BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R15- 21
AMENDMENTS TO 35 ILL. ADM. CODE	)	(Rulemaking-Air)
PART 214, SULFUR LIMITATIONS, PART	)	
217, NITROGEN OXIDES EMISSIONS,	)	
AND PART 225, CONTROL OF EMISSIONS	)	
FROM LARGE COMBUSTION SOURCES	)	

NOTICE

To: John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601-3218

Matthew Dunn, Chief
Environmental Enforcement/Asbestos
Litigation Division
Office of the Illinois Attorney General
500 South Second Street
Springfield, IL 62706

Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702

PLEASE TAKE NOTICE that I have today filed with the Office of the Pollution Control Board the REGULATORY PROPOSAL entitled "AMENDMENTS TO 35 ILL. ADM. CODE 214, SULFUR LIMITATIONS, PART 217, NITROGEN OXIDES EMISSIONS, AND PART 225, CONTROL OF EMISSIONS FROM LARGE COMBUSTION SOURCES" and supporting documents of the Illinois Environmental Protection Agency, a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544
THIS FILING IS SUBMITTED ON RECYCLED PAPER

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
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Method 2: Determination of Stack Gas Velocity and Volumetric Flow Rate;

Method 3: Gas Analysis for the Determination of Dry Molecular Weight;

Method 4: Determination of Moisture Content in Stack Gases;

Method 6: Determination of Sulfur Dioxide Emissions From Stationary Sources;

Method 6A: Determination of Sulfur Dioxide, Moisture, and Carbon Dioxide Emissions From Fossil Fuel Combustion Sources;

Method 6B: Determination of Sulfur Dioxide and Carbon Dioxide Daily Average Emissions From Fossil Fuel Combustion Sources;

Method 6C: Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure);

Method 8: Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions From Stationary Sources;

Method 19: Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates.

B) 40 CFR 60.8(b) (2014), Performance Tests

C) Tutwiler Procedure for hydrogen sulfide, 40 CFR 60.648 (2014)

D) 40 CFR 75 (2014)

E) USEPA's Emission Measurement Center Guideline Document (GD-042), Preparation and Review of Site-Specific Emission Test Plans, Revised March 1999

14. Certificate of Service

15. Disk in Microsoft WORD containing Agency's Proposed Amendments to Parts 214, 217, and 225

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
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AND PART 225, CONTROL OF EMISSIONS	)	
FROM LARGE COMBUSTION SOURCES	)	

APPEARANCE

The undersigned hereby enters her appearance as an attorney on behalf of the Illinois Environmental Protection Agency.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer

Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
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FROM LARGE COMBUSTION SOURCES	)	

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY PROPOSAL OF REGULATIONS

The Illinois Environmental Protection Agency moves that the Illinois Pollution Control Board adopt the attached regulations.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Lisa Bonnett
Lisa Bonnett
Director

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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AND PART 225, CONTROL OF EMISSIONS	)	
FROM LARGE COMBUSTION SOURCES	)	

CONSENT TO RECEIPT OF E-MAIL SERVICE

I, the undersigned, authorize the service of documents on me by e-mail in lieu of receiving paper documents in the above-captioned proceeding. My e-mail address to receive service is as follows.

dana.vetterhoffer@illinois.gov

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276
217/782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
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CERTIFICATION OF REQUIRED RULE

The Illinois Environmental Protection Agency ("Illinois EPA") certifies in accordance with 35 Ill. Adm. Code 102.202(h) and 102.500, and 415 ILCS 5/28.2(b), that it believes that a portion of this proposal for amendments to 35 Ill. Adm. Code 214, 217, and 225 is a federally required rule under Sections 172, 191, and 192 of the Clean Air Act ("CAA"). 42 U.S.C. §§ 7502, 7514, and 7514a. Specifically, the bulk of the proposed amendments to Part 214 are needed to satisfy Illinois' obligation to submit to the United States Environmental Protection Agency ("USEPA") a State Implementation Plan ("SIP") for sources of sulfur dioxide ("SO_2") emissions in areas designated as nonattainment with respect to the 2010 SO_2 National Ambient Air Quality Standard ("NAAQS").

Under Section 110 of the CAA and related provisions, states are required to submit, for the USEPA's approval, SIPs that provide for the implementation, maintenance, and enforcement of standards established by USEPA through control programs directed to the sources of the pollutants involved. 42 U.S.C. § 7410. The CAA also requires that SIPs address requirements specific to areas designated as nonattainment with respect to a NAAQS ("nonattainment areas"). *See* 42 U.S.C. §7502. For each nonattainment area, Section 172(c)(1) of the CAA requires the State to demonstrate that it has adopted provisions that provide for the implementation of "all reasonably available control measures as expeditiously as practicable (including such reductions

in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and [that] provide for attainment of the national primary ambient air quality standards." 42 U.S.C. § 7502(c)(1). Further, Section 191(a) of the CAA requires that states with an SO_2 nonattainment area submit to USEPA a SIP satisfying CAA requirements within 18 months of being designated as nonattainment. 42 U.S.C. § 7514(a). Section 192 of the CAA requires that the SIP provide for attainment of the SO_2 NAAQS as expeditiously as practicable but no later than 5 years from the date of the nonattainment designation. 42 U.S.C. § 7514a.

On June 22, 2010, USEPA finalized revisions to the primary SO_2 NAAQS, replacing the previous 24-hour and annual standards with a 1-hour standard of 75 parts per billion. 75 *Fed. Reg.* 35520 (June 22, 2010). USEPA designated two areas in Illinois as nonattainment for the SO_2 NAAQS: 1) the Lemont nonattainment area, which includes Cook County (partial-Lemont Township) and Will County (partial- DuPage and Lockport Townships); and 2) the Pekin nonattainment area, which includes Tazewell County (partial-Cincinnati and Pekin Townships) and Peoria County (partial-Hollis Township). 40 CFR § 81.314.

Designation of the Lemont and Pekin areas as nonattainment for the SO_2 NAAQS triggered the above CAA provisions, requiring that Illinois adopt regulations that reduce emissions sufficiently to demonstrate attainment of the SO_2 standard. Illinois was required to make its SIP submittal by April 6, 2015. The SIP must contain provisions that provide for attainment of the SO_2 NAAQS in the Lemont and Pekin nonattainment areas by October 4, 2018. 78 *Fed. Reg.* 47191, 47192-93.

The Agency has conducted extensive computer modeling evaluating the SO_2 emission reductions necessary to demonstrate attainment of the SO_2 NAAQS in the Lemont and Pekin

nonattainment areas. The proposed fuel sulfur content limitations in Part 214, as applied to sources impacting the Lemont and Pekin nonattainment areas, and the proposed amendments in Subpart AA of Part 214 are intended to reduce SO_2 emissions impacting these nonattainment areas, and are necessary to satisfy the federal requirements described above.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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FROM LARGE COMBUSTION SOURCES	)	

CERTIFICATION OF ORIGINATION

The Illinois Environmental Protection Agency certifies in accordance with 35 Ill. Adm. Code 102.202(i) that this proposal for amendments to 35 Ill. Adm. Code 214, 217, and 225 amends the most recent version of the rules as published on the Illinois Pollution Control Board's website.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
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AGENCY ANALYSIS OF ECONOMIC AND BUDGETARY EFFECTS OF PROPOSED RULEMAKING

Agency: Illinois Pollution Control Board

Part/Title: Amendments to Title 35 IAC Part 214, Part 217, and Part 225

Illinois Register Citation:

Please attempt to provide as dollar-specific responses as possible and feel free to add any relevant narrative explanation.

1. Anticipated effect on State expenditures and revenues.

   (a) Current cost to the agency for this program/activity.
   The current cost to the Illinois EPA of the programs impacted by the proposed rulemaking would include costs associated with air quality planning efforts, permitting, inspection of facilities, enforcement of air regulations, and monitoring of air quality in Illinois. The Agency has not calculated a dollar-specific cost of these programs combined, however, as noted below, the impact of the proposed rulemaking will not add to these costs. The changes made to the Illinois Administrative Code will not necessitate additional personnel or efforts beyond current Agency responsibilities.

   (b) If this rulemaking will result in an increase or decrease in cost, specify the fiscal year in which this change will first occur and the dollar amount of the effect. FY N/A

   (c) Indicate the funding source, including Fund and appropriation lines, for this program/activity.

   State Operating Permit Fees (Lifetime and ROSS); Fund 944-53210-1920-0000
   Construction Permit Fees; Fund 944-53210-1920-0000
   CAAPP Permit Fees; Fund 091-53210-1900-0000

   (d) If an increase or decrease in the costs of another State agency is anticipated, specify the fiscal year in which this change will first occur and the estimated dollar amount of the effect. N/A $ N/A
   Agency: N/A

   (e) Will this rulemaking have any effect on State revenues or expenditures not already indicated above? Specify effects and amounts.
   The rulemaking may have a small effect on moneys collected by the Illinois EPA as permit fees. Permit fees are collected on the basis of allowable emissions, and so the reduction of permitted limits will reduce permit fees collected from affected sources.

2. Economic effect on persons affected by the rulemaking.

(a) Indicate the economic effect and specify the persons affected:
___Positive __X__Negative ___No effect

Persons affected: **Persons associated with affected sources identified in the proposed rulemaking.**

Dollar amount per person: **Negligible**

Total Statewide cost:

(b) If an economic effect is predicted, please briefly describe how the effect will occur.
For amendments to Part 214 Subpart AA, the sources named in the Technical Support Document for the rulemaking may need to install additional air pollution control equipment. However, this is unlikely in most cases. In extensive outreach with these sources, the Agency determined that the proposed limits will be met by most sources through the reduction of allowable rates in source permits.

For amendments to Part 214 regarding liquid fuel sulfur content limits, the price of such fuels may increase slightly. However, the Illinois EPA considers this unlikely. Federal rules and rules in other states for lower sulfur contents are already effective, these fuels are widely available, and it is unlikely that the Illinois rulemaking would drive additional price increases for these fuels.

(c) Will the rulemaking have an indirect effect that may result in increased administrative costs? Will there be any change in requirements such as filing, documentation, reporting or completion of forms? Compare to current requirements.
For amendments to Part 214 Subpart AA, some identified sources may be required to conduct additional emissions testing, or be required to keep additional records. However, in most cases, sources would already be subject to similar recordkeeping and testing requirements under existing rules.

For amendments to Part 214 regarding liquid fuel sulfur content limits, additional administrative costs could increase to a very minor extent for stationary sources because they will be required to keep records of fuel purchases for 5 years.

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FROM LARGE COMBUSTION SOURCES	)	

MOTION FOR EXPEDITED REVIEW

The Illinois Environmental Protection Agency ("Illinois EPA" or "Agency"), by its attorney, and pursuant to 35 Ill. Adm. Code 101.512, respectfully submits this Motion for Expedited Review. In support of this motion, the Illinois EPA states as follows:

1. Expedited review of this rulemaking is necessary in order for the Agency to fulfill the State of Illinois' obligation under the Clean Air Act ("CAA") to submit for the United States Environmental Protection Agency's ("USEPA") approval a State Implementation Plan ("SIP") providing for attainment of the 2010 sulfur dioxide ("SO_2") National Ambient Air Quality Standard ("NAAQS") in the Lemont and Pekin nonattainment areas by the deadline set forth in the CAA.

2. On June 22, 2010, USEPA finalized revisions to the primary SO_2 NAAQS, replacing the previous 24-hour and annual standards with a 1-hour standard of 75 parts per billion. *Primary National Ambient Air Quality Standard for Sulfur Dioxide*, 75 *Fed. Reg.* 35520 (June 22, 2010). USEPA designated two areas in Illinois as nonattainment for the SO_2 NAAQS: 1) the Lemont nonattainment area, which includes Cook County (partial-Lemont Township) and Will County (partial- DuPage and Lockport Townships); and 2) the Pekin nonattainment area, which includes Tazewell County

(partial-Cincinnati and Pekin Townships) and Peoria County (partial-Hollis Township). 40 CFR § 81.314.

3. The bulk of the Agency's proposed amendments to 35 Ill. Adm. Code 214 is intended to meet certain obligations of the State of Illinois under the CAA, specifically its obligation to submit a SIP to USEPA to address requirements under Sections 172, 191, and 192 of the CAA for sources of SO_2 emissions in the Lemont and Pekin nonattainment areas. *See* 42 U.S.C. §§ 7502, 7514, and 7514a.

4. Under Section 110 of the CAA and related provisions, states are required to submit for the USEPA's approval SIPs that provide for the implementation, maintenance, and enforcement of standards established by USEPA through control programs directed to the sources of the pollutants involved. 42 U.S.C. § 7410. For each nonattainment area, Illinois must demonstrate that it has adopted provisions that provide for the implementation of "all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and [that] provide for attainment of the national primary ambient air quality standards." 42 U.S.C. § 7502(c)(1).

5. The CAA requires that states submit their SIPs within 18 months of nonattainment designations. 42 U.S.C. § 7514(a). As final designations for the Lemont and Pekin nonattainment areas became effective on October 4, 2013, Illinois was required to submit its SIP by April 6, 2015. 78 *Fed. Reg.* 47191, 47192-93.

6. In light of the foregoing, it is necessary to expedite review in this matter. Submittal of a final rule to USEPA is necessary for the Agency to satisfy the

requirements described above in a timely fashion. Further, resolution of this rulemaking on an expedited basis will aid the Agency's attainment planning efforts regarding future rounds of attainment designations for the SO_2 NAAQS, which may involve additional areas in Illinois being designated as nonattainment.

7. As required by 35 Ill. Adm. Code Section 101.512, this Motion is accompanied by an Affirmation attesting that the facts cited herein are true.

WHEREFORE, for the reasons set forth above, the Illinois EPA respectfully requests that the Board expedite review in this matter, and proceed to First Notice immediately.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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AND PART 225, CONTROL OF EMISSIONS	)	
FROM LARGE COMBUSTION SOURCES	)	

AFFIRMATION

I, Dana Vetterhoffer, under oath, hereby state and affirm that I am an Assistant Counsel for the Illinois Environmental Protection Agency and that the facts cited in the foregoing Motion for Expedited Review are true and correct to the best of my information and belief.

Dana Vetterhoffer
Assistant Counsel

SUBSCRIBED AND SWORN TO BEFORE ME
This 27th day of April, 2015

Notary Public

OFFICIAL SEAL
DAWN A. HOLLIS
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 8-19-2016

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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MOTION FOR WAIVER OF COPY REQUIREMENTS

The Illinois Environmental Protection Agency ("Illinois EPA"), by its attorney, and pursuant to 35 Ill. Adm. Code 101.500, 102.110, 102.200, and 102.402, respectfully moves that the Illinois Pollution Control Board ("Board") waive the requirement that the Illinois EPA provide copies of the certain documents incorporated by reference. In support of its Motion, Illinois EPA states as follows:

1. Section 101.302 of the Board's procedural rules requires that the original and three copies of each regulatory proposal be filed with the Clerk. 35 Ill. Adm. Code 101.302(h). Section 102.202 of the Board's procedural rules requires that a proposal for a regulation of general applicability include "any material to be incorporated by reference within the proposed rule pursuant to Section 5-75 of the [Illinois Administrative Procedure Act]" ("IAPA"). 35 Ill. Adm. Code 102.202(d). Section 27(a) of the Environmental Protection Act also requires that the Illinois EPA provide information supporting a regulatory proposal. 415 ILCS 5/27(a).

2. The Illinois EPA's proposal incorporates by reference the following documents:

A) 40 CFR 60, Appendix A (2014):

Method 1: Sample and Velocity Traverses for Stationary Sources;

Method 2: Determination of Stack Gas Velocity and Volumetric Flow Rate;

Method 3: Gas Analysis for the Determination of Dry Molecular Weight;

Method 4: Determination of Moisture Content in Stack Gases;

Method 6: Determination of Sulfur Dioxide Emissions From Stationary Sources;

Method 6A: Determination of Sulfur Dioxide, Moisture, and Carbon Dioxide Emissions From Fossil Fuel Combustion Sources;

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Method 6C: Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure);

Method 8: Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions From Stationary Sources;

Method 19: Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates.

B) 40 CFR 60.8(b) (2014), Performance Tests

C) Tutwiler Procedure for hydrogen sulfide, 40 CFR 60.648 (2014)

D) 40 CFR 75 (2014)

E) USEPA's Emission Measurement Center Guideline Document (GD-042), Preparation and Review of Site-Specific Emission Test Plans, Revised March 1999

3. The documents listed as items (A) through (D) above consist of several hundred pages. They are all part of the Code of Federal Regulations, are all readily accessible to or are within the possession of the Board, and are all publicly available online. Given the volume and ease of accessibility of these documents, the Illinois EPA moves that the Board waive the requirement that the Illinois EPA provide copies of such documents.

4. Section 5-75(a) of the IAPA provides that an agency may incorporate by reference the regulations, standards, and guidelines of an agency of the United States or a

nationally recognized organization or association without publishing the incorporated material in full. 5 ILCS 100/5-75(a). Section 5-75(c) of the IAPA provides that such agency shall maintain a copy of the referenced material in at least one of its principal offices and shall make it available to the public upon request. 5 ILCS 100/5-75(c).

WHEREFORE, the Illinois EPA moves that the Board waive the requirement that the Illinois EPA provide copies of the documents listed as items (A) through (D) above.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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FROM LARGE COMBUSTION SOURCES	)	

STATEMENT OF REASONS

I. INTRODUCTION

The Illinois Environmental Protection Agency ("Illinois EPA" or "Agency") submits this Statement of Reasons to the Illinois Pollution Control Board ("Board") pursuant to Sections 4, 10, 27, 28, and 28.2 of the Environmental Protection Act (415 ILCS 5/4, 10, 27, 28, and 28.2) and 35 Ill. Adm. Code 102.202 in support of the attached proposal of regulations. Generally, these regulations are proposed to control emissions of sulfur dioxide ("SO_2") in and around areas designated as nonattainment with respect to the 2010 SO_2 National Ambient Air Quality Standard ("NAAQS").

This proposed rulemaking includes several components. First, portions of the proposal are intended to meet certain obligations of the State of Illinois under the federal Clean Air Act ("CAA"), 42 U.S.C. § 7401 *et seq.* Such provisions are intended to satisfy Illinois' obligation to submit a State Implementation Plan ("SIP") to the United States Environmental Protection Agency ("USEPA") to address requirements under Sections 172, 191, and 192 of the CAA for sources of SO_2 emissions in areas designated as nonattainment with respect to the 2010 SO_2 NAAQS ("nonattainment area" or "NAA"). *See* 42 U.S.C. §§ 7502, 7514, and 7514a. Other portions of the proposal are not specifically federally required, but are intended to aid Illinois' attainment planning efforts

with respect to future rounds of attainment designations for the SO_2 NAAQS. Finally, portions of the proposal are the product of stakeholder outreach efforts, and are intended to address stakeholder requests and concerns; while some of these provisions involve pollutants other than SO_2, they are related to Illinois' attainment planning efforts for the SO_2 standard and are thus included with this rulemaking proposal.

The Agency is proposing amendments that: 1) establish sulfur content limitations for liquid fuels used by fuel combustion emission units throughout the State; 2) establish SO_2 emission limitations for specific sources impacting an SO_2 NAA; 3) address the conversion of certain coal-fired electric generating units ("EGUs") located in or near an SO_2 NAA to fuel other than coal; and 4) correct or update various existing provisions. The proposed requirements are reasonable and cost effective. Included in this submittal are proposed amendments to 35 Ill. Adm. Code 214, Sulfur Limitations; 35 Ill. Adm. Code 217, Nitrogen Oxides Emissions; and 35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources.

II. STATEMENT OF FACTS

The CAA establishes a comprehensive program for controlling and improving the nation's air quality via state and federal regulations. The USEPA is charged with identifying air pollutants that endanger the public health and welfare and with formulating NAAQS that specify the maximum permissible concentrations of those pollutants in the ambient air, pursuant to Sections 108 and 109 of the CAA. 42 U.S.C. §§ 7408-7409.

A. Sulfur Dioxide

Sulfur dioxide is one of a group of highly reactive gases known as "oxides of sulfur." The largest source of SO_2 emissions is fossil fuel combustion at electric utilities and other industrial facilities. Other sources of SO_2 include the extraction of metal from ore and the burning of sulfur-containing fuels by locomotives, large ships, and equipment utilizing diesel engines. *Final Primary National Ambient Air Quality Standard for Sulfur Dioxide*, 75 *Fed. Reg.* 35520, 35524 (June 22, 2010).

Short-term exposure to sufficient concentrations of SO_2 is associated with increased respiratory morbidity, including moderate to great decrements in lung function, bronchoconstriction, and a variety of respiratory symptoms. 79 *Fed. Reg.* 35520, 35525-26. Groups potentially at greater risk of experiencing adverse health effects from SO_2 include those with pre-existing respiratory disease, children and older adults, persons who spend increased time outdoors or at elevated ventilation rates, persons with lower socioeconomic status, and persons with certain genetic factors. *Id.* at 35527. USEPA has determined that "the considerable size of the population groups at risk indicates that exposure to ambient SO_2 could have a significant impact on public health in the United States." *Id.* at 35527.

On June 22, 2010, USEPA finalized revisions to the primary SO_2 NAAQS, replacing the previous 24-hour and annual standards with a 1-hour standard of 75 parts per billion. 75 *Fed. Reg.* 35520. USEPA designated two areas in Illinois as nonattainment for the SO_2 NAAQS: 1) the Lemont NAA, which includes Cook County (partial-Lemont Township) and Will County (partial-DuPage and Lockport Townships); and 2) the Pekin NAA, which includes Tazewell County (partial-Cincinnati and Pekin

Townships) and Peoria County (partial-Hollis Township). 40 CFR § 81.314. Final designations became effective on October 4, 2013. *Final Air Quality Designations for the 2010 Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard,* 78 *Fed. Reg.* 47191, 47192 (Aug. 5, 2013).

In its final designations for the Lemont and Pekin areas, USEPA explained that it intends to address in "separate future actions" designations for all other areas of the State. 78 *Fed. Reg.* 47191.[1] Subsequently, on May 13, 2014, USEPA proposed a "Data Requirements Rule" in which it set forth criteria for identifying the sources around which air agencies will eventually need to characterize SO_2 air quality, as well as a process and timetables for characterizing air quality through ambient monitoring and/or modeling and for submitting the data to USEPA. USEPA indicated that it will use this data in "future rounds of area designations" for the 2010 SO_2 standard. *Proposed Data Requirements Rule for the 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS)*, 79 *Fed. Reg.* 27446 (May 13, 2014).

B. Clean Air Act Requirements for Sulfur Dioxide

Under Section 110 of the CAA and related provisions, states are required to submit for the USEPA's approval SIPs that provide for the implementation, maintenance, and enforcement of standards established by USEPA through control programs directed to the sources of the pollutants involved. 42 U.S.C. § 7410. The CAA also requires that states address provisions specific to areas designated as nonattainment with respect to a NAAQS, including such requirements as reasonably available control measures

[1] USEPA explained, "At this time, the EPA is designating as nonattainment most areas in locations where existing monitoring data from 2009–2011 indicate violations of the 1-hour SO_2 standard. The EPA intends to address in separate future actions the designations for all other areas for which the agency is not yet prepared to issue designations and that are consequently not addressed in this final rule." 78 *Fed. Reg.* 47191.

("RACM") and reasonably available control technology ("RACT"). *See* 42 U.S.C. § 7502.

Specifically, Section 172 of the CAA, addressing general requirements for areas designated as nonattainment, provides in pertinent part:

> (c) Nonattainment plan provisions
>
> The plan provisions (including plan items) required to be submitted under this part shall comply with each of the following:
>
> (1) In general
>
> Such plan provisions shall provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and shall provide for attainment of the national primary ambient air quality standards.

42 U.S.C. § 7502(c)(1). Rather than describing specific control systems to be used to address the necessary SO_2 reductions, USEPA has interpreted the terms RACT and RACM for purposes of Section 172(c)(1) requirements as "the level of emissions control that is necessary to provide for expeditious attainment of the NAAQS within a nonattainment area." *Withdrawal of the Prior Determination or Presumption that Compliance with the CAIR or the NO_x SIP Call Constitutes RACT or RACM for the 1997 8-Hour Ozone and 1997 Fine Particle NAAQS*, 79 *Fed. Reg.* 32892, 32894 (June 9, 2014). USEPA noted, "Courts have upheld this interpretation of the statute with respect to nonattainment SIPs." *Id.* (citing *Natural Resources Defense Council v. Environmental Protection Agency*, 571 F.3d 1245 (D.C. Cir. 2009)).

Sections 191 and 192 of the CAA set forth requirements specific to areas designated as nonattainment for lead, nitrogen dioxide, or sulfur oxides. Section 191

requires that states with an SO_2 NAA submit to USEPA a SIP satisfying CAA requirements within 18 months of being designated as nonattainment. 42 U.S.C. § 7514. Section 192 requires that the SIP provide for attainment of the SO_2 NAAQS as expeditiously as practicable but no later than 5 years from the date of the nonattainment designation. 42 U.S.C. § 7514a.

Designation of the Lemont and Pekin areas as nonattainment for the SO_2 NAAQS triggered the above CAA provisions, requiring that Illinois adopt regulations that reduce emissions sufficiently to demonstrate attainment of the SO_2 standard in those areas. Illinois was required to make its SIP submittal by April 6, 2015. The SIP must contain provisions that provide for attainment of the SO_2 NAAQS in the Lemont and Pekin NAAs by October 4, 2018. 78 *Fed. Reg.* 47191, 47192-93.

III. PURPOSE AND EFFECT OF THE PROPOSAL

A. Part 214 Revisions

The bulk of the Agency's proposed revisions to Part 214 have been prepared to satisfy Illinois' obligation to submit a SIP to USEPA to address the requirements under Sections 172, 191, and 192 of the CAA, as described above, for areas designated as nonattainment with respect to the SO_2 NAAQS. *See* 42 U.S.C. §§ 7502, 7514, and 7514a. The proposal aims to achieve SO_2 emission reductions in Illinois, particularly in SO_2 NAAs.

