

ILLINOIS POLLUTION CONTROL BOARD
September 20, 2007

IN THE MATTER OF:)
)
FAST-TRACK RULES UNDER NITROGEN) R07-18
OXIDE (NO_x) SIP CALL PHASE II:) (Rulemaking - Air)
AMENDMENTS TO 35 ILL. ADM. CODE)
SECTION 201.146 AND PARTS 211 and 217)

Proposed Rule. Final Notice.

OPINION AND ORDER OF THE BOARD (by A.S. Moore):

Today the Board adopts the proposed rule for final notice under the Illinois Administrative Procedure Act (5 ILCS 100/5-5 *et seq.* (2006)). *See* 415 ILCS 5/28.5(p) (2006). The adopted rule is substantively unchanged from the rule proposed for second notice.

The adopted rules are intended to reduce interstate and intrastate transport of nitrogen oxides (NO_x) emissions on ozone season and annual bases by reducing NO_x emissions from stationary reciprocating internal combustion engines addressed in the NO_x State Implementation Plan (SIP) Call Phase II. The Board adds a new Subpart Q to Part 217 of the Board's air regulations. The existing units subject to this rulemaking are specifically listed in Appendix G. On April 6, 2007, the Illinois Environmental Protection Agency (Agency) originally filed its rulemaking proposal in this docket under the "fast-track" procedures of Section 28.5 of the Environmental Protection Act (Act) (415 ILCS 5/28.5 (2006)). In an order dated May 17, 2007, the Board concluded that the Agency's entire proposal was not "required to be adopted" by the Clean Air Act (CAA). Accordingly, the Board bifurcated the proposal by continuing to consider under fast-track procedures in this docket only the portion applicable to engines affected by the NO_x SIP Call Phase II.

First notice of this rulemaking was published in the *Illinois Register* on May 4, 2007. 31 Ill. Reg. 6578, 6597 (May 4, 2007). The proposal adopted here is substantively unchanged from that adopted in the Board's August 9, 2007 second-notice opinion and order.

In this opinion and order, the Board first describes the procedural history of this rulemaking and then provides the federal regulatory background for the Agency's proposal. The opinion then summarizes the adopted rules before addressing their technical feasibility and economic reasonableness. The Board's order then sets forth the adopted amendments for final notice publication in the *Illinois Register*.

PROCEDURAL HISTORY

On April 6, 2007, the Agency filed with the Board a rulemaking proposal intended to reduce emissions of NO_x from stationary reciprocating engines and turbines. The Agency's proposal included a technical support document (TSD). In its accompanying statement of

reasons (Statement), the Agency invoked as statutory authorities for filing its proposal sections 9.9, 10, and 27 of the Act. Statement at 1, 7-8; *see* 415 ILCS 5/9.9, 10, 27 (2006)). The Agency also invoked Section 28.5 of the Act, which provides for “fast-track” proceedings applying “solely to the adoption of rules proposed by the Agency and required to be adopted by the State under the Clean Air Act as amended by the Clean Air Act Amendments of 1990 (CAAA).” Statement at 8-11, citing 415 ILCS 5/28.5(a) (2004).

On April 16, 2007, ANR Pipeline Company, Natural Gas Pipeline Company, Trunkline Gas Company, and Panhandle Eastern Pipeline Company (collectively, the Pipeline Consortium) filed an “Objection to Use of Section 28.5 Fast Track Procedures for Consideration of Nitrogen Oxide Proposal as Filed.” On April 17, 2007, the Illinois Environmental Regulatory Group (IERG) filed an “Objection to Use of Section 28.5 ‘Fast-Track’ Rulemaking for the Illinois Environmental Protection Agency’s Proposed Rules.”

On April 19, 2007, the Board adopted an order accepting the Agency’s proposal for hearing without commenting on its merits and sending the proposed rule to first notice under the Illinois Administrative Procedure Act. *See* 31 Ill. Reg. 6559, 6578, 6597; 31 Ill. Reg. 7370-72 (correction of hearing date); *see also* 5 ILCS 100/1-1 *et seq.* (2006). In the same order, the Board noted that it had received objections to the Agency’s reliance on section 28.5 procedures both from the Pipeline Consortium and from IERG. The same order directed that any response to the two objections be filed by May 1, 2007, and allowed replies to the responses to be filed by May 8, 2007.

On May 1, 2007, the Agency filed a “Response to the Pipeline Consortium’s Objection to Use of Section 28.5 Fast Track Procedures for Consideration of Nitrogen Oxide Proposal,” accompanied by an affidavit of Robert Kaleel. Also on May 1, 2007, the Agency filed a “Response to the Illinois Environmental Regulatory Group’s Objection to Use of Section 28.5 Fast Track Procedures for Consideration of Nitrogen Oxide Proposal”, accompanied by an affidavit of Robert Kaleel.

On May 8, 2007, the Pipeline Consortium filed a “Reply to the Illinois Environmental Protection Agency’s Responses to Objections to the Use of Section 28.5 Fast-Track Rulemaking Procedures in this Matter.” Also on May 8, 2007, IERG filed a “Reply to Response to Objection to Use of Section 28.5 ‘Fast-Track’ Rulemaking for the Illinois Environmental Protection Agency’s Proposed Rules,” accompanied by an affidavit of Deirdre K. Hirner.

On May 14, 2007, the Pipeline Consortium filed in Sangamon County Circuit Court a complaint seeking declaratory and injunctive relief related to this proceeding. The Pipeline Consortium asserted that it filed its complaint “as a result of IPCB’s illegal rulemaking procedure and the IEPA’s illegal filing of a proposed rule with the IPCB.” ANR Pipeline Company, Natural Gas Pipeline Company, Trunkline Gas Company, and Panhandle Eastern Pipe Line Company v. Illinois Pollution Control Board and Illinois Environmental Protection Agency, No. 07MR190 (Sangamon County Circuit Court). Generally, plaintiffs alleged that Section 28.5 of the Act is unconstitutional and could not be used to adopt certain portions of IEPA’s original proposal. On June 14, 2007, the parties filed an agreed motion to continue.

In an order dated May 17, 2007, the Board concluded that the Agency's entire proposal is not "required to be adopted" by the Clean Air Act (CAA). Accordingly, the Board bifurcated the proposal by continuing to consider only the portion applicable to the 28 internal combustion engines affected by the NO_x SIP Call Phase II under the fast-track procedures of Section 28.5 of the Act. In the same order, the Board directed publication of the remainder of the Agency's proposal for first notice under Sections 27 and 28 of the Act in docket R07-19 without commenting on the merits of the proposal.

In a letter dated May 2, 2007, the Board requested that the Department of Commerce and Economic Opportunity (DCEO) conduct an economic impact study of this rulemaking proposal. *See* 415 ILCS 5/27(b) (2006). On May 21, 2007, the Board received from DCEO a response stating that, based upon its review of the request and in light of its continued financial constraints, DCEO had determined not to conduct a study of the economic impact of the proposal.

On May 11, 2007, the Agency prefiled the testimony of Robert Kaleel, Yoginder Mahajan, Scott Leopold, and Michael Koerber. On May 18, 2007, the Agency filed a motion to withdraw testimony. Specifically, the Agency sought leave to withdraw the testimony of Scott Leopold and Michael Koerber in light of the Board's May 17, 2007 order bifurcating the Agency's original proposal. Also on May 18, 2007, the Agency filed a motion to amend testimony. Specifically, the Agency sought leave to amend the testimony of Robert Kaleel and Yoginder Mahajan in light of the Board's May 17, 2007 order bifurcating the Agency's original proposal.

The first hearing (Tr. 1) in this proceeding took place on May 21, 2007 in Springfield. At that hearing, the hearing officer granted the Agency's motion to withdraw testimony, granted the Agency's motion to amend testimony, and accepted the amended testimony of Robert Kaleel (Kaleel Test.) and Yoginder Mahajan (Mahajan Test.). Tr. 1 at 4-5. Two exhibits, the amended testimony of Robert Kaleel (Exh. 1) and the amended testimony of Yoginder Mahajan (Exh. 2) were admitted into the record at the first hearing.

