saturated zones were identified that could be affected by the landfill project, or which were interconnected to the uppermost aquifer.

In addition, the EPA experts reviewed EPA's GeoPlatform resource which is used for mapping, analysis, and collaboration of various sources of data. That review revealed no public utility drinking water intakes from surface water for at least 50 miles from the Landfill.

The EPA experts reviewed reports generated by Arrowhead Landfill's consultants and submitted to ADEM. Those reports showed occurrences of barium, acetone, and 2-hexanonne. In multiple semi-annual detection monitoring events, groundwater analysis from the Landfill detected occurrences of barium, acetone, and 2-hexanonne. Similarly, each of these constituents have been detected in the background groundwater monitoring wells with barium being detected in the groundwater prior to waste placement in the disposal unit. However, the Landfill's consultants, HHNT and Bunnell-Lammons Engineering, Inc., and ADEM have concluded that barium is naturally occurring in the soil and groundwater throughout Alabama.[54] Furthermore, the consultants have determined that the source of the volatile organic compounds (VOCs) (e.g., acetone, and 2-hexanonne) is attributed to the well construction materials (e.g., black paint of the steel risers). Ultimately, none of the detections exceeded maximum concentration levels (MCL).[55]

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[54] Memorandum from Wesley S. Edwards, ADEM Groundwater Branch to Phillip D. Davis, ADEM Solid Waste Branch, February 21, 2012, ADEM's Enforcement and Compliance Information eFile File Name 17668_53-03_105_20120221_SWMR_GW_Review.pdf and ADEM's Enforcement and Compliance Information eFile File Name 17668_53-03_105_20121002_MONI_GW_Alternative_Source_Determination.pdf.

[55] ADEM's Enforcement and Compliance Information efile File Names 17668_53-03_105_20110413_MONI_GW_rpt.pdf, 17668_53-03_105_20110414_MONI_GW_Rpt.pdf, 17668_53-

ECRCO notes that, in accordance with the prescribed regulations, Arrowhead Landfill performed annual statistical analyses of the groundwater to determine whether a release of leachate had occurred.[56] The statistical analyses do not show evidence of a statistically significant increase over background groundwater quality or a release of leachate from the Arrowhead Landfill, and accordingly no impact to groundwater. Furthermore, ECRCO reviewed materials showing that no National Pollutant Discharge Elimination System (NPDES) permitted discharges from the Landfill were above the MCL.

Therefore, ECRCO was not able to establish a causal connection between the adverse harms alleged and permitting actions underlying the May 2013 issues and the operations of the Arrowhead Landfill. While compliance with environmental laws does not necessarily constitute compliance with federal civil rights laws, EPA recognizes a number of forms and types of evidence that could establish causation, including scientific proof of a direct link, prediction of potentially significant exposures and risks resulting from stressors created by the permitted activities or other sources, and other complex methodologies.[57] In this case, ECRCO also considered the complaint, supplemental information, information from a site visit, interviews, a review of ADEM's regulations and administrative codes, permitting documents, inspection reports, studies, and water sample reports. Here, the site-specific information did not establish that any of the alleged harms were caused by the permitting actions. Because causation was not established, and therefore no prima facie case of discrimination, ECRCO did not examine disparity or adversity.

- Coal Ash

ECRCO did not accept for investigation, as part of the May 2013 issues, an issue regarding coal ash. However, during subsequent conversations with Complainants, Complainants provided more details about current coal ash concerns and its possible adverse health impacts on the community given that Arrowhead Landfill is permitted to accept and maintain coal ash. Some of

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03_105_20110815_SWMR_GW_Review.pdf, 17668_53-03_105_20111024_MONI_GW_Rpt.pdf, 17668_53-03_105_20120427_MONI_GW_Rpt.pdf (only barium detected), 17668_53-03_105_20121031_MONI_GW_Rpt.pdf, and 17668_53-03_105_20130110_MONI_GW_Revised_Rpt-Fall_2012.pdf.

[56] Each of the analyses were completed in accordance with EPA's Statistical Analysis of Groundwater Monitoring Data as RCRA Facilities-Unified Guidance (March 2009) and ADEM's solid waste management rule 335-13-4.27(2)(m). If the owner or operator determines, pursuant to 40 C.F.R. §258.53(g) documents that there is a statistically significant increase (SSI) over background for one or more of the constituents listed in appendix I, the owner or operator: (1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the State director that this notice was placed in the operating record; and (2) Must establish an assessment monitoring program meeting the requirements of 40 C.F.R.258.55 within 90 days except as provided for in paragraph (c)(3) of this section, and (3) The owner/operator may demonstrate that a source other than a MSWLF unit caused the contamination or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in this section. If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in 40 C.F.R. 258.55.

[57] U.S. Department of Justice Title VI Legal Manual, Section VII (Proving Discrimination – Disparate Impact), at (C)(1)(d), at https://www.justice.gov/crt/fcs/T6Manual7.

the described health impacts include respiratory problems, including coughing, severe stomach problems, and concerns regarding water quality in the area surrounding the Arrowhead Landfill.[58] These concerns related to both air and water.

Regarding these concerns, ECRCO found that on July 27, 2011, the ash disposal area of the Arrowhead Landfill was closed utilizing a Resource Conservation and Recovery Act (RCRA) Subtitle D final closure system to encapsulate the waste.[59] The final closure system consisted of a synthetic liner and a layer of soil capable of sustaining a vegetative cover to control erosion. ADEM certified the partial closure of the ash disposal area on October 11, 2011. The final closure system is designed to minimize the infiltration of surface water from entering the disposal cell and minimize erosion. For example, to date the groundwater monitoring system has not detected a release from this disposal unit, the final closure system is stabilized, and there is no evidence of liner failure.

There is insufficient evidence that in its encapsulated state the coal ash is causing any alleged environmental and health effects. Therefore, ECRCO was not able to establish a causal connection between the adverse harms alleged and permitting actions underlying the May 2013 issues and the operations of the Arrowhead Landfill. Because there is no causal connection, and therefore no prima facie case of discrimination, ECRCO did not examine disparity or adverse harm.