First, the proposal requires that fuel combustion emission units throughout the State comply with sulfur content limitations of 1000 parts per million for residual fuel oil and 15 parts per million for distillate fuel oil, with certain specified exceptions. Owners

or operators of subject emission units must maintain records demonstrating compliance with the limitations.

Applying these provisions to fuel combustion emission units impacting the Lemont and Pekin NAAs is needed to address the CAA requirements discussed above. Applying these provisions to units not currently impacting the Lemont and Pekin NAAs is intended to aid attainment planning efforts regarding future attainment designations for the 2010 SO_2 standard. As previously discussed, USEPA intends to engage in at least two additional rounds of attainment designations for the SO_2 standard based on monitoring and/or modeling data submitted by states, which may result in additional NAAs in Illinois. Rather than imposing fuel sulfur content limitations piecemeal as additional areas are designated nonattainment, the Illinois EPA proposes establishing such limits statewide. These limits will assist the State's attainment planning efforts in future NAAs, and could even potentially help certain areas avoid a nonattainment designation. Statewide regulation is therefore appropriate, particularly as fuel complying with the Agency's proposed limitations is widely available in Illinois and is in fact already used by the majority of commercial and industrial sources in Illinois.

Next, the proposal creates a new Subpart AA requiring that particular sources contributing to nonattainment in an SO_2 NAA comply with SO_2 emission limitations for specified emission units. These emission limitations are based on extensive computer modeling conducted by the Agency that evaluated the SO_2 emission reductions necessary to demonstrate attainment of the SO_2 NAAQS. Certain emission units must utilize a continuous emissions monitoring system ("CEMS") or an alternative monitoring method available under 40 CFR 75 to demonstrate compliance with the emission limitations,

while other units must either utilize a CEMS or conduct performance testing in compliance with specified testing provisions. All sources are required to comply with recordkeeping and reporting requirements. All provisions in the proposed Subpart AA are intended to address the CAA requirements described above.

January 1, 2017, is the proposed compliance deadline for most sources subject to the Part 214 sulfur content limitations for fuel oil,[2] and is the proposed compliance deadline for all sources subject to the requirements in Part 214, Subpart AA. USEPA identified this date as the latest compliance deadline it expects will be acceptable to USEPA, as the deadline will ensure at least one full calendar year of air quality monitoring data prior to the October 2018 attainment deadline, enabling USEPA to evaluate whether the State's plan is in fact providing for attainment. *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions*, pp. 10-11 (April 23, 2014).[3]

B. Part 217 and Part 225 Revisions

The Agency's proposed revisions to 35 Ill. Adm. Code Parts 217 and 225 are the product of the Agency's stakeholder outreach efforts, and are intended to address stakeholder requests and concerns.

1. Regulatory Background

Subparts C, D, E, F, G, H, and M of Part 217, known as Illinois' NO_x RACT Rule, control nitrogen oxides ("NO_x") emissions from various source categories. Subpart M establishes NO_x emission limitations for EGUs: 0.06 lbs/mmBtu for natural gas-fired

[2] Certain specified sources have until January 1, 2019, to comply with the proposed sulfur content limitations for distillate fuel oil. One specified source, subject to a less stringent sulfur content limitation for distillate fuel oil, is required to comply by January 1, 2016. These exceptions were taken into account in the Agency's modeling and will not interfere with attainment.

[3] Available at http://www.epa.gov/airquality/sulfurdioxide/pdfs/20140423guidance.pdf.

EGUs; 0.10 lbs/mmBtu for liquid-fired EGUs; and 0.12 lbs/mmBtu for solid fuel-fired EGUs. 35 Ill. Adm. Code 217.344. Subpart M, however, exempts from these limitations coal-fired EGUs complying with the Illinois Mercury Rule through the Combined Pollutant Standard ("CPS") (discussed in more detail below), as such EGUs are already subject to NO_x limitations under the terms of the CPS. 35 Ill. Adm. Code 217.342(b) ("the provisions of this Subpart [M] do not apply to a coal-fired stationary boiler that commenced operation before January 1, 2008, [and] that is complying with 35 Ill. Adm. Code 225.Subpart B through the . . . combined pollutant standard").

Subpart B of Part 225, known as the Illinois Mercury Rule, controls emissions of mercury from coal-fired EGUs. Section 225.230(a) of Subpart B sets forth mercury emission standards for EGUs at existing sources. The CPS, set forth in Sections 225.291-299 of Subpart B, provides specified EGUs an alternative means of compliance with these mercury emission standards through permanent shut-down, installation of activated carbon injection equipment, and compliance with specified control requirements and/or emission standards for SO_2, NO_x, particulate matter, and mercury. *See generally* 35 Ill. Adm. Code 225.291. Pertinent to this rulemaking proposal, EGUs under the CPS must comply with a CPS group average NO_x emission limitation of 0.11 lbs/mmBtu on both an annual and ozone season basis. 35 Ill. Adm. Code 225.295(a).

2. Proposed Amendments

As discussed in Section VI *infra*, the Illinois EPA engaged in extensive outreach on its proposal. During the course of discussions with potentially impacted sources, Midwest Generation, LLC ("Midwest Generation") approached the Agency regarding the company's plans to potentially convert several coal-fired EGUs located in or near the

Lemont NAA (Units 6, 7, and 8 at the Joliet station ("Joliet 6, 7, and 8"), and Unit 3 at the Will County station ("Will County 3")) to combust only fuel other than coal, such as natural gas or distillate fuel oil. Midwest Generation, however, requested regulatory certainty that the conversions would not change the NO_x emission limitations applicable to such units. All of the above units are currently subject to the Illinois Mercury Rule in Part 225 and all currently comply with the rule via the CPS. As discussed above, the EGUs are therefore subject to the NO_x emission limitations in the CPS and are exempt from the NO_x emission limitations in Subpart M of Part 217.

Once the EGUs permanently cease combusting coal, however, an argument could arise as to whether the units are still subject to the Illinois Mercury Rule/CPS and still eligible for the Subpart M exemption. If the units are no longer exempt from Subpart M, they would be required to comply with the appropriate NO_x limitation in Subpart M, depending on the type of fossil fuel combusted. Midwest Generation expressed concerns about the uncertainty the company believes this could cause and the related possible change in the company's expectations, as well as concerns that the converted EGUs would not be able to meet the applicable Subpart M NO_x limitations. These concerns arise from the age of the units being converted, the cost of installing NO_x control equipment on those units, and the cost effectiveness of controls for units that are projected to operate at a relatively low capacity factor.

The Agency strongly supports the conversion of the above units to natural gas or diesel fuel, as such conversions would significantly reduce SO_2 emissions in the Lemont NAA, aiding the Agency's efforts to demonstrate attainment of the SO_2 NAAQS in that area. The conversions would also result in significant reductions in emissions of

particulate matter and greenhouse gases such as carbon dioxide, and likely significant reductions in emissions of NO_x. These reductions will aid the State's planning efforts to address regional haze, interstate transport issues related to the Cross-State Air Pollution Rule, and USEPA's recently proposed Clean Power Plan for the control of greenhouse gases from the power sector.

The Agency's proposal therefore addresses the potential conversion of the above units and specifies the NO_x limitations that will be applicable to these units. The Agency proposes amendments to Parts 214 and 225 that collectively require the above units to permanently cease combusting coal. In Subpart AA of Part 214, the Agency proposes emission limitations for the units that reflect combustion of fuel other than coal. In Part 225, the Agency proposes establishing deadlines after which these units are no longer allowed to combust coal. The proposal addresses applicable NO_x emission limitations by amending the Illinois Mercury Rule to specify that EGUs in the CPS (as listed in Appendix A to Part 225) remain subject to the Illinois Mercury Rule/CPS, including the NO_x limitations in the CPS, regardless of the type of fuel combusted. The proposal also provides, both in the CPS and in Subpart M of Part 217, that EGUs subject to the CPS are exempt from the NO_x emission limitations in Subpart M, regardless of the type of fuel combusted.

The proposal addresses collateral issues related to the above as well. First, as mercury emissions are not a concern for units combusting fuel other than coal, and particulate matter emissions are a significantly lower concern for such units, the Agency proposes amending Part 225 to specify that EGUs that permanently cease combusting coal are no longer required to comply with the mercury or particulate matter control

technology requirements set forth in the CPS or the mercury-related emission rates, monitoring, recordkeeping, notice, analysis, certification, or reporting requirements set forth in the Illinois Mercury Rule/CPS. The Agency also proposes specifying that EGUs that convert to fuel other than coal are not subject to the CPS group average annual SO_2 emission rate set forth in Section 225.295(b) of the CPS. Such units will instead be subject to unit-specific SO_2 emission limitations under the proposed Subpart AA in Part 214.

During discussions, Midwest Generation also indicated its intent to continue combusting coal at Unit 4 at the Will County station ("Will County 4"). The CPS currently requires that Midwest Generation install flue gas desulfurization ("FGD") equipment on Will County 4 on or before December 31, 2018. 35 Ill. Adm. Code 225.296(b). In light of the significant SO_2 emission reductions that will result from the conversion of Joliet 6, 7, and 8 and Will County 3 to natural gas or diesel fuel, Midwest Generation requested that Will County 4 be exempted from the requirement to install FGD equipment in lieu of Joliet 6 having such exemption.[4] The Agency's proposal implements this request, both in Part 225 and in the proposed emission limitation applicable to Will County 4 in Part 214.

Finally, Midwest Generation requested changes to provisions in the CPS that permit the sale or trade of NO_x and SO_2 allowances to the Homer City, Pennsylvania,

[4] Currently, the CPS exempts Joliet 6 (ambiguously identified by boiler reference as "Joliet 5" in the CPS) from the requirement to install FGD equipment. As Joliet 6 will be converting to natural gas or diesel fuel, the Agency proposes replacing the exemption for Joliet 6 with an exemption for Will County 4.

generating station, due to a change in Midwest Generation's affiliation with such station.[5] The Agency's proposal implements this request.

The Agency's proposed revisions to the CPS are not intended to alter the variances recently granted by the Board to Midwest Generation regarding certain provisions set forth in the CPS. In *Midwest Generation, LLC-Waukegan Generating Station v. Illinois Environmental Protection Agency*, PCB12-121, the Board granted Midwest Generation relief from the requirement in Section 225.296(a)(1) to install FGD equipment on Unit 7 at the Waukegan station by December 31, 2013, as well as relief from the requirement in Section 225.296(c)(1) to convert the hot-side electrostatic precipitator on such unit by December 31, 2013; the Board granted Midwest Generation's request for a delay in such requirements until December 31, 2014. (8/23/12 Board Order). In *Midwest Generation, LLC v. Illinois Environmental Protection Agency,* PCB13-24, the Board granted Midwest Generation relief from the system-wide average annual SO_2 emission rates set forth in Section 225.295(b) from January 1, 2015, through December 31, 2016, as well as relief from the requirement in Section 225.296(a)(2) to install FGD equipment on Unit 8 at the Waukegan station, or shut down the unit, by December 31, 2014; the Board granted Midwest Generation's request for a delay of such requirement in Section 225.296(a)(2) until May 31, 2015. (4/4/13 Board Order). The relief granted by

[5] According to Midwest Generation, when the CPS was originally established, EME Homer City Generation, LP ("EMEHC"), which was an affiliate of Midwest Generation, operated the Homer City station and obtained emission allowances from Midwest Generation for use by the Homer City station. Ownership was financed through a sale-leaseback arrangement with General Electric Capital Corporation ("GECC"). In March 2012, EMEHC transferred its interests in the Homer City station to GECC. At that point, no Midwest Generation affiliate had any involvement with the Homer City station. GECC selected NRG Energy Services to handle operations and maintenance ("O&M") of the Homer City station in 2012. In April 2014, NRG Energy, Inc., the ultimate parent company of NRG Energy Services, acquired ownership of Midwest Generation. The NRG Energy Services O&M arrangement is still operative, but NRG and its affiliates do not have any ownership interest in the Homer City station and do not make any bidding or dispatch determinations. Accordingly, Midwest Generation requested that references to trading with the Homer City station be removed from the CPS.

the Board in each variance was subject to certain conditions, specified in the Board's final order.

The Agency's proposed revisions are not intended to abrogate in any way the relief granted by, or the conditions imposed by, the Board in either of the proceedings described above.

3. Other Revisions to Part 217

The Agency proposes revising Section 217.394 in Subpart Q of Part 217. Subpart Q controls emissions of NO_x from stationary reciprocating internal combustion engines and turbines. A regulatory oversight was recently brought to the Agency's attention regarding the initial performance testing provisions in Section 217.394(a)(3); the current provision fails to specify an alternate testing deadline for new units that meet the criteria in such subsection. The Agency therefore proposes amending this Section to specify a deadline.

The Agency does not intend for this rulemaking to be a "clean-up" of Part 217, but as sources could currently be impacted by this error, the Agency proposes amending this provision as part of this rulemaking proposal.

C. SIP Revisions

Three Illinois SIPs are implicated by the Agency's proposal—Illinois' SIP for the 2010 SO_2 NAAQS, Illinois' Regional Haze SIP, and Illinois' NO_x SIP Call Phase II SIP. The Agency anticipates submitting to USEPA portions of the Agency's proposal for each SIP.

First, as previously discussed, the Illinois EPA intends to submit to USEPA all revisions to Part 214 as part of Illinois' SIP for the 2010 SO_2 NAAQS.

Second, the Illinois EPA intends to submit to USEPA revisions to Sections 225.291, 225.292, 225.293, 225.295, and 225.296 (except 225.296(d)) of Part 225, and Appendix A to Part 225, as revisions to Illinois' Regional Haze SIP. On June 24, 2011, the Illinois EPA submitted the provisions listed above to USEPA for approval as part of Illinois' plan to address the visibility protection requirements of Section 169A of the CAA, 42 U.S.C. § 7491, and the Regional Haze Rule, as codified in 40 CFR § 51.308. On July 6, 2012, USEPA approved the provisions as part of Illinois' Regional Haze SIP. *Approval and Promulgation of Air Quality Implementation Plans; Illinois; Regional Haze*, 77 *Fed. Reg.* 39943 (July 6, 2012). The Illinois EPA is therefore required to submit to USEPA subsequent amendments to these sections as revisions to the Regional Haze SIP. *See* 40 CFR § 51.104. The Agency's proposal should not negatively impact Illinois' Regional Haze SIP, as the proposed amendments to Part 225 will result in significant reductions in emissions of SO_2, and likely NO_x as well.

Third, the Illinois EPA intends to submit to USEPA revisions to Subpart Q of Part 217 as revisions to Illinois' NO_x SIP Call Phase II SIP ("Phase II SIP"). On October 23, 2007, the Illinois EPA submitted Section 217.394 of Subpart Q (along with other provisions not amended in this rulemaking proposal) to USEPA for approval as part of Illinois plan to satisfy USEPA's NO_x SIP Call Phase II Rule. On June 26, 2009, USEPA approved the provision as part of Illinois' Phase II SIP. *Approval and Promulgation of Air Quality Implementation Plans; Illinois; Oxides of Nitrogen Regulations, Phase II*, 74 *Fed. Reg.* 30466 (June 26, 2009). The Illinois EPA is therefore required to submit to USEPA subsequent amendments to this section as revisions to the Phase II SIP. *See* 40

CFR § 51.104. As the proposed amendment simply adds a testing deadline for new units, it will not negatively impact Illinois' Phase II SIP.

The Illinois EPA does not currently intend to submit to USEPA: 1) revisions to sections of Part 225 other than those described above; or 2) revisions to Subpart M of Part 217, as Subpart M is not currently part of Illinois' SIP.

IV. GEOGRAPHIC REGIONS AND SOURCES AFFECTED

The proposed fuel sulfur content limitations in Part 214 apply statewide, and are expected to affect both new and existing fuel combustion emission units. Appendix A to the *Technical Support Document for Proposed Rule Revisions Necessary to Demonstrate Attainment of the One-hour NAAQS for Oxides of Sulfur* ("TSD"), included in this rulemaking proposal, lists the sources potentially affected by these proposed amendments.

The proposed SO_2 emission limitations in Subpart AA of Part 214 impact the two areas designated as nonattainment for the SO_2 NAAQS: 1) the Lemont NAA, which includes Cook County (partial-Lemont Township) and Will County (partial- DuPage and Lockport Townships); and 2) the Pekin NAA, which includes Tazewell County (partial-Cincinnati and Pekin Townships) and Peoria County (partial-Hollis Township). 40 CFR § 81.314. The proposed limitations are intended to affect only those sources listed in Subpart AA, all of which are either located in the Lemont or Pekin NAAs or have been determined to be contributing to nonattainment in one of those areas.

The proposed revisions to Part 225 and to Subpart M of Part 217 impact only those EGUs that are subject to the CPS. Such EGUs are listed in Appendix A to Part 225.

The proposed revisions to Subpart Q of Part 217 are expected to impact new stationary reciprocating internal combustion engines and turbines that are subject to Subpart Q and that meet the criteria in Section 217.394(a)(3).

V. TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

A. Part 214

The Agency's proposed amendments to Part 214 are both technically feasible and economically reasonable. Fuel complying with the Agency's proposed fuel sulfur content limitations is already widely available in Illinois and is in fact already used by the majority of commercial and industrial sources in Illinois. The proposed emission limitations in Subpart AA are achievable through a variety of SO_2 control measures, including fuel switching and the use of well-known desulfurization technologies such as wet and dry scrubbers and dry sorbent injection systems.

A more detailed discussion of technical feasibility and economic reasonableness is set forth in the Agency's TSD.

B. Part 217 and Part 225

The Agency's proposed amendments to Subpart M of Part 217 and Part 225 are also technically feasible and economically reasonable. These amendments were requested by Midwest Generation, the only source impacted by such revisions. Based on consultations with Midwest Generation, the conversions of Joliet 6, 7, and 8 and Will County 3 to fuel other than coal are both feasible and cost effective.

The Agency's proposed amendment to Subpart Q of Part 217 imposes no additional requirements upon sources subject to Subpart Q, but rather clarifies the deadline to conduct an initial performance test for new units that meet the criteria in

Section 217.394(a)(3). The amendment requires that such units conduct a test once within the five-year period following the date the unit commenced operation. This time frame is consistent with the amount of time originally provided to units for initial performance testing under this subsection, and is both technically feasible and cost effective.

VI. COMMUNICATION WITH INTERESTED PARTIES

The Illinois EPA engaged in extensive outreach on this proposal. During development of the proposed revisions to Part 214, the Illinois EPA met with representatives from individual sources impacted by the proposed Subpart AA, engaged in subsequent conference calls and correspondence with source representatives regarding the proposal, and held an informational meeting for source representatives regarding the Agency's modeling efforts. The Agency provided draft amendments to Part 214 to the Illinois Environmental Regulatory Group for comment, and included an article in the Small Business Environmental Assistance Program's "Clean Air Clips," an electronic newsletter sent to associations, legislators, etc., explaining the proposed statewide fuel sulfur content limitations. The Agency also solicited comments on its proposed fuel standards in the August 2014 issue of the *Small Business Connection*, a publication provided to certain small businesses, chambers of commerce, business associations, trade groups, and legislators.

On February 18, 2015, the Agency provided a draft of its proposed revisions, including proposed amendments to Parts 214, 217, and 225, to potentially impacted sources, public interest groups, and USEPA Region 5, soliciting comments on the proposal.

The Illinois EPA received several comments on the draft rule, and this proposal incorporates many of the concerns and suggestions set forth in those comments. Such comments can generally be categorized into the following areas: availability of exclusions from the statewide fuel sulfur content limitations, availability of averaging to meet certain emission limitations, emission unit descriptions in Subpart AA of Part 214, the necessity of certain monitoring and recordkeeping/reporting provisions, requests for clarification, inquiries into the Agency's modeling methodologies, and inquiries regarding the Agency's proposed revisions to Part 225. These regulations are being proposed after the interested parties have had an opportunity to review the proposal and discuss any issues with the Illinois EPA.

VII. SYNOPSIS OF TESTIMONY

The Illinois EPA anticipates calling Rory Davis, Environmental Protection Engineer, Air Quality Planning Section ("AQPS"), Illinois EPA's Bureau of Air ("BOA"), as a witness at hearing. Mr. Davis will testify regarding the amendments proposed by the Agency. Written testimony will be submitted prior to hearing in accordance with the Board's procedural rules. Mr. Davis will be available for questions, as will David Bloomberg, Manager of AQPS, BOA; and Jackie Sims, Regulatory Unit Manager, AQPS, BOA.

VIII. THE ILLINOIS EPA'S PROPOSAL

The Illinois EPA proposes the following amendments to Parts 214, 217, and 225.

35 Ill. Adm. Code 214, Sulfur Limitations

SUBPART A: GENERAL PROVISIONS

Section 214.101 Measurement Methods

Update abbreviations throughout the Section.

Amend subsection (a) to acknowledge that a certified emissions monitoring system is an acceptable method of measuring sulfur dioxide emissions.

Amend subsection (b) to correct a spelling error and to acknowledge controlled condensate methods as acceptable methods of measuring sulfuric acid mist and sulfur trioxide.

Correct a typographical error in which two subsections are identified as subsection (e).

Section 214.102 Abbreviations and Units

Amend subsections (a) and (b) with updated abbreviations.

Section 214.103 Definitions

Amend this Section to acknowledge definitions contained elsewhere in this Part, including in Subpart AA.

Section 214.104 Incorporations by Reference

Amend subsection (a) to include additional test methods under 40 CFR 60.

Amend subsections (b) and (d) to incorporate 2014 versions of the regulations.

Add subsections (e) and (f) to incorporate by reference 40 CFR 75 and a USEPA guideline document, respectively.

SUBPART B: NEW FUEL COMBUSTION EMISSION SOURCES

Section 214.121 Large Sources

Update abbreviations throughout the Section.

Amend subsection (b) to specify sulfur content limitations for residual and distillate fuel oil used by new fuel combustion emission sources that burn liquid fuel exclusively and that exceed the specified size threshold. On and after January 1, 2017, the owner or operator of such sources must comply with the limits and with specified recordkeeping and reporting requirements.

Section 214.122 Small Sources

Update abbreviations throughout the Section.

Amend subsection (b) to specify sulfur content limitations for residual and distillate fuel oil used by new fuel combustion emission sources that burn liquid fuel exclusively and that do not exceed the specified size threshold. On and after January 1, 2017, the owner or operator of such sources must comply with the limits and with specified recordkeeping and reporting requirements.

SUBPART D: EXISTING LIQUID OR MIXED FUEL COMBUSTION EMISSION SOURCES

Section 214.161 Liquid Fuel Burned Exclusively

Amend subsection (a) to update abbreviations and to specify that the limitations in this subsection apply prior to January 1, 2017.

Add subsection (b) to specify sulfur content limitations for residual and distillate fuel oil used by existing fuel combustion emission sources burning liquid fuel exclusively. On and after January 1, 2017, the owner or operator of such sources must comply with the limits and with specified recordkeeping and reporting requirements.

Add subsection (c) to specify an exemption from the sulfur content limitation for distillate fuel oil set forth in subsection (b)(2) of this Section for distillate fuel oil used by specified units at Caterpillar Inc. Technical Center in Mossville, Illinois, for purposes of

research and development or testing of equipment intended for sale outside of Illinois. The exemption is limited to a combined total of 150,000 gallons of distillate fuel oil per calendar year; the sulfur content of such oil cannot exceed 500 ppm. The owner or operator must comply with specified recordkeeping and reporting requirements.

Add subsection (d) to specify an exemption from the sulfur content limitation for distillate fuel oil set forth in subsection (b)(2) of this Section for existing EGUs at certain Midwest Generation electric generating stations. The owner or operator of such EGUs must not purchase distillate fuel oil with a sulfur content exceeding 15 ppm from January 1, 2016, through December 31, 2018; must not use distillate fuel oil with a sulfur content exceeding 500 ppm from January 1, 2017, through December 31, 2018; and must not use distillate fuel oil with a sulfur content exceeding 15 ppm on and after January 1, 2019. The owner or operator must comply with specified recordkeeping and reporting requirements.

Add subsection (e) to specify an exemption from the sulfur content limitation for distillate fuel oil set forth in subsection (b)(2) of this Section for existing fuel combustion emission units at Caterpillar's facility in Montgomery, Illinois. On and after January 1, 2016, the owner or operator of such units must not purchase distillate fuel oil with a sulfur content exceeding 15 ppm, and must not use distillate fuel oil with a sulfur content exceeding 500 ppm. The owner or operator must comply with specified recordkeeping and reporting requirements.

Section 214.162 Combination of Fuels

Amend subsection (d) to update abbreviations and to account for new sulfur content limitations.

SUBPART F: ALTERNATIVE STANDARDS FOR SOURCES INSIDE METROPOLITAN AREAS

Section 214.201 Alternative Standards for Sources in Metropolitan Areas

Amend this Section to update abbreviations and to clarify that nothing in this Section excuses a source subject to Subpart AA from complying with the requirements set forth in Subpart AA.

SUBPART K: PROCESS EMISSION SOURCES

Section 214.301 General Limitation

Amend this Section to clarify that the 2000 ppm limitation is on a dry basis when averaged over a one-hour period. This revision is not intended to change existing requirements related to this limitation, but rather clarify existing requirements and codify the Agency's longstanding interpretation of such requirements.

SUBPART Q: PRIMARY AND SECONDARY METAL MANUFACTURING

Section 214.421 Combination of Fuels at Steel Mills in Metropolitan Areas

Amend subsection (d) to update abbreviations and to account for new sulfur content limitations.

SUBPART AA: REQUIREMENTS FOR CERTAIN SO_2 SOURCES

Section 214.600 Definitions

Add this Section to set forth definitions applicable to this Subpart.

Section 214.601 Applicability

Add subsection (a) to specify the sources that are subject to this Subpart.

Add subsection (b) to specify that once a source is subject to this Subpart, it is always subject to this Subpart.

Add subsection (c) to clarify that nothing in this Subpart excuses a source from complying with air quality standards in 35 Ill. Adm. Code 243 or with other applicable requirements in Part 214.