On June 8, 2007, James McCarthy prefiled testimony (McCarthy Test.). The second hearing (Tr. 2) in this proceeding took place on June 19, 2007 in Chicago. Seven exhibits were admitted into the record at the first hearing:

Testimony of James McCarthy (Exh. 3)

Hearing Officer Order of May 24, 2007 (Exh.4)

Appendix G: Existing Reciprocating Internal Combustion Engines Affected by NO_x SIP Call (Exh. 5)

Interstate Ozone Transport: Response to Court Decisions on the NO_x SIP Call, NO_x SIP Call Technical Amendments, and Section 126 Rules; Final Rule (69 Fed.Reg. 21606-48) (Exh. 6)

Alternative Control Techniques Document – NO_x Emissions from Stationary Reciprocating Internal Combustion Engines (USEPA) (Exh. 7)

Technical Support Document for Controlling NO_x Emissions from Stationary Reciprocating Internal Combustion Engines and Turbines (AQPSTR 07-01) (Exh. 8)

Stationary Reciprocating Internal Combustion Engines Technical Support Document for NO_x SIP CALL (October 2003) (Exh. 9)

On the record at the second hearing, the Agency indicated that it did not intend to introduce any additional material into the record and would have no objection if the Board cancelled the third hearing in this proceeding, which had been scheduled to begin on July 2, 2007. Tr. 2 at 44-45. A hearing officer order dated June 22, 2007 cancelled the third hearing and set the statutory 14-day comment period to run from June 21, 2007, to July 5, 2007. *See* 415 ILCS 5/28.5(l) (2006).

On June 25, 2007, the Agency filed a motion for reconsideration of the Board's May 17, 2007 order bifurcating the Agency's original proposal. On July 9, 2007, the Board received the Pipeline Consortium's response to the motion for reconsideration. Also on July 9, 2007, the Board received from IERG a motion to strike and a response to the motion for reconsideration. Also on July 9, 2007, the Agency filed a motion for leave to supplement and a supplement to its motion for reconsideration. Specifically, the Agency sought to add as an exhibit to its motion a document entitled *Report of the Attorney General's Task Force on Environmental Legal Resources (1992)*. On the same date, the Agency also filed a motion for waiver of the requirement that it file an original and nine copies of the supplemental exhibit.

On July 11, 2007, the Agency filed a motion for leave to file a reply by date certain, which committed to file a reply addressing both responses no later than July 18, 2007. In an order dated July 12, 2007, the Board granted the Agency leave to reply and directed the Agency to file that reply no later than July 18, 2007. On July 19, 2007, the Agency filed a motion for leave to file its consolidated reply *instanter*, accompanied by its consolidated reply. On July 23, 2007, the Agency filed a response to IERG's motion to strike.

In an order dated July 26, 2007, the Board granted the Agency's motion for leave to supplement, accepted the supplemental exhibit, and granted the Agency's motion for waiver of procedural requirements. Also in the July 26, 2007 order, the Board granted the Agency's motion to file *instanter*, denied IERG's motion to strike the Agency's motion to reconsider, and denied the Agency's motion for reconsideration of the Board's May 17, 2007 order.

On July 5, 2007, the Board received the Agency's post-hearing comments (PC 1). Also on July 5, 2007, the Board received the Pipeline Consortium's comments (PC 2).

In an order dated August 9, 2007, the Board adopted proposed rules for second-notice review by the Joint Committee on Administrative Rules (JCAR). At a meeting on September 18, 2007, JCAR issued its certificate of no objection to the proposed rules.

BACKGROUND OF FEDERAL REQUIREMENTS

The Agency stated that it proposed new Subpart Q, as modified by the Board's May 17, 2007 order, to reduce interstate and intrastate transport of NO_x emissions on ozone season and annual bases by adopting rules reducing NO_x emissions from stationary reciprocating internal combustion engines addressed in the NO_x SIP Call Phase II. PC 1 at 1.

The Agency stated that USEPA in 2004 promulgated a rule addressing interstate ozone transport. Statement at 6, citing 69 Fed. Reg. 21603 (April 21, 2004). The Agency further stated that this rule responded to the court's ruling in Michigan v. EPA, 213 F.3d 663 (D.C. Cir. 2000). The Agency argued that, in its most important provision, the federal rule "sets the control limit for large natural gas-fired stationary internal combustion engines at 82 percent and for diesel and dual fuel stationary internal combustion engines at 90 percent." Statement at 7. The Agency stated that the federal rule also provided that states required to address the NO_x budget for stationary internal combustion engines were required to submit Phase II SIPs by April 1, 2005. *Id.*

The Agency claimed that, "[i]n November 2005, Illinois and other states received notification that USEPA had found a failure to submit a SIP addressing the Phase II requirements." *Id.*, citing Statement, Att. 7.b (letter from USEPA Regional Administrator to Agency Director). The Agency further claimed that USEPA has "published the findings of failure to submit Phase II SIPs, but it had not yet published a federal implementation plan for Phase II or started a Section 179 sanctions clock." Statement at 7, citing 71 Fed. Reg. 6347 (Feb. 8, 2006): *see* Tr. 1 at 14-15.

The Pipeline Consortium argued that the NO_x SIP Call Phase II merely obligates the state to reduce NO_x emissions according to a budget and does not require the state to regulate emissions from units subject to the proposal. PC 2 at 1, citing 69 Fed. Reg. 21604-05 (April 21, 2004), 63 Fed. Reg. 57356, 57405 (Oct. 27, 1998), Tr. 1 at 15. While the Pipeline Consortium had objected on this basis to considering the proposal under Section 28.5 of the Act (415 ILCS 5.28.5 (2006)), the Pipeline Consortium set aside that objection because of the bifurcation of the rule. PC 2 at 1. The Pipeline Consortium noted that it participated with the Agency in developing the proposed rules and that it regarded the proposal as consistent with the principles of the Phase II NO_x SIP Call. *Id.* at 2. The Pipeline Consortium also noted that it "has been proactive in complying with the rule even prior to its adoption by the Board. *Id.*

SUMMARY AND DISCUSSION OF ADOPTED RULES

Part 211: Definitions and General Provisions

The Board adopts new definitions to Part 211 and also amends an existing definition under the same Part. The amendments to Part 211 are briefly described below.

Brakehorsepower (rated-bhp) (Section 211.740)

The Board adds a definition of “brakehorsepower (rated – bhp)” at Section 211.740. The term is used to specify which engines would be subject to the requirements of Subpart Q. Statement at 16. The Board defines the term as “the rated horsepower capacity of the engine as defined on the engine nameplate at standard conditions.” PC 1, Att. A at 21; *see also* Statement, Exh. 9.b.

Diesel Engine (Section 211.1740)

The Board adds a definition of “diesel engine” at Section 211.1740. “Diesel engine” is defined as, “for the purposes of 35 Ill. Adm. Code 217, Subpart Q, a compression ignited two- or four-stroke engine in which liquid fuel injected into the combustion chamber ignites when the air charge is compressed to a temperature sufficiently high for auto-ignition.” PC 1, Att. A at 21; *see also* Statement, Exh. 9.b.

Emergency or Standby Unit (Section 211.1920)

The Board adds language to the existing definition of “emergency or standby unit” at Section 211.1920. Statement at 16-17. Specifically, the adopted amendments clarify that a unit being used to supplement power capacity is not an emergency or standby unit. *Id.*; *see* PC 1, Att. A at 21. Further, the adopted changes clarify “that testing the unit or verifying the unit’s readiness for use does not disqualify the unit as an emergency or standby unit.” Statement at 17; *see* PC 1, Att. A at 21.

Lean-burn engine (Section 211.3300)

The Board adds a definition of “lean-burn engine” at Section 211.3300, since that term is used to specify the control to which affected engines will be subject under the requirements of Subpart Q. Statement at 17. The Board defines the term as “any spark-ignited engine that is not a rich-burn engine.” PC 1, Att. A at 21; Statement, Exh. 9.b.

Rich-burn engine (Section 211.5640)

The Board also adds a definition of “rich-burn engine” at Section 211.5640 to specify the control to which affected engines will be subject under the requirements of Subpart Q. Statement at 17. The proposal defines the term as “a spark-ignited engine where the oxygen content in the exhaust stream of the engine before any dilutions is 1 percent or less by volume measured on a dry basis.” PC 1, Att. A at 22; Statement, Exh. 9.b.

Part 217: Nitrogen Oxides Emissions

Measurement Methods (Section 217.101)

Section 217.101 now provides three methods according to which NO_x must be measured. 35 Ill. Adm. Code 217.101. The Board adopts two types of amendments to this provision. First, the Board strikes references to the dates on which USEPA last updated the specified methods. Statement at 17; *see* PC 1, Att. A at 4. The Board also adds cross-references to Section 217.104, which incorporates these procedures by reference and provides specific dates of the incorporated procedures. Statement at 17; *see* PC 1, Att. A at 4. Second, the Board adds a measurement method for monitoring NO_x with portable monitors. Statement at 17; *see* PC 1, Att. A at 4.