- Vectors

The Complainants alleged quality of life impacts due to the increased populations of flies and birds associated with the Arrowhead Landfill operations. ECRCO did not complete an on-site evaluation of the Arrowhead Landfill's operations or conduct interviews of the Landfill manager or certified operators as part of this complaint investigation. However, ECRCO reviewed available records, including the Landfill's operating plans,[60] permit requirements, such as cover requirements and special waste approvals, ADEM inspection records, and the Landfill's leachate management procedures[61] in an attempt to identify possible operational irregularities or violations that may result in the alleged quality of life harms.

At the time of ECRCO's review, the permitting documents did not show any occurrences of active leachate breakouts which could generate or attract an increase in the vector population;

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[58] Letter from Marianne Engelman Lado, Senior Staff Attorney, Earthjustice and Matthew R. Baca, Associate Attorney, Earthjustice Northwest Office to Velveta Golightly-Howell, Director, Office of Civil Rights and Jeryl Covington, Acting Assistant Director, Office of Civil Rights, U.S. Environmental Protection Agency, page 13. (March 8, 2016). Complainants also discussed this issue during telephone interview conducted in 2016 and 2017.

[59] 40 C.F.R. 258 Subpart F and ADEM Admin. Code r. 335-13-4-.20(2)(b).

[60] Permit Renewal Application for Arrowhead Landfill Permit #53-03 for Perry County Associates, LLC Perry County, Alabama Revised April 2011, Volume 1 of 2, ADEM File Name: 17668_53-03_105_20101229_PERM_Permit_Renewal_Vol_10f2.pdf; and, Permit Renewal Application for Arrowhead Landfill Permit #53-03 for Perry County Associates, LLC Perry County, Alabama December 2010, Volume 2 of 2, ADEM File Name: 17668_53-03_105_20101229_PERM_Permit_Application_for_Permit_Renewal_Vol_20f2.pdf.

[61] Hodges, Harbin, Newberry & Tribble, Inc. February 15, 2010 correspondence to ADEM, Perry County Associates Landfill, Leachate Handling Procedures, HHNT Project No. 6004-010-10, ADEM File Number 17688_53-03_105_20100217_CORR_Leachate_Hand_Proc.pdf.

nor did the permitting documents produce evidence of distressed vegetation being identified along the sideslopes of the Landfill during routine inspections. The records did show that the Landfill's former leachate generation rate was 50,000 to 100,000 gallons per day, which also included management of an influx of storm water into the collection system.[62] The Landfill employed techniques to reduce the leachate generation rate by 35,000 gallons per day through operational changes that included segregating storm water via the utilization of rain covers, by continuing solidification, and recirculating leachate by direct discharge into the working face or through injection wells within the cells.[63] Reports showed that the remaining generated leachate was transported by tanker truck to publicly-owned treatment works for treatment and disposal.[64] Furthermore, and as previously stated above, the Arrowhead Landfill operates 25 solar powered gas vent flares for the landfill leachate collection system cleanout vents to mitigate odors that could attract vectors. ECRCO was unable to identify any functions related to leachate management that could result in the reported increased populations of flies and birds.

The Arrowhead Landfill's waste acceptance provisions include nonhazardous solid wastes, noninfectious putrescible and nonputrescible waste, and special waste including asbestos, foundry sand, petroleum contaminated waste, and municipal solid waste ash.[65] As an operational requirement, the Landfill confines and compacts the waste within the smallest working face of the disposal unit having a vertical thickness of less than eight (8) feet.[66] During periods of transition between former and newly constructed cells and for the management of construction and demolition materials, the Landfill received permitting variances from ADEM for the operation of two (2) working faces. ECRCO was unable to identify any functions related to the waste acceptance provisions or the waste placement requirements that could result in the alleged increased populations of flies and birds.

At the conclusion of each day's operations, the Arrowhead Landfill is required to cover the daily operating area with a minimum of six (6) inches of compacted earth or other alternative daily cover (ADC) materials.[67] ADEM has approved the following alternative daily covers for the Arrowhead Landfill: synthetic tarps, coal combustion by-products from electrical generators, petroleum contaminated soils, automotive shredder residue, and Posi-Shell®. As permitted, some of the ADCs have storage and placement limitations to prevent contact storm water runoff from leaving the limits of the lined cell area. ECRCO was unable to identify any functions related to the daily cover requirements or the utilization of ADCs that could result in the alleged increased populations of flies and birds.

Therefore, ECRCO was not able to establish a causal connection between the adverse harms alleged and permitting actions underlying the May 2013 issues and the operations of the Arrowhead Landfill. While compliance with environmental laws does not necessarily constitute

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[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] Arrowhead Permit Modification ADEM's Enforcement and Compliance Information eFile File Name 17688_53-03_105_20121023_PERM_Permit.pdf (October 23, 2012); Arrowhead Landfill Permit Variance ADEM's Enforcement and Compliance Information eFile File Name: 17668_53-03_105_20130617_PERM_Permit.pdf (June 17, 2013)
[66] *Id.*
[67] ADEM Admin. Code r. 335-13-4-.22(1)(a)1.

compliance with federal civil rights laws, EPA recognizes a number of forms and types of evidence that could establish causation, including scientific proof of a direct link, prediction of potentially significant exposures and risks resulting from stressors created by the permitted activities or other sources, and other complex methodologies.[68] In this case, ECRCO also considered the complaint, supplemental information, Landfill's operating plans, permit requirements, such as cover requirements and special waste approvals, ADEM inspection records, and the Landfill's leachate management procedures. Here, the site-specific information did not establish that any of the alleged harms were caused by the permitting actions. Because causation was not established, and therefore no prima facie case of discrimination, ECRCO did not examine disparity or adversity.

Non-Health Related Impacts

- Degradation of Cemetery

During the course of the investigation, Complainants raised concerns regarding how ADEM's decision to permit Arrowhead Landfill has adversely affected the ability of the members of the Uniontown community to visit New Hope Church Cemetery. Specifically, Complainants stated that the proximity of the Landfill interferes with community members visiting the Cemetery due to acrid odor from the Landfill, the installation of water monitors on Cemetery grounds, failure to maintain access to the Cemetery premises and disturbing the Cemetery grounds with the use of heavy equipment. In addition, Complainants state that ADEM's permitting actions failed to ensure that the Cemetery was protected from the aforementioned instances of interference. ECRCO investigated this issue by visiting the Cemetery in August 2014 and by reviewing information submitted by Complainants, including pictures, documents submitted by ADEM and Green Groups Holdings, LLC.