Section 214.602 Compliance Deadline

Add this Section to establish January 1, 2017, as the compliance deadline for all requirements in this Subpart.

Section 214.603 Emission Limitations

Add this Section to set forth the emission limitations applicable to specified emission units at specified sources. The limitations are expressed in terms of pounds of SO_2 emitted per clock hour. For the specified emission units located at Midwest Generation Powerton, compliance will be determined on a 30-operating day rolling average basis.

Section 214.604 Monitoring and Testing

Add subsection (a) to require that sources demonstrate compliance with the applicable emission limitations in Subpart AA via the monitoring and testing requirements set forth in this Section.

Add subsection (b) to require that the sources listed in this subsection utilize CEMS for the measurement of SO_2 emissions in accordance with 40 CFR 75 (except provisions in Part 75 regarding missing data substitution) and subsection (d) of this Section, or utilize an alternative monitoring method that would be available to the pertinent emission unit under Part 75.

Add subsection (c) to require that all sources not listed in subsection (b) of this Section either conduct performance testing in accordance with subsection (e) of this

Section or utilize CEMS for the measurement of SO_2 emissions in accordance with 40 CFR 60 or 40 CFR 75 (except provisions in Part 75 regarding missing data substitution), and subsection (d) of this Section.

Add subsection (d) to specify requirements for sources demonstrating compliance via CEMS. Sources may utilize a single CEMS for emission units served by a common stack. If an emission unit changes the method of demonstrating compliance from performance testing to use of a CEMS, the owner or operator must begin operating the CEMS on or before the performance testing deadline determined in accordance with subsection (e)(2) of this Section. This subsection also restates that the missing data substitution provisions in 40 CFR 75.31-34 must not be used to demonstrate compliance with the requirements in this Subpart.

Add subsection (e) to specify requirements for sources demonstrating compliance through performance testing. These requirements regard testing deadlines, submittal of testing protocols and notifications to the Agency, and the methods to be used for each performance test.

Section 214.605 Recordkeeping and Reporting

Add subsection (a) to specify the records that must be submitted to the Agency by January 1, 2017, including a certification that the source will be in compliance by that date, documentation specific to the method the source is using to demonstrate compliance, and a description of the methods the source will use to comply with all emission limitations in this Subpart.

Add subsection (b) to specify that owners or operators of sources must keep and maintain records demonstrating ongoing compliance with the requirements in this

Subpart, including performance test reports, a log of parametric monitoring conducted, information specific to sources utilizing CEMS, information related to malfunctions of emission units or SO_2 control equipment, information related to SO_2 control equipment, and information specific to emission units utilizing a 30-day average.

Add subsection (c) to require that sources demonstrating compliance through performance testing submit the results of all tests conducted pursuant to Section 214.604(e) of this Subpart within 60 days after completion of the test.

Add subsection (d) to establish requirements applicable to owners or operators of emission units changing the method of demonstrating compliance between performance testing and CEMS.

Add subsection (e) to specify that the owner or operator of a source must notify the Agency within 30 days after discovery of deviations from any of the requirements in this Subpart or any exceedance of an emission limitation in this Subpart. Such notification must describe the deviations, possible causes, corrective actions taken, and preventative measures taken.

Add subsection (f) to require that sources maintain all records required by this Section at the source for a minimum of 5 years and provide copies to the Agency within 30 days of receipt of a request by the Agency.

35 Ill. Adm. Code 217, Nitrogen Oxides Emissions

SUBPART M: ELECTRICAL GENERATING UNITS

Section 217.342 Exemptions

Amend subsection (b) to eliminate the reference to the CPS, as the CPS is addressed in the new proposed subsection (c).

Add subsection (c) to specify that the provisions of Subpart M do not apply to a fossil fuel-fired stationary boiler that is subject to any of the requirements in the CPS, regardless of the type of fossil fuel combusted.

SUBPART Q: STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINES AND TURBINES

Section 217.394 Testing and Monitoring

Amend subsection (a) to specify an initial performance testing deadline for new units that meet the criteria in subsection (a)(3) of this Section.

35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources

SUBPART B: CONTROL OF MERCURY EMISSIONS FROM COAL-FIRED ELECTRIC GENERATING UNITS

Section 225.205 Applicability

Amend this Section to specify that the stationary boilers listed in Appendix A to Part 225 are subject to the requirements in this Subpart, regardless of the type of fuel combusted.

Section 225.210 Compliance Requirements

Amend subsection (b) to acknowledge proposed changes to the CPS that eliminate some of the requirements set forth in this Section for EGUs in the CPS that permanently cease combusting coal.

Section 225.240 General Monitoring and Reporting Requirements

Amend this Section to acknowledge proposed changes to the CPS that eliminate some of the requirements set forth in this Section for EGUs in the CPS that permanently cease combusting coal.

Section 225.265 Coal Analysis for Input Mercury Levels

Amend this Section to acknowledge proposed changes to the CPS that eliminate some of the requirements set forth in this Section for EGUs in the CPS that permanently cease combusting coal.

Section 225.290 Recordkeeping and Reporting

Amend this Section to acknowledge proposed changes to the CPS that eliminate some of the requirements set forth in this Section for EGUs in the CPS that permanently cease combusting coal.

Section 225.291 Combined Pollutant Standard: Purpose

Amend this Section to add the conversion of an EGU to fuel other than coal as one of the alternative means of compliance with the mercury emission standards in Section 225.230(a) for EGUs in the CPS.

Section 225.292 Applicability of the Combined Pollutant Standard

Amend subsection (a) to add "the."

Amend subsection (b) to provide that a specified EGU is an EGU listed in Appendix A to Part 225, regardless of the type of fuel combusted by the EGU.

Section 225.293 Combined Pollutant Standard: Notice of Intent

Add subsection (d) to require that the owner or operator of a specified EGU that, on or after January 1, 2015, changes the type of primary fuel combusted by the unit or the control device(s) installed and operating on the unit must notify the Agency of such change by January 1, 2017, or within 30 days of the completion of such change, whichever is later.

Section 225.294 Combined Pollutant Standard: Control Technology Requirements and Emissions Standards for Mercury

Amend subsection (a) to specify that the requirements in this subsection apply only to coal-fired EGUs.

Amend subsection (b) to specify that on and after the date an EGU permanently ceases combusting coal, it is not required to install, operate, or maintain activated carbon injection equipment.

Amend subsection (c) to specify that EGUs that permanently cease combusting coal are not required to comply with the mercury emission standards set forth in this subsection.

Amend subsection (d) to eliminate the requirement that Will County 3 comply with the mercury emission standards in subsection (c) of this Section and to specify that on and after April 16, 2015, Will County 3 must not combust coal. The deadline after which Will County 3 must not combust coal is also included in proposed amendments to Section 225.296.

Amend subsection (e) to specify that on and after the date an EGU permanently ceases combusting coal, it is not subject to the requirements in subsections (g), (h), (i), (j), and (k) of this Section.

Amend subsection (g) to remove two misplaced parentheticals in (g)(1)(c)(iii). Also, the current version of (g)(2) contains a strikethrough of the number "4"; the "4" should be removed.

Add subsection (m) to provide that the requirements in Sections 225.240 through 225.290 of this Subpart, and any other mercury-related monitoring, recordkeeping, notice, analysis, certification, and reporting requirements set forth in this Subpart,

including in the CPS, will not apply to a specified EGU on and after the date the EGU permanently ceases combusting coal.

Section 225.295 Combined Pollutant Standard: Emissions Standards for NO_x and SO_2

Amend subsection (a) to specify that the NO_x emission rates set forth in this Section apply to all EGUs in the CPS regardless of the type of fuel combusted, and that EGUs in the CPS are not subject to the requirements in Subpart M of Part 217, including the NO_x emission standards in Section 217.344.

Amend subsection (b) to specify that, for purposes of this subsection only, the CPS Group includes only those specified EGUs that combust coal. This subsection requires that the CPS Group comply with group average annual SO_2 emission rates set forth in this subsection.

Amend subsection (d) to correct errors in the equation.

Section 225.296 Combined Pollutant Standard: Control Technology Requirements for NO_x, SO_2, and PM Emissions

Amend subsection (b) to specify the dates on and after which Will County 3 and Joliet 6, 7, and 8 are not permitted to combust coal, and to provide that all other specified EGUs (except Will County 4) must either permanently shut down, permanently cease combusting coal, or install FGD equipment, on or before December 31, 2018.

Amend subsection (c) to eliminate the requirement that Will County 3 comply with the control technology requirements for particulate matter in this subsection, as the unit is converting to natural gas or diesel fuel. Also amend this subsection to change the compliance deadline for Waukegan 7 to reflect the variance granted by the Board in *Midwest Generation, LLC-Waukegan Generating Station v. Illinois Environmental*

Protection Agency, PCB12-121, discussed in Section III, *supra*; this amendment is intended to avoid any confusion caused by the Agency's reorganization of subsection (c).

Section 225.298 Combined Pollutant Standard: Requirements for NO_x and SO_2 allowances

Amend subsection (a) to eliminate the provision permitting EGUs in the CPS to sell, trade, or transfer SO_2 and NO_x emission allowances to the Homer City, Pennsylvania, generating station.

225.APPENDIX A Specified EGUs for Purposes of the CPS (Midwest Generation's Coal-Fired Boilers as of July 1, 2006)

Amend the title of this Section to remove the reference to Midwest Generation.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

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DATED: April 27, 2015

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TECHNICAL SUPPORT DOCUMENT

for

Proposed Rule Revisions Necessary to Demonstrate Attainment of the One-Hour NAAQS for Oxides of Sulfur

AQPSTR 15-03

April 2015

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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Table of Contents

List of Acronyms and Abbreviations

AERMAP	AERMOD Terrain Preprocessor
AERMET	AERMOD Meteorological Preprocessor
AERMINUTE	AERMET Preprocessor of ASOS 2- Minute Average Wind Data
AERMOD	AMS/EPA Regulatory Model
AERSURFACE	USEPA surface characteristics processing software
AMS	American Meteorological Society
AQPSTR	Air Quality Planning Section Technical Report
BEEST	Providence/Oris LLC modeling software
CAA	Clean Air Act
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
CO_2	carbon dioxide
CPS	Combined Pollutant Standard
EGU	electrical generating unit
FGD	flue gas desulfurization
GEP	good engineering practice
IAC	Illinois Administrative Code
Illinois EPA	Illinois Environmental Protection Agency
lb/hr	pounds per hour
lb/mmBtu	pounds per million British thermal units
NAA	nonattainment area
NAAQS	National Ambient Air Quality Standard
NOx	oxides of nitrogen
PM	particulate matter
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
SIP	State Implementation Plan
SOx	oxides of sulfur
SO_2	sulfur dioxide
SO_3	sulfur trioxide
ULSD	ultra-low sulfur diesel
USEPA	United States Environmental Protection Agency

Executive Summary

The Illinois Environmental Protection Agency ("Illinois EPA" or "Agency") is proposing amendments to Title 35 of the Illinois Administrative Code ("35 IAC") to address two areas in nonattainment of the 2010 National Ambient Air Quality Standard ("NAAQS") for oxides of sulfur ("SO_2 NAAQS"). The proposed amendments would revise certain portions of Part 214, Part 217, and Part 225 to control emissions of SO_2 in and around the cities of Pekin and Lemont.

Illinois is obligated to submit a State Implementation Plan ("SIP") to address requirements under Sections 172, 191, and 192 of the Clean Air Act ("CAA") for sources of SO_2 emissions in areas designated as nonattainment with respect to the 2010 SO_2 NAAQS. The amendments in this proposed rulemaking will be the basis of the SIP addressing the two nonattainment areas ("NAAs"). Illinois EPA has performed analyses including extensive computer modeling to ensure that the SIP, including these amendments when effective, will result in attainment of the NAAQS in the affected areas.

The amendments proposed in this rulemaking establish sulfur content limitations for liquid fuels used by fuel combustion emission units throughout the State; establish SO_2 emission limitations for specific sources impacting an SO_2 NAA; and address the conversion of certain coal-fired electric generating units ("EGUs") impacting an SO_2 NAA to a fuel other than coal.

In 2010, the United States Environmental Protection Agency ("USEPA") revised the primary NAAQS for SO_2 by establishing a 1-hour standard of 75 parts per billion ("ppb"), and revoked the two existing primary standards for SO_2. In response to recommendations from the Illinois EPA, and in conjunction with its own technical analyses, USEPA designated two areas in Illinois as nonattainment effective October 4, 2013: the Pekin NAA, consisting of Pekin, Cincinnati, and Hollis Townships; and the Lemont NAA, consisting of Lemont, DuPage, and Lockport Townships. The designation of these areas as nonattainment triggered CAA requirements for Illinois EPA to submit a SIP that will result in attainment of the NAAQS within five years of the designation (October 4, 2018). The great majority of SO_2 control strategies included in the proposed amendments would be effective January 1, 2017, in order to allow the evaluation of at least one full calendar year of monitoring data before the October 4, 2018, attainment date.

Illinois EPA, adhering to statutory requirements of the CAA, has conducted a modeling analysis that demonstrates attainment with the SO_2 NAAQS. This modeling analysis involved iterative simulations of SO_2 control strategies that included lowering permitted emission rates of specific stationary sources contributing to nonattainment and a statewide requirement for the use of ultra-low sulfur diesel fuel for stationary sources.

The proposed amendments will allow Illinois to submit a SIP that demonstrates attainment of the 1-hour SO_2 NAAQS in the two Illinois NAAs in a technically feasible and economically reasonable manner. In order to ensure these criteria were met, Illinois EPA conducted extensive outreach with sources potentially affected by the proposed amendments. This outreach included in-person meetings with representatives of affected sources to discuss Illinois' obligations under the CAA, the methods used to determine appropriate control strategies contained in the proposed amendments, and impacts of the proposed amendments at each affected source. Technologies

and methods for the control of SO_2 emissions are long established and well known, as are the costs associated with them. In its analysis of the reasonableness of the emission limits in the proposed amendments, Illinois EPA relied primarily upon consultation with representatives of the various affected sources in order to determine emission limits that are adequate to demonstrate attainment of the NAAQS, and are achievable in a reasonable manner.

1.0 Illinois SO_2 NAAQS Nonattainment Areas

USEPA, in 2010, promulgated (*Federal Register*, Vol. 75, No. 119, June 22, 2010, p. 35519-35603) revisions to the primary NAAQS for oxides of sulfur (measured by SO_2) that became effective August 23, 2010. The SO_2 NAAQS was revised to a 1-hour standard and set at a level of 75 ppb. This standard is evaluated as a three-year average of the 99th percentile of the annual distribution of 1-hour daily maximum monitored concentrations measured at an ambient air monitor, and is attained when this "design value" does not exceed 75 ppb at any monitor in an area.

Ambient SO_2 monitoring in Pekin, Illinois, yielded a design value concentration of 211 ppb for the years 2009 – 2011. Monitoring in Lemont, Illinois, yielded a design value concentration of 98 ppb for the same three-year period.

On June 2, 2011, the State of Illinois formally recommended to USEPA that five sub-county areas be designated as nonattainment of the SO_2 NAAQS. On February 6, 2013, USEPA provided the State of Illinois with its intended designations, and followed up with formal notification of modifications to Illinois' recommended designations on July 25, 2013. These final designations were published in the Federal Register (*Federal Register*, Vol. 75, No. 119, June 22, 2010, p. 35519-35603) and became effective on October 4, 2013.

The Pekin NAA consists of Pekin, Cincinnati, and Hollis Townships. The Lemont NAA consists of Lemont, DuPage, and Lockport Townships.

Illinois is statutorily required to achieve attainment with the 1-hour SO_2 NAAQS by October 4, 2018. The implementation plan submittal deadline (April 6, 2015) is covered under CAA Section 191, which specifies submittal "within 18 months of the designation." Illinois EPA intends to submit the amendments and supporting documentation of this proposed rulemaking to USEPA for parallel processing soon after it files this proposed rulemaking with the Board. This means the proposed rulemaking will be part of the State's SIP submittal before it is finalized by the Board. Any substantive changes to this proposal that would affect the anticipated attainment demonstration in the SIP submittal will be submitted as SIP revisions upon completion of the rulemaking process.

USEPA has indicated in its guidance (USEPA, 2014) that a full calendar year of monitoring data will be required in order to evaluate whether the NAAQS will be attained in an area. In order to have at least one full calendar year of monitoring data by the statutory date of October 4, 2018, data from 2018 cannot be used. Thus, the latest full calendar year that can be evaluated is 2017. This data requirement is the reason the SO_2 control strategies included in the proposed rulemaking and in Illinois' attainment demonstration must be in place by January 1, 2017.

2.0 Proposed Amendments

The proposed amendments in this rulemaking include amendments to 35 IAC Parts 214, 217, and 225. Illinois EPA has proposed the amendments to these three Parts as a single comprehensive rulemaking to address the SO_2 NAAQS in both areas of nonattainment in Illinois. Amendments to Part 214 will be submitted to USEPA as the Illinois SIP for attaining the SO_2 NAAQS in both areas of nonattainment in Illinois. As such, Illinois EPA has conducted computer modeling of the anticipated results of the proposed rulemaking to ensure that the proposed amendments will result in attainment of the NAAQS.

Amendments to Part 214 are primarily aimed specifically at the emissions of SO_2 from sources in the two nonattainment areas in Illinois, and from sources Illinois EPA has determined have a significant impact on ambient SO_2 concentrations in those areas.

Amendments to Part 214 also include statewide limits on the sulfur content of liquid fuels combusted at stationary sources in Illinois.

Amendments to Parts 217 and 225 have been proposed to address issues arising from the planned conversion of four coal-fired electrical generating units ("EGUs") owned and operated by Midwest Generation, LLC ("Midwest Generation") to combust fuel other than coal.

2.1 Revisions to Part 214

2.1.1 Statewide Liquid Fuel Standards

Illinois EPA is proposing amendments to Part 214 Subparts B and D in Sections 214.121, 214.122, and 214.161 to limit the sulfur content of distillate and residual fuel oil combusted at stationary sources throughout Illinois. The sulfur content of residual fuel oil combusted at stationary sources would be limited to 1000 parts per million ("ppm"). Sulfur content of distillate fuel oil would be limited to 15 ppm. Distillate fuel oil is most commonly diesel fuel, and diesel fuel with sulfur content of less than 15 ppm is more commonly referred to as ultra-low sulfur diesel ("ULSD").

The amendments regarding liquid fuels have been proposed because they are necessary to address CAA requirements associated with the two Illinois areas currently designated as nonattainment. The liquid fuel limits have been proposed as a statewide measure because they will aid in planning for possible additional future nonattainment designations in the state. In the next several years, Illinois EPA will be required to conduct additional modeling that may result in additional areas being designated as nonattainment of the SO_2 NAAQS. The proposed statewide fuel standards will aid in SIP planning for any additional NAAs designated in the future, and perhaps could aid in the prevention of an area or areas from being designated nonattainment.

Liquid fuels with sulfur contents meeting the proposed standards are widely available in the United States and Illinois. Additionally, in outreach with sources potentially affected by the

proposed amendments, representatives from sources concurred with Illinois EPA that these fuels were widely available and were an economically reasonable control measure for SO_2 emissions.

Provisions in the proposed amendments regarding liquid fuels at Section 214.161(c) address sources allowed to use a certain quantity of noncompliant distillate fuel for research and development or technical testing of combustion sources manufactured for use outside of Illinois. Additional provisions at Section 214.161(d) provide an extension of compliance dates for the distillate fuel restrictions for certain sources with existing stocks of noncompliant fuel. Finally, Section 214.161(e) sets forth an alternate compliance deadline for the distillate fuel restrictions for a specified source with a large stock of noncompliant fuel.

The proposed amendments require that affected sources maintain records demonstrating compliance with the fuel standards. These records must be retained for five years and be made available to the Agency upon request.

A list of sources potentially impacted by the proposed amendments regarding liquid fuels is included as Appendix A to this document.

2.1.2 Source-Specific SO_2 Limits

Illinois EPA is proposing amendments to create a new Subpart AA in Part 214. Subpart AA applies to the following eight stationary sources in or near one of the SO_2 NAAs, all of which contribute to nonattainment:

- Aventine Renewable Energy in Pekin, IL;
- Illinois Power Holdings E.D. Edwards in Bartonville, IL;
- Ingredion in Bedford Park, IL;
- Midwest Generation Joliet, in Joliet, IL;
- Midwest Generation Powerton in Pekin, IL;
- Midwest Generation Will County in Romeoville, IL;
- Owens Corning in Summit, IL;
- Oxbow Midwest Calcining in Lemont, IL.

The proposed limits apply to 36 emission release points associated with a variety of emission unit types from various industrial processes and electrical generation. The limits at these emission release points correspond to emission rates at those locations modeled to demonstrate attainment with the SO_2 NAAQS. While many of these limits apply to multiple emission units, these release points are the locations where SO_2 emissions from these units will be monitored or tested to demonstrate compliance with the proposed limits.

The proposed limits are a product of an iterative process that involved modeling allowable SO_2 emission rates at affected sources that reflected reasonable SO_2 control strategies at the various locations. This process resulted in the proposed limits which will provide SO_2 emission reductions adequate to demonstrate attainment of the NAAQS in both NAAs. The demonstration of modeled attainment of the NAAQS in these areas relies on reductions of allowable SO_2 emissions. These reductions in allowable emissions are achieved by setting new enforceable hourly limits on impacted units. Units can achieve these new hourly limits by utilizing

additional pollution control equipment or switching fuels. In instances where the source's actual emissions are already less than the proposed limits, the source may not need to institute any additional control measures at all. A more thorough explanation of the modeling methodologies employed is provided in Section 6 and subsequent sections in this document.

Affected sources will be required to conduct emissions testing of affected units or monitor those units with continuous emissions monitoring systems ("CEMS"). Sources will also be required to keep records of emissions and report any compliance deviations.

2.1.3 Discussion of 30-Day Averaging

Included in the proposed amendments to Subpart AA of Part 214 are provisions for one source, Midwest Generation Powerton, to comply with an emission limit on a rolling 30-day average basis. The proposed amendments would set a limit of 3,452.00 lb/hr measured on a 30-day rolling average basis for the combined SO_2 emissions from specified units at the source. This averaging provision was determined in accordance with USEPA guidance (USEPA, 2014) regarding averaging for the 1-hour SO_2 NAAQS.

The first step in determining an appropriate 30-day average limit is conducting dispersion modeling to establish a critical value for source emissions at which the NAAQS would be achieved without any averaging. The modeling conducted by the Agency resulted in a critical value of 6,000 lb/hr for combined SO_2 emissions from the impacted Powerton emission units.

The next step in determining an appropriate average limit is to compile emissions data that reflects the expected emissions distribution at the source once an attainment plan is implemented. EPA's guidance suggests this type of data compilation because historical emission data from a source may not be appropriate to use for an evaluation of the source's future variability if changes to a source will be made to address an attainment plan. The USEPA guidance also suggests that data reflecting three to five years of stable operation would be necessary for a reliable analysis.

The source in question is scheduled to install a trona injection dry FGD system for the control of SO_2 emissions before 2017, so historical data from the units at the source would not be appropriate. As a substitute, Midwest Generation submitted a data set consisting of 42 months of emissions data from the Potomac River Generating Station, located in Alexandria, Virginia. Units at this source are similar to the Powerton units, and were operated with trona injection systems during the time this data set was created. The Agency considers this data set to be an appropriate proxy for the variability at the Powerton units after the additional pollution control equipment is installed on them.

The next steps from USEPA's guidance involve determining emission distributions from hourly emission averages, and distributions from the longer interval averaging time. These values reflect the variability in emissions at a source. USEPA's guidance prescribes that a ratio between the 99^{th} percentile values of one hour values and the 99^{th} percentile values of the longer averaging time values be used to reduce the critical emissions value from above.

The data set used for the Powerton source, from the Potomac River Generating Station, yielded a value of 1,107 lb/hr for the 99th percentile of the 1-hour average emission values. The data set yielded a value of 637 lb/hr for the 99th percentile of the 30 day average emission values. This results in a ratio of 0.58. This ratio is then multiplied by the critical value obtained by the dispersion modeling (6,000 lb/hr). This produces a 30-day average emission limit of 3,452 lb/hr for the Powerton source.

Illinois EPA, prior to the filing of this rulemaking with the Board, has consulted with USEPA regarding this 30-day averaging methodology. USEPA was given the same methodology and data set used to determine the 30-day average limit as has been submitted to the Board. USEPA confirmed that Illinois EPA's analysis and methodology were consistent with their published guidance on the subject, and that the 30-day average limit in the proposed amendments is an appropriate limit for the source.

2.2 Revisions to Parts 217 and 225

Illinois EPA is proposing revisions to Parts 217 and 225 to address issues arising from the planned conversion of four coal-fired electrical generating units ("EGUs") owned and operated by Midwest Generation to combust fuel other than coal. During the period of time Illinois EPA was conducting outreach to sources potentially affected by this rulemaking, Midwest Generation approached the Agency regarding the company's potential plans to convert several coal-fired EGUs located in or near the Lemont NAA. These converted units would permanently cease combusting coal, and instead use either natural gas or ULSD. The plan included Units 6, 7, and 8 at the Joliet station ("Joliet 6, 7, and 8"), and Unit 3 at the Will County station ("Will County 3").

The Agency strongly supports these conversions, as they would significantly reduce SO_2 emissions in and around the Lemont NAA, aiding the Agency's efforts to demonstrate attainment of the SO_2 NAAQS in that area in the required timeframe. Additionally, these conversions will result in significant reductions in emissions of particulate matter ("PM") and greenhouse gases such as carbon dioxide ("CO_2"), and likely significant reductions in emissions of oxides of nitrogen ("NOx"). These emission reductions will aid in state planning efforts addressing regional haze in the Clean Air Visibility Rule ("CAVR"), interstate transport issues in the Cross-State Air Pollution Rule ("CSAPR"), and USEPA's recently proposed Clean Power Plan for the control of greenhouse gases from the power sector.