Abbreviations and Units (Section 217.102)

Section 217.102 now provides abbreviations and conversion factors used in Part 217. *See* 35 Ill. Adm. Code 217.102. Originally, the Agency proposed “to add the abbreviations and conversion factors used in Subpart Q and to correct the alphabetical order of the existing list.” Statement at 17. The Board sent the proposed changes to first notice on April 19, 2007. *See* 31 Ill. Reg. 6597, 31 Ill. Reg. 7372.

In its final comments, the Agency noted that the Pipeline Consortium recommended deleting the last three conversion factors listed in the Agency’s proposal. PC 1 at 5; *see* Statement, Exh. 9.c. The Agency stated that, on the basis of its own review, it found “that these conversion factors are not necessary to other Subparts in Part 217 or for use in Subpart Q” and therefore proposed to delete them. *Id.* at 5-6; *id.*, Att. A at 4-5. The Agency characterized the remaining amendments to Section 217.102 as “a necessary part” of its proposal. PC 1 at 5; *see also* Tr. 1 at 9. The Agency specifically requested that this section “be included in the proposal for adoption.” PC 1 at 5. The Board agreed with the Agency’s characterization and included the proposed amendments to Section 217.102, as amended in the Agency’s post-hearing comments, in its second-notice opinion and order.

Incorporation by Reference (Section 217.104)

Section 217.104 now incorporates specified materials by reference. *See* 35 Ill. Adm. Code 217.104. The Board first updates various incorporations by reference. Statement at 17; *see* PC 1, Att. A at 6. The Board also incorporates an ASTM emissions testing method for portable monitors. Statement at 17; *see* PC 1, Att. A at 6. Finally, the Board also incorporates “test methods for NO_x emissions from engines and turbines.” Statement at 17; *see* PC 1, Att. A at 6.

Applicability (Section 217.386)

For this new section, the Agency originally proposed criteria establishing whether a stationary reciprocating internal combustion engine or turbine is an affected unit subject to the requirements of the proposed Subpart Q. Statement at 18; Statement, Exh. 9.c. The Agency

noted, however, that the Board's May 17, 2007 order bifurcated the original proposal and narrowed the scope of this rulemaking. PC 1 at 1. The Agency then proposed revised language, which in its entirety provides that "[a] stationary reciprocating internal combustion engine listed in Appendix G of this Part is subject to the requirements of this Subpart Q." PC 1, Att. A at 6-7. In its second-notice opinion and order, the Board found that the changes proposed by the Agency to Section 217.386 were appropriate, since the scope of the instant rulemaking is limited to the engines listed in Appendix G.

Control and Maintenance Requirements (Section 217.388)

First, the Board adopts under subsections (a)(1) and (a)(2) the requirements that an "owner or operator must limit the discharge from an affected unit into the atmosphere of any gases that contain NO_x" to separate concentration limits for spark-ignited rich-burn engines and spark-ignited lean-burn engines. PC 1, Att. A at 7.

Second, the Board provides in subsection (b) that "owners and operators be allowed the option of complying with an emissions averaging plan instead of concentration limits." Statement at 18; *see* PC 1, Att. A at 7; Statement, Exh. 9.c. Emissions averaging plans are addressed below in Section 217.390.

Third, the Board adopts requirements pertaining to inspection and maintenance. For units not located at a natural gas transmission compressor station or storage facility, the inspection and maintenance must be performed according to a plan based in the manufacturer's recommendation. PC 1, Att. A at 7. In the event that the original equipment manual is not available or substantial modifications require an alternate plan, the Board requires that the inspection and maintenance be performed according to "what is customary for the type of air pollution control equipment, monitoring device, and affected unit." PC 1, Att. A at 7. For units located at a natural gas transmission compressor station or storage facility, owners and operators follow "the operator's maintenance procedures for the applicable air pollution control device, monitoring device, and affected unit." PC 1, Att. A at 7-8.

Emissions Averaging Plan (Section 217.390)

First, the Board under subsection (a)(1) describes units that commenced operation before January 1, 2002 that may be included in an emissions averaging plan. PC 1, Att. A at 8. Those include units located in Illinois so long as the units are owned by the same company or parent company and are not included in more than one emissions averaging plan. *Id.* Under subsection (a)(2), the Board describes units that may not be included in an emissions averaging plan. *Id.* Ineligible units are "units that commence operation after January 1, 2002, unless the unit replaces an engine or turbine that commenced operation on or before January 1, 2002, or it replaces an engine or turbine that replaced a unit that commenced operation on or before January 1, 2002." *Id.*

Second, the Board under subsection (b) provides requirements for submitting an emissions averaging plan. PC 1, Att. at 8. An owner or operator must submit a plan by the

applicable compliance date set forth in Section 217.392 below. *Id.* That plan must list “affected units included in the plan by unit identification number and permit number.” *Id.* In addition, an owner or operator must demonstrate compliance through a sample calculation using the methodology provided in subsection (f). *Id.*

Third, the Board under subsection (c) addresses amendment of emissions averaging plans. PC 1, Att. A at 8. That provision provides that “[a]n owner or operator may amend an emissions averaging plan only once per calendar year.” *Id.* It further provides that, “[i]f an amendment for a calendar year is going to be submitted, it must be submitted no later than May 1 of the applicable year; otherwise, the plan from the previous year will be the applicable plan.” Statement at 20; *see* PC 1, Att. A at 8.

Fourth, the Board under subsection (d) requires that, “if an affected unit included in a plan is sold or taken out of service, the owner or operator, and the buyer, if applicable, must submit an updated emissions averaging plan within 60 days of the occurrence.” Statement at 20; *see* PC 1, Att. A at 8-9.

Fifth, the Board under subsection (e) requires an owner or operator to demonstrate compliance both for the ozone season and for the calendar year. PC 1, Att. A at 9. The Board also requires that owners and operators must “[n]otify the Agency by October 31 following the ozone season, if compliance cannot be demonstrated for that ozone season.” *Id.*; *see* Statement at 20-21. The Board also requires that owners and operators must submit a compliance report by January 31 following each calendar year. PC 1, Att. A at 9.

Sixth, the Board under subsection (f) establishes the formula for demonstrating compliance through an emissions averaging plan. PC 1, Att. A at 9-10. Under this provisions, “[t]he total mass of NO_x emissions from the units listed in the emissions averaging plan must be equal to or less than the total mass of allowable NO_x emissions for those units for both the ozone seasons and calendar year.” *Id.* at 9.

Seventh, the Board under subsection (g)(1) establishes the equation for determining affected units’ actual NO_x emissions for each fuel used. PC 1, Att. A at 10. The Board establishes under subsection (g)(2) the equation for determining affected units’ allowable NO_x emissions for each fuel used. PC 1, Att. A at 10-11. In addition, the Board adopts under subsection (g)(3) “a specific formula for electric replacement units” and under subsection (g)(4) “a formula for non-electric replacement units.” Statement at 21; *see* PC 1, Att. A at 11-12.

The Board adopts under subsection (g)(5) “a formula for units that have been replaced through the purchase of power.” Statement at 21; *see* PC 1, Att. A at 12. This subsection also provides that “these units may be included in any emissions averaging plan for no more than five years beginning with the calendar year that the replaced unit is shut down.” PC 1, Att. A at 12. Finally, the Board adopts under subsection (g)(6) a formula for units that are not listed in Appendix G but are used in an emissions averaging plan. *Id.*

Eighth, the Board adopts under subsection (h) “conditions for units using C[ontinuous] E[missions] M[onitoring] S[ystem] in lieu of stack testing an portable monitoring.” Statement at 21; *see* PC 1, Att. A at 12-13. Subsections (h)(1) and (h)(2) address actual NO_x emissions and allowable NO_x emissions, respectively. PC 1, Att. A at 13.

Compliance (Section 217.392)

The Agency’s initial filing on April 6, 2007 proposed a compliance date of May 1, 2007. Statement, Exh. 9.c. In its post-hearing comment, the Agency noted that

[t]he compliance date initially proposed by the Illinois EPA has passed. If the Board adopted that initially proposed date, it would result in a retroactive compliance date; hence, the Illinois EPA is recommending a new compliance date of January 1, 2008. PC 1 at 8; PC 1, Att. A at 13; Kaleel Test. at 4.