ECRCO's review found that the owners of the Arrowhead Landfill owned the Cemetery property at the time Complainant's filed their Complaint and for some period prior. The Cemetery property, however, was never part of the ADEM-permitted Arrowhead Landfill and the Landfill maintained a minimum 100-foot buffer between the waste disposal unit and its property boundaries. In January 2016, the Arrowhead Landfill conducted an initial reconnaissance level site visit in which it was determined that clearing was needed of unwanted growth to accurately define the cemetery boundaries. During this visit funerary objects and historic, ornamental, or traditional landscape features and planting were identified as well as an older split cedar post and a barbed wire fence. According to this report, all objects were marked and left in place where they were found. In February 2016, ADEM approved the Landfill's request to reduce its permitted Landfill property by ~3.12 acres that surrounded the Cemetery. The Landfill moved the 100-foot buffer boundary to maintain compliance with separation requirements and then deeded this ~3.12 acres parcel, along with the Cemetery property, to the New Hope Cemetery Foundation. Furthermore, this reduction in acreage required a minor permit modification to relocate required monitoring elements [e.g., four (4) methane monitoring points] located along the property boundary within the landfill's permitted footprint area, further away from the

[68] U.S. Department of Justice Title VI Legal Manual, Section VII (Proving Discrimination – Disparate Impact), at (C)(1)(d), at https://www.justice.gov/crt/fcs/T6Manual7.

cemetery.

ECRCO was not able to establish a causal connection between the adverse harms alleged and ADEM's permitting actions underlying the May 2013 issues given that the Cemetery was never within the operational boundaries of the permitted Arrowhead Landfill property that ADEM permitted. Also, ADEM approved the Landfill's request to reduce the Landfill boundaries by ~3.12 acres surrounding the Cemetery. Thereafter, Arrowhead deeded this property and the Cemetery to the Cemetery Foundation. Because ECRCO is not able to establish a causal connection, ECRCO cannot determine a prima facie case of discrimination. ECRCO did not examine disparity or adverse harm.

Although not relevant to the Title VI analysis discussed above, ECRCO notes that information brought to our attention during this investigation suggests that there is conflicting information and apparent misunderstanding regarding the responsibility for upkeep and maintenance of the cemetery. Although these actions are not legally required, ECRCO believes that the Arrowhead community would benefit from ADEM's leadership in initiating conversation between ADEM, the Landfill, and members of the community to provide information and discuss the 2016 reduction of the permitted Landfill boundary and clarify the roles and responsibilities related to the overall management of the Cemetery and adjacent properties.

- Lack of Fence Around Landfill & Increased Roaming Wildlife

Complainants raised concerns that the Arrowhead Landfill does not have a physical fence that extends around the perimeter of the property, resulting in increased wildlife migration between the Landfill and the community. Complaints assert that a fence would reduce the number of animals entering and exiting the Landfill property. It is unclear what harm is actually being alleged as a result of the alleged "increased migration" between the landfill and the community. Based on the evidence presented, it is also unclear why Complainants believe this particular mitigation, a fence, would address the alleged migration of animals.

The Arrowhead Landfill encompasses approximately 980 acres and is permitted to utilize both a natural and an artificial (physical) barrier along its perimeter for the purpose of controlling public access and preventing unauthorized vehicular traffic and illegal dumping of wastes.[69] The Landfill maintains a minimum 100-foot buffer between the waste disposal unit and its property boundaries.[70]

ECRCO has determined that there is insufficient evidence in the record to establish adverse harm resulting either from the alleged movement of animals or the absence of a fence around the Arrowhead Landfill.

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[69] ADEM Admin. Code r.335-13-4-.19 Access. The owner or operator of the facility must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

[70] ADEM Admin. Code r.335-13-4-.12 (2)(f), ADEM's Enforcement and Compliance Information eFile File Names 17668_53-03_105_20110412_PERM_Modificatioin_Application-Horzontal_Expansion-Drawings.pdf, and 17668_53-03_105_20160330_PERM-Application_Drawings.pdf

- Diminution in Home Values

Complainants raised concerns related to diminution of property values due to ADEM's permitting actions underling the May 2013 issues. For its part, EPA has substantial discretion to determine the types of harms, on a case by case basis, that warrant investigatory resources and are sufficiently harmful to violate Title VI.[71] ECRCO determined that it would not investigate substantively the alleged harm of diminution of property values, in this case. There is insufficient evidence in the record to suggest that ADEM's permitting actions themselves resulted in a sufficiently significant harm with regard to property values.

II. The 2016 Retaliation Issue

In 2016, ECRCO accepted the following additional issue for investigation:

> Whether ADEM's actions or inactions, violated 40 C.F.R. § 7.100, which prohibits intimidating, threatening, coercing, or engaging in other discriminatory conduct against any individual or group because of actions taken and/or participation in an action to secure rights protected by the non-discrimination statutes OCR enforces.

With respect to this issue, ECRCO finds insufficient evidence of discrimination based on retaliation. However, as explained below, ECRCO has concerns about the transparency of ADEM's process for addressing and resolving retaliation complaints, as well as the underlying processes and environmental complaint determinations which form the basis for some of Complainant's claims of retaliation. Our investigation revealed that ADEM's failure to provide explanation and clarifying information to Complainants to support its retaliation and environmental complaint determinations lends to an atmosphere where complainants feel that ADEM is inattentive to their concerns about the Arrowhead Landfill and whether their complaints are handled by ADEM in an impartial manner.

Background

On August 19, 2016, Complainants in EPA File No. 12R-13-R4 requested to supplement the existing complaint in that matter due to allegations that ADEM, directly and through the actions of Green Group Holdings, engaged in and failed to protect Complainants from a continuing practice[72] of retaliation and intimidation.[73] The Complainants provided additional clarifying

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[71] *See Choate*, 469 U.S. at 293-94: "Title VI had delegated to the agencies in the first instance the complex determination of what sorts of disparate impact upon minorities constituted sufficiently significant social problems, and were readily enough remediable, to warrant altering the practices of the federal grantees that had produced those impacts." See also Alexander v. Sandoval, 532 U.S. 275, 305-6 (2001) (Stevens, J., dissenting).

