

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
by LISA MADIGAN, Attorney)	
General of the State of Illinois,)	
)	
Complainant,)	
)	
v.)	PCB No. 13-
)	(Enforcement – Air)
THE BOARD OF TRUSTEES OF THE)	
UNIVERSITY OF ILLINOIS, a body corporate)	
and politic,)	
)	
Respondent.)	

NOTICE OF FILING

To: See attached service list
(VIA ELECTRONIC FILING)

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board by electronic filing the following Complaint, copies of which are attached and hereby served upon you.

LISA MADIGAN
Attorney General
State of Illinois


Jennifer A. Van Wie

Dated: January 3, 2013

Jennifer A. Van Wie
Assistant Attorney General
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THIS FILING IS SUBMITTED ON RECYCLED PAPER

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COMPLAINT

Complainant, PEOPLE OF THE STATE OF ILLINOIS, by LISA MADIGAN, Attorney General of the State of Illinois, complains of Respondent, THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, a body corporate and politic, as follows:

COUNT I
CONSTRUCTING AIR EMISSION SOURCES WITHOUT A PERMIT

1. This Complaint is brought on behalf of the PEOPLE OF THE STATE OF ILLINOIS, by LISA MADIGAN, Attorney General of the State of Illinois, on her own motion and at the request of the Illinois Environmental Protection Agency (“Illinois EPA”) pursuant to Section 31 of the Illinois Environmental Protection Act (“Act”), 415 ILCS 5/31 (2010).

2. The Illinois EPA is an administrative agency established in the executive branch of the State government by Section 4 of the Act, 415 ILCS 5/4 (2010), and is charged, *inter alia*, with the duty of enforcing the Act.

3. The Respondent, the Board of Trustees of the University of Illinois (the “University”), is a body corporate and politic established under Section 1 of the University of Illinois Act, 110 ILCS 305/1 (2010), that is capable of suing and of being sued.

4. The University operates a power plant located at 1717 West Taylor Street, Chicago, Cook County, Illinois, to provide steam, hot water, and electricity for its West Campus ("West Campus Facility").

5. The West Campus Facility emission units currently include four (4) boilers, three (3) natural gas-fired engines controlled by catalytic converters, and three (3) natural gas-fired turbines with duct burners (collectively "Emission Units").

6. On April 29, 1999, the University was issued construction permit number 98100093 ("Construction Permit"). See Construction Permit, attached hereto and incorporated herein as Attachment 1.

7. The Construction Permit allowed the University to construct emission sources and/or air pollution control equipment consisting of three (3) natural gas-fired engines controlled by catalytic converters, three (3) natural gas-fired turbines with duct burners, and catalytic converters controlling two (2) existing dual fuel-fired engines.

8. On June 20, 2002, the University was issued Clean Air Act Permit Program ("CAAPP") Permit No. 96080077 ("CAAPP Permit") for the West Campus Facility, with an expiration date of June 19, 2007. See CAAPP Permit, attached hereto and incorporated herein as Attachment 2.

9. The University's CAAPP Permit was issued to the University based on the West Campus Facility being deemed a major source of Nitrogen Oxides ("NO_x"), Carbon Monoxide ("CO"), Sulfur Dioxide ("SO₂") and Volatile Organic Material ("VOM") emissions. See Attachment 2, Condition 5.1.1.

10. Condition 1.4(a) of the Construction Permit and Condition 7.1.5(b) of the CAAPP Permit specifically required that four (4) existing natural gas / No. 6 residual fuel oil-fired boilers

(Boilers #1, #2, #3, and #4) located at the West Campus Facility permanently cease operation prior to the initial startup of the three (3) natural gas-fired engines controlled by catalytic converters, three (3) natural gas-fired turbines with duct burners, and catalytic converters controlling two (2) existing dual fuel-fired engines. See Attachments 1 and 2.

11. The University's operation of the West Campus Facility is subject to the Act and the rules and regulations promulgated by the Illinois Pollution Control Board ("Board"). The Board's regulations for air pollution are found in Title 35, Subtitle B, Chapter I, of the Illinois Administrative Code ("Board Air Pollution Regulations").

12. The requirement to permanently cease operation of Boilers #1, #2, #3, and #4 at the University's West Campus Facility was to prevent an increase in NO_x emissions to levels greater than those allowed by the Board's New Source Review ("NSR") requirements.

13. On January 14 and 20, 2011, in response to an anonymous complaint, the Illinois EPA conducted inspections of the West Campus Facility.

14. During the January 20, 2011 inspection, the Illinois EPA learned that the University had operated Boiler #4 in December 2010, January 2011, and February 2011, despite the Construction Permit and CAAPP Permit requirements that Boiler #4 permanently cease operation.

15. Section 9(b) of the Act, 415 ILCS 5/9(b) (2010), provides as follows:

No person shall:

* * *

(b) Construct, install, or operate any equipment, facility, vehicle, vessel, or aircraft capable of causing or contributing to air pollution or designed to prevent air pollution, of any type designated by Board regulations, (1) without a permit granted by the Agency unless otherwise exempt by this Act or Board

regulations or (2) in violation of any conditions imposed by such permit.

16. Section 3.315 of the Act, 415 ILCS 5/3.315 (2010), provides the following definition:

“Person” is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, state agency, or any other legal entity, or their legal representative, agent or assigns.

17. The Board of Trustees of the University of Illinois, a body corporate and politic, is a “person” as that term is defined in Section 3.315 of the Act, 415 ILCS 5/3.315 (2010).

18. Section 3.115 of the Act, 415 ILCS 5/3.115 (2010), provides the following definition:

"AIR POLLUTION" is the presence in the atmosphere of one or more contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to health, or to property, or to unreasonably interfere with the enjoyment of life or property.

19. Section 3.165 of the Act, 415 ILCS 5/3.165 (2010), provides the following definition:

“CONTAMINANT” is any solid, liquid, gaseous matter, any odor, or any form of energy, from whatever source.

20. NO_x is a “contaminant” as that term is defined in Section 3.165 of the Act, 415 ILCS 5/3.165 (2010).

21. Because the Emission Units at the West Campus Facility emit or are capable of emitting NO_x, a contaminant, to the atmosphere, they are capable of causing or contributing to air pollution.

22. Section 201.142 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.142, provides as follows:

Construction Permit Required

No person shall cause or allow the construction of any new emission source or any new air pollution control equipment, or cause or allow the modification of any existing emission source or air pollution control equipment, without first obtaining a construction permit from the Agency, except as provided in Sections 201.146 or Section 201.170(b) of this Part.

23. Section 201.102 of the Board Air Pollution Regulations, 35 Ill. Adm. Code

201.102, provides the following definitions:

"Construction": commencement of on-site fabrication, erection or installation of an emission source or of air pollution control equipment.

"Emission Source": any equipment or facility of a type capable of emitting specified air contaminants to the atmosphere.

"New Emission Source": any emission source, the construction or modification of which is commenced on or after April 14, 1972.

"Owner or Operator": any person who owns, leases, controls or supervises an emission source or air pollution control equipment.

"Specified Air Contaminant": any air contaminant as to which this Subtitle contains emission standards or other specific limitations and any contaminant regulated in Illinois pursuant to Section 9.1 of the Act.

24. By initiating operation of Boiler #4 in December of 2010, despite being unpermitted to do so, the University "constructed" a "new emission source".

25. By initiating operation of Boiler #4 in December 2010, the University also violated Condition 1.4(a) of its Construction Permit, which specifically required that Boiler #4 permanently cease operation.

26. NO_x is a "specified air contaminant" as that term is defined in Section 201.102 of the Board Air Pollution Regulations.

27. The University's new emission source was not exempted from the State permitting requirements by the Illinois EPA pursuant to Sections 201.146 or 201.170(b) of the

Board Air Pollution Regulations, 35 Ill. Adm. Code 201.146 and 201.170(b).

28. Section 9.12(j) of the Act, 415 ILCS 5/9.12(j) (2010), provides as follows:

Construction permit fees for air pollution sources

(j) If the owner or operator undertakes construction without obtaining an air pollution construction permit, the fee under this Section is still required. Payment of the required fee does not preclude the Agency or the Attorney General or other authorized persons from pursuing enforcement against the applicant for failure to have an air pollution construction permit prior to commencing construction.