The proposed amendments to Part 217 specify that units that are part of the Combined Pollutant Standard ("CPS") group in the Illinois Mercury Rule in Part 225 are not subject to the NOx limits in Subpart M of Part 217, regardless of the type of fuel combusted. CPS units are currently exempted from Part 217 because their NOx emissions are regulated in Part 225 as a fleet-wide average. However, once these EGUs permanently cease combusting coal, an argument could arise that the units are no longer subject to the Illinois Mercury Rule/CPS, and would no longer qualify for the exemption in Subpart M. Midwest Generation expressed concerns about the uncertainty the company believes this could cause and the related possible change in the company's expectations, as well as concerns that the boilers converted from coal to lower sulfur fuels would not be able to meet the NOx limits in Part 217. These concerns arise

from the age of the boilers being converted, the cost of installing pollution control equipment for NOx on those boilers, and the cost effectiveness of controls for units that are projected to operate at a relatively low capacity factor. The amendments to Parts 217 and 225 would, for the purpose of NOx emissions, specify that CPS group units that permanently cease combusting coal will remain in the CPS group.

The exemption from Part 217 of the converted units can in no way result in additional NOx emissions in the State, and therefore will have no impact on previous SIPs for other federal requirements. This is because the units will remain in a CPS group that must continue to meet a fleet-wide average of 0.11 lb/mmBtu pursuant to Section 225.295. Indeed, it is likely that the conversion of these units will result in significant reductions of NOx emissions from this CPS group. This is because, while the converted units are required to meet the same fleet-wide average on a lb/mmBtu basis, it is not likely that they will continue to operate at the same rate of heat input. Midwest Generation projects that the converted units will only operate at approximately 10% capacity. This is in contrast to those units operating at approximately 85% as base-load coal-fired units. This reduction in heat input would reduce total tonnage of NOx emissions from the CPS units by more than 3,000 tons, or an approximate 23% reduction in NOx emissions from the group statewide.

Additionally, the proposed amendments to Part 225 include a revision to Section 225.296(b) that would change a current exception for the "Joliet 5" unit to an exception for the Will County 4 unit. Prior to any discussion of the proposed revision, it should be noted that the Joliet 6 EGU was ambiguously identified in Section 225.296(b) as "Joliet 5." This occurred because Joliet 6 is powered by Boiler 5 at the facility. Therefore, any subsequent reference to Joliet 6 in this discussion should be understood to refer to the "Joliet 5" unit referenced in Section 225.296(b).

The proposed revision to Section 225.296 to replace the exception for Joliet 6 with an exception for Will County 4 has been proposed because the Joliet 6 unit will permanently cease combusting coal prior to the January 1, 2017, compliance deadline. Section 225.296(b) requires all units in the CPS group to install flue gas desulfurization ("FGD") by December 31, 2018, except for Joliet 6. In light of the significant emission reductions that will result from the conversion of the four aforementioned coal-fired EGUs, Midwest Generation requested that this exception be applied to the Will County 4 unit instead. The proposed revisions, as a whole, will result in SO_2 emission reductions of more than 6,000 tons annually beginning in 2017.

Additionally, the remaining coal-fired units in the CPS group will still be required to meet the fleet-wide average limit for SO_2 in Section 225.295(b) without the converted units being used in averaging calculations for that limit. These limits require that the CPS group meet fleet-wide SO_2 emission rates of 0.15 lb/mmBtu in 2017, 0.13 lb/mmBtu in 2018, and 0.11 lb/mmBtu in 2019.

Finally, the proposed amendments include revisions to Section 225.298(a) that alter NOx and SO_2 allowance trading rules for Midwest Generation CPS units. Currently allowances allocated to CPS units could only be traded to units outside of Ohio, Indiana, Illinois, Wisconsin, Michigan, Kentucky, Missouri, Iowa, Minnesota, or Texas, and only if the Midwest Generation facility in Homer City, PA, did not need them for compliance. Since the original adoption of

Part 225, Midwest Generation's affiliation with the Homer City facility has changed, so references to that facility should be removed. The restrictions on trading to units in Ohio, Indiana, Illinois, Wisconsin, Michigan, Kentucky, Missouri, Iowa, Minnesota, or Texas remain.

Illinois EPA has proposed the revisions to Parts 217 and 225 as a key component in the attainment of the SO_2 NAAQS by the January 1, 2017, deadline, and also for the overwhelmingly positive net environmental benefit from the cessation of coal combustion at the specified units.

3.0 Environmental Impact

3.1 Emission Reductions from Liquid Fuel Standard

Table 1, taken from the Agency's 2011 annual emission inventory, shows annual allowable SO_2 emissions at point and area sources in Illinois. This data shows that the vast majority of the fuel oil used in Illinois is Fuel Oil No. 2, or diesel, and Fuel Oil No. 6, a residual fuel oil. The allowable emission rates in the table are based on the existing Illinois fuel oil limits listed in Table 2.

Table 1: Illinois EPA 2011 Fuel Oil SO_2 Emissions

Type of Fuel Oils		Point Sources Allowable Emission ton/yr
Distillates	Fuel Oil No. 1	910.07
	Fuel Oil No. 2	22,886.52
Residuals	Fuel Oil No. 4	93.84
	Fuel Oil No. 5	14.54
	Fuel Oil No. 6	11,544.15
	Waste Fuel Oil	804.46
Others	Other Liquid Fuel	2,366.45

The existing Illinois limits in Table 2 are given in terms of percent by weight, not ppm as the proposed limits are. The limit for distillate fuels of 0.3% by weight would correspond to a limit of 3,000 ppm. The limits for residual oil of 1% by weight and 0.8% by weight would correspond to 10,000 ppm and 8,000 ppm respectively.

Table 2: Summary of Illinois Existing Fuel Oil SO_2 Limits (% by weight)

Metropolitan Areas	Fuel Oil Type	Limits SO_2 lb/mmBtu			
		Size > 250 mmBtu/hr		Size ≤ 250 mmBtu/hr	
		Existing	New	Existing	New
Chicago, Metro-East, and Peoria	Residual	1.0	0.8	1.0	
	Distillate	0.3			
All others	Residual	1.0			
	Distillate	0.3			

The Agency is proposing a limit for distillate fuels of 15 ppm, and a limit for residual fuel oil of 1,000 ppm.

3.2 Emission Reductions from Subpart AA Amendments

Emission reductions from the proposed amendments to Subpart AA of Part 214 result from setting unit-specific limits for emission units at the sources identified by the Agency that are contributing significantly to nonattainment. These limits establish maximum allowable hourly SO_2 emissions that can then be input into a modeling simulation to demonstrate anticipated attainment of the NAAQS. Allowable emission rates are used in the modeling simulations in order to provide the most conservative, or "worst-case," analysis. The Agency's extensive outreach prior to the proposed rulemaking has resulted in an understanding of how each source intends to comply with the proposed limits.

In some instances, the affected sources intend to comply with the proposed limits by switching to lower sulfur fuels (i.e. coal to natural gas), while additional pollution control equipment or a change of operational configuration may be used in other cases. However, for a number of affected units, the proposed emission limits are already being achieved, but the units currently have higher allowable emission rates under current rules. Additionally, because the revised SO_2 NAAQS is an hourly standard, the proposed hourly limits are necessary to demonstrate attainment. Due to the varied nature of these avenues for compliance, and in light of many sources currently having lower emissions than the proposed limits, quantifying reductions of actual SO_2 emissions from the affected sources is problematic. However, Table 3 provides unit-specific comparisons of previous allowable emissions to the emission limits in the proposed amendments.

Table 3: Allowable Emission Rates of Affected Sources

Facility Name	Unit Description	Current Allowable Emissions (lb/hr)	Proposed Emission Limit (lb/hr)
Aventine Renewable Energy	Boiler A	5.5 lb/mmBtu	0.00
	Boiler B	5.5 lb/mmBtu	0.00
	Boiler C	5.5 lb/mmBtu	0.00
	Cyclone East controlling First Germ Drying System	66.40	0.27
	Cyclone West controlling First Germ Drying System	66.40	0.37
	Second Germ Drying System	110.69	0.01
	Gluten Dryer 4	7.20	3.12
	Gluten Dryer 9	1,893.18	10.50
	Germ Dryer 1	209.54	4.98
	Germ Dryer 3	274.05	4.26
	Yeast Dryer	8.19	1.50
	Scrubber controlling Steep Acid Tower	10.31	1.79
	Biogas Flare	0.010	0.001
Illinois Power Holdings E.D. Edwards	Units 1 and 2 combined	31,970.23	2,100
	Unit 3	30,320.24	2,756
	Unit 3, if both Units 1 and 2 permanently shut down	30,320.24	4,000
Ingredion Bedford Park	Feed Transport System	242.80	24.38
	Wet Milling: Inside In-Process Tanks	195.04	107.26
	Wet Milling: Molten Sulfur Burner and Absorption System	70.12	7.01
	Wet Milling: Outside In-Process Tanks	26.95	2.69
	Germ Processing Facility Channel 1 System	267.22	13.36
	Germ Processing Facility Channel 2 System	141.48	7.07

	Germ Processing Facility Channel 3 System	141.48	7.07
	Germ Processing Facility Channel 4 System	141.48	7.07
Midwest Generation Joliet	Joliet 9: Unit 6	6,377.37	189.82
	Joliet 29: Unit 7	10,861.14	323.29
	Joliet 29: Unit 8	11,494.74	342.15
Midwest Generation Powerton	Boilers 51, 52 (Unit 5) and 61, 62 (Unit 6) combined	29,635.04	3,452
Midwest Generation Will County	Unit 3	4,876.17	145.14
	Unit 4	9,028.75	6,520.65
Owens Corning	Preheater Incinerator System 1, including emissions from: Storage Tanks 9, 9A, 10, 10A, 11, 17, 18, 19, 20, 40, 41, 42, and 43; Loading Racks 1, 2, & 9; and Convertors 10 & 11.	214.47	44.69
	Preheater Incinerator System 3, including emissions from: Converters 8, 9, 12, 13, 14, & 15; and Loading Racks 1, 2, & 9	11.44	27.23
	Regenerative Thermal Oxidizer 3 controlling: Storage Tanks 27, 28, 31, 32, 33, 34, 35, & 36	220.14	4.33
	Regenerative Thermal Oxidizer 4 controlling: Storage Tank 98; Loading Rack PV-1	8.90	6.38
	Coating Operations combined	104	0.15
Oxbow Midwest Calcining	All Calcining Units combined	2,278	187

3.3 SO_2 Emission Reductions from Amendments to Parts 217 and 225

Table 4 shows SO_2 emissions from Midwest Generation's coal-fired units in the most recent year and projected SO_2 emissions under two scenarios. The units listed represent all of Midwest Generation's coal-fired EGUs that are part of the CPS, and that are still operating. The data given for 2014 is taken from USEPA's Air Markets Program Data. The data given in the "Proposed Amendments 2017" assumes that: Midwest Generation's converted units will combust natural gas or low-sulfur diesel fuel; the remainder of the units will meet the CPS SO_2 fleet-wide average from Part 225; and that all these units will continue to operate with the same

heat input as in 2014. The data given in the "CPS 2017 without Amendments" column assumes that all units will meet the fleet-wide SO_2 average from Part 225, and that they will operate with the same heat input as in 2014. The last four columns of Table 4 give similar data for the year 2019. It should be noted that it is unlikely that the converted EGUs will maintain the same heat input after their conversion. This provides a very conservative estimate of emissions.

Table 4: SO_2 Emissions from Midwest Generation Units

			2014 Baseline		Proposed Amendments 2017		CPS 2017 without Amendments		Proposed Amendments 2019		CPS 2019 without Amendments	
Facility Name	Unit ID	Heat Input (mmBtu)	2014 SO_2 Rate (lb/mmBtu)	2014 SO_2 (tons)	2017 SO_2 Rate (lb/mmBtu)	2017 SO_2 (tons)	2017 SO_2 Rate (lb/mmBtu)	2017 SO_2 (tons)	2019 SO_2 Rate (lb/mmBtu)	2019 SO_2 (tons)	2019 SO_2 Rate (lb/mmBtu)	2019 SO_2 (tons)
Joliet 7	71	13,697,626	0.38	2,580	0.0006	4	0.15	1,027	0.0006	4	0.11	753
	72	15,140,227	0.38	2,850	0.0006	5	0.15	1,136	0.0006	5	0.11	833
Joliet 8	81	11,679,843	0.39	2,264	0.0006	4	0.15	876	0.0006	4	0.11	642
	82	13,193,535	0.39	2,552	0.0006	4	0.15	990	0.0006	4	0.11	726
Joliet 6	5	12,703,833	0.40	2,554	0.0006	4	0.15	953	0.0006	4	0.11	699
Powerton	51	26,237,941	0.33	4,393	0.15	1,968	0.15	1,968	0.11	1,443	0.11	1,443
Powerton	52	27,567,550	0.34	4,621	0.15	2,068	0.15	2,068	0.11	1,516	0.11	1,516
Powerton	61	23,158,412	0.33	3,859	0.15	1,737	0.15	1,737	0.11	1,274	0.11	1,274
Powerton	62	22,975,398	0.33	3,845	0.15	1,723	0.15	1,723	0.11	1,264	0.11	1,264
Waukegan	7	13,591,949	0.37	2,544	0.15	1,019	0.15	1,019	0.11	748	0.11	748
Waukegan	8	16,436,529	0.39	3,236	0.15	1,233	0.15	1,233	0.11	904	0.11	904
Will County	3	16,897,421	0.37	3,144	0.0015	13	0.15	1,267	0.0015	13	0.11	929
Will County	4	29,977,167	0.39	5,805	0.15	2,248	0.15	2,248	0.11	1,649	0.11	1,649
		243,257,431	0.36	44,246		12,029		18,244		8,830		13,379

Illinois EPA estimates that the proposed amendments in Parts 217 and 225 will result in reductions of more than 6,000 tons of SO_2 annually in 2017, and more than 4,500 tons of SO_2 annually in 2019 and subsequent years, beyond what would occur under the CPS limits.

3.4 Impact on Previous State Implementation Plans

Sections of Part 225 directed at emissions of SO_2 and NOx have been included in SIP submittals to USEPA for regional haze rules. These amendments will therefore be submitted to USEPA as revisions to Illinois' regional haze SIP. Illinois EPA analysis of the proposed amendments to Part 225 and the estimated emissions from Table 4 above show that the proposed amendments will result in significant reductions in the emission of SO_2. With regard to NOx emissions, a "worst case" analysis would indicate the proposed amendments and planned conversion of coal-fired EGUs would have no impact on NOx emissions in the State. This most conservative analysis would result in no change in NOx emissions because the same units will be subject to the same fleet-wide average as without the proposed amendments. A more likely and realistic

result would include a considerable decline in utilization of the converted EGUs. Midwest Generation estimates that the converted units will operate at approximately 10% capacity after their conversion. This reduction in heat input at those units will likely result in significant reductions in NOx emissions from the CPS group because the fleet-wide average limit is on a lb/mmBtu basis. Rough estimates for likely reductions in pollutants other than SO_2 resulting from the proposed amendments have been discussed in Section 2.2 of this document. In light of the overwhelmingly positive environmental benefit resulting from the entirety of the proposed amendments, Illinois EPA anticipates that SIP revisions to include the proposed amendments will be approved by USEPA.

4.0 Technical Feasibility

4.1 Feasibility of Part 214 Subpart AA Amendments

In Illinois EPA's analysis of the technical feasibility of the proposed amendments, the Agency relied primarily on the outreach conducted with potentially affected sources. These sources, recognizing that Illinois had an obligation in federal statute to submit a plan demonstrating attainment with the SO_2 NAAQS, provided the Agency with a great deal of information and expertise.

Measures for control of SO_2 emissions and the costs associated with those measures are well known to industry and the Agency. Therefore, a discussion of the feasibility of SO_2 control methods can appropriately be reduced to the cost effectiveness of different control measures. These measures include fuel switching and pollution control technologies such as wet flue gas desulfurizers, spray dryer absorber systems, and dry sorbent injection.

During the Agency's iterative process of determining the necessary emission limitations for the affected sources' release points, the Agency consulted with these sources to ensure that the proposed emission rates could feasibly be achieved for the affected units at each source. In the course of these consultations prior to the filing of this rulemaking, potentially affected sources agreed that the limits in the proposed amendments can be feasibly complied with.

4.2 Feasibility of Proposed Liquid Fuel Standards

Illinois EPA's analysis of the feasibility of the proposed liquid fuel standards relies primarily on historical data demonstrating that the majority of commercial and industrial sources in Illinois are currently using fuel oils that are compliant with the proposed amendments.

Table 5 shows fuel oil sales in Illinois from 2008 to 2013. It can be seen from the table that the use of lower sulfur fuels has steadily increased as a portion of the overall mix of distillate and residual fuel oil being used in the State. The use of ULSD was 87.6% of all distillate fuel oil used in the commercial sector in 2011; this is up from only 25.4% in 2006. In the industrial sector, use of low sulfur diesel accounted for 68.5% of all distillate fuel use in 2011. Use of residual fuel oil has declined to a small portion of fuel oil use in the State in all sectors.

Table 5: Last Six Years Illinois Adjusted Fuel Oil Sales by End Use as reported by US-EIA (Thousand gallons)

End Use	2008	2009	2010	2011	2012	2013
Commercial						
Distillate Fuel Oil	52,589	34,621	36,036	37,494	41,966	53,285
No. 1 Distillate	2,012	1,132	590	469	772	933
No. 2 Distillate	50,577	33,489	35,445	37,025	41,194	52,352
No. 2 Fuel Oil	8,797	5,967	4,309	3,730	3,330	5,195
Ultra Low Sulfur Diesel	23,028	25,832	30,612	32,821	37,469	46,679
Low Sulfur Diesel	10,689	1,345	524	202	395	477
High Sulfur Diesel	8,063	345	0	272	0	0
No. 4 Fuel Oil	0	0	0	0	0	0
Residual Fuel Oil	117	0	783	722	0	0
Kerosene	287	440	421	211	71	121
Industrial						
Distillate Fuel Oil	72,721	38,223	39,583	37,214	36,050	39,312
No. 1 Distillate	1,757	1,129	1,826	1,978	1,613	949
No. 2 Distillate	69,899	35,955	37,179	34,820	34,238	37,511
No. 2 Fuel Oil	13,855	4,229	4,603	4,549	3,975	4,103
Low Sulfur Diesel	34,737	25,550	26,830	24,870	24,563	26,943
High Sulfur Diesel	21,307	6,177	5,746	5,401	5,700	6,465
No. 4 Fuel Oil	1,065	1,138	578	416	199	852
Residual Fuel Oil	5,126	460	137	387	553	2,348
Kerosene	580	543	510	159	247	1,166

Source: US-EIA http://www.eia.gov/dnav/pet/pet_cons_821use_dcu_SIL_a.htm

Illinois EPA's analysis indicates that fuels required to comply with the proposed liquid fuel limits are widely available in Illinois. This analysis was further confirmed by sources with whom the Agency consulted in outreach for this rulemaking. Additionally, the proposed amendments also provide some flexibility for some sources that would not be capable of complying within the general timeframe, and also for certain sources that need to burn higher sulfur fuel for testing purposes.

Additionally, a number of other states, such as New York, Connecticut, New Jersey, Maine, Massachusetts, and Vermont, have rules for fuel sulfur content similar to those in the proposed

amendments. The Agency anticipates that many more states will adopt similar standards for fuel sulfur content as more areas are identified by modeling as being nonattainment of the new 1-hour SO_2 standard.

5.0 Economic Reasonableness

5.1 Reasonableness of Part 214 Subpart AA Amendments

Similar to the Agency's analysis of the feasibility of control strategies necessary to implement the proposed amendments, the Agency relied primarily on the outreach conducted with potentially affected sources in its analysis of the economic reasonableness of the proposed amendments. During this outreach, the Agency explained its iterative modeling process, and the emission limits at each source that would be necessary to demonstrate modeled attainment with the SO_2 NAAQS.

For the proposed amendments in Subpart AA that set specific hourly limits on the specified units at affected sources, the affected sources agreed in all cases that the proposed limits could be achieved in an economically reasonable manner. Due to this cooperation with potentially affected sources, the Agency did not perform additional source-specific cost analysis for the proposed limits.

5.2 Reasonableness of Proposed Liquid Fuel SO_2 Standards

Based on AP-42 emission factors, SO_2 emissions from fuel oil-fired units depend on the sulfur content of the fuel oil, and are not affected by any boiler parameters.

The AP-42 emission factor for boilers greater than 100 mmBtu/hr is 157*S lb per 1000 gallon of SO_2 emitted and 5.7*S lb per 1000 gallon of SO_3 emitted, where S is the weight percentage of sulfur in oil. Cost effectiveness for switching from 0.3% (3000 ppm) sulfur in fuel oil to 0.0015% (15 ppm) sulfur can be calculated as follows:

Tons of SOx = $\sum$ SOx = Emissions of SO_2 + Emissions of SO_3

Tons of SOx = 157*S lb/1000gal + 5.7S lb/1000gal

The difference in the number of gallons necessary to emit one ton of SOx is calculated as follows:

S = 0.3 - .0015

1 Ton SOx = 2000lb of SOx => 162.7S lb/1000gal

1 Ton SOx = ((2000*1000)/162.7S) gallons, where S = 0.2985

USEPA estimated that a transition to ULSD would increase the price by approximately $0.04 to $0.05 per gallon (USEPA, 2006). Therefore, 41,181 gallons of lower sulfur fuel burned will produce an emission reduction of one ton of SOx, at differential cost of a maximum of $0.05 per gallon. So, the dollar per ton cost effectiveness of the ULSD standard is $2060/ton SOx. However, it should be noted that, as seen in Table 5, the Agency believes that any increase in price that was estimated by USEPA (USEPA, 2006) has already occurred, and that an additional

increase in price from this Illinois rule is unlikely. Federal regulations currently limit fuel sulfur content to 15 ppm for all highway vehicles, large stationary engines, non-road vehicles and equipment, marine engines, and locomotive engines. These federal rules, along with anticipated and on-the-books rules similar to the proposed amendments in other states, reduce the potential for an increase in fuel oil prices due solely to the proposed amendments for Illinois.

Illinois EPA's analysis and outreach efforts indicate that fuels required by the proposed new liquid fuel provisions are widely available, and are a cost-effective measure for the reduction of SO_2 emissions in Illinois.

6.0 Modeling Background and Methodology

6.1 SIP Modeling for Attainment Demonstration

Illinois EPA conducted dispersion modeling of the Pekin and Lemont NAAs in order to inform decisions regarding necessary SO_2 emission limits in these areas, and to demonstrate future modeled attainment of the NAAQS when the proposed amendments are implemented. The proposed amendments were drafted by Illinois EPA concurrently with the Agency's modeling efforts to satisfy USEPA requirements for demonstrating attainment of the SO_2 NAAQS in the Pekin and Lemont NAAs. The limits proposed in this rulemaking were primarily derived from emission rates necessary to attain the SO_2 NAAQS throughout the selected modeling domains. The proposed amendments will be the basis for Illinois' demonstration of attainment in the Pekin and Lemont NAAs in its submittal to USEPA. The SIP submittal will include detailed discussions of the methods used in modeling simulations for the two Illinois NAAs. For the purposes of this rulemaking, an overview of the modeling methods is included in this section.

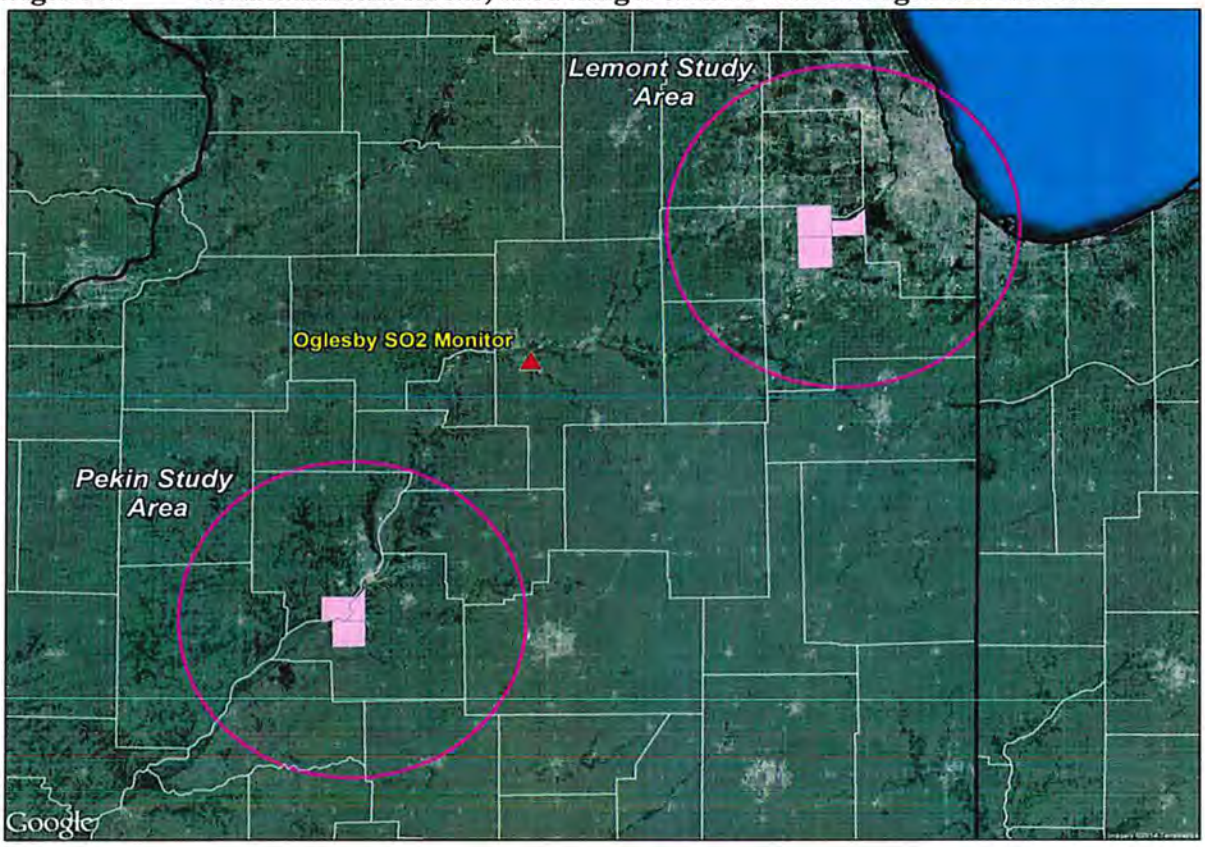
In general, the Agency has followed USEPA guidance in its modeling analyses, and consistently employed conservative assumptions. This conservative approach ensures that the NAAQS will be attained at all points within the modeling domain, with an appropriate margin of safety.