[72] In evaluating the Complainant's allegations, ECRCO determined that some of the discrete alleged acts described by the complainant fell outside of the 180-day regulatory filing requirement. (40 C.F.R. § 7.120) ECRCO analyzed these as part of an alleged continuing discriminatory practice. *See* Case Resolution Manual (Jan. 2017), at https://www.epa.gov/sites/production/files/2017-01/documents/final_epa_ogc_ecrco_crm_january_11_2017.pdf. "The complainant must allege facts that are sufficient to indicate either a series of related, discrete acts of which one occurred within the 180-day filing period or a systemic policy or practice that operated within the 180-day period."

[73] Letter from Marianne Engelman Lado, Senior Staff Attorney, Earthjustice to Lilian Dorka, Interim Director,

information about alleged instances of retaliation in a follow up conference call on September 15, 2016. In addition, Complainants submitted information in letters dated December 14, 2016, and July 28, 2017, which included specific examples and claims of "a broader pattern of intimidation and irregularities in ADEM's complaint process."[74] ECRCO also conducted an interview with one of the Complainants on September 7, 2017.

Legal Standard

The Title VI implementing regulation at 40 C.F.R. § 7.100, provides that "[n]o applicant, recipient, nor other person shall intimidate, threaten, coerce, or discriminate against any individual or group, either: (a) For the purpose of interfering with any right or privilege guaranteed by the Acts of this part, or (b) Because the individual has filed a complaint or has testified, assisted or participated in any way in an investigation, proceeding or hearing under this part or has opposed any practice made unlawful by this regulation."[75]

To establish that retaliation has occurred, ECRCO first must determine whether: (1) An individual engaged in protected activity of which the recipient was aware; (2) the recipient took a significantly adverse action against the individual; and (3) a causal connection exists between the individual's protected activity and the recipient's adverse action.[76] If all of these elements are present, a prima facie case of retaliation has been established and ECRCO then inquires whether the recipient had a legitimate, non-retaliatory reason for taking action that was adverse. ECRCO then analyzes the evidence to determine whether the offered reason is merely an excuse or pretext for retaliation.[77]

In addition, Title VI's prohibition on retaliation may extend to third parties,[78] which may include

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Office of Civil Rights, U.S. Environmental Protection Agency. (August 19, 2016).

[74] Letter from Marianne Engelman Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters, at p.7 (July 28, 2017). See also Letter from Marianne Engelman Lado, Senior Staff Attorney, Earthjustice to Lilian Dorka, Acting Director, Office of Civil Rights, U.S. EPA. (December 14, 2016).

[75] 40 C.F.R. § 7.100. Title VI gives authority for this investigation. *See* Peters v. Jenney, 327 F.3d 307, 316-18 (4th Cir. 2003) (concluding that under the Supreme Court's decision in Sullivan v. Little Hunting Park, Inc.396 US 229 (1969) (a prohibition on discrimination should be judicially construed to include an implicit prohibition on retaliation against those who oppose the prohibited discrimination) (internal citations omitted).

[76] U.S. Dept. of Justice Title VI Legal Manual, Section VIII (Proving Discrimination – Retaliation) (B)(3), at https://www.justice.gov/crt/fcs/T6Manual8; *see also* Peters v. Jenney, 327 F.3d 307, 320 (4th Cir. 2003) (internal citation omitted); Emeldi v. Univ. of Oregon, 673 F.3d 1218, 1223 (9th Cir. 2012) (applying Title VII framework to establish a prima facie case of retaliation under Title IX); Palmer v. Penfield Cent. Sch. Dist., 918 F. Supp. 2d 192, 199 (W.D.N.Y. 2013); Kimmel v. Gallaudet Univ. 639 F. Supp. 2d 34, 43 (D.D.C. 2009); Hickey v. Myers, 852 F. Supp. 2d 257, 268 (N.D.N.Y. 2012); Chandamuri v. Georgetown Univ., 274 F. Supp. 2d 71, 84 (D.D.C. 2003).

[77] *See, e.g., Patterson v. McLean Credit Union*, 491 U.S. 164, 186-86 (noting the framework for proof developed in civil rights cases), *citing, Texas Dept. of Community Affairs v. Burdine*, 450 U.S. 248 (1981); *McDonnell Douglas Corp. v. Green*, 411 U.S. 792 (1973); *see also*, Bowers v. Bd. of Regents of the Univ. Sys. of Ga., 509 Fed. Appx. 906, 912 (11th Cir. 2013)(finding that in a retaliation claim under Titles VI and IX, an adverse action is one that would dissuade a reasonable person from making or supporting a claim of discrimination)(citing, Burlington Northern & Santa Fe Ry. v. White, 126 S.Ct. 2405, 2415 (2006)).

[78] *See* 40 C.F.R. § 7.100 (stating that "[n]o applicant, recipient, **nor other person** shall intimidate, threaten, coerce, or discriminate against any individual or group. . ..)" (emphasis added). *See also*, 28 C.F.R. § 42.107(e) (Department

lower-level recipient employees, program beneficiaries or participants, organizations with a relationship to the recipient such as contractors, and others.[79] Recipients have two key obligations related to third party retaliation: first, to protect individuals from potential retaliation, recipients are obligated to keep the identity of Complainants confidential except to the extent necessary to carry out the purposes of the Title VI regulations, including conducting investigations, hearings, or judicial proceedings; and second, recipients must investigate and respond when a third party engages in retaliatory conduct that Title VI prohibits. [80] As with other types of third party conduct, such as harassment, the extent of the recipient's obligation is tied to the level of control it has over the bad actor and the environment in which the bad acts occurred.[81] EPA makes these determinations on a case-by-case basis in light of the facts and totality of circumstances in a particular case.

Allegation 1: ***ADEM's Response to Complainant's March 25, 2016 Letter***

Complainants alleged that ADEM failed to investigate allegations of intimidation and retaliation by ADEM's permittee, Green Group Holdings , which Complainants brought to ADEM's attention through correspondence dated March 25, 2016.[82] Specifically, Complainants asserted that Green Group Holdings threatened to take legal action against "community members' speaking out about the threats and injuries endured and perceived in the town,"[83] including statements about alleged desecration of New Hope Church Cemetery and alleged unpermitted discharge leaving Arrowhead Landfill.[84]

In addition, Complainants alleged that Landfill staff followed and observed community members and scientists near the Landfill in a way that Complainants perceived as threatening.[85] Also, Complainants allege that the Landfill disrupted the grounds at the New Hope Church Cemetery "by using a bulldozer to uproot trees, push up mounds of dirt, and widen a one-lane path into a 30 to 40-foot roadway through the cemetery grounds, possibly covering up some of the graves in the process."[86]

ADEM responded to the March 26, 2016 complaint about alleged retaliatory conduct by its

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of Justice regulations); 34 C.F.R. § 100.7(e) (Department of Education regulations); U.S. Dept. of Justice Title VI Legal Manual, Section VIII (Proving Discrimination – Retaliation) § (B)(3), at https://www.justice.gov/crt/fcs/T6Manual8

[79] U.S. Department of Justice Title VI Legal Manual, Section VIII: Proving Discrimination- Retaliation § (B)(3), at https://www.justice.gov/crt/fcs/T6Manual8.