29. The University is an 'owner or operator' who undertook 'construction' of an 'emission source' as those terms are defined in Section 201.102 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.102.

30. By constructing a new emission source without obtaining a construction permit from the Illinois EPA, the University violated Section 201.142 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.142, and thereby, violated Section 9(b) of the Act, 415 ILCS 5/9(b) (2010).

31. By operating Boiler #4 in December 2010, January 2011 and February 2011, the University violated Condition 1.4(a) of its Construction Permit, and thereby also violated Section 9(b) of the Act.

32. As of the filing date of this Complaint, the University has failed to pay the air pollution construction permit fee for Boiler #4 pursuant to Section 9.12(j) of the Act, 415 ILCS 5/9.12(j).

33. On September 27, 2012, the University submitted to the Illinois EPA a construction permit for the temporary operation of Boiler #4 for the winter season.

34. The University included with its construction permit application the air pollution

construction permit fee associated only with the construction permit for the temporary operation of Boiler #4.

35. On October 25, 2012, the Illinois EPA issued the construction permit for temporary operation of Boiler #4 during the winter season to the University.

36. The October 25, 2012 issuance of the construction permit for temporary operation of Boiler #4 by the Illinois EPA does not resolve the University's violations of Section 201.142 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.142, Section 9(b) of the Act, 415 ILCS 5/9(b) (2010), and Condition 1.4(a) of its Construction Permit.

WHEREFORE, the Complainant, PEOPLE OF THE STATE OF ILLINOIS, respectfully requests that the Pollution Control Board enter an order against the Respondent, THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, with respect to Count I:

1. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations contained herein;
2. Finding the Respondent has violated Sections 9(b) and 9.12(j) of the Act, 415 ILCS 5/9(b) and 9.12(j) (2010), Section 201.142 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.142, and Condition 1.4(a) of its Construction Permit;
3. Requiring the Respondent to cease and desist, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (2010), from further violations of Sections 9(b) and 9.12(j) of the Act, 415 ILCS 5/9(b) and 9.12(j) (2010), Section 201.142 of the Board Air Pollution Regulations, 35 Ill. Adm. Code 201.142, and Condition 1.4(a) of its Construction Permit;
4. Ordering the Respondent to permanently cease operation of Boiler #4 after expiration of the temporary construction permit, or, in the alternative, obtain a construction permit for Boiler #4 for the period after the construction permit for temporary operation of Boiler

#4 expires;

5. Ordering the Respondent to timely obtain construction permits prior to construction of new emission sources at the West Campus Facility;
6. Ordering the Respondent to pay the air pollution construction permit fee;
7. Assessing against Respondent a civil penalty of fifty thousand dollars (\$50,000.00) for each and every violation of the Act and pertinent regulations, with an additional penalty of ten thousand dollars (\$10,000.00) for each day of violation;
8. Taxing all costs of this action to the Respondents pursuant to Section 42(f) of the Act, 415 ILCS 5/42(f) (2010), including attorney, expert witness, and consultant fees expended by the State in its pursuit of this action; and
8. Granting such other relief as the Board deems appropriate and just.

COUNT II
FAILURE TO COMPLY WITH NEW SOURCE REVIEW REQUIREMENTS

1-20. Complainant realleges and incorporates by reference herein paragraphs 1 through 14 and 16 through 21 of Count I, as paragraphs 1 through 20 of this Count II.

21. Section 9(a) of the Act, 415 ILCS 5/9(a) (2010), provides as follows:

No person shall:

- (a) Cause or threaten or allow the discharge or emission of any contaminant into the environment in any State so as to cause or tend to cause air pollution in Illinois, either alone or in combination with contaminants from other sources, or so as to violate regulations or standards adopted by the Board under this Act.

22. Pursuant to authority granted under the Act, the Board has promulgated standards applicable to the construction and modification of major stationary sources of contaminants at 35 Ill. Adm. Code, Part 203 (“Board Major Stationary Source Regulations”).

23. Section 203.201 of the Board Major Stationary Source Regulations, 35 Ill. Adm.

Code 203.201, provides, in pertinent part, as follows:

Prohibition

In any nonattainment area, no person shall cause or allow the construction of a new major stationary source or major modification that is major for the pollutant for which the area is designated a nonattainment area, except as in compliance with this Part for that pollutant. In areas designated nonattainment for ozone, this prohibition shall apply to new major stationary sources or major modifications of sources that emit volatile organic materials or nitrogen oxides.

24. Section 203.127 of the Board Major Stationary Source Regulations, 35 Ill. Adm.

Code 203.127, provides as follows:

Nonattainment Area

An area designated by USEPA as nonattainment for a given pollutant pursuant to Section 107 of the Clean Air Act (42 U.S.C. 7407).

25. The University's West Campus Facility is located within an area designated by the Illinois EPA as moderate nonattainment for ozone, and therefore it is located within a "nonattainment area" as that term is defined by Section 203.127 of the Board Major Source Regulations, 35 Ill. Adm. Code 203.127.

26. Section 203.206 of the Board Major Stationary Source Regulations, 35 Ill. Adm.

Code 203.127, provides, in pertinent part, as follows:

Major Stationary Source

a) For purposes of this Part, the term "major stationary source" shall exclusively mean "building, structure and facility," as those terms are defined in Section 203.113 of this Part.

b) The following constitute a major stationary source:

* * *

3) For an area designated as nonattainment for ozone, a major stationary source is a stationary source which emits or has

the potential to emit nitrogen oxides in an amount equal to or greater than the following, unless United States Environmental Protection Agency (USEPA) has made a finding under Sections 110 and 182(f) of the Clean Air Act that controlling of emissions of nitrogen oxides from such source shall not be required:

- A) 100 tons per year in an area classified as marginal or moderate nonattainment for ozone,

27. Section 203.112(a) of the Board Major Stationary Source Regulations, 35 Ill.

Adm. Code 203.112(a), provides, in pertinent part, as follows:

Building, Structure and Facility

- a) The terms "building", "structure", and "facility" include all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control).

28. The University's West Campus Facility is a "major stationary source" as that term is defined by Sections 203.206 and 203.112(a) of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.206 and 203.112(a).

29. Section 203.207 of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.207, provides, in pertinent part, as follows:

Major Modification of a Source

- a) Except as provided in subsection (c), (d), (e) or (f) below, a physical change, or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant for which the area is designated a nonattainment area, shall constitute a major modification of a source.

30. The University's Construction Permit contained provisions, including the permanent shutdown of Boilers #1, #2, #3, and #4, designed to prevent an increase in NO_x emissions to levels that would trigger the Board's NSR requirements.

31. The University's operation of Boiler #4 in violation of the Construction Permit, and without a new construction permit being issued by the Illinois EPA, constitutes construction of a new major stationary source or major modification in violation of Section 203.201 of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.201.

32. By violating Section 203.201 of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.201, the University thereby also violated Section 9(a) of the Act, 415 ILCS 5/9(a) (2010).

WHEREFORE, the Complainant, PEOPLE OF THE STATE OF ILLINOIS, respectfully requests that the Pollution Control Board enter an order against the Respondent, THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, with respect to Count II:

1. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations contained herein;
2. Finding the Respondent has violated Section 9(a) of the Act, 415 ILCS 5/9(a) (2010), and Section 203.201 of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.201;
3. Requiring the Respondent to cease and desist, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (2010), from further violations of Section 9(a) of the Act, 415 ILCS 5/9(a) (2010), and Section 203.201 of the Board Major Stationary Source Regulations, 35 Ill. Adm. Code 203.201;
4. Ordering the Respondent to permanently cease operation of Boiler #4 after expiration of the temporary construction permit, or, in the alternative, obtain a construction permit for Boiler #4 for the period after the construction permit for temporary operation of Boiler #4 expires;

5. Ordering the Respondent to comply with the NSR requirements in the future;
6. Assessing against Respondent a civil penalty of fifty thousand dollars (\$50,000.00) for each and every violation of the Act and pertinent regulations, with an additional penalty of ten thousand dollars (\$10,000.00) for each day of violation;
7. Taxing all costs of this action to the Respondents pursuant to Section 42(f) of the Act, 415 ILCS 5/42(f) (2010), including attorney, expert witness, and consultant fees expended by the State in its pursuit of this action; and
8. Granting such other relief as the Board deems appropriate and just.