Consequently, the Board proposed that, on and after January 1, 2008, “an owner or operator of an affected engine listed in Appendix G may not operate the affected engine unless the requirements of this Subpart Q are met.” PC 1, Att. A at 13.

Testing and Monitoring (Section 217.394)

Generally, subsection (a) establishes requirements regarding initial performance testing. *See* PC 1, Att. A at 13-14. Subsection (a)(1) requires that engines listed in Appendix G must undergo an initial performance test. *Id.* at 13. The subsection further provides that these “[p]erformance tests must be conducted on units listed in Appendix G, even if the unit is included in an emissions averaging plan.” *Id.*

Subsection (a)(2) provides, with regard to units that are not affected units but are included in an emissions averaging plan and operate more than 876 hours per calendar year, that this testing must occur within the first 876 hours of operation per calendar year. *Id.* at 13-14. Subsection (a)(3) requires, with regard to “units that are not affected units that are included in an emissions averaging plan and that operate fewer than 876 hours per calendar year” must undergo testing once within the five-year period after the compliance date. *Id.* at 14.

Generally, subsection (b) establishes requirements regarding subsequent testing. *See* PC 1, Att. A at 14. Subsection (b)(1) provides, with regard to units either listed in Appendix G or included in an emissions averaging plan, that that they must undergo testing once every five years. *Id.* The subsection further provides that “[t]esting must be performed in the calendar year by May 1 or within 60 days of starting operation, whichever is later.” *Id.* Subsection (b)(2) provides that an owner or operator must notify the Agency within 30 days if monitored data shows that the unit does not comply with the applicable emissions concentration limit or emissions averaging plan. *Id.* The subsection also requires the owner or operator to conduct a performance test “within 90 days of the determination of noncompliance.” *Id.* Finally, subsection (b)(3) provides that, when the Agency or USEPA form the opinion that testing is

necessary to demonstrate compliance, the owner or operator must conduct that testing at his or her own expense within 90 days of receiving a notice to test from the Agency or USEPA. *Id.*

Generally, subsection (c) establishes testing procedures. *See* PC 1, Att. A at 14. Subsection (c)(1) provides that owners and operators of engines must conduct testing “using Method 7 or 7E of 40 C.F.R. 60, Appendix A, as incorporated by reference in Section 217.104.” *Id.* The subsection further provides that tests must include three separate runs with a duration of at least 60 minutes each. *Id.* The subsection further provides that “NO_x emissions must be measured while the affected unit is operating at peak load.” *Id.* Finally, the subsection provides, with regard to units that combust more than one type of fuel, that separate performance tests are required for each of those fuels. *Id.* Subsection (c)(2) provides that owners and operators of turbines included in an emissions averaging plan must perform testing according to the provisions of 40 C.F.R. 60.4400, incorporated by reference in Section 217.104. *Id.* at 14-15.

Generally, subsection (d) establishes monitoring procedures. *See* PC 1, Att. A. at 15. The subsection provides that owners and operators of affected units or units included in an emissions averaging plan must monitor NO_x concentrations annually, except for years in which a performance test is conducted. *Id.* For units that operate less than 876 hours per calendar year, the subsection requires this monitoring at least once every five years. *Id.* Subsection (d)(1) requires that this monitoring be performed using method ASTM D6522-00, as incorporated by reference in Section 217.104, or a method approved by the Agency. *Id.* The subsection further requires that, “[i]f the unit combusts both liquid or gaseous fuels as primary or backup fuels, separate monitoring is required for each fuel.” *Id.* Subsection (d)(2) requires that “[m]easurements of NO_x and O₂ concentrations must be taken three times for a duration of at least 20 minutes while the unit is operating at the highest achievable load.” Statement at 23; *see* PC 1, Att. A at 15.

Generally, subsection (e) addresses a continuous emissions monitoring system (CEMS). The subsection provides that units equipped with a CEMS meeting specified requirements are not required to meet the compliance testing and monitoring requirements of this section. PC 1, Att. A at 15. The subsection requires demonstrating compliance on an ozone season and on an annual basis. *Id.*

Recordkeeping and Reporting (Section 217.396)

Subsection (a) establishes requirements regarding recordkeeping. *See* PC 1, Att. A at 15-16. The owner or operator of a unit listed in Appendix G or included in an emissions averaging plan must maintain records that demonstrate compliance with the requirements of Subpart Q. *Id.* at 15. These records include, but are not limited to, data such as hours of operation, test results, and logs of inspections and maintenance. *Id.* at 16.

Subsection (b) provides that an owner or operator of an affected unit or a unit included in an emissions averaging plan must maintain the records required by subsection (a) for five years.

PC 1, Att. A at 16. The subsection also provides that “[t]he records must be made available to the Agency and USEPA upon request.” *Id.*

Subsection (c) provides deadlines by which an owner or operator must provide to the Agency notification of testing, a testing protocol, test results, monitored exceedences of the applicable NO_x concentration, and permanent shutdowns. PC 1, Att. A at 16-17. The subsection also provides deadlines by which an owner or operator must provide notification that he or she cannot demonstrate compliance for the ozone season and submit a compliance plan containing specified data. *Id.* at 17-18. The subsection also provides that, if an owner or operator operates a CEMS, he or she is required to submit an excess emissions and monitoring systems performance report according to federal requirements. *Id.* at 18.

Appendix G

The existing units subject to this rulemaking are specifically listed in Appendix G. The Agency stated that, “[i]n Appendix G, Illinois EPA is proposing to add a list of the NO_x SIP Call engines based on how the unit is listed in the most recent permit issued or construction permit application submitted.” Statement at 24; *see* PC 1, Att. A at 19-20.

TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

The Board requested that DCEO conduct an economic impact study (EcIS) on this rule. DCEO responded that, based upon its review of the request and in light of its continued financial constraints, it had determined not to conduct a study of the economic impact of the proposal.

In its second-notice opinion and order, the Board found that the proposed regulations were technically feasible and economically reasonable. The Board noted that both combustion and post-combustion controls are available for reducing NO_x emissions from reciprocating internal combustion engines. The Board also found that the affected sources can comply with the NO_x emission reductions at a reasonable cost. The record indicated that some of the affected sources have already initiated projects to install emission controls to reduce NO_x emissions. Finally, the Board noted that the rules provide compliance flexibility by allowing emissions averaging and the discretion to choose the most effective control technology.

CONCLUSION

The Board adopts the proposed new Subpart Q and related provisions for final notice pursuant to the IAPA (5 ILCS 100 5/5 *et seq.* (2006)). *See* 415 ILCS 5/28.5(p) (2006). The adopted regulations control NO_x emissions from stationary internal combustion engines affected by the NO_x SIP Call Phase II. The Board finds the final rule is economically reasonable and technically feasible.

ORDER

The Board directs the Clerk to cause the filing of the following rule with the Secretary of State for publication as an adopted rule in the *Illinois Register*.

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE B: AIR POLLUTION
 CHAPTER I: POLLUTION CONTROL BOARD
 SUBCHAPTER c: EMISSION STANDARDS AND LIMITATIONS FOR
 STATIONARY SOURCES

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211.APPENDIX A Rule into Section Table

211.APPENDIX B Section into Rule Table

AUTHORITY: Implementing Sections 9, 9.1, 9.9 and 10 and authorized by Sections 27 and 28.5 of the Environmental Protection Act [415 ILCS 5/9, 9.1, 9.9, 10, 27 and 28.5].