[80] *Id.*

[81] *Id., citing,* Davis v. Monroe Cty. Bd. of Educ., 526 U.S. 629, 644 (1999).

[82] Letter from Matthew R. Baca, Associate Attorney, Earthjustice Northwest Office and Marianne Engelman Lado, Senior Staff Attorney, Earthjustice to Lance LeFleur, Director, Alabama Department of Environmental Management. (March 25, 2016).

[83] *Id.*

[84] Letter from Marianne Engelman Lado, Senior Staff Attorney, Earthjustice to Lilian Dorka, Interim Director, Office of Civil Rights, U.S. Environmental Protection Agency, at Exh. 6 (August 19, 2016).

[85] Letter from Matthew R. Baca, Associate Attorney, Earthjustice Northwest Office and Marianne Engelman Lado, Senior Staff Attorney, Earthjustice to Lance LeFleur, Director, Alabama Department of Environmental Management. (March 25, 2016).

[86] *Id.*

permittee, Green Group Holdings, in a letter to Earthjustice on April 8, 2016.[87] ADEM stated that it reviewed the information and determined not to become involved in the dispute between Complainants and Green Group Holdings. ADEM explained that its permittee remained in compliance with the conditions set forth in the permit and further stated that New Hope Church Cemetery property is outside the boundaries of the Landfill. Therefore, according to ADEM, any activities occurring at the Cemetery are outside the purview of the permit and further constitute a private dispute about libel and slander, which has nothing to do with Complainant's Title VI complaint. As a result, ADEM concluded that it would not get involved in the matters brought forth by the Complainants.

As to Allegation 1, ECRCO has determined that the Complainants engaged in a protected activity when they filed a Title VI administrative complaint with EPA alleging discrimination on the basis of race in a letter dated May 20, 2013.[88] These activities are rights and privileges guaranteed by Title VI and EPA's implementing regulation that are protected from retaliation.[89]

Although it appears that ADEM may not have handled the complaint through its nondiscrimination grievance procedures, ECRCO has found insufficient evidence to clearly establish a causal connection between the alleged adverse action (failure to investigate) and the protected activity of filing a Title VI complaint. In particular, there is no evidence that ADEM's apparent failure to address the Complainant's retaliation complaint through its nondiscrimination grievance procedures in March 2016 was motivated by Complainant's Title VI complaint filing in June 2013,[90] other than the assertion by the Complainants that it was so.[91] As a result, there is no causal connection between the protected activity and the adverse action to support a prima facie showing of retaliation.

Notwithstanding ECRCO's conclusion of insufficient evidence of a violation, ECRCO has concerns about ADEM's lack of transparency regarding the process it utilized to address this retaliation complaint. In analyzing this issue, ECRCO specifically asked ADEM whether it has a process/procedures for addressing and responding to claims of retaliation, intimidation, harassment or other misconduct by permitted facilities against community members. ADEM responded by referring generally to its Nondiscrimination Statement and provided a copy of its

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[87] Letter from Lance R. LeFleur, Director, ADEM to Matthew R. Boca, Esq. and Marianne Engelman Lado, Esq., Earthjustice. (April 8, 2016).

[88] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).

[89] *See, e.g., Peters v. Jenney*, 327 F.3d at 320-21 (applying the same meaning to "protected activity" in the Title VI context as in other civil rights cases, which is opposition to an unlawful practice that complainant has reason to believe has occurred), *citing, Bigge v. Albertson's, Inc.*,894 F.2d 1497, 1503 (11th Cir. 1990).

[90] *See, e.g.,* Jones v. Gulf Coast Health Care of Del., LLC, 854 F.3d 1261, 1271 (11th Cir. 2017) (noting that temporal proximity between a protected activity and an adverse action may be sufficient to establish a claim of retaliation, but if temporal proximity alone is relied on, it must be "very close" to establish causation)(internal citations omitted)

[91] *See* U.S. Department of Justice Title VI Legal Manual, Section VIII: Proving Discrimination- Retaliation § (B)(2), at https://www.justice.gov/crt/fcs/T6Manual8 (there must be evidence of discriminatory intent that does not require support from inferences).

Environmental Complaint Process (SOP #9303).[92] This SOP documents the process for filing environmental complaints with ADEM, but does not address the process for filing and investigating claims of discrimination, including those involving retaliation and intimidation.

The complaint at issue here, involving allegations of retaliation and intimidation by Green Group Holdings, is one of intentional discrimination[93] which is the type of complaint that should be handled through a recipient's nondiscrimination grievance procedures.[94] The nondiscrimination regulation requires that recipients adopt grievance procedures that assure the prompt and fair resolution of nondiscrimination complaints.[95] Although there is insufficient evidence in the record to conclude that ADEM did not conduct an appropriate review of this alleged retaliation action, ADEM's use of its grievance procedures, rather than its apparent use of its Environmental Complaint Process, would have provided Complainants with greater clarity and transparency and would have provided ADEM an opportunity to address this issue at the state level.

Given that it appears ADEM handled this particular complaint outside of its nondiscrimination grievance procedures, ECRCO has concerns regarding whether ADEM will utilize its grievance procedures to process retaliation complaints going forward. As a result, although not legally required under these specific facts, ECRCO strongly recommends that ADEM clarify and explain in the grievance procedures themselves that ADEM will investigate and resolve retaliation and intimidation claims in a prompt and impartial manner under the grievance procedures, just as ADEM states it would do so with any other discrimination claim.[96] Although not legally required, ECRCO further recommends that ADEM's grievance procedures inform the public that during the investigation of all claims, including retaliation, the "preponderance of the evidence" standard will be applied.