COUNT III
FAILURE TO TIMELY RENEW A CLEAN AIR ACT PERMIT PROGRAM
(CAAPP) PERMIT

- 1-16. Complainant realleges and incorporates by reference herein paragraphs 1 through 14, 16, and 17 of Count I, as paragraphs 1 through 16 of this Count III.
17. Condition No. 9.14 of the University's CAAPP Permit provides as follows:

Permit Expiration and Renewal

The right to operate terminates on the expiration date unless Permittee has submitted a timely and complete renewal application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(l), (n), and (o) of the Act].

18. Sections 39.5(5)(l) and (n) of the Act, 415 ILCS 5/39.5(5)(l) and (n) (2010), provide as follows:

5. Applications and Completeness

* * *

1. Unless a timely and complete renewal application has been submitted consistent with this subsection, a CAAPP source

operating upon the expiration of its CAAPP permit shall be deemed to be operating without a CAAPP permit. Such operation is prohibited under this Act.

* * *

n. For purposes of permit renewal, a timely application is one that is submitted no less than 9 months prior to the date of permit expiration.

19. Section 39.5(6)(b) of the Act, 415 ILCS 5/39.5(6)(b) (2010), provides as follows:

Prohibitions

* * *

b. After the applicable CAAPP permit or renewal application submittal date, as specified in subsection 5 of this Section, no person shall operate a CAAPP source without a CAAPP permit unless the complete CAAPP permit or renewal application for such source has been timely submitted to the Agency.

20. Section 39.5(1) of the Act, 415 ILCS 5/39.5(1) (2010), provides, in pertinent part, the following definitions:

“CAAPP” means the Clean Air Act Permit Program, developed pursuant to Title V of the Clean Air Act.

* * *

“CAAPP Permit” or “permit” (unless the context suggests otherwise) means any permit issued, renewed, amended, modified or revised pursuant to Title V of the Clean Air Act.

“CAAPP source” means any source for which the owner or operator is required to obtain a CAAPP permit pursuant to subsection 2 of this Section.

21. The University operates the West Campus Facility, a CAAPP source, which is required to have a CAAPP permit for its operation. See Attachment 2, Condition 5.1.1.

22. The University’s CAAPP Permit expired on June 19, 2007.

23. Pursuant to Sections 39.5(5)(l) and (n) of the Act, 415 ILCS 5/39.5(5)(l) and (n)

(2010), and Condition 9.14 of the University's CAAPP Permit, the University was required to submit a timely and complete CAAPP permit renewal application to the Illinois EPA by September 19, 2006, nine (9) months before the June 19, 2007 CAAPP Permit expiration date.

24. The University submitted its CAAPP permit renewal application to the Illinois EPA on or around January 2, 2007, approximately 106 days late.

25. From at least June 19, 2007, when the University's CAAPP Permit expired, through the filing date of this Complaint, the University has operated its West Campus Facility, a CAAPP source, without the required CAAPP permit in violation of Section 39.5(6)(b) of the Act, 415 ILCS 5/39.5(6)(b) (2010).

WHEREFORE, the Complainant, PEOPLE OF THE STATE OF ILLINOIS, respectfully requests that the Pollution Control Board enter an order against the Respondent, THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, with respect to Count III:

1. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations contained herein;
2. Finding the Respondent has violated Section 39.5(6)(b) of the Act, 415 ILCS 5/39.5(6)(b) (2010);
3. Requiring the Respondent to cease and desist, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (2010), from further violations of Section 39.5(6)(b) of the Act, 415 ILCS 5/39.5(6)(b) (2010);
4. Ordering the Respondent to comply with the terms and conditions of its expired CAAPP Permit until a new renewal CAAPP permit is issued;
5. Ordering the Respondent to timely apply for all required, future renewal CAAPP permits;

6. Assessing against the Respondent a civil penalty of Ten Thousand Dollars (\$10,000.00) per day of violation;
7. Taxing all costs of this action to the Respondents pursuant to Section 42(f) of the Act, 415 ILCS 5/42(f) (2010), including attorney, expert witness, and consultant fees expended by the State in its pursuit of this action; and
8. Granting such other relief as the Board deems appropriate and just.

PEOPLE OF THE STATE OF ILLINOIS,
ex rel. LISA MADIGAN, Attorney
General of the State of Illinois,

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

By: Elizabeth Wallace /rb
ELIZABETH WALLACE, Chief
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***** PCB 2013-036 *****

217/782-2113

CONSTRUCTION PERMIT -- NSPS SOURCE

PERMITTEE

University of Illinois at Chicago
Attn.: Lyle D. Wachtel
1140 South Morgan Street
Chicago, Illinois 60607

Application No.: 98100093 I.D. No.: 031600CRS
Applicant's Designation: Date Received: October 13, 1998
Subject: Gas Turbines (3) and Natural Gas Engines (3)
Date Issued: April 29, 1999
Location: West Campus, 1717 West Taylor Street, Chicago, 60612

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of three 5 MW natural gas-fired gas turbines (each with an 88 mmBtu/hr duct burner), three 7 MW natural gas-fired engines each controlled by catalytic converter, and catalytic converters controlling two existing 6.3 MW dual fuel-fired engines as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1.0 OVERALL SOURCE CONDITIONS

1.1 Source Description

- 1.1.1 This permit is issued based on the source not being a major source of HAPs.
- 1.1.2 For purposes of the Clean Air Act Permit Program (CAAPP), the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and the Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 Ill. Adm. Code Part 203, the University of Illinois at Chicago West Campus (Medical School) is considered a single source with the University of Illinois at Chicago East Campus (Circle Campus), I.D. No. 031600CEV located at 1140 S. Morgan St. in Chicago. The source has elected to obtain separate CAAPP permits for these locations.

1.2 Applicable Regulations

- 1.2.1 Specific emission units at this source are subject to particular regulations as set forth in Special Condition No. 2.0 (Unit-Specific Conditions) of this permit.
- 1.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:
 - a. No person shall cause or allow the emission of fugitive particulate matter from any process,



including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 Ill. Adm. Code 212.301 and 212.314.

- b. The emission of smoke or other particulate matter from any emission unit shall not exceed an opacity of greater than 30 percent, except that an opacity of greater than 30 percent but less than 60 percent shall be allowed for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 feet) radius from the center point of any other such emission unit owned or operated by the Permittee, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period, pursuant to 35 Ill. Adm. Code 212.123 and 212.124.

1.3 Non-Applicability of Regulations of Concern

None

1.4 Source-Wide Operational and Production Limits and Work Practices

In addition to the source-wide requirements in the Standard Permit Conditions attached hereto, the Permittee shall fulfill the following source-wide operational and production limitations and/or work practice requirements:

- a. The four existing natural gas/No. 6 residual fuel oil-fired boilers (Boilers #1, #2, #3, and #4) located at 1717 West Taylor Street in Chicago (I.D. No. 031600CRS) shall permanently cease operation prior to the initial startup of the three natural gas-fired gas turbines, the three natural gas-fired duct burners, and three natural gas-fired engines controlled by catalytic converters.
- b. The installation new catalytic converters for the two existing dual fuel-fired engines (East Campus Engine Generators #1 and #2) located at 1134 S. Morgan Street in Chicago (I.D. No. 031600CEV) shall be commenced prior to the initial startup of the three natural gas-fired gas turbines, the three natural gas-fired duct burners, and three natural gas-fired engines controlled by catalytic converters.

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1.5 Source-Wide Emission Limitations

1.5.1 Emissions of Hazardous Air Pollutants

This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the Clean Air Act (CAA) not being equal to or exceeding 10 tons per year of a single HAP or 25 tons per year of any combination of such HAPs, so that this source is considered a minor source for HAPs.

1.5.2 Other Source-Wide Emission Limitations

- a. The limits on emissions of CO, NO_x, PM₁₀, SO₂, and VOM have been established pursuant to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and the Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 Ill. Adm. Code Part 203. These limits ensure that the construction/modification addressed in this Construction Permit does not constitute a new major source or major modification pursuant to 35 Ill. Adm. Code Part 203. See Special Condition Nos. 2.1.6, 2.2.6, and 2.3.6.
- b. The emission units with contemporaneous increases in emissions of CO, NO_x, PM₁₀, SO₂, and VOM are described in Table 1 of Attachment A. The emission units or activities used to decrease emissions are described in Tables 2 and 3 of Attachment A. The net change in emissions is described in Table 4 of Attachment A.