The 1-hour SO_2 standard was set at a level of 75 ppb, and is attained when the three-year average of the annual 99^{th}-percentile of 1-hour daily maximum monitored concentrations does not exceed this level at any ambient air monitor in an area, as determined in accordance with 40 CFR Part 50, Appendix T (USEPA, 2010). The Pekin and Lemont NAAs were designated nonattainment for exceeding this standard.

For SIP modeling purposes, the NAAQS is attained when the highest five-year average of the 4^{th} high maximum daily 1-hour average concentration is less than or equal to 75 ppb. This means for a specific geographical location in the modeling domain, or "receptor," 1-hour average SO_2 concentrations are calculated for each hour over a five-year period. Next, from each day in a given year for that receptor, the maximum hourly concentration from that day is selected for comparison to the maximum hourly concentrations from all other days in that year. For that specific year and receptor, the 4^{th} highest of those maximum daily 1-hour concentrations is selected. Finally, the 4^{th} highest maximum daily 1-hour average concentration from each of the 5 years in the modeling period is averaged to calculate a "design value" for that receptor location. This design value must not exceed 75 ppb at any receptor in the modeling domain.

Illinois EPA modeled SO_2 emission sources from its statewide emissions inventory that are located within 50 km of the Lemont or Pekin monitor. In accordance with USEPA guidance, this dispersion modeling was performed using the AMS/EPA Regulatory Model ("AERMOD"). Figure 1 shows the Pekin and Lemont nonattainment areas, the modeling domains around those areas, and the location of the SO_2 monitor that was used to provide background SO_2 concentrations for the modeling.

Figure 1: Nonattainment Areas, Modeling Domains and Background Monitor



6.2 Modeling Components

Together with the AERMOD dispersion model (version 14134), the AERMAP terrain preprocessor (version 11103), and the AERMINUTE (version 11325) and AERMET (version 14134) meteorological preprocessors were used pursuant to 40 CFR Part 51 Appendix W, *Guideline on Air Quality Models* (USEPA, 2005). Illinois EPA also utilized the AERSURFACE (version 13016) land cover and meteorological surface characteristics processor and the BPIPPRM (version 04274) building downwash directional inputs generator to support model input preparation. The AERMOD modeling system is the USEPA-preferred software for near-field SIP applications involving multiple sources, surface and elevated releases, building-induced downwash, simple and complex terrain, and non-reactive pollutant dispersion. This application of AERMOD for SIP modeling implemented USEPA-specified regulatory options.

Model output was generated for all nonattainment area receptors. This output was generated consistent with procedures for evaluating the 1-hour SO_2 NAAQS, with design values representing the 4th highest modeled concentration averaged over five years of meteorological data for an individual receptor. Receptor networks consisted of both discrete ambient air boundary (fenceline) receptors, at spacings of approximately 50 meters, and a gridded array spaced at 100 meter intervals extending outward from facility fencelines to the boundaries of each nonattainment area. The nonattainment area modeling guidance (USEPA, 2014) notes that for receptor placement (density), the regulatory authority should follow their established receptor placement strategy if it is considered "adequate for the implementation modeling." Illinois

EPA's established receptor placement strategy was developed from communications with USEPA Region 5 staff, and is considered acceptable to USEPA for both permitting activity and SIP demonstrations.

Meteorological data for the five-year period of 2009 – 2013 for the Lemont modeling domain represented Chicago O'Hare surface observations and Davenport, IA, upper air soundings. Meteorological data for the same five-year period for the Pekin modeling domain represented Peoria surface observations and Lincoln upper air soundings.

Facility attributes, such as fencelines, stack locations, and building configurations, were digitized using a software system called $BEEST_{TM}$. Direction-specific building dimension inputs were developed for all stacks for which building dimensional data were available, in order to address building-induced downwash for those stacks not constructed to a height representing Good Engineering Practice stack height.

A land use classification analysis was conducted to determine whether the nonattainment areas were primarily urban or rural. The urban vs. rural evaluation is important in determining boundary layer characteristics that, in turn, affect model-predicted concentrations.

6.3 Modeling Methodology

The modeling that Illinois EPA performed for each NAA was an iterative process which, at its conclusion, could be used to demonstrate modeled attainment of the SO_2 NAAQS at each receptor in the modeling domain. This process involved the modeling domain described above and consisted of evaluating receptors that had design values exceeding the 1-hour SO_2 NAAQS. A culpability analysis was conducted for these violating receptors to determine which sources in the modeling domain were primary contributors to the modeled exceedances.

Emission sources that were determined to be culpable for modeled exceedances at specific receptors were evaluated for potential reductions in allowable emission rates. These reduced allowable emission rates would eventually become the proposed limits included in this rulemaking. When a lower allowable emission rate was implemented in the model, the modeling results could potentially show an exceedance of the NAAQS at a different receptor in the modeling domain. The next modeling iteration would involve a culpability analysis for the offending receptors, determination of reduced allowable emission rates for culpable sources, and a follow-up modeling run to determine whether the changes to emission rates resulted in the attainment of the NAAQS at all receptors in the modeling domain.

This modeling approach required five iterations for each NAA modeling domain to determine allowable SO_2 emission rates adequate to demonstrate modeled attainment of the NAAQS throughout each domain. The allowable emission rates from the final modeling iteration have been used to determine appropriate unit-specific hourly emission limits in the proposed amendments.

It should be noted that the modeling runs discussed above are resource-intensive, requiring significant computational resources and Agency staff time. Each modeling run can take several

days or even weeks to set up and complete. Any substantive changes to limits or compliance deadlines in the proposed amendments would require one or more additional modeling runs to ensure that any such changes would not impact modeled attainment of the NAAQS.

6.4 Stakeholder Involvement in Modeling Considerations

Throughout the modeling and rulemaking drafting process, Illinois EPA conducted extensive outreach with potentially affected sources. This outreach was critical to ensuring that source-specific modeling inputs were accurate, and that modeled limits were achievable. Additionally, complete modeling input files were provided to affected sources and interest groups that requested them.

7.0 Summary of Nonattainment Area Modeling

7.1 Summary of Lemont Nonattainment Area Modeling

The Lemont nonattainment area (consisting of Lemont Township, DuPage Township, and Lockport Township) was modeled for air quality impacts by partitioning the area into fifty subnetworks of receptors (a total of 24,902 receptors), with each subnetwork processed separately using available computing resources from the Illinois EPA Bureau of Air's Linux network. The 50 receptor groupings consisted of sixteen DuPage Township subnetworks (9,211 receptors total), sixteen Lemont Township subnetworks (5,426 receptors total), sixteen Lockport Township subnetworks (9,329 receptors total), facility fenceline/near-field receptors (935 receptors total), and the Lemont monitor (1 receptor). Fenceline receptors were generated for the following facilities within the nonattainment area:

- K-Five Construction Company (ID# 031806AAW)
- CITGO Petroleum Corporation (ID# 197090AAI)
- Land & Lakes Company – Willow Ranch (ID# 197090AAT)
- US Cellular Corporation (ID# 197415AAF)
- Oxbow Midwest Calcining LLC (ID# 197803AAK)
- James D Fiala Asphalt Corporation (ID# 197803AAU)
- Korall Marine Facility (ID# 197803ABD)
- Midwest Generation – Will County (ID# 197810AAK)
- Stateville Correctional Center (ID# 197810AAX)
- Romeoville Asphalt Plant (ID# 197810ABK)

Modeling results for the maximum design value receptor in each subnetwork were used to develop supplemental output identifying the contributions of individual emission sources to the maximum design value – a "culpability analysis." The collective culpability results of all design value receptors typically formed the basis of determining and implementing emission reduction strategies.

All sources were initially modeled at the allowable limit specified by rule or by construction/operating permit, whichever was more restrictive. Widespread modeled violations of the 1-hour SO_2 NAAQS were obtained at these current limits.

The initial modeling of allowable limits was the first step in the series of iterative runs directed toward demonstrating modeled attainment. All simulations that followed this initial run imposed emission reductions linked either to existing market conditions or to sources contributing significantly to modeled nonattainment. The second modeling run imposed distillate and residual fuel oil sulfur content restrictions. Sulfur content limits of 15 ppm for distillate fuel oil and 1000 ppm for residual fuel oil were applied throughout the modeling domain, apart from the following exceptions: Midwest Generation requested that the Agency model using low sulfur fuel oil (500 ppm distillate), in the event of natural gas curtailment for Units 6, 7, and 8 at the Joliet facility and the Will County generating station, Unit #3. Changes to the model were also made to reflect a similar request by Caterpillar for their facility in Montgomery, IL, due to a large existing stock of 500 ppm distillate fuel at that facility.

Table 6 provides a summary listing of the specific sources and corresponding reduced allowable emission rates necessary for demonstrating modeled attainment in the Lemont nonattainment area.

Table 6: Lemont Nonattainment Area – Attainment Demonstration Source-Specific Limits

Facility	Source Description	Modeling ID	Modeled Emission Rate (gms/sec)	Allowable Emission Rate [for SO2 rule] (lbs/hour)
Owens Corning Roofing & Asphalt	Preheater/Incinerator 1	114393	5.631	44.69
Owens Corning Roofing & Asphalt	Regenerative Thermal Oxidizer #4	114409	0.805	6.38
Owens Corning Roofing & Asphalt	Preheater/Incinerator 3	114410	3.432	27.23
Owens Corning Roofing & Asphalt	Coating Operations	178998	0.02	0.15
Owens Corning Roofing & Asphalt	Regenerative Thermal Oxidizer #3	214179	0.546	4.33
Ingredion	Feed Transport Baghouse	114753	3.07244	24.38
Ingredion	Germ Prep Channel 1 Scrubber	151627	1.68345	13.36
Ingredion	Molten Sulfur System Scrubber	151637	0.88349	7.01
Ingredion	Wet Mill Tanks to Vent Fan	158191	13.51572	107.26
Ingredion	Molten Sulfur System - Tanks Vent Scrubber	244939	0.33956	2.69
Ingredion	Germ Prep Channel 2 Scrubber	158218	0.89206	7.07
Ingredion	Germ Prep Channel 3 Scrubber	158219	0.89206	7.07
Ingredion	Germ Prep Channel 4 Scrubber	158220	0.89206	7.07
Midwest Generation - Will County	Unit #4	139822	821.60269	6,520.65
Midwest Generation - Will County	Unit #3	139820	18.2885	145.14
Midwest Generation - Joliet	Joliet 6	139664	23.91805	189.82
Midwest Generation - Joliet	Joliet 7	157015	40.7349	323.29
Midwest Generation - Joliet	Joliet 8	157016	43.11121	342.15
Oxbow Midwest Calcining	K-1 Calciner	139505	14.13689	112.19
Oxbow Midwest Calcining	K-2 Calciner	139509	9.42459	74.79

7.2 Summary of Pekin Nonattainment Area Modeling

The Pekin nonattainment area (consisting of Pekin Township, Cincinnati Township, and Hollis Township) was modeled for air quality impacts by partitioning the area into fourteen subnetworks of receptors (a total of 18,446 receptors), with each subnetwork processed separately using available computing resources from the Illinois EPA Bureau of Air's Linux network. The 14 receptor groupings consisted of four Pekin Township subnetworks (3,564 receptors total), four Hollis Township subnetworks (6,409 receptors total), four Cincinnati Township subnetworks (7,691 receptors total), facility fenceline/near-field receptors (781 receptors total), and the Pekin monitor (1 receptor). Fenceline receptors were generated for the following facilities within the nonattainment area:

- Caterpillar, Inc. – Mapleton Foundry (ID# 143805AAB)
- Illinois Power Resources Generating, LLC (ID# 143805AAG)

- Midwest Grain Products of Illinois (ID# 179060AAD)
- Pekin Memorial Hospital (ID# 179060AAZ)
- Aventine Renewable Energy Inc. (ID# 179060ACR)
- Farmers Automobile Insurance Association (ID# 179473AAH)
- Midwest Generation (ID# 179801AAA)
- Quikrete Peoria (ID# 179801AAY)
- Graphic Packaging International Inc. (ID# 179814AAA)

Modeling results for the maximum design value receptor in each subnetwork were used to develop supplemental output identifying the contributions of individual emission sources to the maximum design values. The collective culpability results of all design value receptors generally formed the basis of determining and implementing emission reduction strategies.

All sources were initially modeled at the allowable limit specified by rule or by construction/operating permit, whichever was more restrictive. Widespread modeled violations of the 1-hour SO_2 NAAQS were obtained at these current limits.

The initial modeling of allowable limits was the first in a series of iterative runs directed toward demonstrating modeled attainment. All simulations that followed this initial run imposed emission reductions linked to existing market conditions or to sources contributing significantly to modeled nonattainment. The second modeling run imposed distillate and residual fuel oil sulfur content restrictions. Sulfur content limits of 15 ppm for distillate fuel oil and 1000 ppm for residual fuel oil were applied throughout the modeling domain apart from two exceptions. Caterpillar, Inc. requested a higher limit (500 ppm distillate) for its Technical Center (Mossville, IL) for research and development or test cell diesel fuel firing in certain engines destined for sale or use outside of Illinois. Midwest Generation also requested changes to the model to allow the use of 500 ppm distillate at its Powerton units.

Additional modeling runs involved further source-specific emission rate reductions.

Table 7 provides a summary listing of the specific sources and corresponding adjusted allowable emission rates necessary for demonstrating modeled attainment in the Pekin nonattainment area.

Table 7: Pekin Nonattainment Area – Attainment Demonstration Source-Specific Limits

Facility	Source Description	Modeling ID	Modeled Emission Rate (gms/sec)	Allowable Emission Rate [for SO2 rule] (lbs/hour)
Illinois Power Holdings - E.D. Edwards Power Plant	Unit #1 and Unit #2	134874	264.6	2,100.00
Illinois Power Holdings - E.D. Edwards Power Plant	Unit #3	134875	347.256	2,756.00
Illinois Power Holdings - E.D. Edwards Power Plant	Unit #3 (MOA, Option B)	134875	504	4,000.00
Midwest Generation - Powerton	Boilers 51, 52 (Unit 5) and 61, 62 (Unit 6)	137806	756	6,000.00
Aventine Renewable Energy Resources	First Germ Drying System - Stack 0056	159689	0.03434	0.27
Aventine Renewable Energy Resources	First Germ Drying System - Stack 0057	159690	0.04678	0.37
Aventine Renewable Energy Resources	Gluten Dryer #4	159692	0.39375	3.12
Aventine Renewable Energy Resources	Second Germ Drying System	159693	0.00126	0.01
Aventine Renewable Energy Resources	Steep Acid Tower (Steep Acid Preparation System)	159695	0.22554	1.79
Aventine Renewable Energy Resources	#1 Germ Dryer (First Pass Rotary Germ Dryer Sys)	159698	0.6276	4.98
Aventine Renewable Energy Resources	Yeast Dryer	194447	0.189	1.50
Aventine Renewable Energy Resources	#9 Gluten Dryer	222802	1.323	10.50
Aventine Renewable Energy Resources	#3 Germ Dryer	GERMDRY3	0.53676	4.26
Aventine Renewable Energy Resources	Biogas Flare	180374	0.00013	0.001

8.0 References

1. USEPA. (2005). *Guideline on Air Quality Models*. 40 CFR Part 51 Appendix W. (http://www.ecfr.gov)

2. USEPA. (2006). *Introduction of Cleaner-Burning Diesel Fuel Enables Advanced Pollution Control for Cars, Trucks and Buses.* (http://www.epa.gov/oms/highway-diesel/regs/420f06037.pdf)

3. USEPA. (2010). *Interpretation of the Primary National Ambient Air Quality Standard for Oxides of Sulfur (Sulfur Dioxide).* 40 CFR Part 50 Appendix T. (http://www.ecfr.gov)

4. USEPA. (2014). *Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions.* April 23, 2014. U.S. Environmental Protection Agency, Research Triangle Park, NC. (http://www.epa.gov/airquality/sulfurdioxide/implement.html)

EMISSION MEASUREMENT CENTER
GUIDELINE DOCUMENT (GD-042)

PREPARATION AND REVIEW

OF

SITE-SPECIFIC EMISSION TEST PLANS

Revised March 1999

PREFACE

This guideline document is made available to promote consistency in the preparation and review of site-specific emission test plans for emission test programs performed for the U.S. Environmental Protection Agency (EPA), State and local agencies, and private sector interests.

The site specific test plan comprises written descriptions, summary tables, and figures that encompass all aspects of a planned emission test program at a particular facility location. After the test is performed, an emission test report is prepared to provide the information necessary to document the data collected and provide evidence that proper procedures were used to accomplish the test objectives. The emission test report presents the information gathered according to the emission test plan. Therefore, the contents of the test plan serve as the foundation for the test report.

This guideline document presents a standard format for preparing the test plan. The standard test plan contains a table of contents, nine sections, and appendices if needed. Rather than providing a general discussion of the standard format, this document lists the contents for each section. Then an example is given to illustrate the intent of each item in the list. The list at the beginning of each section serves a dual purpose: (1) as a guide to the preparer and (2) as a checklist for both the preparer and the reviewer of the test plan.

TABLE OF CONTENTS

TABLE OF CONTENTS

The site-specific test plan must contain:

- *Table of contents*
- *List figures*
- *List of tables*

EXAMPLE: *At a minimum, the table of contents must include the items shown below:*

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 SUMMARY OF TEST PROGRAM

*In this section, write a **brief summary** that identifies or states, as applicable, the following:*

- *Responsible groups or organizations*
- *Overall purpose of the emission test*
- *Regulations, if applicable*
- *Industry*
- *Name of plant*
- *Plant location*
- *Processes of interest*
- *Air pollution control equipment, if applicable*
- *Emission points and sampling locations*
- *Pollutants to be measured*
- *Expected dates of test*

EXAMPLE:

1.1 SUMMARY

The U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards (OAQPS), Emission Inventory Branch (EIB) is responsible for developing and maintaining air pollution emission factors for industrial processes. EIB in collaboration with the **[Trade Organization]** is presently studying the wood products industry. The purpose of this study is to develop emission factors for oriented strand board (OSB) production facilities. The Emission Measurement Branch (EMB) of OAQPS will coordinate the emission measurement activities. **[Contractor]** and **[Trade Organization]** will conduct the emission measurements.

EPA/EIB and **[Trade Organization]** considered the **[Plant]** in **[City, State]** to be one of four facilities that represent the diversity in wood species and dryer control devices. This test is the second of the four and is scheduled for **[Date]**. Plans are to conduct simultaneous measurements at the inlet and outlet of the electrified filter bed (EFB) for the No. 1 wood wafer dryer exhaust and at the press vents. Pollutants to be measured are: particulate matter (PM), condensible particulate matter (CPM), carbon monoxide (CO), nitrogen oxides (NO_X), hydrocarbons (HC), formaldehyde, other aldehydes, and ketones (F/A/K), and volatile and semivolatile organic compounds.

1.2 TEST PROGRAM ORGANIZATION

In this section, include the following:

- *Test program organizational chart with lines of communication*
- *Names and phone numbers of responsible individuals*
- *If necessary, a discussion of the specific organizational responsibilities*

EXAMPLE:

1.2 TEST PROGRAM ORGANIZATION

Figure 1-1 presents the OSB test program organization, major lines of communication, and names and phone numbers of responsible individuals.

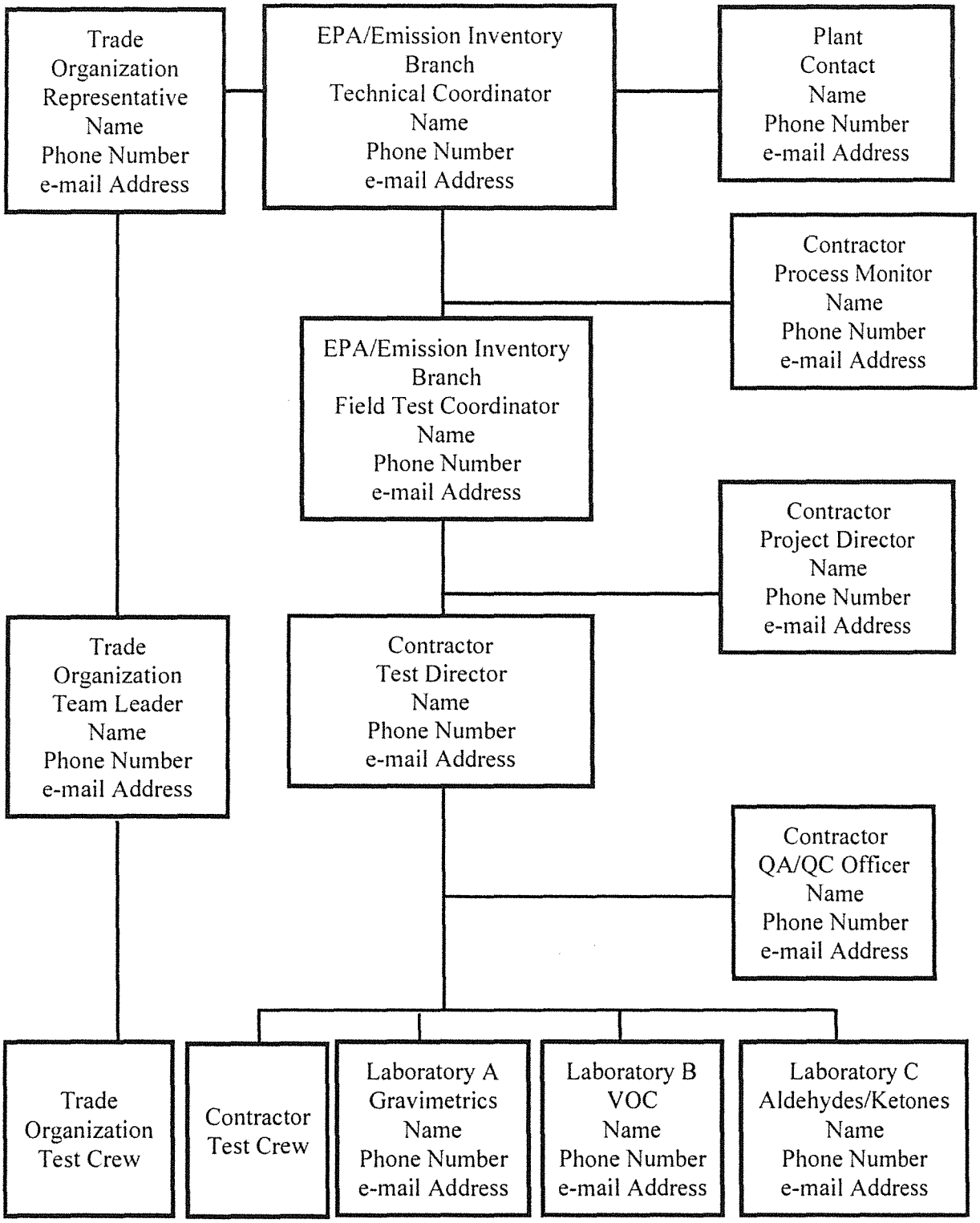


Figure 1-1. Example test program organization.

2.0 SOURCE DESCRIPTION

2.1 PROCESS DESCRIPTION

In this section, include the following:

- *Flow diagram (indicate emission and process stream test points) and general description of the basic process*
- *Discussion of unit or equipment operations that might affect testing or test results, e.g., batch operations, high moisture or temperature effluents, presence of interfering compounds, and plant schedule*
- *List of key operating parameters and standard operating ranges, production rates, or feed rates, if available*

In the flow diagram, trace the process from the beginning to the end. Identify the major operations. Show only those gas, liquid, and solid flow streams that relate to the emissions test.

EXAMPLE:

2.1 PROCESS DESCRIPTION

Figure 2-1 illustrates the basic processing steps for OSB production. The steps are:

- Logs are slashed, debarked, cut into shorter lengths, and sliced into thin wafers.
- The wafers are dried, classified, blended and mixed with resin, oriented, and formed into a mat.
- The formed mats are separated into desired lengths, heated, and pressed to activate the resin and bond the wafers into a solid sheet.
- Sheets are trimmed, edge treated, and packaged for shipping.

At this **[Plant]**, the wood mix is about 60 percent soft wood (e.g., pine), 30 percent soft hardwood (e.g., sweet gum), and 10 percent hardwood. Two 12-foot diameter dryers process 30,000 to 32,000 lb/hr of flakes. The moisture content of the flakes leaving the dryer is about 3 to 4 percent. Inlet temperatures to the dryer run about 750 to 900°F and the exit temperatures about 235 to 255°F. A McConnel burner fired with recycled waste, such as wood trim, fines, and resinated sander dust, heats the dryers. An oil-fired Wellens burner serves as a backup.