Allegation 2: ***Environmental Management Commission Meeting***

Complainants alleged that some of them attended the Alabama Environmental Management Commission (EMC)[97] meeting held on August 16, 2013, to present to issues that were occurring

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[92] Email from Tom Johnston, General Counsel, ADEM to Lilian Dorka, Director, External Civil Rights Compliance Office, EPA. (September 22, 2017) (attaching Environmental Complaint Process SOP #9303 Rev. 0, Version Date December 6, 2011).

[93] *See, Jackson v. Birmingham Bd. of Educ.*, 544 U.S. 167, 173-74 (2005) (finding that "[r]etaliation is, by definition, an intentional act and a form of discrimination because the complainant is being treated differently).

[94] *See* http://adem.alabama.gov/inside/files/CivilRightsProcess.pdf. ADEM stated that its grievance procedures have not changed in any substantial way since 2004. *See* Letter from Lance R. LaFleur, Director, ADEM to Lilian Dorka, Acting Director, Office of Civil Rights, EPA (September 1, 2016), at Attachment 2 - Response to Questions.

[95] 40 C.F.R. § 7.90 (each recipient with 15 or more employees shall adopt grievance procedures that assure the prompt and fair resolution of complaints).

[96] *See* 40 C.F.R. § 7.100 (stating that "[n]o applicant, recipient, **nor other person** shall intimidate, threaten, coerce, or discriminate against any individual or group. . ..)" (emphasis added).

[97] The EMC is the oversight body for ADEM and serves in a quasi-judicial role in hearing appeals of administrative actions of ADEM (Ala. Code §§ 22-22A-6 and 7; ADEM Admin. Code r. 335-1-1-.03 and ADEM Admin. Code chap. 335-2-1). Email from Tom Johnston, General Counsel, ADEM to Lilian Dorka, Director, External Civil Rights Compliance Office. (August 9, 2017). ADEM's website adds that [t]he EMC is composed of seven members who are appointed to six-year terms by the governor and subject to confirmation by the Alabama Senate. EMC is charged with developing the state's environmental policy, hearing administrative appeals of permits, administrative orders and variances issued by the Department, adopting environmental regulations and selecting an ADEM

in Uniontown related to Arrowhead Landfill and the wastewater treatment plant. Complainants further alleged that they were denied the opportunity to speak by EMC's board members due to the pending Title VI complaint.[98] For its part, ADEM denied that it or the EMC engaged in retaliatory conduct at the EMC meeting.

Regarding Allegation 2, ECRCO determined that the Complainants engaged in a protected activity when they filed a Title VI administrative complaint with EPA alleging discrimination on the basis of race.[99] ECRCO also found that the EMC took an adverse action against the Complainant(s) by denying them the opportunity to present during the August 2013 meeting. Complainants presented evidence that initially they would be allowed to speak at the EMC meeting, including providing a meeting agenda which made reference to their request to speak.[100] However, EMC ultimately precluded them from speaking due to their part in an active Title VI complaint dealing with the Arrowhead Landfill.[101] Complainants' participation in an active Title VI complaint and their preclusion from speaking for that reason provides the causal connection between the protected activity and the adverse action. Thus, ECRCO determined that the evidence supports the establishment of a prima facie case of retaliation.

Once a prima facie case has been established, the recipient must show that there was a legitimate non-discriminatory/retaliatory reason for the adverse action and that it was not a pretext for discrimination. As part of its investigation of this issue, ECRCO reviewed the EMC's August 16, 2013 hearing minutes, and requested further information from ADEM regarding the justification for the EMC's decision to preclude Complainants from speaking at the meeting. On August 9, 2017, ADEM provided its response. In doing so, ADEM referred to its rule which restricts public comments related to pending matters that are being addressed in another forum for investigation and determination. Specifically, ADEM Admin. Code Rule 335-2-3-.05(3)[102] states:

> After consideration of agenda items the Commission may consider comments from the members of the public. While the Commission encourages public participation at its meetings, for reasons of fairness and due process to the parties in administrative and legal proceedings involving the Commission, it specifically discourages the members of the Commission from engaging in the non-deliberative discussion of any case or legal proceeding pending before the Commission, or of any decision by the Commission or matter involving the Commission or Department that is subject of any ongoing case or legal proceeding. Parties to such proceedings and members of the general public shall

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director. *See* http://www.adem.state.al.us/commission/default.cnt .

[98] Conference call discussion between EPA representatives and Complainants on September 15, 2016.

[99] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).

[100] EMC Meeting Agenda (August 17, 2012), at http://www.adem.state.al.us/commission/minutes/8-16-13EMCMeetingFinalMinutes10-18-13.pdf.

[101] EMC Meeting Final Minutes, pp. 28-30 (August 13, 2013). http://www.adem.state.al.us/commission/minutes/8-16-13EMCMeetingFinalMinutes10-18-13.pdf.

[102] ADEM Admin. Code Rule 335-2-3-.05(3) found at http://www.alabamaadministrativecode.state.al.us/JCARR/JCARR-APR-16/ADEM%20335-2-3-.05.pdf

> not be permitted to use the public participation opportunities herein provided by the Commission to circumvent administrative or judicial procedures which specify the time and manner of presenting testimony, evidence, or comment to the Commission in a formal manner designed to provide due process to all parties.

Thus, according to ADEM, Complainants were not permitted to speak at the meeting because to do so would allow discussion relating to an ongoing case involving ADEM, and was not done so in retaliation for them filing a Title VI complaint. To support its position, ADEM provided additional examples where others who had pending proceedings unrelated to Title VI were likewise denied an opportunity to present for similar reasons pursuant to the same Rule.[103]

ECRCO has reviewed the evidence regarding Allegation 2 and determined that the EMC's decision to preclude Complainants from presenting at the August 16, 2013 EMC meeting was for a legitimate, non-retaliatory reason. In addition, ECRCO has determined that the information presented by ADEM shows that this same policy was applied in other circumstances during EMC meetings. That is, there is evidence to support that during other EMC meetings, prospective speakers were denied the opportunity to speak about other matters that were the subject of other pending administrative and legal proceedings, and also not Title VI matters. Thus, there is sufficient evidence to support ADEM's claim that the Policy is applied evenly in situations involving pending administrative and legal proceedings, regardless of the subject matter and thus, not a pretext for discrimination against the Complainants on the basis of engaging in the protected activity. Accordingly, ECRCO has determined that there is insufficient evidence to support a claim of retaliation against ADEM on this issue.