1.6 General Recordkeeping Requirements

1.6.1 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 1.5.1, pursuant to Section 39.5(7)(b) of the Act:

Total annual emissions on a calendar year basis for the emission units covered by Section 2.0 (Unit Specific Conditions) of this permit.

1.6.2 NSPS Recordkeeping

- a. Any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility [40 CFR 60.7(b)]
- b. Any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain a file of all performance testing measurements and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be

retained for at least two years following the date of such measurements, reports, and records [40 CFR 60.7(e)].

1.6.3 Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

1.7 General Reporting Requirements

1.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Illinois Environmental Protection Act (Act). Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

1.7.2 NSPS Reporting Requirements

Pursuant to 40 CFR 60.7(a), Any owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Illinois EPA and USEPA written notification as follows:

- a. A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form [40 CFR 60.7(a)(1)].
- b. A notification of the anticipated date of initial startup of an affected facility postmarked not more than 60 days nor less than 30 days prior to such date [40 CFR 60.7(a)(2)].
- c. A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date [40 CFR 60.7(a)(3)].

1.7.3 Reporting for Emissions Decreases/Increases

The Permittee shall notify the Illinois EPA in writing of the actual dates of the following events within 15 days after each such event:

- a. The date that each of the four existing natural gas/No. 6 residual fuel oil-fired boilers (Boilers #1, #2, #3, and #4) ceases operation;
- b. The date that construction/installation of the new catalytic converters for the two existing dual fuel-fired engines (East Campus Engine Generators #1 and #2) located at 1134 S. Morgan Street in Chicago (I.D. No. 031600CEV) is commenced; and
- c. The date that the new Gas Turbines, Duct Burners, and Generators initially begin operation.

1.8 General Operational Flexibility/Anticipated Operating Scenarios

N/A

1.9 General Compliance Procedures

N/A

2.0 UNIT SPECIFIC CONDITIONS

2.1 Units GT/DB1-3 Gas Turbine/Duct Burner #1, #2, and #3

2.1.1 Description

Gas Turbines will be used at this source to produce power and steam. The turbines are natural gas fired, each with a maximum rating of 7 MW. The turbines are each equipped with a duct burner rated at 88 mmBtu/hr to boost exhaust temperatures for steam production.

2.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
GT1	Solar Taurus 70-T9702 or Equivalent 7 MW Natural Gas-Fired Turbine (Gas Turbine #1)	None
DB1	88 mmBtu/hr Natural Gas-Fired Duct Burner (Duct Burner #1)	None
GT2	Solar Taurus 70-T9702 or Equivalent 7 MW Natural Gas-Fired Turbine (Gas Turbine #2)	None
Emission Unit	Description	Emission Control Equipment

DB2	88 mmBtu/hr Natural Gas-Fired Duct Burner (Duct Burner #2)	None
GT3	Solar Taurus 70-T9702 or Equivalent 7 MW Natural Gas-Fired Turbine (Gas Turbine #3)	None
DB3	88 mmBtu/hr Natural Gas-Fired Duct Burner (Duct Burner #3)	None

2.1.3 Applicability Provisions and Applicable Regulations

- a. Gas Turbines/Duct Burners #1, #2, and #3 are "affected gas turbines" for the purpose of these unit-specific conditions.
- b. Each affected gas turbine is subject to the emission limits identified in Special Condition No. 1.2.
- c. The affected gas turbines are subject to the New Source Performance Standard (NSPS) for Stationary Gas Turbines, 40 CFR 60 Subparts A and GG, because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour (10 mmBtu/hr), based on the lower heating value of the fuel fired and the gas turbine commenced construction, modification, or reconstruction after October 3, 1977, and that has a peak load less than or equal to 107.2 gigajoules per hour (100 mmBtu/hr). The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.
 - i. Pursuant to 40 CFR 60.332(a)(2) and 60.332(c), no owner or operator of an affected gas turbine with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall cause to be discharged into the atmosphere from such gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.015 \frac{(14.4)}{Y} + F$$

Where:

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for

the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen calculated from the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NO _x percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	0.04 (N)
$0.1 < N \leq 0.25$	$0.04 + 0.0067(N - 0.1)$
$N > 0.25$	0.005

where:

N = the nitrogen content of the fuel (percent by weight) determined in accordance with Special Condition No. 2.1.7(e).

ii. Standard for Sulfur Dioxide

- A. No owner or operator subject to the provisions of 40 CFR 60 Subpart GG shall cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis [40 CFR 60.333(a)].
- B. No owner or operator subject to the provisions of 40 CFR 60 Subpart GG shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight [40 CFR 60.333(b)].
- d. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, [35 Ill. Adm. Code 214.301].
- e. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exemption: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material [35 Ill. Adm. Code 218.301].

2.1.4 Non-Applicability of Regulations of Concern

- a. The affected gas turbines are not subject to 35 Ill.

Adm. Code 216.121, emissions of carbon monoxide from fuel combustion emission units, because the affected gas turbines are not by definition fuel combustion emission units.

- b. The affected gas turbines are not subject to 35 Ill. Adm. Code 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected gas turbines are not by definition fuel combustion emission units.
- c. This permit is issued based on the affected gas turbines not being subject to 35 Ill. Adm. Code 212.321 because due to the unique nature of this processes, such rules cannot reasonably be applied.
- d. The affected gas turbines are not subject to 35 Ill. Adm. Code 212.324, Process Emission Units In Certain Areas, because the source is not located in a non-attainment area for PM₁₀, as identified in 35 Ill. Adm. Code 212.324(a)(1).

2.1.5 Operational and Production Limits and Work Practices

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected gas turbine in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or the USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source [40 CFR 60.11(d)].
- b. The affected gas turbines shall only be operated with natural gas as the fuel.

2.1.6 Emission Limitations

In addition to the source wide limitations in Special Condition No. 1.5, the affected gas turbines are subject to the following:

- a. Emissions and operation of affected gas turbines shall not exceed the following limits:

i. Fuel Usage:

<u>Unit</u>	Fuel Usage (Mft ³ /mo)	Fuel Usage (Mft ³ /yr)
Gas Turbines #1-#3 (combined)	322.89	1,937.34
Duct Burners #1-#3 (combined)	280.91	1,685.43

ii. Emissions of Carbon Monoxide (CO) and Volatile Organic Material (VOM):

<u>Unit</u>	E M I S S I O N S			
	CO		VOM	
	<u>Ton/mo</u>	<u>Ton/yr</u>	<u>Ton/mo</u>	<u>Ton/yr</u>
Gas Turbines #1-#3 (combined)	17.73	106.36	1.42	8.54
Duct Burners #1-#3 (combined)	10.11	60.68	2.40	14.41
Totals		167.04		22.95

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the maximum annual fuel usage, and a lower heating value heat content of natural gas of 900 Btu/ft³.

iii. Emissions of Nitrogen Oxides (NO_x) and Sulfur Dioxide (SO₂):

<u>Unit</u>	NO _x		SO ₂	
	<u>Ton/mo</u>	<u>Ton/yr</u>	<u>Ton/mo</u>	<u>Ton/yr</u>
Gas Turbines #1-#3 (combined)	14.53	87.18	1.37	8.19
Duct Burners #1-#3 (combined)	13.90	83.43	0.08	0.46
Totals		170.61		8.65

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the standard emission factor for SO₂ for both the gas turbine and duct burner, the maximum firing rates, and a lower heating value heat content of natural gas of 900 Btu/ft³.

iv. Emissions of Particulate Matter less than 10 Microns (PM₁₀):

<u>Unit</u>	PM ₁₀	
	<u>Ton/mo</u>	<u>Ton/yr</u>
Gas Turbines #1 - #3 (combined)	3.63	21.77
Duct Burners #1 - #3 (combined)	1.26	7.58

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Totals

29.35

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the maximum annual fuel usage, and a lower heating value heat content of natural gas of 900 Btu/ft³.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- c. The above limitations were established pursuant to 35 Ill. Adm. Code Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned Construction Permit does not constitute a new major source or major modification pursuant to Title I of the Clean Air Act, specifically, 35 Ill. Adm. Code Part 203 and the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.
- d. The emission units with contemporaneous increases in emissions of CO, NO_x, PM₁₀, SO₂, and VOM are described in Table 1 of Attachment A. The emission units or activities used to decrease emissions are described in Tables 2 and 3 of Attachment A. The net change in emissions is described in Table 4 of Attachment A.