SOURCE: Adopted as Chapter 2: Air Pollution, Rule 201: Definitions, R71-23, 4 PCB 191, filed and effective April 14, 1972; amended in R74-2 and R75-5, 32 PCB 295, at 3 Ill. Reg. 5, p. 777, effective February 3, 1979; amended in R78-3 and 4, 35 PCB 75 and 243, at 3 Ill. Reg. 30, p. 124, effective July 28, 1979; amended in R80-5, at 7 Ill. Reg. 1244, effective January 21, 1983; codified at 7 Ill. Reg. 13590; amended in R82-1 (Docket A) at 10 Ill. Reg. 12624, effective July 7, 1986; amended in R85-21(A) at 11 Ill. Reg. 11747, effective June 29, 1987; amended in

R86-34 at 11 Ill. Reg. 12267, effective July 10, 1987; amended in R86-39 at 11 Ill. Reg. 20804, effective December 14, 1987; amended in R82-14 and R86-37 at 12 Ill. Reg. 787, effective December 24, 1987; amended in R86-18 at 12 Ill. Reg. 7284, effective April 8, 1988; amended in R86-10 at 12 Ill. Reg. 7621, effective April 11, 1988; amended in R88-23 at 13 Ill. Reg. 10862, effective June 27, 1989; amended in R89-8 at 13 Ill. Reg. 17457, effective January 1, 1990; amended in R89-16(A) at 14 Ill. Reg. 9141, effective May 23, 1990; amended in R88-30(B) at 15 Ill. Reg. 5223, effective March 28, 1991; amended in R88-14 at 15 Ill. Reg. 7901, effective May 14, 1991; amended in R91-10 at 15 Ill. Reg. 15564, effective October 11, 1991; amended in R91-6 at 15 Ill. Reg. 15673, effective October 14, 1991; amended in R91-22 at 16 Ill. Reg. 7656, effective May 1, 1992; amended in R91-24 at 16 Ill. Reg. 13526, effective August 24, 1992; amended in R93-9 at 17 Ill. Reg. 16504, effective September 27, 1993; amended in R93-11 at 17 Ill. Reg. 21471, effective December 7, 1993; amended in R93-14 at 18 Ill. Reg. 1253, effective January 18, 1994; amended in R94-12 at 18 Ill. Reg. 14962, effective September 21, 1994; amended in R94-14 at 18 Ill. Reg. 15744, effective October 17, 1994; amended in R94-15 at 18 Ill. Reg. 16379, effective October 25, 1994; amended in R94-16 at 18 Ill. Reg. 16929, effective November 15, 1994; amended in R94-21, R94-31 and R94-32 at 19 Ill. Reg. 6823, effective May 9, 1995; amended in R94-33 at 19 Ill. Reg. 7344, effective May 22, 1995; amended in R95-2 at 19 Ill. Reg. 11066, effective July 12, 1995; amended in R95-16 at 19 Ill. Reg. 15176, effective October 19, 1995; amended in R96-5 at 20 Ill. Reg. 7590, effective May 22, 1996; amended in R96-16 at 21 Ill. Reg. 2641, effective February 7, 1997; amended in R97-17 at 21 Ill. Reg. 6489, effective May 16, 1997; amended in R97-24 at 21 Ill. Reg. 7695, effective June 9, 1997; amended in R96-17 at 21 Ill. Reg. 7856, effective June 17, 1997; amended in R97-31 at 22 Ill. Reg. 3497, effective February 2, 1998; amended in R98-17 at 22 Ill. Reg. 11405, effective June 22, 1998; amended in R01-9 at 25 Ill. Reg. 108, effective December 26, 2000; amended in R01-11 at 25 Ill. Reg. 4582, effective March 15, 2001; amended in R01-17 at 25 Ill. Reg. 5900, effective April 17, 2001; amended in R05-16 at 29 Ill. Reg. 8181, effective May 23, 2005; amended in R05-11 at 29 Ill. Reg. 8892, effective June 13, 2005; amended in R04-12/20 at 30 Ill. Reg. 9654, effective May 15, 2006; amended in R07-18 at 31 Ill. Reg. _____, effective _____.

SUBPART B: DEFINITIONS

Section 211.740 Brakehorsepower (rated-bhp)

“Brakehorsepower or “bhp” means the rated horsepower capacity of the engine as defined on the engine nameplate at standard conditions.

(Source: Added at 31 Ill. Reg. _____, effective _____)

Section 211.1740 Diesel Engine

“Diesel engine” means for the purposes of 35 Ill. Adm. Code 217, Subpart Q, a compression ignited two- or four-stroke engine in which liquid fuel injected into the combustion chamber ignites when the air charge is compressed to a temperature sufficiently high for auto-ignition.

(Source: Added at 31 Ill.
_____)

Reg. _____, effective

Section 211.1920 Emergency or Standby Unit

“Emergency or Standby Unit” means, for a stationary gas turbine or a stationary reciprocating internal combustion engine, a unit that:

- a) Supplies power for the source at which it is located but operates only when the normal supply of power has been rendered unavailable by circumstances beyond the control of the owner or operator of the source and only as necessary to assure the availability of the engine or turbine. ~~—An emergency or standby unit may not be operated to supplement a primary power source when the load capacity or rating of the primary power source has been reached or exceeded.~~;
- b) Operates exclusively for firefighting or flood control or both. ~~;~~ ~~or~~
- c) Operates in response to and during the existence of any officially declared disaster or state of emergency.
- d) Operates for the purpose of testing, repair or routine maintenance to verify its readiness for emergency or standby use.

The term does not include equipment used for purposes other than emergencies, as described above, such as to supply power during high electric demand days.

(Source: Amended at 31 Ill. Reg. _____, effective _____)

Section 211.3300 Lean-Burn Engine

“Lean-burn engine” means any spark-ignited engine that is not a rich-burn engine.

(Source: Added at 31 Ill. Reg. _____, effective _____)

Section 211.5640 Rich-Burn Engine

“Rich-burn engine” means a spark-ignited engine where the oxygen content in the exhaust stream of the engine before any dilutions is 1 percent or less by volume measured on a dry basis.

(Source: Added at 31 Ill. Reg. _____, effective _____)

SUBCHAPTER C: EMISSION STANDARDS AND LIMITATIONS
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APPENDIX G Existing Reciprocating Internal Combustion Engines Affected by the NO_x SIP
Call

Authority: Implementing Sections 9.9 and 10 and authorized by Sections 27 and 28.5 of the Environmental Protection Act [415 ILCS 5/9.9, 10, 27 and 28.5 (2004)].

Source: Adopted as Chapter 2: Air Pollution, Rule 207: Nitrogen Oxides Emissions, R71-23, 4 PCB 191, April 13, 1972, filed and effective April 14, 1972; amended at 2 Ill. Reg. 17, p. 101, effective April 13, 1978; codified at 7 Ill. Reg. 13609; amended in R01-9 at 25 Ill. Reg. 128, effective December 26, 2000; amended in R01-11 at 25 Ill. Reg. 4597, effective March 15, 2001; amended in R01-16 and R01-17 at 25 Ill. Reg. 5914, effective April 17, 2001; amended in R07-18 at 31 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL PROVISIONS

Section 217.101 Measurement Methods

Measurement of nitrogen oxides must be according to:

- a) The phenol disulfonic acid ~~procedures~~method, 40 CFR 60, Appendix A, Method 7, as incorporated by reference in Section 217.104(1999);
- b) Continuous emissions monitoring pursuant to 40 CFR 75, as incorporated by reference in Section 217.104(1999); and
- c) Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure), 40 CFR 60, Appendix A, Method 7E, as incorporated by reference in Section 217.104;(1999).
- d) Monitoring with portable monitors pursuant to ASTM D6522-00, as incorporated by reference in Section 217.104; and
- e) How do I conduct the initial and subsequent performance tests (for turbines), regarding NO_x pursuant to 40 CFR 60.4400, as incorporated by reference in Section 217.104.

(Source: Amended at 31 Ill. Reg. _____, effective _____)

Section 217.102 Abbreviations and Units

- a) The following abbreviations are used in this Part:

ASTM	American Society for Testing and Materials
B btu	British thermal unit (60 °F)
b hp	brake horsepower
C EMS	continuous emissions monitoring system
EGU	Electrical Generating Unit
d scf	dry standard cubic feet
g /bhp-hr	grams per brake horsepower-hour
kg	kilogram

kg/MW-hr	kilograms per <u>emission rate</u>	megawatt-hour, usually used as an hourly
lb	pound	
NO_x	Nitrogen Oxides	
lbs/mmBbtu	pounds per million <u>Bbtu</u>	usually used as an hourly emission rate
Mg	megagram or metric tonne	
<u>mm</u>	<u>million</u>	
<u>mmBbtu</u>	million British thermal units	
mmBbtu/hr	million British thermal units per hour	
MWe	megawatt of electricity	
MW	megawatt; one million watts	
MW-hr	megawatt-hour	
<u>NATS</u>	<u>NO_x Allowance Tracking System</u>	
<u>NO₂</u>	<u>nitrogen dioxide</u>	
<u>NO_x</u>	<u>nitrogen oxides</u>	
<u>O₂</u>	<u>oxygen</u>	
<u>psia</u>	<u>pounds per square inch absolute</u>	
peoc	potential electrical output capacity	
PTE	potential to emit	
ppm	parts per million	
ppmv	parts per million by volume	
T	English ton	
<u>TPY</u>	<u>tons per year</u>	

b) The following conversion factors have been used in this Part:

English	Metric
2.205 lb	1 kg
1 T	0.907 Mg
1 lb/T	0.500 kg/Mg
Mmbtu/hr	0.293 MW
1 lb/mmBbtu	1.548 kg/MW-hr

(Source: Amended at 31 Ill. Reg. _____, effective _____)

Section 217.104 Incorporations by Reference

The following materials are incorporated by reference. These incorporations do not include any later amendments or editions.