Allegation 3: ***Insufficient Attention to Environmental Concerns Raised by Complainants***

The Complainants have alleged that ADEM has engaged in retaliation based on several incidents relating to ADEM's processing of environmental complaints from Complainants. For example, one of the Complainants stated that he visited ADEM offices in August 2016 for a public meeting. After the meeting, the Complainant approached an ADEM staff member and attempted

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[103] Email from Tom Johnston, General Counsel, ADEM to Lilian Dorka, Director, External Civil Rights Compliance Office. (August 9, 2017). The email included an attached document identified as Exhibit A (archived minutes of EMC Meeting on 10/16/2009), Transcript Page Nos. 67-69. Additionally, the response included the following links to transcripts to show similar instances in which individuals who were not involved in Title VI matters were not allowed the opportunity to speak in front of the EMC due to pending matters that were currently being handled under a separate forum. Please find specific examples at the following web addresses:
http://www.adem.alabama.gov/commission/minutes/4-19-13EMCMeetingFinalMinutes6-21-13.pdf, Transcript at pp. 94-95;
http://www.adem.alabama.gov/commission/minutes/8-16-13EMCMeetingFinalMinutes10-18-13.pdf, Transcript at pp. 27-30;
-http://www.adem.alabama.gov/commission/minutes/10-18-13EMCMeetingFinalMinutes12-13-13.pdf, Transcript at pp. 37-38;
http://www.adem.alabama.gov/commission/minutes/6-20-14EMCMeetingFinalMinutes8-15-14.pdf, Transcript at pp. 42-45;
http://www.adem.alabama.gov/commission/minutes/10-21-16EMCMeetingFinalMinutes12-27-16.pdf, Transcript at pp. 52-71;
-http://www.adem.alabama.gov/commission/minutes/2-20-15RulemakingCommitteeMeetingFinalMinutes4-17-15.pdf, Transcript at pp. 133-147

to file an in-person complaint regarding runoff from the Arrowhead Landfill. According to this Complainant, the ADEM representative stated that ADEM would file the complaint for him and follow up. The Complainant asserted that the ADEM staff member never followed up nor provided a complaint number.

In investigating this issue, ECRCO reached out to ADEM to ask about its environmental complaint intake process and whether it has a separate or different intake process for complaints filed in person at ADEM offices. In response, ADEM referred ECRCO to its internal document Environmental Complaint Process (SOP #9303).[104] Based on the SOP's *Environmental Complaint Process* flow chart, in-person complaints to ADEM should be assigned to a staff member for entry into a complaint database for investigation. Subsequently, the assigned staff member is to communicate with the complainant to provide a complaint number and obtain additional information, as needed.[105] ECRCO checked ADEM's e-File system and was unable to locate a complaint from the Complainant around the referenced date, but did find record of several other complaints submitted by the Complainant from 2015 through 2017 concerning water runoff from the Landfill.[106]

In this instance, ECRCO determined that the Complainant engaged in a protected activity related to the filing of a Title VI administrative complaint with EPA alleging discrimination on the basis of race.[107] ECRCO also found that ADEM took an adverse action against the Complainant by failing to intake his complaint or follow up with him about his complaint. However, there is insufficient evidence that ADEM failed to intake the complaint due to Complainant's filing of the Title VI complaint because there is evidence of several other instances in which the Complainant was able to submit a complaint in which ADEM provided a complaint number and provided follow-up.[108] Thus, there is no causal connection between the protected activity and the adverse action to support a prima facie showing of retaliation.

The Complainant also asserted that ADEM has shown insufficient attention to Complainants who raise complaints about the Arrowhead Landfill. Specifically, Complainants cited to a November 13, 2015 incident where an ADEM employee responded to an environmental complaint submitted by two of the named Complainants by conducting an inspection of the Arrowhead Landfill.[109] According to Complainants, they witnessed ADEM employee and a Landfill representative concluding an inspection. At the time, Complainants stated that they were in the vicinity documenting continuing Landfill run-off. Complainants were able to get the

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[104] Environmental Complaint Process SOP #9303 Rev. 0, Version Date December 6, 2011.
[105] Environmental Complaint Process SOP #9303 Rev. 0, Version Date December 6, 2011. (ADEM Environmental Complaint Process Diagram).
[106] Referencing Complaints found against Perry County Associates 2015-2017 EFILE – ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, at http://app.adem.alabama.gov/eFile/
[107] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).
[108] *See* fn.95.
[109] Letter from Marianne Engelman-Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters, at pp. 5-6 (July 28, 2017).

attention of the ADEM employee to address their concerns about the runoff.[110] When the ADEM employee engaged Complainants, he did so in the in the presence of the Landfill representative. Complainants perceived this situation as intimidating. In addition, during the November 13 inspection the ADEM employee and the Landfill representative agreed to allow the Complainants to ride in the back seat of a vehicle on part of the facility grounds, but when one of the Complainants asked to visit specific areas of the Landfill related to their complaint, the ADEM employee ignored or dismissed their request.[111]

Here, ECRCO determined that the Complainants engaged in a protected activity related to the filing of a Title VI administrative complaint with EPA alleging discrimination on the basis of race.[112] ECRCO also found that ADEM took an adverse action against the Complainants by engaging with them in the presence of a Landfill representative while aware that Complainants had filed environmental complaints against the Landfill; however, there is insufficient evidence that ADEM handled this inspection in this manner due to Complainant's filing of the Title VI complaint. Specifically, there is no evidence beyond the assertion itself[113] to suggest that the filing of the Title VI complaint in June 2013 was the substantial or motivating reason for how this engagement with Complainants in November 2015 was conducted.[114] To this point, ECRCO asked ADEM to explain the circumstances under which the public participate in such environmental inspections; to which ADEM responded that "there are none."[115] Furthermore, there is no indication that the Complainants requested to meet with the ADEM employee separately and that the ADEM employee's failure to send the Landfill representative away was based on Complainant's status as Title VI complainants. Thus, there is no causal connection between the protected activity and the adverse action to support a prima facie showing of retaliation.