2.1.7 Testing Requirements

- a. To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Illinois EPA or the USEPA to determine the nitrogen content of the fuel being fired [40 CFR 60.335(a)].
- b. In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of 40 CFR Part 60 or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in 40 CFR 60.335(f) [40 CFR 60.335(b)].
- c. Pursuant to 40 CFR 60.335(c), the owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Special Condition Nos. 2.1.3(c)(i) and (ii) (see also 40 CFR 60.332 and 60.333(a)) as follows:

- i. Pursuant to 40 CFR 60.335(c)(1), the nitrogen oxides emission rate (NO_x) shall be computed for each run using the following equation:

$$NO_x = (NO_{xo})(P_r/P_o)^{0.5} e^{19(H_o - 0.00633)} (288^\circ K/T_a)^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{xo} = observed NO_x concentration, ppm by volume.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mmHg.

P_o = observed combustor inlet absolute pressure at test, mm Hg.

H_o = observed humidity of ambient air, g H_2O/g air.

e = transcendental constant, 2.718.

T_a = ambient temperature, °K.

- ii. The monitoring device of Special Condition No. 2.1.8(a) (see also 40 CFR 60.334(a)) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with Special Condition No. 2.1.3(c)(i) (see also 40 CFR 60.332) at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer [40 CFR 60.335(c)(2)].
- iii. Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO_x emissions shall be determined at each of the load conditions specified in Special Condition No. 2.1.7(c)(ii) (see also 40 CFR 60.335(c)(2)) [40 CFR 60.335(c)(3)].
- d. The owner or operator shall determine compliance with the sulfur content standard in Special Condition No. 2.1.3(c)(ii) (see also 40 CFR 60.333(b)) as follows: ASTM D 2880-71 shall be used to determine the sulfur

content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Illinois EPA and/or USEPA [40 CFR 60.335(d)].

- e. To meet the requirements of Special Condition No. 2.1.8(b) (see also 40 CFR 60.334(b)), the owner or operator shall use the methods specified in Special Condition Nos. 2.1.7(a) and (d) (see also 40 CFR 60.335(a) and (d)) to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency [40 CFR 60.335(e)].
- f. Pursuant to 40 CFR 60.335(f), the owner or operator may use the following as alternatives to the reference methods and procedures specified in Special Condition No. 2.1.7 (see also 40 CFR 60.335):

Instead of using the equation in Special Condition No. 2.1.7(b)(i) (see also 40 CFR 60.335(b)(1)), manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in 40 CFR 60.8 to ISO standard day conditions. These factors are developed for each gas turbine model they manufacture in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They shall be substantiated with data and must be approved for use by the Illinois EPA and/or USEPA before the initial performance test required by 40 CFR 60.8. Notices of approval of custom ambient condition correction factors will be published in the Federal Register [40 CFR 60.335(f)(1)].

2.1.8 Monitoring Requirements

- a. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60 Subpart GG and using water injection to control NO_x emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within ±5.0 percent and shall be approved by the Illinois EPA and/or USEPA [40 CFR 60.334(a)].

- b. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60 Subpart GG shall monitor sulfur content and nitrogen content of the fuel being fired in an affected gas turbine. The frequency of determination of these values shall be determined and recorded daily if the turbine is supplied its fuel without intermediate bulk storage. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Illinois EPA and/or USEPA before they can be used [40 CFR 60.334(b)(2)].

2.1.9 Recordkeeping Requirements

In addition to the records required by Special Condition No. 1.6, the Permittee shall maintain records of the following items for the affected gas turbines to demonstrate compliance with Special Condition Nos. 1.5, 2.1.3, 2.1.5, and 2.1.6, pursuant to Section 39.5(7)(b) of the Act:

- a. An operating log for each affected gas turbine that includes the information required by Special Condition No. 1.6.2(a) (see also 40 CFR 60.7(b)).
- b. A file that includes the information required by Special Condition No 1.6.2(b) (see also 40 CFR 60.7(e)), including the nitrogen content of the fuel relied upon, if greater than zero, to determine the applicable standard pursuant to Special Condition No. 2.1.3(c)(i) and show compliance with such standard and the hourly emission limit pursuant to Special Condition No. 2.1.6.
- c. Records of the testing pursuant to Special Condition No. 2.1.7, which include the following [Section 39.5(7)(e) of the Act]:
 - i. The date, place and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.

- d. Natural gas fuel usage for each affected gas turbine, ft³/mo and ft³/yr;
- e. The nitrogen content of the fuel to be used in the affected gas turbine recorded on a daily basis, except as provided in Special Condition No. 2.1.8(b);
- f. The sulfur content of the fuel to be used in the affected gas turbine as monitored pursuant to Special Condition No. 2.1.8(b);
- g. The heat content of the fuel used in the affected gas turbine, Btu/ft³; and
- h. Monthly and annual aggregate CO, NO_x, PM₁₀, SO₂, and VOM emissions from the affected gas turbines shall be maintained, based on fuel consumption and the applicable emission factors, with supporting calculations.

2.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected gas turbine with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Pursuant to 40 CFR 60.334(c), periods of excess emissions that shall be reported are defined as follows:
 - i. Nitrogen oxides. Any period in which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required by Special Condition No. 2.1.7. Each report shall include the average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Special Condition No. 2.1.7(a) (see also 40 CFR 60.335(a) [40 CFR 60.334(c)(1)]).
 - ii. Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine may not comply with Special Condition No. 2.1.3(c)(ii) [40 CFR 60.334(c)(2)].

- b. Emissions of CO, NO_x, PM₁₀, SO₂, and/or VOM from the affected gas turbine in excess of the limits specified in Special Condition No. 2.1.6 based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

2.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

2.1.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Special Condition No. 2.1.9 and the emission factors and formulas listed below:

- a. To determine compliance with Special Condition Nos. 1.5 and 2.1.6, natural gas combustion emissions from the Gas Turbines #1, #2, and #3 shall be calculated based on the following emission factors:

- i. Carbon Monoxide (CO), Nitrogen Oxide (NO_x), and Volatile Organic Material (VOM) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
CO	0.122
NO _x	0.10
PM ₁₀	0.024
VOM	0.0098

These are the factors for uncontrolled emission factors for the Solar Model Taurus 70-T9702S natural gas-fired gas turbine based on the lower heating value of natural gas and were supplied by the manufacturer/vender.

Gas Turbine Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

- ii. Sulfur Dioxide (SO₂) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
SO ₂	0.94 S

This is the emission factor for uncontrolled gas turbines, Table 3.1-1, AP-42, Volume 1, Fifth Edition, October, 1996. S indicates that the weight % sulfur in the fuel should be multiplied by the value given.

Gas Turbine Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

b. To determine compliance with Special Condition Nos. 1.5 and 2.1.6, natural gas combustion emissions from the Duct Burners #1, #2, and #3 shall be calculated based on the following emission factors:

i. Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Particulate Matter less than 10 Microns (PM₁₀), and Volatile Organic Material (VOM) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
CO	0.08
NO _x	0.11
PM ₁₀	0.01
VOM	0.019

These are the factors for uncontrolled emission from the natural gas-fired duct burners based on the lower heating value of natural gas as provided by the manufacturer/vender.

Duct Burner Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

ii. Sulfur Dioxide (SO₂) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/Mft³)</u>
SO ₂	0.0006

This is the emission factor for uncontrolled natural gas combustion in small boilers (< 100 mmBtu/hr), Table 1.4-2, AP-42, Volume 1, Fifth Edition, Supplement D March, 1998.

Duct Burner Emissions (lb) = (Natural Gas Consumed, ft³) x (1 ft³/1,000,000 Mft³) x (The Appropriate Emission Factor, lb/Mft³)

2.2 Units EG1WC - EG3WC West Campus Engine Generators #1 - #3
 Controls EG1WC - EG3WC Catalytic Converters

2.2.1 Description

Natural gas-fired reciprocating engines will be used at the source to produce electricity and power. Each engine has a maximum power output of 5 MW. Engine Generators #1, #2,

and #3 at the West Campus are equipped with low temperature catalytic converters to control carbon monoxide and volatile organic material emissions.