The emission test points are EFB inlet and outlet (stack) and the roof vents from the press (see Figure 2–1)

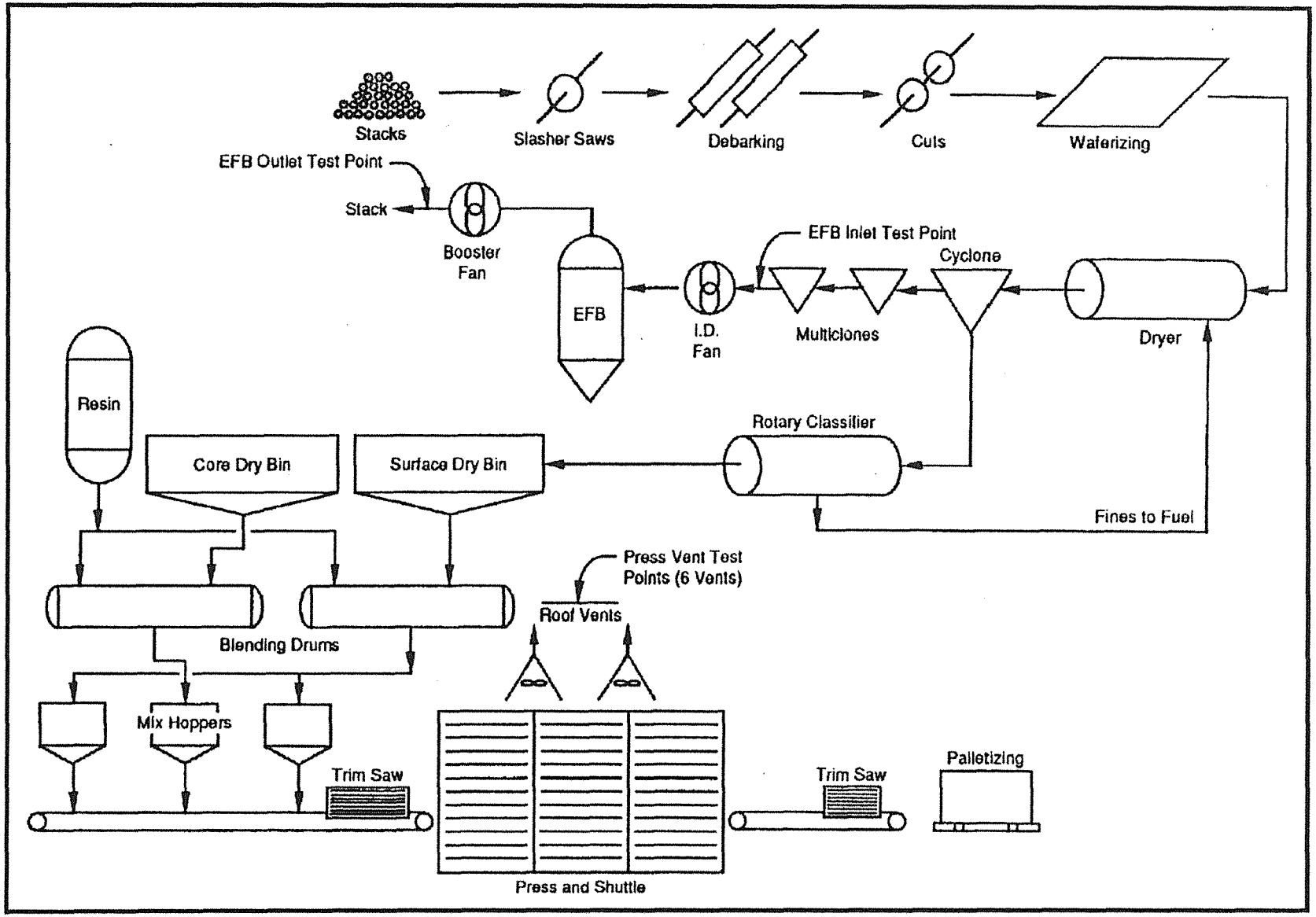


Figure 2-1 Oriented strand board (OSB) process flow diagram.

2.2 CONTROL EQUIPMENT DESCRIPTION

In this section, include the following:

- *Description of all air pollution control systems*
- *Discussion of typical control equipment operation and, if necessary, a schematic*
- *Normal operating ranges of key parameters, if available*

EXAMPLE: *This example covers only the electrified filter bed. In the actual case, the cyclones would also be discussed.*

2.2 CONTROL EQUIPMENT DESCRIPTION

Particulate matter from the wafer dryer is controlled by cyclones and an electrified filter bed (EFB) manufactured by **[Manufacturer]**. Figure 2-2 is a schematic of an ionizer and gravel bed assembly. The EFB is an electrostatic precipitator (ESP) that uses pea-gravel as its collection electrodes.

The gases enter the EFB into an annular region formed by two concentric cylinders. The inner cylinder is the ionizer. Ions formed by the ionizer stream toward the adjacent cylinder wall and impart electrostatic charges on dust particles.

After passing through the ionizer, the gas flows down the chamber into the filter bed section. The filter bed consists of pea-shaped gravel held between two cylindrical louvers. A high DC positive voltage polarizes the gravel and induces regions of positive and negative charge on the pebbles. As the gases pass through the pebble bed, the negatively charged dust particles are collected on the positively charged regions on the gravel.

As dust accumulates in the filter bed, the resistance to gas flow increases. To maintain constant flow and remove collected particles, the EFB slowly and continu-ously removes gravel from the bottom. The removed gravel is agitated to remove the dust particles and is recycled into the EFB at the top.

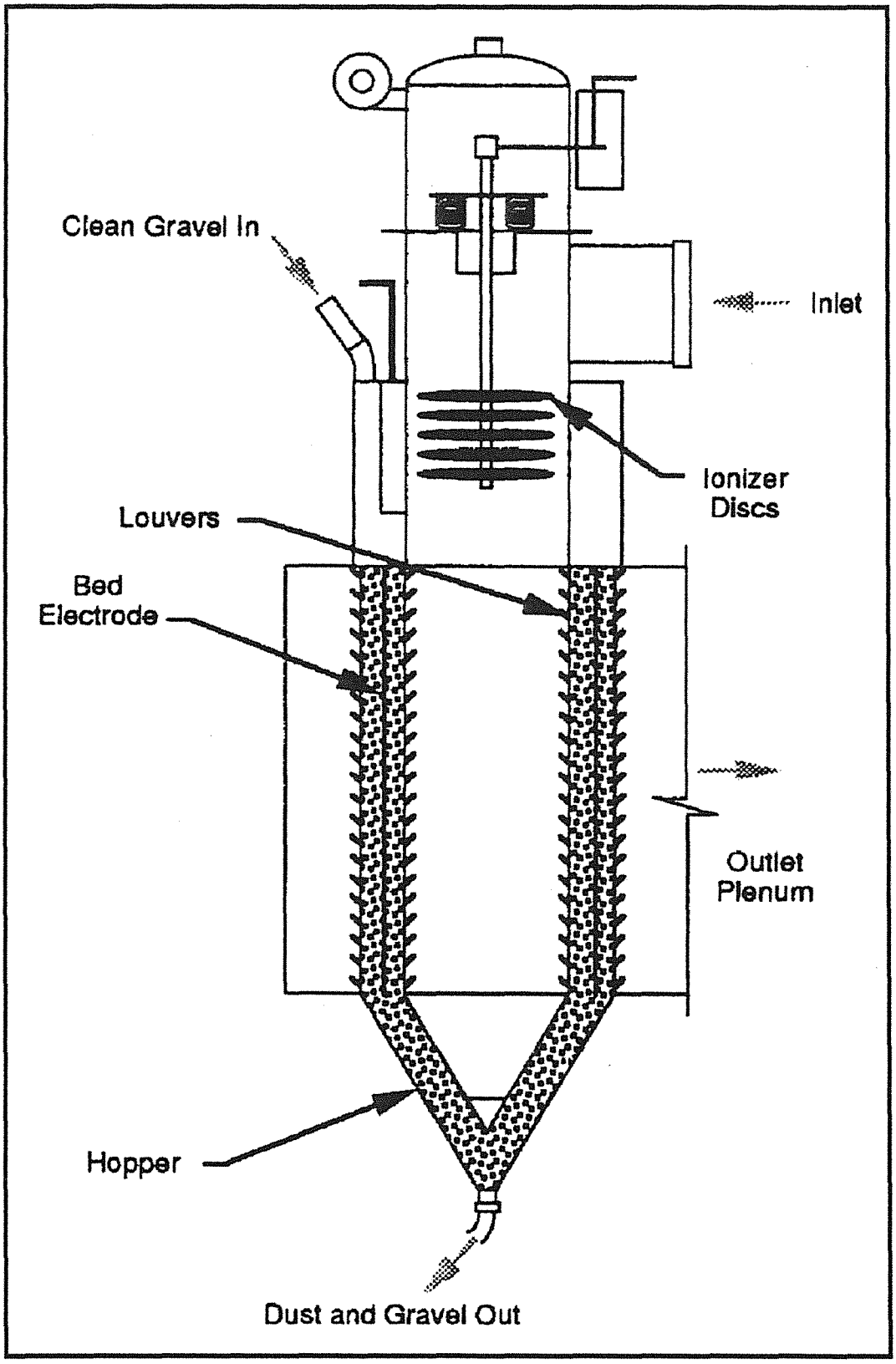


Figure 2-2 Ionizer and gravel bed assembly.

3.0 TEST PROGRAM

3.1 OBJECTIVES

In this section:

- *Restate the overall purpose of the test program.*
- *List (in order of priority) the specific objectives for both emissions and process operation data.*

EXAMPLE:

3.1 OBJECTIVES

The purpose of the test program is to develop emission factors for OSB production facilities from the wood products industry. The specific objectives in order of priority are:

- Measure simultaneously the emissions of PM, CPM, CO, NO_X, HC, formaldehyde (plus other aldehydes and ketones), and volatile and semi-volatile organics at the wood wafer dryer EFB inlet and outlet locations.
- Measure formaldehyde (plus other aldehydes and ketones) emissions from the press vents.
- During the test period, obtain production rates (number of press loads and belt speed), inlet and outlet dryer temperatures, drying rates, EFB bed voltage and current, and EFB voltage and ionizer current.
- Determine the relationship between Method 25 and Method 25A for HC, and between Method 202 and the Oregon Department of Environmental Quality (ODEQ) Method 7 for particulates (PM and CPM).
- Assess the suitability of deriving a correction factor for Method 25A.
- Obtain normal plant operation in hours/day, days/per week, and weeks/year, overall plant design capacity, and average production rates.

3.2 TEST MATRIX

Include a table showing the following (include schematics, if helpful):

- *Sampling locations*
- *Number of runs*
- *Sample type/pollutant*
- *Sampling method*
- *Sample run time*
- *Analytical method*
- *Analytical laboratory*

EXAMPLE:

3.2 TEST MATRIX

Table 3-1 presents the sampling and analytical matrix. Table 3-2 shows all the measurements being made at each test location.

TABLE 3-1. **[PLANT, LOCATION]** TEST MATRIX

Sampling Location	No. of Runs	Sample/Type Pollutant[a]	Sampling Method[b]	Sampling Org	Sample Run Time (min)	Analytical Method[c]	Analytical Laboratory
Outlet Stack	3	PM/CPM	M202 (M5 Filter and Backup Filter)[d]	Ctr-A	60	Gravimetric (PM-M5, CPM-M202, Backup Filter-ODEQ M7)	PM/CPM-Ctr-A Backup Filter-Trade Org
Outlet Stack	3	O_2/CO_2	M3 (bag)	Ctr-A	60	Orsat (M3)	Ctr-A
Outlet Stack	3	CO	M10 (CEM)	Ctr-A	60	NDIR (M10)	Ctr-A
Outlet Stack	3	NO_x	M7E (CEM)	Ctr-A	60	Chemiluminescence (M7E)	Ctr-A
Outlet Stack	6[e]	THC	M25A (CEM)	Ctr-A	60	FID (M25A)	Ctr-A
Outlet Stack	6[e]	TGNMO (dual train)	M25	Trade Org	60	Catalysis, GC/FID, NDIR (M25)	Trade Org
Outlet Stack	3	Formaldehyde/ Aldehydes/ Ketones	SW-846 M0011	Ctr-A	60	HPLC (M0011)	Lab-A
Outlet Stack	3	VOC[f]	SW-846 M0010 (MM5)	Ctr-A	60	HRGC/LRMS (M8270), HPLC	Lab-B/ Lab-A
Outlet Stack	3	VOC[g]	SW-846 M0030 (VOST)	Ctr-A	60	HRGC/LRMS (M5040 and M8240)	Lab-B
Outlet Stack	3[h]	TOC	Evacuated Cylinder	Ctr-B	60	Catalytic FID	Ctr-B
Inlet	3	PM/CPM	M202 (M5 Filter and Backup Filter)[d]	Ctr-A	60	Gravimetric (PM-M5, CPM-M202, Backup Filter-ODEQ M7)	PM/CPM Ctr-A Backup Filter-Trade Org
Inlet	6[e]	O_2/CO_2	M3	Ctr-A	60	Orsat (M3)	Ctr-A
Inlet	6[e]	THC	M25A (CEM)	Ctr-A	60	FID (M25A)	Ctr-A
Inlet	3	TGNMO (dual train)	M25	Trade Org	60	Catalysis, GC/FID (M25)	Trade Org
Inlet	3	Formaldehyde/ Aldehydes/ Ketones	SW-846 M0011	Ctr-A	60	HPLC (M0011)	Lab-A

Sampling Location	No. of Runs	Sample/Type Pollutant[a]	Sampling Method[b]	Sampling Org	Sample Run Time (min)	Analytical Method[c]	Analytical Laboratory
Press Vents	3[i]	Formaldehyde/ Aldehydes/ Ketones	SW-846 M0011	Ctr-A	60	HPLC (M0011)	Lab-A
	3	O_2/CO_2	M3	Ctr-A	60	Orsat	Ctr-A

[a] PM-particulate matter, CPM - condensible particulate matter, TGNMO - total gaseous nonmethane organics, VOC - volatile organic compounds, TOC - total organic carbon.

[b] M - EPA Method, CEM - EPA Instrumental Method using continuous emission monitors.

[c] NDIR - Nondispersive infrared, FID - flame ionization detector, GC - gas chromatograph, HPLC - high performance liquid chromatography.

[d] Backup filter to approximate Oregon Department of Environmental Quality (ODEQ) Method 7.

[e] Three additional runs are tentatively planned following the main test program; if possible, the process parameters will be varied during this additional testing.

[f] Semivolatile organic compounds, including target compounds and tentatively identified compounds, plus oxygenated compounds caught in aqueous fractions.

[g] Volatile organic compounds.

[h] To be conducted with final three of six runs for M25 and M25A; sample acquisition to evaluate proposed analytical technique for total organic carbon measurements.

[i] Each run will be conducted on two of eight vents.

TABLE 3-2. MEASUREMENTS AT EACH TEST LOCATION

RUNS 1, 2, AND 3	
EFB Inlet	**EFB Outlet**
PM/CPM (M-202)	PM/CPM (M-202)
O_2/CO_2 (M-3)	O_2/CO_2 (M-3)
HC (M-25A)	HC (M-25A)
TGNMO (dual) (M-25)	TGNMO (dual) (M-25)
F/A/K (M-0011)	F/A/K (M-0011)
	CO (M-10)
	NO_X (M-7E)
	TOC (Evac. Cont.)
RUNS 4, 5, AND 6	
	HC (M-25A)
	TGNMO (dual) (M-25)

RUN 1	RUN 2	RUN 3
Press Vents 2 & 3	Press Vents 4 & 5	Press Vents 6 & 7
F/A/K (M-0011)	F/A/K (M-0011)	F/A/K (M-0011)
O_2/CO_2 (M-3)	O_2/CO_2 (M-3)	O_2/CO_2 (M-3)

Note: All sampling trains are to be conducted simultaneously within each run. For example, during Run 1, all trains under EFB inlet, EFB outlet, and Press Vents 2&3 are to be run simultaneously.

4.0 SAMPLING LOCATIONS

4.1 FLUE GAS SAMPLING LOCATIONS

In this section:

- *Provide a schematic of each location. Include:*
  - *duct diameter*
  - *direction of flow*
  - *dimensions to nearest upstream and downstream disturbances (include number of duct diameters)*
  - *location and configuration of the sampling ports*
  - *nipple length and port diameters*
  - *number and configuration of traverse points*
- *Confirm that the sampling location meets EPA criteria. If not, give reasons and discuss effect on results.*
- *Discuss any special traversing or measurement schemes.*

EXAMPLE:

4.1 FLUE GAS SAMPLING LOCATIONS

Emission sampling will be conducted at: (1) the EFB inlet on dryer No. 1, (2) the EFB outlet stack on dryer No. 1, and (3) the press vents. Figures 4-1, 4-2, and 4–3 are schematics of these sampling locations.

4.1.1 EFB Inlet. See Figure 4-1. Four 4-inch ports will be installed at Sections XX and YY as shown. Because of obstructions around the site, Section XX was the only practical location for Methods 202 and 0011. Method 1 requires that Section XX have 24 traverse points; each point will be sampled for 2.5 minutes for a total time of 60 minutes. One train will traverse into the duct while the other traverses out. At Section YY, about 2 feet below Section XX, one port will be used for the paired Method 25 single-point sampling and the second for Methods 25A and 3.

4.1.2 EFB Outlet. See Figure 4-2. The outlet stack for the EFB presently has two 4-inch sampling ports A and B. Additional 4-inch ports C through H will be installed as shown. Methods 202, 0011, and MM5 will be conducted at Section XX at 24 points (2.5 minutes at each point), the VOST train will be conducted at port E, and Methods 25 (dual), 10, 7E, and 3 will be conducted at Section YY.

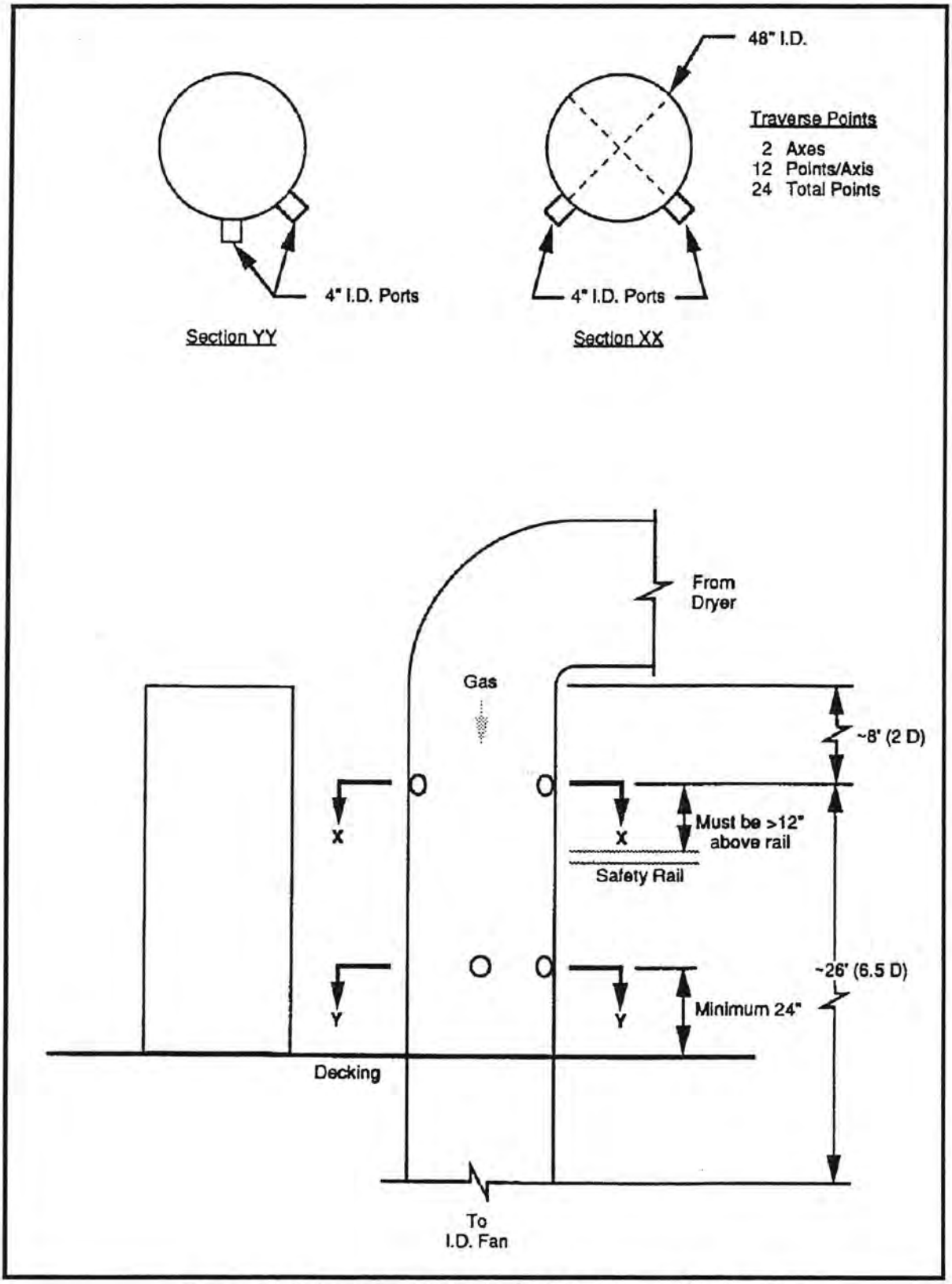


Figure 4-1 Schematic of Unit No, 1EFB inlet sampling location.

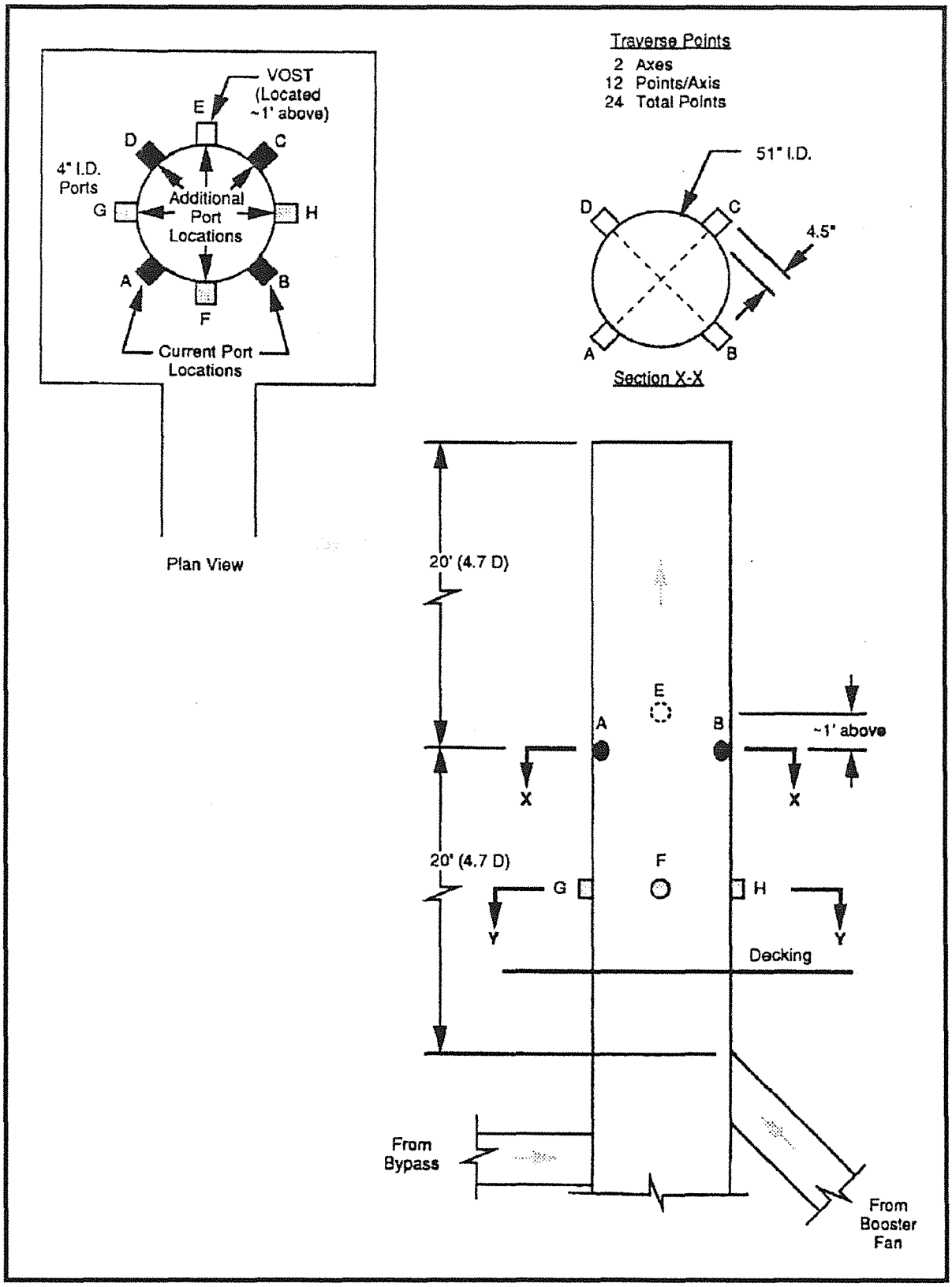


Figure 4-2 Schematic of Unit 1 EFB outlet stack sampling location.

4.1.3 Press Vents. See Figure 4-3. The press has eight roof vents as shown in the figure. The two vents on the ends (1 and 8) will not be tested because they are not directly over the press and little or no emissions are expected from these vents. Different pairs of the other six vents will be sampled for formaldehyde emissions (Method 0011) during each of the three test runs.

At this location, a 4-foot stack extension to improve flow conditions will be constructed. The extension will contain one 4-inch port. Each vent "stack" will be traversed (12 points) in only one direction. The traverse of the second vent of a pair will be in the direction perpendicular to the first vent traverse. Although the location does not meet Method 1 requirements, the results will not be affected since no particulate sampling is conducted at the press vents. The flow will be checked for non-parallel flow using the procedure in Section 2.5 of Method 1 before the tests to ensure that velocity can be measured accurately.