As another example of ADEM's alleged inattention to their complaints, Complainants described an instance in which separate individuals filed an environmental complaint, but received the same complaint number. Complainants identified Complaint No. 7k-002wd5e88 as an example of where this occurred. On or about November 11, 2015, one of the Complainants called in an

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[110] Letter from Marianne Engelman-Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters. (July 28, 2017).

[111] Letter from Marianne Engelman-Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters. (July 28, 2017).

[112] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).

[113] *See* U.S. Department of Justice Title VI Legal Manual, Section VIII: Proving Discrimination- Retaliation § (B)(2), at https://www.justice.gov/crt/fcs/T6Manual8 (there must be evidence of discriminatory intent that does not require support from inferences).

[114] *See, e.g. Jones v. Gulf Coast Health Care of Del., LLC, 854 F.3d 1261, 1271 (11th Cir. 2017)(noting that temporal proximity between a protected activity and an adverse action may be sufficient to establish a claim of retaliation, but if temporal proximity alone is relied on, it must be "very close" to establish causation)(internal citations omitted)*

[115] Email from Tom Johnston, General Counsel, ADEM to Lilian Dorka, Director, External Civil Rights Compliance Office, EPA. (September 22, 2017).

environmental complaint about run-off at the Arrowhead Landfill. This Complainant received Complaint No. 7k-002wd5e88 for his complaint. On or about November 12, 2015, another Complainant called to complain about run-off at the Arrowhead Landfill, and was give the same complaint number as the Complainant on the day before. Then, on November 13, 2015, still another Complainant complained to ADEM about Arrowhead Landfill run-off and was also give the same complaint number as the other two Complainants.[116]

ECRCO asked ADEM about its environmental complaint intake process and how it determines whether to give complaints the same complaint number. ECRCO also specifically asked if the logging of complaint No. 7k-002wd5e88 followed the complaint intake process. ADEM responded as follows: "If similar complaints are received close in time regarding the same subject matter, or if a complaint is submitted by multiple Complainants (i.e. multiple signatures on a complaint, multiple form letters submitted together), those complaints may be assigned the same number. Whether complaints are assigned the same or different complaint numbers, each individual complainant is provided a complaint number for purposes of follow-up and tracking."[117]

In this instance, ECRCO determined that the Complainants engaged in a protected activity related to the filing of a Title VI administrative complaint with EPA alleging discrimination on the basis of race.[118] ECRCO found no adverse action in ADEM assigning similar complaints with the same complaint number. All of the complaints were filed in consecutive days relating to the same environmental issue. ADEM explained that even though the same complaint number may be given to multiple complaints filed close in time with similar subject matter, each individual complainant is given the number for purposes of tracking. Accordingly, by referring to the assigned number, Complainants are still afforded the opportunity to follow-up with ADEM to ascertain the progress of their complaints. As a result, there is no adverse action to support a prima facie showing of retaliation.

In another instance, a Complainant filed an odor complaint in March 2016. However, Complainants contend that the odor complaint was not properly investigated because ADEM referred to an inspection of the facility conducted six months prior to the date the complaint was filed.[119] ECRCO asked ADEM how it determines whether a complaint warrants an onsite inspection and how past routine inspections are utilized to investigate newly received

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[116] Letter from Marianne Engelman-Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters, at pp. 5-6 (July 28, 2017).

[117] Email from Tom Johnston, General Counsel, ADEM to Lilian Dorka, Director, External Civil Rights Compliance Office, EPA. (September 22, 2017).

[118] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).

[119] Letter from Marianne Engelman-Lado, Visiting Clinical Professor of Law, Environmental Justice Clinic, Yale Law School to Lilian Dorka, Director, External Civil Rights Compliance Office, Office of General Counsel, U.S. Environmental Protection Agency Headquarters, at p. 8 (July 28, 2017) (referencing Complaint 1N-007RG7H01, EFILE – ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, at http://app.adem.alabama.gov/eFile/).

complaints. ADEM responded and stated that a follow-up inspection was not conducted due to similarity in the complaints and because ADEM was having continuing dialogue with the facility about the complaints and proposed response actions.[120]

Here, ECRCO determined that the Complainants engaged in a protected activity related to the filing of a Title VI administrative complaint with EPA alleging discrimination on the basis of race.[121] ECRCO also found that ADEM took an adverse action against the Complainants by not specifically investigating this odor incident, but instead referring to a previous inspection six months earlier. However, based on ADEM's explanation that it was addressing the matter with the facility, and in the absence of other evidence suggesting there was another motive, there is insufficient evidence that ADEM referred to the prior inspection in resolving Complainant's odor complaint due to the Complainant's filing of the Title VI complaint. Thus, there is no causal connection between the protected activity and the adverse action to support a prima facie showing of retaliation.

Conclusion

For the reasons set forth above, the record does not establish a prima facie case of discrimination, with respect to the alleged harms due to failure to meet one or more of the elements of a prima facie case of disparate impact discrimination as specifically discussed with respect to each of the May 2013 issues. Accordingly, ECRCO finds insufficient evidence to conclude that ADEM violated Title VI and EPA's nondiscrimination regulation in regarding ADEM's permitting actions as alleged. ECRCO also finds insufficient evidence of discrimination based on retaliation.

If you have any questions, please feel free to contact me at (202) 564-9649, by e-mail at dorka.lilian@epa.gov, or U.S. mail at U.S. EPA, Office of General Counsel, External Civil Rights Compliance Office (Mail Code 2310A), 1200 Pennsylvania Avenue, N.W., Washington, D.C., 20460.

Sincerely,

Lilian S. Dorka, Director
External Civil Rights Compliance Office
Office of General Counsel

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[120] Letter from Lance R. LeFleur, Director, ADEM to Lilian S. Dorka, Acting Director, Office of Civil Rights, U.S. Environmental Protection Agency. Re: EPA File No. 06R-03-R4; 12R-13-R4; 13R-16-R4 ADEM Response to EPA Follow-up Information Request. Attachment 1-02. (September 1, 2016).

[121] Letter from David A. Ludder to Vicki A. Simons, Director, Office of Civil Rights, U.S. Environmental Protection Agency Re: Title VI Civil Rights Complaint and Petition for Relief or Sanction – Alabama Department of Environmental Management Permitting of Arrowhead Landfill in Perry County, Alabama (EPA OCR File No. 01R-12-R4). (May 30, 2013).

cc: Elise Packard
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