2.2.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
EG1WC	Wartsila Model No. 18V28 or Equivalent 5 MW Natural Gas-Fired Engine (West Campus Engine Generator #1)	Catalytic Converter
EG2WC	Wartsila Model No. 18V28 or Equivalent 5 MW Natural Gas-Fired Engine (West Campus Engine Generator #2)	Catalytic Converter
EG3WC	Wartsila Model No. 18V28 or Equivalent 5 MW Natural Gas-Fired Engine (West Campus Engine Generator #3)	Catalytic Converter

2.2.3 Applicability Provisions and Applicable Regulations

- a. West Campus Engine Generators #1, #2, and #3 are "affected engines" for the purpose of these unit-specific conditions.
- b. Each affected engine is subject to the emission limits identified in Special Condition No. 1.2.
- c. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, [35 Ill. Adm. Code 214.301].
- d. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exemption: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material [35 Ill. Adm. Code 218.301].

2.2.4 Non-Applicability of Regulations of Concern

- a. The affected engines are not subject to 35 Ill. Adm. Code 216.121, emissions of carbon monoxide from fuel combustion emission units, because the affected engines are not by definition fuel combustion emission units.
- b. The affected engines are not subject to 35 Ill. Adm. Code 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual

heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected engines are not by definition fuel combustion emission units.

- c. This permit is issued based on the affected engines not being subject to 35 Ill. Adm. Code 212.321 because due to the unique nature of this processes, such rules cannot reasonably be applied.
- d. The affected engines are not subject to 35 Ill. Adm. Code 212.324, Process Emission Units In Certain Areas, because the source is not located in a non-attainment area for PM₁₀, as identified in 35 Ill. Adm. Code 212.324(a)(1).

2.2.5 Operational and Production Limits and Work Practices

- a. The catalytic converters shall be operated to control emissions of carbon monoxide (CO) and volatile organic material (VOM) at all times the affected engines are operated.
- b. The Permittee shall follow good operating practices for the catalytic converters, including periodic inspection, routine maintenance and prompt repair of defects.
- c. The affected engines shall only be operated with natural gas as the fuel.

2.2.6 Emission Limitations

In addition to the source wide limitations in Special Condition No. 1.5, the affected engine is subject to the following:

- a. Emissions and operation of the affected engines shall not exceed the following limits:

i. Operation and Power Output:

Unit	Rated Output (MW)	Operating Hours (Hours/year)
Generator #1	5	3,066
Generator #2	5	3,066
Generator #3	5	3,066

ii. Emissions:

A. Hourly Emissions:

Unit	CO lb/hr	NO _x lb/hr	PM ₁₀ lb/hr	SO ₂ lb/hr	VOM lb/hr
Generator #1	6.52	7.24	0.74	4.23	4.69
Generator #2	6.52	7.24	0.74	4.23	4.69

Generator #3 6.52 7.24 0.74 4.23 4.69

B. Annual Emissions:

Unit	CO Ton/yr	NO _x Ton/yr	PM ₁₀ Ton/yr	SO ₂ Ton/yr	VOM Ton/yr
Generator #1	10.00	11.10	1.13	6.49	7.19
Generator #2	10.00	11.10	1.13	6.49	7.19
Generator #3	10.00	11.10	1.13	6.49	7.19
Totals	30.00	33.30	3.39	19.47	21.57

iii. These limits are based on representations of the maximum actual emissions determined from the guaranteed uncontrolled emission rates for CO, NO_x, PM₁₀, and VOM supplied by the manufacturer/vendor of the affected engines, the rated power output, and the maximum operating hours of the engines.

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

c. The above limitations were established pursuant to 35 Ill. Adm. Code Part 203 and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned Construction Permit does not constitute a new major source or major modification pursuant to Title I of the Clean Air Act, specifically, 35 Ill. Adm. Code Part 203 and the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.

d. The emission units with contemporaneous increases in emissions of CO, NO_x, PM₁₀, SO₂, and VOM are described in Table 1 of Attachment A. The emission units or activities used to decrease emissions are described in Tables 2 and 3 of Attachment A. The net change in emissions is described in Table 4 of Attachment A.

2.2.7 Testing Requirements

None

2.2.8 Monitoring Requirements

The Permittee shall install and operate a continuous monitoring system to monitor and record the electrical output of the affected engine.

2.2.9 Recordkeeping Requirements

In addition to the records required by Special Condition No. 1.6, the Permittee shall maintain records of the following items for the affected engines to demonstrate compliance with Special Condition Nos. 1.5, 2.2.3, 2.2.5 and 2.2.6 pursuant to Section 39.5(7)(b) of the Act:

- a. Records addressing use of good operating practices for the catalytic converters:
 - i. Records for periodic inspection of the catalytic converters with date, individual performing the inspection, and nature of inspection; and
 - ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
- b. Electric output of each affected engine, kW-hr/mo, and kW-hr/yr;
- c. Monthly and annual aggregate CO, NO_x, PM, SO₂, and VOM emissions from the affected engines shall be maintained, based on the electrical output of the affected engine and the applicable emission factors, with supporting calculations.

2.2.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected engine with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Continued operation of an affected engine with a defect in the low temperature catalytic converters that may result in emissions in excess of limits in Special Condition No. 2.2.3(d) and/or 2.2.6(a)(ii) within 30 days of such an occurrence.
- b. Emissions of CO, NO_x, PM₁₀, SO₂, and/or VOM in excess of the limits in Special Condition No. 2.2.6(a)(ii) based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.
- c. Operation of an affected engine in excess of the limit for operating hours in Special Condition No. 2.2.6(a)(i) within 30 days of such an occurrence.

2.2.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

2.2.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Special Condition No. 2.2.9 and the emission factors and formulas listed below:

- a. Compliance with Special Condition Nos. 2.2.3(b) and (c) is assumed by the work-practices inherent in operation of natural gas-fired engines.
- b. Compliance with Special Condition No. 2.2.3(c) is assumed to be demonstrated by operation of the catalytic converters as specified in Special Condition Nos. 2.2.5(a) and (b).
- c. Compliance with the emission limits of Special Condition Nos. 1.5 and 2.2.6(a)(ii) shall be based on the emission factors listed below:

i. SO₂ Emissions:

<u>Pollutant</u>	<u>Emission Factor (g/kW-hr)</u>
SO ₂	0.384

This is the uncontrolled emission factors for the Wartsila Model 18V28 natural gas reciprocating engine and were supplied by the manufacturer/vendor.

Generator Emissions (lb) = (Electrical Output, kW-hr) x (The Appropriate Emission Factor, g/kW-hr) x (1 lb/453.59 g)

- ii. The emissions of CO, NO_x, PM₁₀, and VOM from each affected engine shall be determined based on the uncontrolled hourly emission rates of 38.3614, 7.242, 0.739, and 17.3712 lb/hr, respectively, which are the emission rates guaranteed by the manufacturer/vendor.

2.3 Units G1EC & G2EC East Campus Engine Generators #1 and #2
 Controls G1EC & G2EC Catalytic Converters

2.3.1 Description

Generators #1 and #2 produce electricity and hot water for the University of Illinois at Chicago's East Campus (Circle Campus) by using low speed reciprocating engines. These generators are designed to operate normally on natural gas with a diesel fuel oil mode. In an emergency situation, these engines make use of No. 2 fuel oil. These engines were originally constructed in 1990 and will now be equipped with catalytic converters to control carbon monoxide and volatile organic material emissions.

2.3.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
G1EC	Cooper Bessemer Model LSVB-20-GDC 6.3 MW (8,710 bhp) Natural Gas/Diesel Fuel Fired Engines (East Campus Engine Generator #1)	Catalytic Converter
G2EC	Cooper Bessemer Model LSVB-20-GDC 6.3 MW (8,710 bhp) Natural Gas/Diesel Fuel Fired Engines (East Campus Engine Generator #2)	Catalytic Converter

2.3.3 Applicability Provisions and Applicable Regulations

- a. East Campus Engine Generators #1 and #2 are "affected engines" for the purpose of these unit-specific conditions.
- b. Each affected engine is subject to the emission limits identified in Special Condition No. 1.2.
- c. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, [35 Ill. Adm. Code 214.301].
- d. Pursuant to 35 IAC 214.122(b)(2) and 214.304, no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from the burning of fuel at process emission units located in the Chicago major metropolitan area with actual heat input smaller than, or equal to 73.2 MW (250 mmBtu/hr), burning liquid fuel exclusively to exceed 0.46 kg of sulfur dioxide per MW-hr of actual input when distillate fuel oil is burned (0.3 lb/mmBtu).
- e. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exemption: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material [35 Ill. Adm. Code 218.301].