- a) The phenol disulfonic acid ~~procedures~~method, as published in 40 CFR 60, Appendix A, Method 7 (2000)~~(1999)~~;
- b) 40 CFR 96, subparts B, D, G, and H (1999);

- c) 40 CFR §§ 96.1 through 96.3, 96.5 through 96.7, 96.50 through 96.54, 96.55 (a) & (b), 96.56 and 96.57 (1999);
- d) 40 CFR 60, 72, 75 & 76 (2006)(1999);
- e) Alternative Control Techniques Document---- NO_x Emissions from Cement Manufacturing, EPA-453/R-94-004, U. S. Environmental Protection Agency-Office of Air Quality Planning and Standards, Research Triangle Park, N.C. 27711, March 1994;
- f) Section 11.6, Portland Cement Manufacturing, AP-42 Compilation of Air Emission Factors, Volume 1: Stationary Point and Area Sources, U.S. Environmental Protection Agency-Office of Air Quality Planning and Standards, Research Triangle Park, N. C. 27711, revised January 1995;
- g) 40 CFR § 60.13 (2001)(1999); and
- h) 40 CFR 60, Appendix A, Methods 3A, 7, 7A, 7C, 7D, and 7E, 19, and 20 (2000)(1999);
- i) ASTM D6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers (2000);
- k) Standards of Performance for Stationary Combustion Turbines, 40 CFR 60, Subpart KKKK, 60.4400 (2006); and
- l) Compilation of Air Pollutant Emission Factors: AP-42, Volume I: Stationary Point and Area Sources (2000), USEPA.

(Source: Amended at 31 Ill. Reg. _____, effective _____)

SUBPART Q: STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES
AND TURBINES

Section 217.386 Applicability

A stationary reciprocating internal combustion engine listed in Appendix G of this Part is subject to the requirements of this Subpart Q.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.388 Control and Maintenance Requirements

On and after the applicable compliance date in Section 217.392, an owner or operator of an affected unit must inspect and maintain affected units as required by subsection (c) of this Section and comply with either the applicable emissions concentration as set forth in subsection (a) of this Section, or the requirements for an emissions averaging plan as specified in subsection (b) of this Section.

- a) The owner or operator must limit the discharge from an affected unit into the atmosphere of any gases that contain NO_x to no more than:
 - 1) 150 ppmv (corrected to 15 percent O₂ on a dry basis) for spark-ignited rich-burn engines;
 - 2) 210 ppmv (corrected to 15 percent O₂ on a dry basis) for spark-ignited lean-burn engines
- b) The owner or operator must comply with the requirements of the applicable emissions averaging plan as set forth in Section 217.390.
- c)- The owner or operator must inspect and perform periodic maintenance on the affected unit, in accordance with a Maintenance Plan that documents:
 - 1) For a unit not located at natural gas transmission compressor station or storage facility either:
 - A) The manufacturer's recommended inspection and maintenance of the applicable air pollution control equipment, monitoring device, and affected unit; or
 - B) If the original equipment manual is not available or substantial modifications have been made that require an alternative procedure for the applicable air pollution control device, monitoring device, or affected unit, the owner or operator must establish a plan for inspection and maintenance in accordance with what is customary for the type of air pollution control equipment, monitoring device, and affected unit.
 - 2) For a unit located at a natural gas compressor station or storage facility, the operator's maintenance procedures for the applicable air pollution control device, monitoring device, and affected unit.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.390 Emissions Averaging Plans

- a) An owner or operator of certain affected units may comply through an emissions averaging plan.
- 1) The unit or units that commenced operation before January 1, 2002, may be included in an emissions averaging plan as follows: units located at a single source or at multiple sources in Illinois, so long as the units are owned by the same company or parent company where the parent company has working control through stock ownership of its subsidiary corporations. A unit may be listed in only one emissions averaging plan.
 - 2) The following types of units may not be included in an emissions averaging plan: units that commence operation after January 1, 2002, unless the unit replaces an engine or turbine that commenced operation on or before January 1, 2002, or it replaces an engine or turbine that replaced a unit that commenced operation on or before January 1, 2002. The new unit must be used for the same purpose as the replacement unit. The owner or operator of a unit that is shutdown and replaced must comply with the provisions of Section 217.396(d)(3) before the replacement unit may be included in an emissions averaging plan.
- b) An owner or operator must submit an emissions averaging plan to the Agency by the applicable compliance date set forth in Section 217.392. The plan must include, but is not limited to:
- 1) The list of affected units included in the plan by unit identification number and permit number.
 - 2) A sample calculation demonstrating compliance using the methodology provided in subsection (f) of this Section for both the ozone season and calendar year.
- c) An owner or operator may amend an emissions averaging plan only once per calendar year. An amended plan must be submitted to the Agency by May 1 of the applicable calendar year. If an amended plan is not received by the Agency by May 1 of the applicable calendar year, the previous year's plan will be the applicable emissions averaging plan.
- d) Notwithstanding subsection (c) of this Section, an owner or operator, and the buyer, if applicable, must submit an updated emissions averaging plan or plans to the Agency within 60 days, if a unit that is listed in an emissions averaging plan is sold or taken out of service.

e) An owner or operator must:

- 1) Demonstrate compliance for both the ozone season (May 1 through September 30) and the calendar year (January 1 through December 31) by using the methodology and the units listed in the most recent emissions averaging plan submitted to the Agency pursuant to subsection (b), (c), or (d) of this Section; the higher of the monitoring or test data determined pursuant to Section 217.394; and the actual hours of operation for the applicable control period;
- 2) Notify the Agency by October 31 following the ozone season, if compliance cannot be demonstrated for that ozone season; and
- 3) Submit to the Agency by January 31 following each calendar year, a compliance report containing the information required by Section 217.396(c)(4).

f) The total mass of actual NO_x emissions from the units listed in the emissions averaging plan must be equal to or less than the total mass of allowable NO_x emissions for those units for both the ozone season and calendar year. The following equation must be used to determine compliance:

$$N_{act} \leq N_{all}$$

Where:

$$N_{act} = \frac{\sum_{i=1}^n EM_{act(i)}}{}$$

$$N_{all} = \frac{\sum_{i=1}^n EM_{all(i)}}{}$$

N_{act} = Total sum of the actual NO_x mass emissions from units included in the averaging plan for each fuel used (lbs per ozone season and calendar year).

N_{all} = Total sum of the allowable NO_x mass emissions from units included in the averaging plan for each fuel used (lbs per ozone season and calendar year).

EM_{all(i)} = Total mass of allowable NO_x emissions in lbs for a unit as determined in subsection (g)(2) or (h)(2) of this Section.

EM_{act(i)} = Total mass of actual NO_x emissions in lbs for a unit as determined in subsection (g)(1) or (h)(1) of this Section.

i = Subscript denoting an individual unit and fuel used.

n = Number of different units in the averaging plan.

g) For each unit in the averaging plan, and each fuel used by a unit, determine actual and allowable NO_x emissions using the following equations, except as provided for in subsection (h) of this Section:

1) Actual emissions must be determined as follows:

$$\frac{EM_{act(i)}}{E_{act(i)}} = \frac{H_i}{\sum_{j=1}^m C_{d(act(j))} x F_d x \left(\frac{20.9}{20.9 - \%O_{2d(j)}} \right)}$$

2) Allowable emissions must be determined as follows:

$$\frac{EM_{all(i)}}{E_{all(i)}} = \frac{H_i}{\sum_{j=1}^m C_{d(all)} x F_d x \left(\frac{20.9}{20.9 - \%O_{2d(j)}} \right)}$$

Where:

EM_{act(i)} = Total mass of actual NO_x emissions in lbs for a unit, except as provided for in subsections (g)(3) and (g)(5) of this Section.

EM_{all(i)} = Total mass of allowable NO_x emissions in lbs for a unit, except as provided for in subsection (g)(3) of this Section.

E_{act} = Actual NO_x emission rate (lbs/mmBtu) calculated according to the above equation.

E_{all} = Allowable NO_x emission rate (lbs/mmBtu) calculated according to the above equation.