4.2 PROCESS SAMPLING LOCATIONS

If process stream samples will be taken, include the following:

- *Schematic of locations, if helpful (location can be shown in figure in Section 2.0)*
- *Description of each sampling or measurement location*
- *Discussion on the representativeness of each of the process stream sampling locations*

EXAMPLE: *The OSB test plan did not require any process samples to be taken. Therefore, the example below was taken from a site-specific test plan for a drum mix asphalt plant. At this plant, a tank of waste fuel is used to supply the burners for the drum mixer. The plan required one grab sample per run of the waste fuel.*

4.2 WASTE FUEL SAMPLE LOCATION

The sample for each test run will be taken from a tap at the outlet of the waste fuel supply tank to the burners. The sample is this point is expected to be homogeneous.

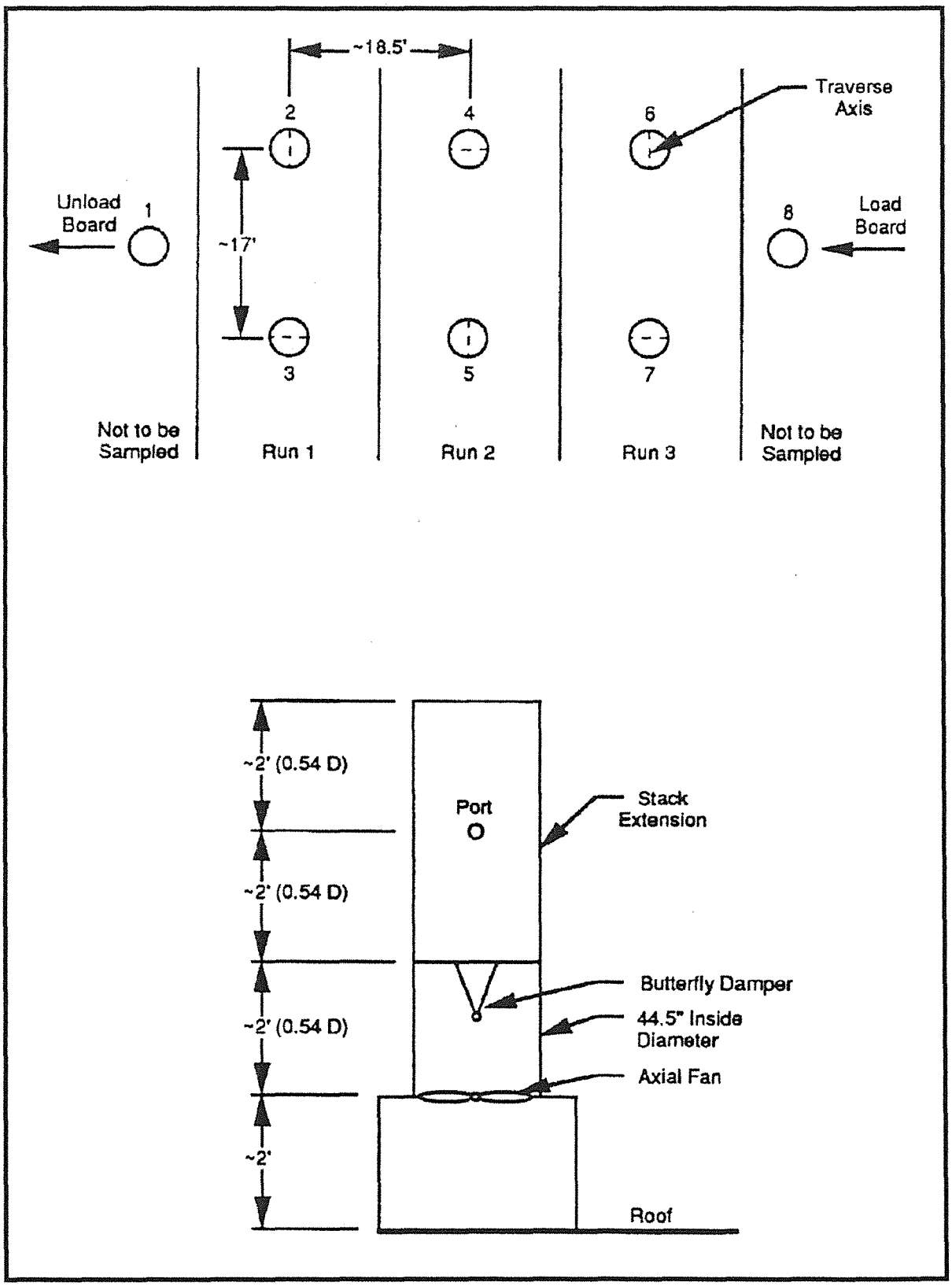


Figure 4-3 Press Vents sampling location configuration and testing scheme.

5.0 SAMPLING AND ANALYTICAL PROCEDURES

5.1 TEST METHODS

In this section, include the following:

- *Schematic of each sampling train*
- *Flow diagram of the sample recovery*
- *Flow diagram of sample analysis*
- *Description of any modifications and reasons for them*
- *Discussion of any problematic sampling or analytical conditions*

If a non-EPA method is used instead of an EPA method, explain the reason. Place a copy of all methods in Appendix A. Be sure that non-EPA methods are written in detail similar to that of the EPA methods.

EXAMPLE: *This example is for just one of the test methods. The site-specific test plan should include similar schematics and flow diagrams for each of the test methods.*

5.1 TEST METHODS

5.1.1 Particulate Matter/Condensible Particulate Matter. PM/CPM at the inlet and outlet of the EFB will be determined by Method 202. One of the objectives of this test is to compare Method 202 with ODEQ Method 7, which is identical to Method 202 except for the following:

- A second filter is placed just before the silica gel impinger.
- Acetone rather than methylene chloride is used in the final rinse of the impingers and connecting glassware.
- An optional out-of-stack filter is used before the impingers.

Because of space limitations, Method 202 will be modified by inserting a second filter in the same position as that in the ODEQ Method 7. This back-up filter will be analyzed gravimetrically according to the ODEQ procedure. All other procedures will be those of Method 202. These modifications will not affect the results from Method 202. Figures 5-1 and 5-2 are schematics of Method 202 (showing modification) and ODEQ Method 7, respectively.

Figures 5-3 and 5-4 illustrate the sample recovery procedure and analysis schemes, respectively.

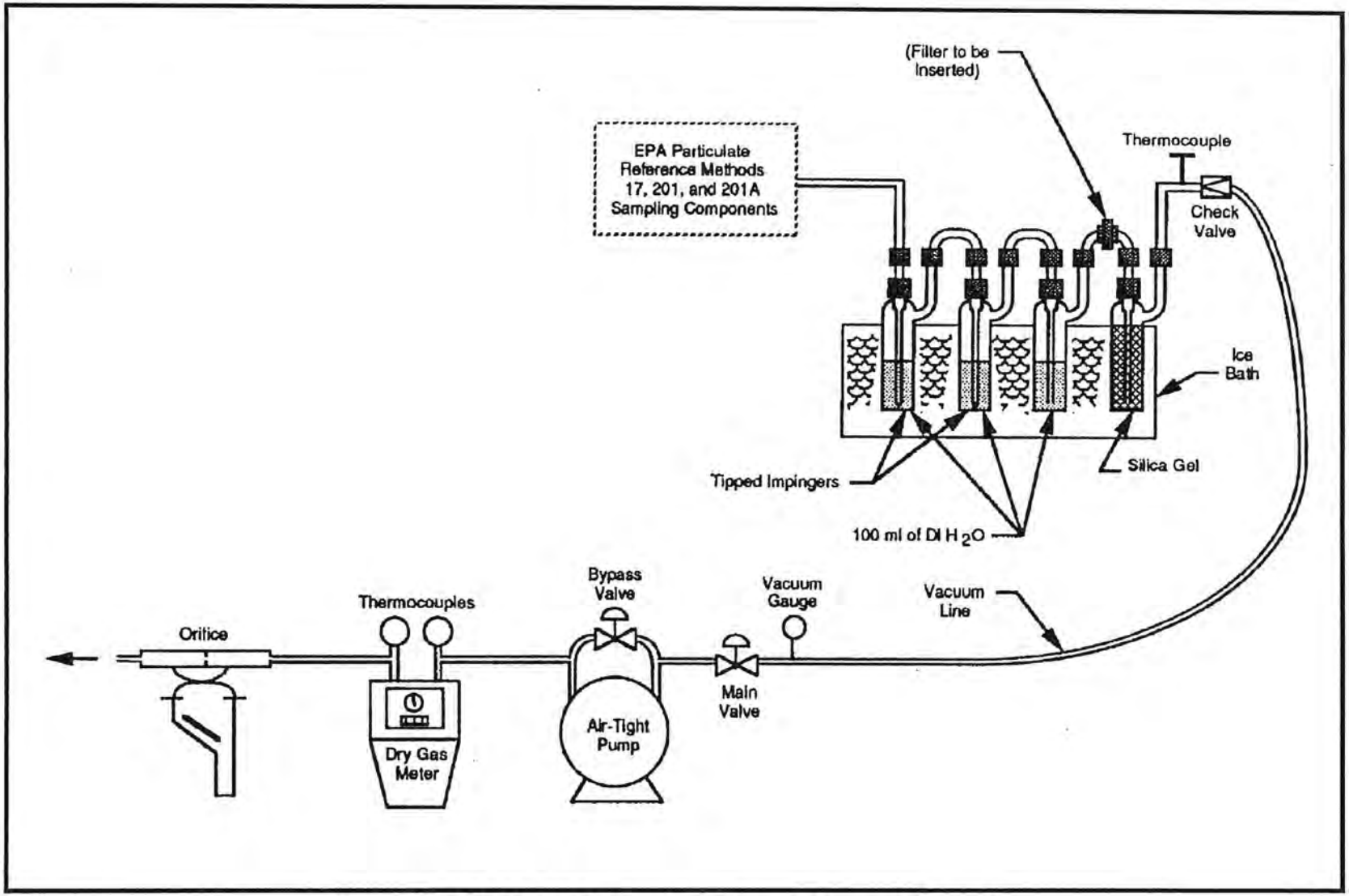


Figure 5-1 EPA Method 202 condensable particulate sampling train.

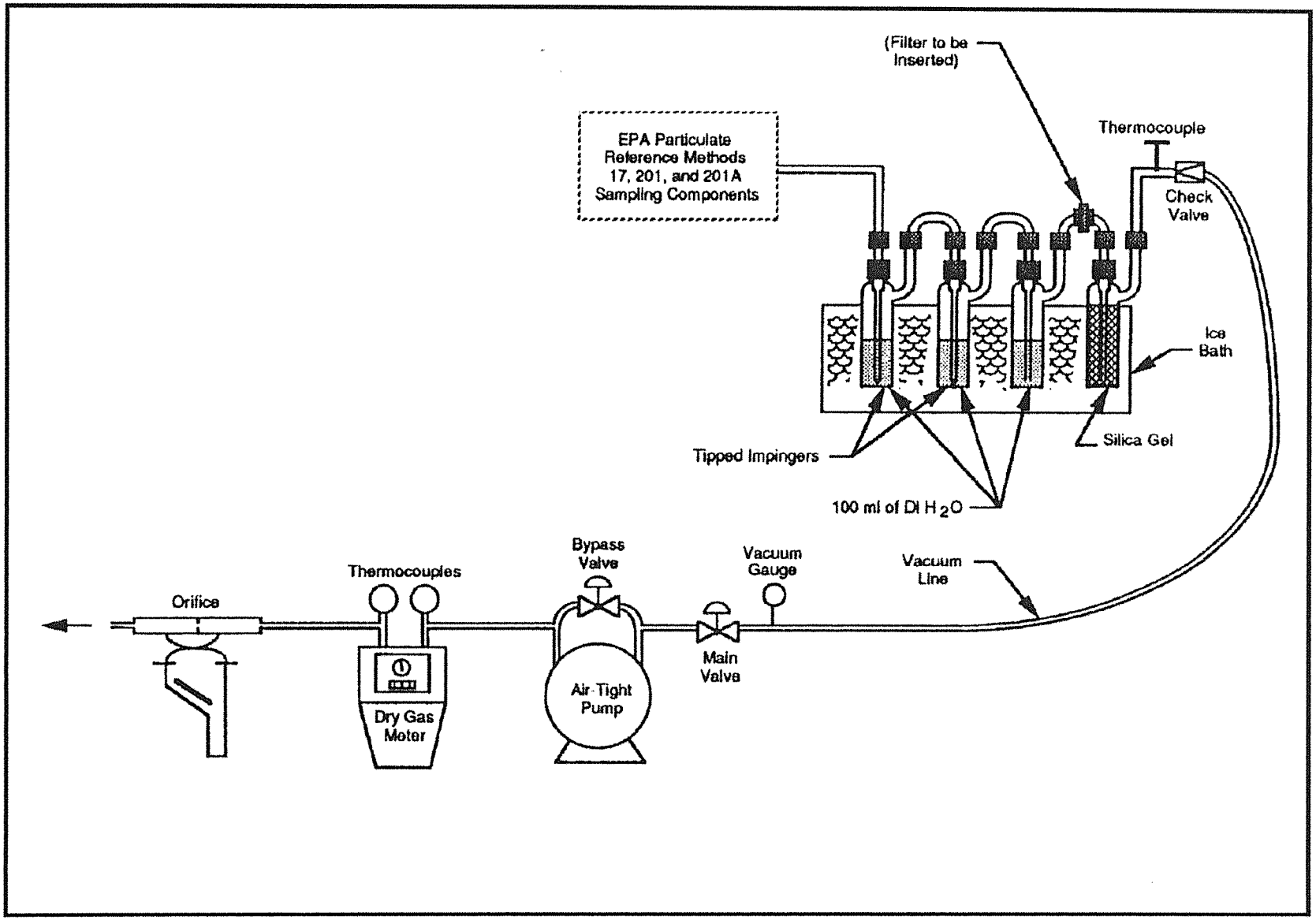


Figure 5-2 EPA Method 202 condensable particulate sampling train.

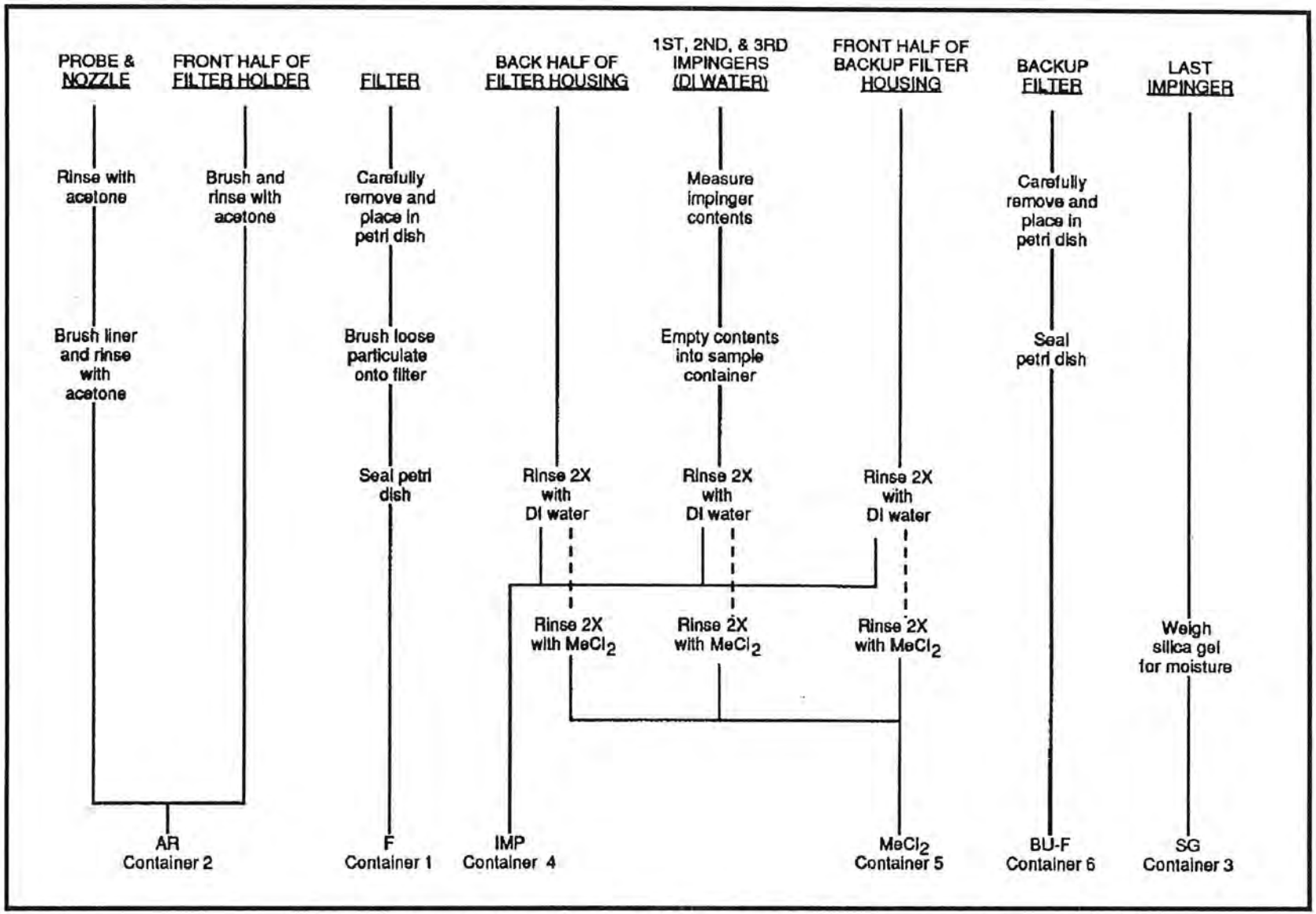


Figure 5-3 Sample recovery scheme for particulate/condensables samples.

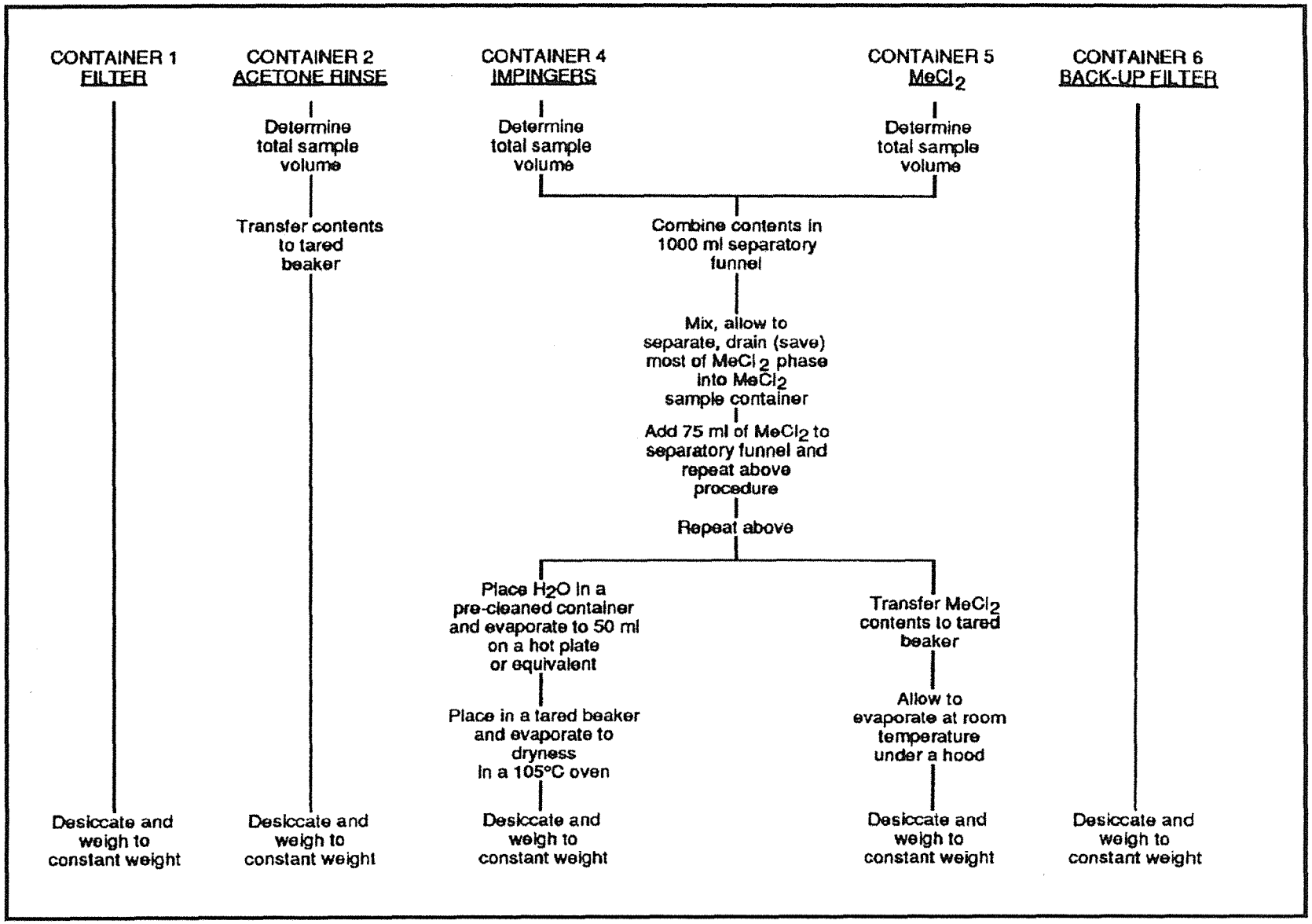


Figure 5-4 Analytical scheme for particulate/condensables samples.

5.2 PROCESS DATA

In this section, include the following:

•Description of analytical, sampling, or other procedures for obtaining process stream and control equipment data

EXAMPLE:

5.2 PROCESS DATA

The following process operation data will be collected:

- Number of press loads during EFB inlet/outlet testing
- Number of press loads during press vent testing
- Dryer inlet and outlet temperatures
- Belt speed
- EFB bed voltage and current
- EFB ionizer voltage and current

The **[Process Monitor]** will count the number of press loads, and obtain the dryer data from the central control panel and the EFB data from the EFB control panel.

6.0 QA/QC ACTIVITIES

6.1 QC PROCEDURES

In this section, provide the following for each test method:

- *Data sheets*
- *QC check lists, which could be part of the data sheets*
- *QC control limits*
- *Discussion of any special QC procedures*

Examples of QC checks would be calibration of instruments, matrix spikes, duplicate analyses, internal standards, blanks, linearity checks, drift checks, response time checks, and system bias checks.

EXAMPLE: *Examples for Method 1 and Method 2 are provided below. Other examples of data sheets/QC check lists may be obtained through EMTIC.*

6.1 QC PROCEDURES

Data sheets that also act as QC check lists and include QC control limits for Methods 1 and 2 are shown in Figures 6-1 and 6-2.

6.2 QA AUDITS

For each of the test methods for which an audit is to be conducted, list (if applicable) the following:

- *Type of audits to be conducted*
- *Limits of acceptability*
- *Supplier of audit material*
- *Audit procedure*
- *Audit data sheet/QC check list*

EXAMPLE: *An example for Method 5 dry gas meter is provided below. Other examples of data audit sheets/QC check lists may be obtained from EMTIC.*

6.2 QA AUDITS

Calibrated critical orifices (about 0.5 cfm) supplied by EPA will be used to audit the Method 5 dry gas meter calibration. The dry gas meter value must agree to within ±5 percent of the critical orifice value. The procedure in Section 7.2 of Method 5 will be used. The data sheet provided by EPA will be used.

Sampling and Velocity Traverse Point Determination
EPA Method 1

PLANT NAME _____

CITY, STATE _____

SAMPLING LOCATION _____

NO. OF PORTS AVAILABLE _____

NO. OF PORTS USED _____

PORT INSIDE DIAMETER _____

DISTANCE FROM FAR WALL TO OUTSIDE OF PORT _____

NIPPLE LENGTH AND/OR WALL THICKNESS _____

DEPTH OF STACK OR DUCT _____

STACK OR DUCT WIDTH (IF RECTANGULAR) _____

EQUIVALENT DIAMETER:

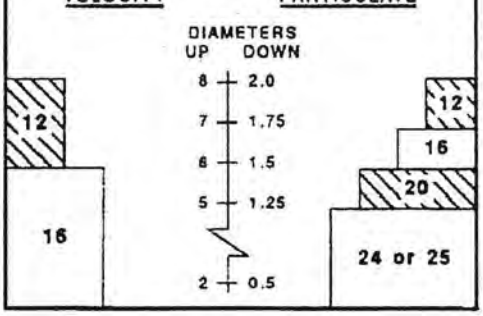
$$D_E = \frac{2 \times \text{DEPTH} \times \text{WIDTH}}{\text{DEPTH} + \text{WIDTH}} = \frac{2 (\quad)(\quad)}{(\quad + \quad)} = \_\_\_\_\_$$

DISTANCE FROM PORTS TO FLOW DISTURBANCES	UPSTREAM	DOWNSTREAM
DIAMETERS	_____	_____

STACK/DUCT AREA = _____ = _____ IN^2 (must be > 113 $in.^2$)

DRAW HORIZONTAL LINE THROUGH DIAMETERS

If more than 8 and 2 diameters and if duct dia. is 12 - 24, use 8 or 9 points.



POINT	% OF DUCT DEPTH	DISTANCE FROM INSIDE WALL	DISTANCE FROM OUTSIDE OF PORT
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

LOCATION OF POINTS IN CIRCULAR STACKS OR DUCTS

	4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

LOCATION OF POINTS IN RECTANGULAR STACKS OR DUCTS

	3	4	5
1	16.7	12.5	10.0
2	50.0	37.5	30.0
3	83.3	62.5	50.0
4		87.5	70.0
5			90.0

Do not place points closer to stack walls than
1.0 in. for stack dia. >24 in.
0.5 in. for stack dia. 12 to <24 in.