2.3.4 Non-Applicability of Regulations of Concern

- a. The affected engines are not subject to 35 Ill. Adm. Code 216.121, emissions of carbon monoxide from fuel combustion emission units, because the affected engines are not by definition fuel combustion emission units.

- b. The affected engines are not subject to 35 Ill. Adm. Code 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected engines are not by definition fuel combustion emission units.
- c. This permit is issued based on the affected engines not being subject to 35 Ill. Adm. Code 212.321 because due to the unique nature of this processes, such rules cannot reasonably be applied.
- d. The affected engines are not subject to 35 Ill. Adm. Code 212.324, Process Emission Units In Certain Areas, because the source is not located in a non-attainment area for PM₁₀, as identified in 35 Ill. Adm. Code 212.324(a)(1).

2.3.5 Operational and Production Limits and Work Practices

- a. The catalytic converters shall be operated to control emissions of carbon monoxide (CO) and volatile organic material (VOM) at all times the affected engines are operated.
- b. The Permittee shall follow good operating practices for the catalytic converters, including periodic inspection, routine maintenance and prompt repair of defects.
- c. The affected engines shall only be operated with natural gas and No. 2 distillate fuel oil (diesel) as the fuels.
- d. Distillate fuel oil (Grades No. 1 and 2) with a sulfur content greater than the larger of the following two values shall not be used in an affected engines:
 - i. 0.28 weight percent, or
 - ii. The Wt percent given by the formula: Maximum Wt percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).
- e. The exhaust from the affected engines, following passage through the steam boilers, shall be released to the atmosphere at a height of at least 88 feet.

2.3.6 Emission Limitations

In addition to the source wide limitations in Special Condition No. 1.5, the affected engines are subject to the following:

- a. i. Emissions of nitrogen oxides (NO_x) and carbon monoxide (CO) shall be controlled by use of

clean burn technology applied to a fuel which under normal operation is no more than 1.5% by heat content oil with the remainder being natural gas.

- ii. Emissions an operation of each affected engine shall not exceed the following limits. The limits in grams per brake horsepower hour (g/bhp-hr) apply at the maximum load of the affected engines. The limits in pounds per hour (lb/hr) apply at all times. Compliance with these limits shall be determined by emissions testing conducted in accordance with Special Condition No. 2.3.7, monitoring of operation in accordance with Special Condition No. 2.3.8, and records kept in accordance with Special Condition No. 2.3.9.

Special Condition No. 2.3.6(a) represents the application of Best Available Control Technology to this project in accordance with the applicable requirements of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.

<u>Contaminant</u>	<u>g/bhp-hr</u>	<u>lb/hr</u>
NO _x	1.9	36.5

- iii. Emissions of each affected engine shall not exceed the following limits. Compliance with annual limits shall be determined from a running total of 12 months of data.

<u>Contaminant</u>	<u>lb/hr</u>	<u>Ton/year</u>
NO _x	36.5	160.0
PM	38.4	168.0
SO ₂	0.18	0.8

- iv. The above limitations were established in Construction Permit 90010028, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned Construction Permit complies with the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.

- b. i. Emissions of carbon monoxide (CO) and volatile organic material (VOM) shall not exceed the following limits:

<u>Unit</u>	<u>E M I S S I O N S</u>		<u>C O V O M</u>	
	<u>lb/hr</u>	<u>Ton/yr</u>	<u>lb/hr</u>	<u>Ton/yr</u>
Generator #1	5.04	20.04	2.49	9.90
Generator #2	5.12	19.67	1.53	5.88

Totals	39.71	15.78
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- ii. These limits are based on the results of stack testing and the application of the catalytic converters with minimum control efficiencies of 85% for CO and 70% for VOM.
- iii. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- iv. The above limitations contain revisions to previously issued construction permit 90010028. The source has requested that the Illinois EPA establish conditions in this construction permit that allow various refinements from the conditions of the aforementioned construction permit (90010028), consistent with the information provided in this construction permit application (98100093). The source has requested these revisions and has addressed the applicability and compliance of Title I of the Clean Air Act, specifically, 35 Ill. Adm. Code Part 203, Major Stationary Sources Construction and Modification and/or 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits continue to ensure that the construction and/or modification addressed in the aforementioned construction permit (90010028) complies with the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. These limits are the primary enforcement mechanism for the equipment and activities permitted in the aforementioned construction permit (90010028) and the information in this construction permit application (98100093) contains the most current and accurate information for the source. Specifically, the permitted emissions of CO and VOM from the affected have been reduced from 336 tons/year and 87.6 tons/year, respectively to account for the addition of the catalytic converters.
- c. The emission units with contemporaneous increases in emissions of CO, NO_x, PM₁₀, SO₂, and VOM are described in Table 1 of Attachment A. The emission units or activities used to decrease emissions are described in Tables 2 and 3 of Attachment A. The net change in emissions is described in Table 4 of Attachment A.

2.3.7 Testing Requirements

- a. Within 180 days of the initial startup of the affected engines after the installation of the catalytic

converters, emissions of carbon monoxide, nitrogen oxides, particulate matter, and volatile organic material shall be measured during representative steady state operation. Any adjustments to affected engine operation necessary to comply with Special Condition No. 2.3.6 at four points in the normal operating range of the affected engines, including minimum point in the range and peak load, shall be determined during these tests. The ductwork from the affected engines shall include a properly located test port so that the emissions from the affected engines may be tested.

- b. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, and 40 CFR 61, Appendix B, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
Particulate Matter	USEPA Method 5
Nitrogen Oxides	USEPA Method 7
Carbon Monoxide	USEPA Method 10
Volatile Organic Material	USEPA Method 25 (25A if outlet VOM cont. < 50 ppmv as C non-CH ₄)

2.3.8 Monitoring Requirements

- a. The Permittee shall install, maintain, calibrate and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of diesel fuel to natural gas.
- b. The Permittee shall install, maintain, and operate a continuous monitoring system for the concentration of nitrogen oxides in the ambient air.
 - i. This monitoring equipment shall be installed at a representative location in the vicinity of the affected engines. The equipment shall operate so as to provide data for at least two calendar years following the installation of the affected engines.
 - ii. The monitoring activity shall be conducted in conformance with applicable requirements of 40 CFR Parts 50 and 52. The monitoring activity, including location, specific equipment, and operating and calibration procedures shall be approved in advance by the Illinois EPA to assure compliance with 40 CFR Parts 50 and 52. All communication with regard to this monitoring activity shall be directed to the Air Monitoring

Section of the Illinois EPA's Division of Air
Pollution Control.

2.3.9 Recordkeeping Requirements

In addition to the records required by Special Condition No. 1.6, the Permittee shall maintain records of the following items for the affected boiler to demonstrate compliance with Special Condition Nos. 1.5, 2.3.3, 2.3.5, and 2.3.6 pursuant to Section 39.5(7)(b) of the Act:

- a. Records of the testing pursuant to Special Condition No. 2.3.7, which include the following [Section 39.5(7)(e) of the Act]:
 - i. The date, place and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.
- b. The Permittee shall maintain records for the continuous monitoring equipment as follows:
 - i. A permanent record of the output of the continuous monitoring systems required by Special Condition No. 2.3.8(a); and
 - ii. A record of maintenance, calibration and operational activity associated with the continuous monitoring equipment.
- c. Records addressing use of good operating practices for the catalytic converters:
 - i. Records for periodic inspection of the catalytic converters with date, individual performing the inspection, and nature of inspection; and
 - ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
- d. Power output of each affected engine, bhp-hr/mo and bhp-hr/yr;
- e. Diesel fuel usage for the affected engines, gal/mo and

gal/yr;

- f. Natural gas fuel usage for the affected engines, Mft³/mo and Mft³/yr;
- g. The operating schedule of each affected engine; and
- h. Records of the monthly and annual aggregate CO, NO_x, PM, SO₂, and VOM emissions from the affected engines shall be maintained, based on power output and the applicable emission factors, with supporting calculations.