H = Heat input (mmBtu/ozone season or mmBtu/year) calculated from fuel flow meter and the heating value of

the

fuel used.

C_{d(act)} = Actual concentration of NO_x in lb/dscf (ppmv x 1.194 x 10⁻⁷) on a dry basis for the fuel used. Actual concentration is determined on each of the most recent test run or monitoring pass performed pursuant to Section 217.394, whichever is higher.

C_{d(all)} = Allowable concentration of NO_x in lb/dscf (allowable

emission limit in ppmv specified in Section 217.388(a), except as provided for in subsection (g)(4), (g)(5), or (g)(6) of this Section, if applicable.

multiplied by 1.194×10^{-7} on a dry basis for the fuel used.
 F_d = The ratio of the gas volume of the products of combustion to the heat content of the fuel (dscf/mmBtu) as given in the table of F Factors included in 40 CFR 60, Appendix A, Method 19 or as determined using 40 CFR 60, Appendix

A,

Method 19.

$\%O_{2d}$ = Concentration of oxygen in effluent gas stream measured on a dry basis during each of the applicable test or monitoring runs used for determining emissions, as represented by a whole number percent, e.g., for 18.7% O_{2d} , 18.7 would be used.

i = Subscript denoting an individual unit and the fuel used.

j = Subscript denoting each test run or monitoring pass for an affected unit for a given fuel.

m = The number of test runs or monitoring passes for an affected unit using a given fuel.

- 3) For a replacement unit that is electric-powered, the allowable NO_x emissions from the affected unit that was replaced should be used in the averaging calculations and the actual NO_x emissions for the electric-powered replacement unit ($EM_{(i)act\ elec}$) are zero. Allowable NO_x emissions for the electric-powered replacement are calculated using the actual total bhp-hrs generated by the electric-powered replacement unit on an ozone season and on an annual basis multiplied by the allowable NO_x emission rate in lb/bhp-hr of the replaced unit. The allowable mass of NO_x emissions from an electric-powered replacement unit ($EM_{(i)all\ elec}$) must be determined by multiplying the nameplate capacity of the unit by the hours operated during the ozone season or annually and the allowable NO_x emission rate of the replaced unit ($E_{all\ rep}$) in lb/mmBtu converted to lb/bhp-hr. For this calculation the following equation should be used:

$$EM_{all\ elec(i)} = bhp \times OP \times F \times E_{all\ rep(i)}$$

Where:

$EM_{all\ elec(i)}$ = Mass of allowable NO_x emissions from the electric-powered replacement unit in pounds per ozone season or calendar year.

bhp = Nameplate capacity of the electric-powered replacement unit in brake-horsepower.

OP = Operating hours during the ozone season or calendar year.

$$F = \frac{\text{Conversion factor of } 0.0077 \text{ mmBtu/bhp-hr.}}{E_{\text{all rep}(i)}} = \frac{\text{Allowable NO}_x \text{ emission rate (lbs/mmBtu) of the replaced unit.}}{i} = \frac{\text{Subscript denoting an individual electric unit and the fuel used.}}{}$$

- 4) For a replacement unit that is not electric, the allowable NO_x emissions rate used in the above equations set forth in subsection (g)(2) of this Section must be the higher of the actual NO_x emissions as determined by testing or monitoring data or the applicable uncontrolled NO_x emissions factor from Compilation of Air pollutant emission Factors: AP-42, Volume I: Stationary Point and Area Sources, as incorporated by reference in Section 217.104 for the unit that was replaced.
- 5) For a unit that is replaced with purchased power, the allowable NO_x emissions rate used in the above equations set forth in subsection (g)(2) of this Section must be the emissions concentration as set forth in Section 217.388(a) or subsection (g)(6) of this Section, when applicable, for the type of unit that was replaced. For owners or operators replacing units with purchased power, the annual hours of operations that must be used are the calendar year hours of operation for the unit that was shutdown averaged over the three-year period prior to the shutdown. The actual NO_x emissions for the units replaced by purchased power (EM_{(i)act}) are zero. These units may be included in any emissions averaging plan for no more than five years beginning with the calendar year that the replaced unit is shut down.
- 6) For non-Appendix G units used in an emissions averaging plan, allowable emissions rate used in the above equations set forth in subsection (g)(2) of this Section must be the higher of the actual NO_x emissions as determined by testing or monitoring data, or the applicable uncontrolled NO_x emissions factor from Compilation of Air Pollutant Emission Factors: AP-42, Volume I: Stationary Point and Areas Sources, as incorporated by reference in Section 217.104).
- h) For units that use CEMS the data must show that the total mass of actual NO_x emissions determined pursuant to subsection (h)(1) of this Section is less than or equal to the allowable NO_x emissions calculated in accordance with the equations in subsections (f) and (h)(2) of this Section for both the ozone season and calendar year. The equations in subsection (g) of this Section will not apply.
- 1) The total mass of actual NO_x emissions in lbs for a unit (EM_{act}) must be the sum of the total mass of actual NO_x emissions from each affected unit

using CEMS data collected in accordance with 40 CFR 60 or 75, or alternate methodology that has been approved by the Agency or USEPA and included in a federally enforceable permit.

2) The allowable NO_x emissions must be determined as follows:

$$EM_{all(i)} = \sum_{i=1}^m (cd_i \times flowstack_i \times 1.194 \times 10^{-7})$$

Where:

EM_{all(i)} = Total mass of allowable NO_x emissions in lbs for a unit.

Flow_i = Stack flow (dscf/hr) for a given stack.

Cd_i = Allowable concentration of NO_x (ppmv) specified in Section 217.388(a) of this subpart for a given stack. (1.194 x 10⁻⁷) converts to lb/dscf.

j = subscript denoting each hour operation of a given unit.

m = Total number of hours of operation of a unit.

i = Subscript denoting an individual unit and the fuel used.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.392 Compliance

On and after January 1, 2008, an owner or operator of an affected engine listed in Appendix G may not operate the affected engine unless the requirements of this Subpart Q are met.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.394 Testing and Monitoring

a) An owner or operator must conduct an initial performance test pursuant to subsection (c)(1) or (c)(2) of this Section as follows:

- 1) By January 1, 2008, for affected engines listed in Appendix G. Performance tests must be conducted on units listed in Appendix G, even if the unit is included in an emissions averaging plan pursuant to Section 217.388(b).
- 2) Within the first 876 hours of operation per calendar year. Performance tests must be conducted on units that are not affected units that are included in an emissions averaging plan and operate more than 876 hours per calendar year.

- 3) Once within the five-year period after the applicable compliance date as set forth in Section 217.392. Performance tests must be conducted on units that are not affected units that are included in an emissions averaging plan and that operate fewer than 876 hours per calendar year.
- b) An owner or operator must conduct subsequent performance tests pursuant to subsection (c)(1) or (c)(2) of this Section as follows:
- 1) For affected engines listed in Appendix G and all units included in an emissions averaging plan, once every five years. Testing must be performed in the calendar year by May 1 or within 60 days after starting operation, whichever is later;
 - 2) If the monitored data shows that the unit is not in compliance with the applicable emissions concentration or emissions averaging plan, the owner or operator must report the deviation to the Agency in writing within 30 days and conduct a performance test pursuant to subsection (c) of this Section within 90 days of the determination of noncompliance; and
 - 3) When in the opinion of the Agency or USEPA, it is necessary to conduct testing to demonstrate compliance with Section 217.388, the owner or operator of a unit must, at his or her own expense, conduct the test in accordance with the applicable test methods and procedures specified in this Section within 90 days after receipt of a notice to test from the Agency or USEPA.
- c) Testing Procedures:
- 1) For an engine: The owner or operator must conduct a performance test using Method 7 or 7E of 40 CFR 60, appendix A, as incorporated by reference in Section 217.104. Each compliance test must consist of three separate runs, each lasting a minimum of 60 minutes. NO_x emissions must be measured while the affected unit is operating at peak load. If the unit combusts more than one type of fuel (gaseous or liquid) including backup fuels, a separate performance test is required for each fuel.
 - 2) For a turbine included in an emissions averaging plan: The owner or operator must conduct a performance test using the applicable procedures and methods in 40 CFR 60.4400, as incorporated by reference in Section 217.104.
- d) Monitoring: Except for those years in which a performance test is conducted pursuant to subsection (a) or (b) of this Section, the owner or operator of an affected unit or a unit included in an emissions averaging plan must monitor NO_x

concentrations annually, once between January 1 and May 1 or within the first 876 hours of operation per calendar year, whichever is later. If annual operation is less than 876 hours per calendar year, each affected unit must be monitored at least once every five years. Monitoring must be performed as follows:

- 1) A portable NO_x monitor utilizing method ASTM D6522-00, as incorporated by reference in Section 217.104, or a method approved by the Agency must be used. If the engine or turbine combusts both liquid and gaseous fuels as primary or backup fuels, separate monitoring is required for each fuel.
 - 2) NO_x and O₂ concentrations measurements must be taken three times for a duration of at least 20 minutes. Monitoring must be done at highest achievable load. The concentrations from the three monitoring runs must be averaged to determine whether the affected unit is in compliance with the applicable emissions concentration or emissions averaging plan as specified in Section 217.388.
- e) Instead of complying with the requirements of subsections (a), (b), (c) and (d) of this Section, an owner or operator may install and operate a CEMS on an affected unit that meets the applicable requirements of 40 CFR 60, subpart A, and appendix B, incorporated by reference in Section 217.104, and complies with the quality assurance procedures specified in 40 CFR 60, appendix F, or 40 CFR 75 as incorporated by reference in Section 217.104, or an alternate procedure as approved by the Agency or USEPA in a federally enforceable permit. The CEMS must be used to demonstrate compliance with the applicable emissions concentration or emissions averaging plan only on an ozone season and annual basis.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.396 Recordkeeping and Reporting

- a) Recordkeeping. The owner or operator of an Appendix G unit or a unit included in an emissions averaging plan must maintain records that demonstrate compliance with the requirements of this Subpart Q which include, but are not limited to:
 - 1) Identification, type (e.g., lean-burn, gas-fired), and location of each unit.
 - 2) Calendar date of the record.
 - 3) The number of hours the unit operated on a monthly basis, and during

each ozone season.

- 4) Type and quantity of the fuel used on a daily basis.
 - 5) The results of all monitoring performed on the unit and reported deviations.
 - 6) The results of all tests performed on the unit.
 - 7) The plan for performing inspection and maintenance of the units, air pollution control equipment, and the applicable monitoring device pursuant to Section 217.388(dc).
 - 8) A log of inspections and maintenance performed on the unit's air emissions, monitoring device, and air pollution control device. These records must include, at a minimum, date, load levels and any manual adjustments along with the reason for the adjustment (e.g., air to fuel ratio, timing or other settings).
 - 9) If complying with the emissions averaging plan provisions of Sections 217.388(b) and 217.390 copies of the calculations used to demonstrate compliance with the ozone season and annual control period limits, noncompliance reports for the ozone season, and ozone and annual control period compliance reports submitted to the Agency.
 - 10) Identification of time periods for which operating conditions and pollutant data were not obtained by either the CEMS or alternate monitoring procedures including the reasons for not obtaining sufficient data and a description of corrective actions taken.
- b) The owner or operator of an affected unit or unit included in an emissions averaging plan must maintain the records required by subsections (a) and (b) of this Section for a period of five-years at the source at which the unit is located. The records must be made available to the Agency and USEPA upon request.
- c) Reporting Requirements
- 1) The owner or operator must notify the Agency in writing 30 days and five days prior to testing pursuant to Section 217.394(a) and (b) and:
 - A) If after the 30-days notice for an initially scheduled test is sent, there is a delay (e.g., due to operational problems) in conducting the performance test as scheduled, the owner or operator of the unit must notify the Agency as soon as possible of the delay in the original test date, either by providing at least seven days prior

notice of the rescheduled date of the performance test, or by arranging a new test date with the Agency by mutual agreement;

B) Provide a testing protocol to the Agency 60 days prior to testing; and

C) Not later than 30 days after the completion of the test, submit the results of the test to the Agency.

2) Pursuant to the requirements for monitoring in Section 217.394(d), the owner or operator of the unit must report to the Agency any monitored exceedances of the applicable NO_x concentration from Section 217.388(a) or (b) within 30 days after performing the monitoring.

3) Within 90 days after permanently shutting down an affected unit or a unit included in an emissions averaging plan, the owner or operator of the unit must withdraw or amend the applicable permit to reflect that the unit is no longer in service.

4) If demonstrating compliance through an emissions averaging plan:

A) By October 31 following the applicable ozone season, the owner or operator must notify the Agency if he or she cannot demonstrate compliance for that ozone season; and

B) By January 30 following the applicable calendar year, the owner or operator must submit to the Agency a report that demonstrates the following:

i) For all units that are part of the emissions averaging plan, the total mass of allowable NO_x emissions for the ozone season and for the annual control period;

ii) The total mass of actual NO_x emissions for the ozone season and annual control period for each unit included in the averaging plan;

iii) The calculations that demonstrate that the total mass of actual NO_x emissions are less than the total mass of allowable NO_x emissions using equations in Sections 217.390(f) and (g); and

iv) The information required to determine the total mass of actual NO_x emissions and the calculations performed in subsection (d)(4)(B)(iii) of this Section.

5) If operating a CEMS, the owner or operator must submit an excess emissions and monitoring systems performance report in accordance with the requirements of 40 CFR 60.7(c) and 60.13, or 40 CFR 75 incorporated by reference in Section 217.104, or an alternate procedure approved by the Agency or USEPA and included in a federally enforceable permit.

(Source: Added at 31 Ill. Reg. _____, effective _____.)

Section 217.APPENDIX G: Existing Reciprocating Internal Combustion Engines Affected by the NO_x SIP Call

<u>Plant ID</u>	<u>Point ID</u>	<u>Segment</u>
<u>ANR Pipeline Co. – Sandwich</u>		
<u>093802AAF</u>	<u>E-108</u>	<u>1</u>
<u>Natural Gas Pipeline Co. of America 8310</u>		
<u>027807AAC</u>	<u>730103540041</u>	<u>1</u>
<u>Natural Gas Pipeline Co. of America Sta 110</u>		
<u>073816AAA</u>	<u>851000140011</u>	<u>1</u>
<u>073816AAA</u>	<u>851000140012</u>	<u>2</u>
<u>073816AAA</u>	<u>851000140013</u>	<u>3</u>
<u>073816AAA</u>	<u>851000140014</u>	<u>4</u>
<u>073816AAA</u>	<u>851000140041</u>	<u>1</u>
<u>073816AAA</u>	<u>851000140051</u>	<u>1</u>
<u>Northern Illinois Gas Co. - Stor Sta 359</u>		
<u>113817AAA</u>	<u>730105440021</u>	<u>1</u>
<u>113817AAA</u>	<u>730105440031</u>	<u>1</u>
<u>113821AAA</u>	<u>730105430021</u>	<u>1</u>
<u>113821AAA</u>	<u>730105430051</u>	<u>1</u>
<u>Panhandle Eastern Pipe Line Co.-Glenarm</u>		
<u>167801AAA</u>	<u>87090038002</u>	<u>1</u>
<u>167801AAA</u>	<u>87090038004</u>	<u>1</u>

<u>167801AAA</u>	<u>87090038005</u>	<u>1</u>
<u>Panhandle Eastern Pipeline - Tuscola St</u>		
<u>041804AAC</u>	<u>73010573009</u>	<u>9</u>
<u>041804AAC</u>	<u>73010573010</u>	<u>10</u>
<u>041804AAC</u>	<u>73010573011</u>	<u>11</u>
<u>041804AAC</u>	<u>73010573012</u>	<u>12</u>
<u>041804AAC</u>	<u>73010573013</u>	<u>13</u>
<u>Panhandle Eastern Pipeline Co.</u>		
<u>149820AAB</u>	<u>7301057199G</u>	<u>3</u>
<u>149820AAB</u>	<u>7301057199I</u>	<u>1</u>
<u>149820AAB</u>	<u>7301057199J</u>	<u>1</u>
<u>149820AAB</u>	<u>7301057199K</u>	<u>1</u>
<u>Panhandle Eastern Pipeline Co.-Glenarm</u>		
<u>167801AAA</u>	<u>87090038001</u>	<u>1</u>
<u>Phoenix Chemical Co.</u>		
<u>085809AAA</u>	<u>730700330101</u>	<u>1</u>
<u>085809AAA</u>	<u>730700330102</u>	<u>2</u>
<u>085809AAA</u>	<u>730700330103</u>	<u>3</u>

(Source: Added at 31 Ill. Reg. _____, effective _____.)

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2006); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, 102.702.

I, John T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on September 20, 2007, by a vote of 4-0.



John T. Therriault, Assistant Clerk
Illinois Pollution Control Board