For rectangular stacks, use only the following matrices:

No. Pts.	Matrix
9	3 x 3
12	4 x 3
16	4 x 4
25	5 x 5

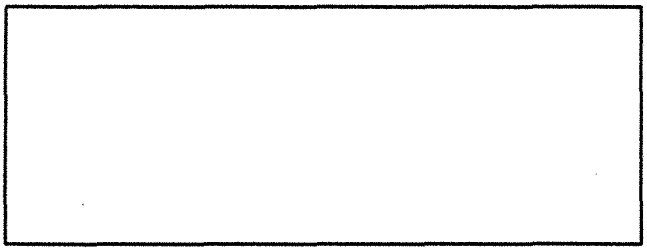
Check for completeness_____

Checked by (Signature)_____

Figure 6-1

FIGURE 6-2. EXAMPLE VELOCITY DATA SHEET

Date _____ Run No. _____ Test Location _____
Plant _____ Operator _____



Schematic: Cross-Section

Pitot ID No. _____
Pitot coeff: C_p = _____
Last calibrated: Date: _____
Pitot condition: _____

_____

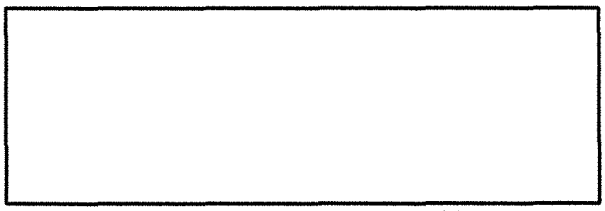
Gauge sensitivity:
Req'd _____ in. H_2O
Actual _____ in. H_2O
Calibration:
Pre-test _____
Post-test _____
Leak check: (None)
Pre-test: _____
Post-test: _____

Temp. ID No. _____
Temp. calibration: (1.5% abs)
Pre-test _____
Post-test _____

Barometric presssure gauge calibration:
(0.1 in. Hg)
Pre-test _____
Post-test _____
Barometric pressure: P_b = _____ in. Hg

Static pressure: P_s = _____ in. Hg

Pitot configuration/assembly:
Sketch/dimensions



Checked for completeness by (Signature/Title) _____

Start Time:

Port/ Trav. Pt.	Δp in. H_2O	Stk temp. °F

6.3 QA/QC CHECKS OF DATA REDUCTION

In this section, describe the following:

- *Procedure for assuring accurate transfer of raw data and accuracy of calculations*
- *Data quality indicators, such as*
  - *Using F_o factors to validate Orsat, CEM CO_2/O_2 data*
  - *Comparing process O_2 monitor and CEM O_2 data*
  - *Comparing flow rates measured at different locations or by different sampling trains*
  - *Comparing relative concentrations at different sampling locations*
  - *Comparison of data with previous field test results (if applicable)*
  - *Running mass balances*

EXAMPLE:

6.3 QA/QC CHECKS OF DATA REDUCTION

The **[QA Officer]** will run an independent check (using a validated computer program) of the calculations with predetermined data before the field test. This will ensure that calculations done in the field are accurate. The **[QA Officer]** will also conduct a spot check on-site to assure that data are being recorded accurately. After the test, the **[QA Officer]** will check the data input to assure that the raw data have been transferred to the computer accurately.

The F_o factors from Method 3 will be used to validate the CO_2/O_2 data. Since the fuel consists of wood trim, fines, and resinated sander dust, the F_o factor is expected to be within 1.000 and 1.120.

The inlet and outlet volumetric flow rates will be compared. In addition, the volumetric flow rates from the Method 202 and MM5 trains will be compared. Agreement within these two trains should be ±10 percent.

6.4 SAMPLE IDENTIFICATION AND CUSTODY

- *Person responsible*
- *Sample identification and chain-of-custody procedure*
- *Sample identification label*
- *Chain-of-custody form*
- *Sample log sheet*

EXAMPLE: *The scheme for identifying samples should be logical and easily deciphered, e.g., 2I-PM-F means Run No. 2, inlet, particulate matter sample, filter.*

6.4 SAMPLE IDENTIFICATION AND CUSTODY

The **[Task Leader]** is responsible to ensure that all samples are accounted for and that proper custody procedures are followed. After collecting and recovering the sample, the **[QA Officer]** will supply sample labels and integrity seals, maintain inventory records of all the samples taken, and ensure that chain-of-custody forms are filled. Figures 6-3 through 6-6 show some examples.

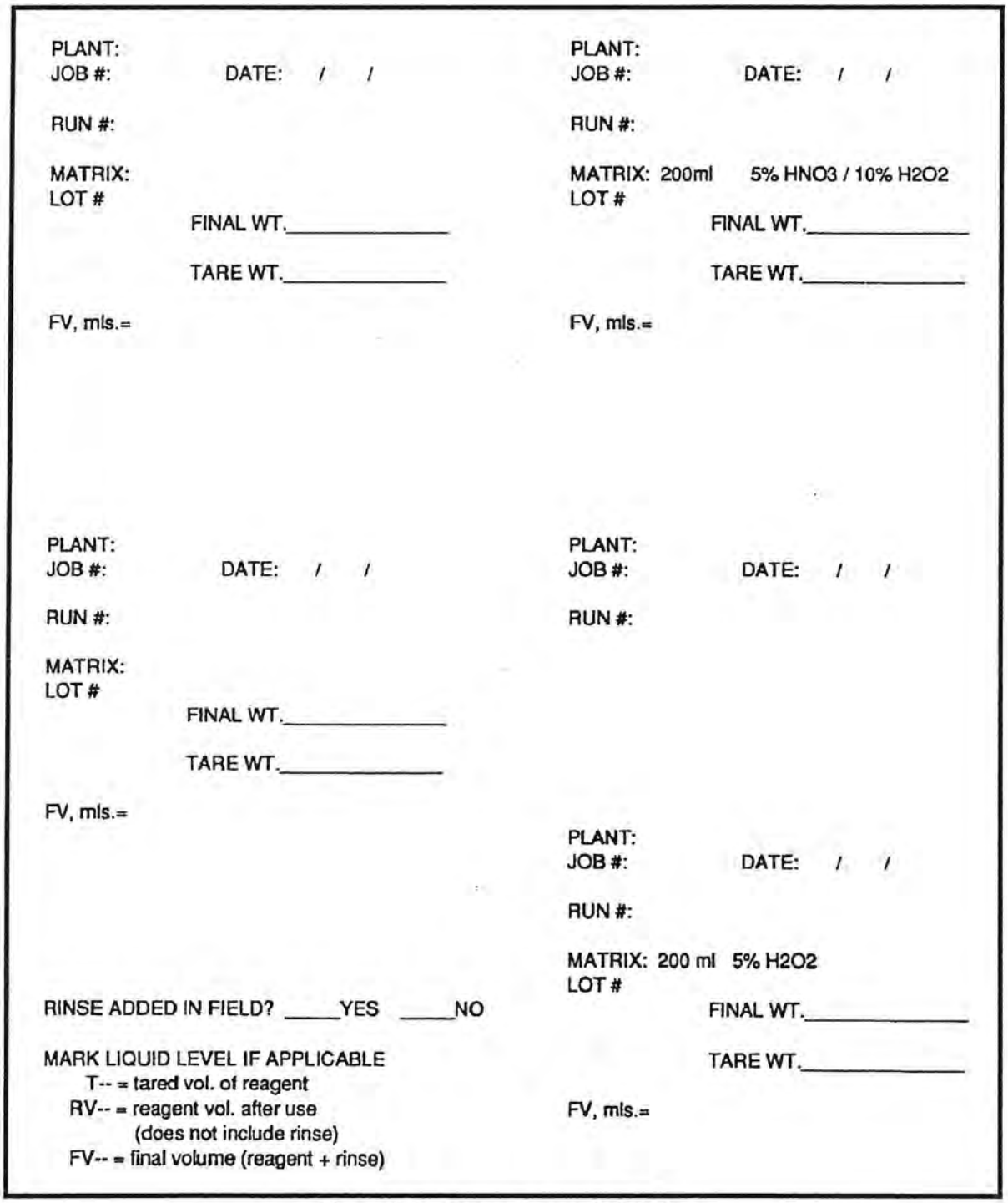


Figure 6-3. Example sample labels.

FIELD SAMPLE QUALITY CONTROL
50-CAPACITY CONTAINER, BOX NO. _____

Assembly Date _____ Assembled By _____ Job No. _____

Plant Name/Address _____

Individual Tare Of Reagent _____ (mL)(gm) of _____

Individual Tare Of Reagent _____ (mL)(gm) of _____

Individual Tare Of Reagent _____ (mL)(gm) of _____

Individual Tare Of Sil. Gel _____ Gm _____
Other (specify)

Run/Sample I.D.	Samp. Method	Recovery Date	Recovery Time	Init	Run/Sample I.D.	Samp. Method	Recovery Date	Recovery Time	Init

All liquid levels at mark (check)? ___ Yes ___ No (estimate loss of not at mark; use REMARKS section).

Remarks _____

_____

_____

Custodian _____ Date _____ Time _____

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Figure 6-4. Example field sample quality control sheet.

VOST SAMPLES USAGE INVENTORY, CONTAINER NO. _____

Plant Name _____ Job No. _____

City/State _____ Packed By _____

Total No. Tenax Tubes _____ Tenax/Charcoal Tubes _____ (SHOW TOTALS ON PAGE 1 ONLY)

PAGE _____ OF _____

Date	Sampling Location	Run Number	Sample I.D.	Tenax Tube No.	Tenax/ Charcoal Tube No.	Conden-sate Vial No.
Personnel _____ Remarks*						
Personnel _____ Remarks*						
Personnel _____ Remarks*						
Personnel _____ Remarks*						
Personnel _____ Remarks*						

*INCLUDE LISTING OF TUBES NOT USED DUE TO BREAKAGE AND ABORTED RUNS.

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Figure 6-5. Example sample inventory sheet.

RECORD OF CUSTODY, CONTAINER NO. _____

Container Type (check) ___Reagent Box ___Cooler ___Other_____

Plant Name/Address _____

Job No. _____ Sampling Method _____ (EPA, NIOSH, etc.)

Seal ID	Date	Time	*	Full Signature	Reason for Breaking Seal**
			S		
			B		
			S		
			B		
			S		
			B		
			S		
			B		
			S		
			B		
			S		
			B		
			S		
			B		
			S		
			B		

* S = Sealed By; B = Broken By ** Use "REMARKS" Section if more space needed.

Received by Sample Custodian **Seal Intact?

_____ _____ _____ ___Yes ___No

Signature Date Time

As Applicable:
All liquid levels at mark (check)? ___ YES ___ NO (Estimate loss if not at mark; describe in "REMARKS")

As Applicable:
TUBE SAMPLES put in freezer by _____ Date _____ Time _____

CONDENSATE SAMPLES put in refrige. by _____ Date _____ Time _____

REMARKS _____

L-0023 rev. 10-91 **Figure 6-6. Example chain-of-custody form.**

Figure 6-6. Example chain-of-custody form.

7.0 REPORTING AND DATA REDUCTION REQUIREMENTS

7.1 REPORT FORMAT

In this section, include:

- *Table of contents for the test report*

EXAMPLE:

7.1 REPORT FORMAT

The Table of Contents for the report will be:

TABLE OF CONTENTS

7.2 DATA REDUCTION AND SUMMARY

In this section, include:

- *Data summary tables; include units (e.g., lb/mmBtu, lb/ton of product, dscm corrected to 6% O_2)*

EXAMPLE: *The example is for only one of the sets of measurements. Similar tables should be made for all sets of data.*

7.2 DATA REDUCTION AND SUMMARY

Table 7-1 shows the format to be used to summarize the data.

TABLE 7-1. SUMMARY TABLE FORMAT OF EMISSION DATA

Method/Component	Units	EFB Inlet				EFB Outlet				Press Vents			
		Run 1	Run 2	Run 3	Avg	Run 1	Run 2	Run 3	Avg	Run 1	Run 2	Run 3	Avg
Method 202													
PM	mg/dscm												
CPM	mg/dscm												
Back-up Filter	mg/dscm												
Total	mg/dscm												
Method 25A, HC	ppm C												
Method 25 - A													
TGNMO	ppm C												
Condensibles	ppm C												
Non-condensibles	ppm C												
Method 25 - B													
TGNMO	ppm C												
Condensibles	ppm C												
Non-condensibles	ppm C												
M0011													
Formaldehyde	mg/dscm												
Other aldehydes	mg/dscm												
Ketones	mg/dscm												
Total	mg/dscm												
Method 3													
O_2	%												
CO_2	%												
Method 10, CO	ppm												
Method 7E, NO_x	ppm												
TOC	ppm C												

8.0 PLANT ENTRY AND SAFETY

8.1 SAFETY RESPONSIBILITIES

Identify the following individuals:

- *Person responsible for ensuring compliance with plant entry, health, and safety requirements*
- *Facility person or safety officer who has the authority to impose or waive facility restrictions*
- *Tester who has authority to negotiate with facility person any deviations from the facility restrictions*

EXAMPLE:

8.1 SAFETY RESPONSIBILITIES

The **[Test Director]** is responsible for ensuring compliance with plant entry, health, and safety requirements. The **[Facility Person]** has the authority to impose or waive facility restrictions. The **[Project Director]** has the authority to negotiate with facility person any deviations from the facility restrictions.

8.2 SAFETY PROGRAM

Briefly describe:

- *Test contractor's health and safety program*

EXAMPLE:

8.2 SAFETY PROGRAM

[Contractor] has a comprehensive health and safety program that satisfies Federal OSHA requirements. The basic elements include: (1) written policies and procedures, (2) routine training of employees and supervisors, (3) medical monitoring, (4) use of personal protection equipment, (5) hazard communication, (6) pre-mobilization meetings with **[facility]** personnel and **[contractor]** test team personnel, and (7) routine surveillance of the on-going test work.

8.3 SAFETY REQUIREMENTS

In this section:

- *List the facility's safety requirements and emergency response plan.*
- *Note any deviations from the safety requirements, discussions with the plant, and outcome of the discussions concerning the deviations.*

Requirements may include such items as personnel safety equipment, first aid gear, smoking restrictions, vehicle traffic rules, escorts, entrance and exit locations, required communications during and after business hours, e.g., times when testing crew arrives and leaves site, or evacuation procedure for various alarms.

EXAMPLE:

8.3 SAFETY REQUIREMENTS

All test personnel will adhere to the following standard safety and precautionary measures as follows:

- Confine selves to test area only.
- Wear hard hats at all times on-site, except inside sample recovery trailers and mobile CEM laboratory.
- Wear protective shoes or boots in test area.
- Wear protective glasses or goggles at the EFB inlet and outlet test sites, and other areas as designated.
- Have readily available first aid equipment and fire extinguishers.

Before or on the first day on-site, the **[Test Director]** will fill out the Emergency Response Procedure form (see Figure 8-1) and provide copies to be posted at each test site.

Figure 8-1. On-Site Emergency Response Procedures*

Project:_____ Date:_____

Location:_____ By:_____

Evacuation Signal:_____

When it sounds:_____

_____

_____

_____

Gather with other test personnel at (location):_____

_____

_____

All clear signal: _____

_____

First aid station location and phone number:_____

Ambulance phone number:_____

Fire Department phone number:_____

Hospital phone number:_____

* Post or secure at your work station for easy reference in the event of an emergency.

9.0 PERSONNEL RESPONSIBILITIES AND TEST SCHEDULE

9.1 TEST SITE ORGANIZATION

In this section:

- *List the key tasks and task leaders.*

EXAMPLE:

9.1 TEST SITE ORGANIZATION

The key tasks and task leaders are:

- Management: **[Name]**
- Test Preparation/Site Restoration: **[Name]**
- Modifications to Facility/Services: **[Name]**
- Sampling Site Accessibility: **[Name]**
- Sample Recovery: **[Name]**
- Daily Sampling Schedule: **[Name]**

9.2 TEST PREPARATIONS

In this section, describe or identify the following:

- *Construction of special sampling and analytical equip-ment*
  - *Description*
  - *Dates for completion of work*
  - *Responsible group*
- *Modifications to the facility, e.g., adding ports, building scaffolding, installing instrumentation, and calibrating and maintaining existing equipment*
  - *Description*
  - *Dates for completion*
  - *Responsible group*
- *Services provided by the facility, such as electrical power, compressed air, and water*
  - *List of all services to be provided by the facility*
  - *Description of modifications or added requirements, if necessary*
- *Access to sampling sites*
  - *Description*
  - *If modifications are required, requirements and responsible group*
- *Sample recovery area*
  - *Description*

- *If a mobile recovery area or laboratory is used, installation location, dates for installation, and responsible group*

EXAMPLE:

9.2 TEST PREPARATIONS

9.2.1 Construction of Special Sampling and Analy-tical Equipment. There are no equipment modifications or special analytical equipment required for this site.

9.2.2 Modifications to Facility. The **[Plant]** crew will install additional 4-inch ID sampling ports as shown in Figures 4-1 and 4-2. In addition, the decking at the outlet stack will be extended to circumvent the stack to allow access to the new sampling port locations. All work will be completed during the scheduled plant shutdowns on July 11 and 25, 1991.

9.2.3 Services Provided by Facility. The **[Plant]** agreed to furnish additional temporary 110 volts, 20 amp power as follows:

• EFB inlet	5 outlets
• EFB outlet stack	5 outlets
• Press vents	2 outlets
• Mobile CEM lab	5 outlets

[Contractor] will provide all other services.

9.2.4 Access to Sampling Sites. There are no special problems or safety issues in gaining access to the testing locations.

9.2.5 Sample Recovery Areas. **[Contractor]** will provide an office trailer (32 ft, 2 foot tongue) and a smaller trailer for sample recovery areas. The office trailer requires a single phase 220 volt power supply for lighting and air conditioning and the smaller trailer requires two 110 volt, 20 amp circuits. The sample recovery task leader will be responsible for locating both sample recovery units in areas as free as possible from ambient dust contamination. The office unit will be used for recovering the M202 and MM5 samples, and the smaller unit will be used for the M0011 (formaldehyde) samples.

9.3 TEST PERSONNEL RESPONSIBILITIES AND DETAILED SCHEDULE

In this section:

- *Describe pre-test activities.*
- *Provide a table that lists staff assignments and responsibilities.*
- *Provide a table or text detailing the test schedule.*

EXAMPLE:

9.3 TEST PERSONNEL RESPONSIBILITIES AND DETAILED SCHEDULE

[Contractor] personnel will arrive at the plant about 1.5 hours before the start of the first test run on each of the two days scheduled for sampling. Pre-test activities on these days will include:

- Meet with the plant contact and the EPA WAM to review the daily test objectives.
- Prepare and set-up (including leak checks) the manual method trains at all test locations.
- Calibrate instrumental analyzers and verify that the data acquisition systems are functioning properly.
- Verify communication links between team members/leaders/plant personnel.

Table 9-1 lists the test personnel and their specific responsibilities. Figure 9-1 and Table 9-2 present a detailed test schedule.

TABLE 9-1. TEST PERSONNEL AND RESPONSIBILITIES

	Staff Assignment	Responsibility
1.	Project Manager/Field Coordinator	Coordinate all test activities. Maintain communications between all test participants, plant personnel, and the EPA Work Assignment Manager. Collect EFB process data
2.	Sampling Location Leader (EFB inlet)	Coordinate and monitor all testing activities at the EFB inlet location. Ensure all field calculations are completed. Prepare and operate the M0011 train.
3.	Sampling Team Leader (EFB inlet)	Prepare and operate the M202 train at the inlet. Record data. Assist in sample recovery as required.
4.	Field Technician (EFB inlet)	Assist in preparation and operation of M202 and M0011 trains as required at EFB inlet location.
5.	Sampling Location Leader (EFB outlet)	Coordinate and monitor all testing activities at outlet stack location. Ensure all field calculations and data are completed. Prepare and operate the MM5 train.
6.	Sampling Team Leader (EFB outlet)	Prepare and operate the M202 train. Record data. Assist in sample recovery as required.
7.	Sampling Team Leader (EFB outlet)	Prepare and operate the M0011 train. Record data. Assist in sample recovery as required.
8.	Sampling Team Leader (EFB outlet)	Prepare and operate VOS train. Record data. Recover VOST samples.
9.	Field Technician (EFB outlet)	Assist in preparation and operation of the MM5, M0011, M202, and VOS trains as required.
10.	Field Technician (EFB outlet)	Assist in preparation and operation of the MM5, M0011, M202, and VOS trains as required.
11.	CEM Inorganics Team (EFB outlet)	Prepare and operate M7E and M10 monitoring systems at EFB outlet stack location. Coordinate with M25A and manual methods testing efforts.
12.	CEM Organics Team (EFB inlet and outlet)	Prepare and operate the M25A monitoring systems at EFB inlet and outlet locations. Coordinate with other CEM and the manual methods testing efforts.
13.	Sampling Location Leader (press vents)	Coordinate testing activities at the press vents. Ensure all field calculations are completed. Prepare and operate the M0011 train.
14.	Field Technician (press vents)	Assist in preparation and operation of M0011 at press vents.
15.	Field Laboratory Team Leader	Coordinate preparation and recovery of sampling trains. Maintain sample chain of custody. Coordinate field repairs.
16.	Field Laboratory Technician	Assist in preparation and recovery of sampling trains and sample inventory.
17.	Process Data Collector (control room)	Record required process parameters at appropriate intervals.

TABLE 9-2. DETAILED TEST SCHEDULE

Crew Member	Activity
Monday, July 29	
1 - 17	Travel to **[City, State]**
1	Contact **[Plant Contact]** EPA Work Assignment Manager, and **[Trade Organization]** representative.
1	Establish communications between the test team, EPA, **[Trade Organization]**, and the plant.
2,3,4	Prepare the inlet sampling location for testing and set-up the equipment. Conduct preliminary measurements.
5,6,7,8,9,10	Prepare the outlet stack sampling location for testing and set-up the equipment. Conduct preliminary measurements.
13,14	Prepare the press vent sampling location for testing and set-up the equipment. Conduct preliminary measurements.
11	Set-up and calibrate the M7E and M10 monitoring equipment at the outlet stack. Warm up and check all monitoring and data acquisition systems for M7E and M10. Coordinate with M25A team leader and manual methods testing team.
12	Set-up and calibrate the monitoring systems for Method 25A at the inlet and outlet stack locations. Coordinate with M7E/M10 team leader and manual methods testing team.
15,16	Set-up the sample recovery areas and inventory all reagents and glassware.
17	Locate points for gathering process data. Establish communications with appropriate plant personnel.
Tuesday, July 30	
SET-UP	
1	Contact **[Plant Contact]** and EPA Work Assignment Manager. Review plant and testing status. Prepare for tests.
2,3,4,5,6,7,8,9, 10,13,14	Perform initial calibrations and daily QC checks. Set-up trains and leak check. Warm-up all equipment and prepare for testing.
11,12	Perform all initial calibrations and QC checks. Check all probe locations, condensers, etc. Verify that the data acquisition system is functioning properly.
15,16	Prepare sampling trains for first run.
17	Prepare to collect process data. Assist others as needed.
TESTING	
2,4	M0011 train - 2 runs at the inlet.
7,9	M0011 train - 2 runs at the outlet.

Table 9-2 (Continued)

13,14	M0011 train - 2 runs at the press vents.
3,4	M202 train - 2 runs at the inlet.
6,9	M202 train - 2 runs at the outlet.
5,10	MM5 train - 2 runs at the outlet.
8,10	VOS train - 2 runs at the outlet.
11,12	Methods 7E, 10, 25A - 2 runs at inlet and outlet.
15,16	Support sampling teams, sample recovery and train preparation. Review paperwork for completeness.
17,1	Collect process data.
1	Coordinate testing effort with plant, EPA, and test personnel. At end of day, secure area and communicate with the plant and the EPA on the testing status.

Wednesday, July 31

Assignments and responsibilities will be the same as for Tuesday, July 30 for the third run. If possible, three additional runs of Method 25 and 25A will be conducted on Wednesday afternoon and Thursday morning. These will involve **[Contractor]** crew members 11,12,17, and 1 and the **[Trade Organization]** staff. The remaining **[Contractor]** staff will pack samples, unneeded equipment, restore the sampling sites, and travel home. If due to testing or plant conditions, the schedule is not completed as planned, Thursday, August 1 will be used as a contingency test day. At the conclusion of the test, there will be a brief informational meeting with the plant and EPA personnel to resolve any questions before the remaining test team members leave the site.

MONDAY July 29, 1991	**TUESDAY** July 30, 1991	**WEDNESDAY** July 31, 1991	**THURSDAY** August 1, 1991
•Travel to site •Establish test team/ Plant communications •Set up test locations •Conduct preliminary measurements •Set up lab for sample recovery	•Complete 2 test runs	•Complete 3rd test run •Pack up all but Methods 25 and 25A equipment •Conduct 2 additional Method 25/25A runs •Collect 2 evacuated cylinder samples •Rest of staff drive home •Afternoon: contingency test day	•Conduct 1 additional Method 25/25A run •Collect 1 evacuated cylinder sample •Restore sites •Remaining staff drive home •Contingency test day

Figure 9-1. Proposed daily test schedule for **[Plant]** test program.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R15- 21
AMENDMENTS TO 35 ILL. ADM. CODE	)	(Rulemaking-Air)
PART 214, SULFUR LIMITATIONS, PART	)	
217, NITROGEN OXIDES EMISSIONS,	)	
AND PART 225, CONTROL OF EMISSIONS	)	
FROM LARGE COMBUSTION SOURCES	)	

CERTIFICATE OF SERVICE

I, the undersigned, an attorney, state that I have served the attached REGULATORY PROPOSAL entitled "AMENDMENTS TO 35 ILL. ADM. CODE 214, SULFUR LIMITATIONS, PART 217, NITROGEN OXIDES EMISSIONS, AND PART 225, CONTROL OF EMISSIONS FROM LARGE COMBUSTION SOURCES" and supporting documents of the Illinois Environmental Protection Agency upon the person to whom it is directed, by mailing it by first-class mail from Springfield, Illinois, with sufficient postage affixed, to the following persons:

John Therriault, Assistant Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601-3218

Matthew Dunn, Chief
Environmental Enforcement/Asbestos
Litigation Division
Office of the Illinois Attorney General
500 South Second Street
Springfield, IL 62706

Office of Legal Services
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: Dana Vetterhoffer
Dana Vetterhoffer
Assistant Counsel

DATED: April 27, 2015

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