2.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of the affected engine with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Continued operation of an affected engine with a defect in a catalytic converter that may result in emissions in excess of limits in Special Condition No. 2.3.6(b) within 30 days of such an occurrence.
- b. Emissions of CO, NO_x, PM₁₀, SO₂, and/or VOM in excess of the limits in Special Condition No. 2.3.6 based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

2.3.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

2.3.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Special Condition No. 2.3.9 and the emission factors and formulas listed below:

- a. Compliance with Special Condition Nos. 2.3.3(b) and (c) is assumed by the work-practices inherent in operation of a natural gas/diesel fuel fired engines.
- b. Compliance with Special Condition No. 2.3.3(d) is assumed to be demonstrated by operation of the affected engines with distillate fuel oil with a sulfur content meeting the specification of Special Condition No. 2.3.5(d).

c. Compliance with Special Condition No. 2.3.3(e) is assumed to be demonstrated by operation of the catalytic converters as specified in Special Condition Nos. 2.3.5(a) and (b).

d. To determine compliance with Special Condition Nos. 1.5 and 2.3.6, emissions from the affected engines shall be calculated based on the following emission factors and formulas:

i. East Campus Generator #1 at Normal Operation (i.e., 98.5% natural gas and 1.5% diesel fuel firing):

A. Emissions of nitrogen oxides (NO_x), particulate matter (PM), and sulfur dioxide (SO₂):

<u>Pollutant</u>	<u>Emission Factor (lb/hr)</u>
NO _x	22.300
PM	0.224
SO ₂	0.180

These are the hourly emission rates of NO_x, PM, and SO₂ determined from the most recent stack testing.

B. To determine compliance with Special Condition Nos. 1.5 and 2.3.6, uncontrolled emissions of CO and VOM from East Campus Generator #1 shall be determined based on hourly emission rates of 33.6 lb/hr and 8.3 lb/hr, respectively, which are the emission rates determined from the most recent stack testing.

$$\text{Engine Emissions (lb)} = (\text{Uncontrolled Hourly Emission Rate, lb/hr}) \times (\text{Operating Hours, hr}) \times [1 - (\text{Catalytic Converter Efficiency} (\%) / 100)]$$

*As specified by the manufacturer of the catalytic converter.

ii. East Campus Generator #2 at Normal Operation (i.e., 98.5% natural gas and 1.5% diesel fuel firing):

A. Emissions of nitrogen oxides (NO_x), particulate matter (PM), and sulfur dioxide (SO₂):

<u>Pollutant</u>	<u>Emission Factor (lb/hr)</u>
NO _x	21.200
PM	0.211
SO ₂	0.180

These are the hourly emission rates of NO_x, PM, and SO₂ determined from the most recent stack testing.

- B. To determine compliance with Special Condition Nos. 1.5 and 2.3.6, uncontrolled emissions of CO and VOM from East Campus Generator #2 shall be determined based on hourly emission rates of 34.1 lb/hr and 5.1 lb/hr, respectively, which are the emission rates determined from the most recent stack testing.

$$\text{Engine Emissions (lb)} = (\text{Uncontrolled Hourly Emission Rate, lb/hr}) \times (\text{Operating Hours, hr}) \times [1 - (\text{Catalytic Converter Efficiency} (\%)/100)]$$

*As specified by the manufacturer of the catalytic converter.

- iii. Emergency operation of the affected engines (i.e., 100% diesel fuel firing):

- A. Emissions of carbon monoxide (CO) and nitrogen oxides (NO_x) from East Campus Generator #1:

<u>Pollutant</u>	<u>Emission Factor</u>	
	<u>@ 75% Load (g/bhp-hr)</u>	<u>@ 110% Load (g/bhp-hr)</u>
CO	0.10	0.16
NO _x	9.63	9.12

These are the emission factors for CO and NO_x for East Campus Generator #1 determined by the manufacturer from testing performed at the factory.

$$\text{Engine Emissions (lb)} = (\text{Power Output of Engine, bhp-hr}) \times (\text{The Appropriate Emission Factor, g/bhp-hr}) \times (1 \text{ lb}/454 \text{ g}) \times [1 - (\text{Catalytic Converter Efficiency} (\%)/100)]$$

*As specified by the manufacturer of the catalytic converter.

B. Emissions of carbon monoxide (CO) and nitrogen oxides (NO_x) from East Campus Generator #2:

<u>Pollutant</u>	<u>Emission Factor</u>	
	<u>@ 75% Load</u> <u>(g/bhp-hr)</u>	<u>@ 110% Load</u> <u>(g/bhp-hr)</u>
CO	0.10	0.16
NO _x	9.63	9.55

Engine Emissions (lb) = (Power Output of Engine, bhp-hr) x (The Appropriate Emission Factor, g/bhp-hr) x (1 lb/454 g) x [1 - (Catalytic Converter Efficiency (%) / 100)]

*As specified by the manufacturer of the catalytic converter.

These are the emission factors for CO and NO_x for East Campus Generator #1 determined by the manufacturer from testing performed at the factory.

C. Emissions of Particulate Matter (PM), Sulfur Dioxide (SO₂), and Volatile Organic Material (VOM) from the affected engines:

<u>Pollutant</u>	<u>Emission Factor</u> <u>(lb/hp-hr)</u>
PM	0.0007
SO ₂	8.09 x 10 ⁻³ S
VOM	7.05 x 10 ⁻⁴

These are the emission factors for large stationary diesel engines, Table 3.4-1, AP-42, Volume 1, Fifth Edition, Supplement D October, 1996. S indicates that the weight % sulfur in the oil should be multiplied by the value given.

VOM emission factor is based on the TOC factor.

Engine Emissions (lb) = (Power Output of Engine, bhp-hr) x (The Appropriate Emission Factor, lb/hp-hr) x [1 - (Catalytic Converter Efficiency (%) / 100)]

*As specified by the manufacturer of the catalytic converter.

3.0 GENERAL PERMIT CONDITIONS

3.1 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 3.2.

3.2 Reporting Requirements

3.2.1 Monitoring Reports

A report summarizing required monitoring as specified in the conditions of this permit shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January - June	September 1
July - December	March 1

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified.

3.2.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined;
- d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;

- e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and
- g. Any proposed use of an alternative test method, with detailed justification.

3.2.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

3.2.4 Reporting Addresses

- a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:
 - i. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency (MC 40)
Bureau of Air
Compliance Section
P.O. Box 19276
Springfield, Illinois 62794-9276

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ii. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
Eisenhower Tower
1701 First Avenue
Maywood, Illinois 60153

iii. Illinois EPA - Air Permit Section (MC 11)

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section
P.O. Box 19506
Springfield, Illinois 62794-9506

iv. USEPA Region 5 - Air Branch

USEPA (AR - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

- b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

4. Operation of the equipment being constructed and/or modified is allowed under this permit until final action is taken on the Clean Air Act Permit Program (CAAPP) application for this source, provided that such CAAPP application has been received and been deemed complete by the Illinois EPA. As a result, the Permittee must still update the CAAPP application to include the aforementioned equipment but is not required to submit an application for a state operating permit in the interim.

It should be noted that the Permittee should update their CAAPP application to include this equipment by submitting form 505-CAAPP - ?Supplement to CAAPP Application? along with all other appropriate information.

If you have any questions on this, please call Robert Bernoteit at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:RWB:psj

cc: Illinois EPA, FOS, Region 1
USEPA

Attachment A

Table 1
Previous Contemporaneous Emissions Increases

<u>Emission Unit/Activity</u>	<u>Permit</u>	<u>Date Issued</u>			
East Campus Boilers and Engines	97050128	December 1, 1997			
	<u>CO</u>	<u>NO_x</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>VOM</u>
	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>
	+95.32	-58.63	-2.87	-1.88	+20.08

Table 2
Historical Operation and Emissions from the Existing West Campus Boilers

Table 2a
1996-1997 Average Fuel Usage

<u>Emission Unit</u>	<u>Natural Gas Usage</u> <u>(Mft³/yr)</u>	<u>No. 6 Fuel Oil Usage</u> <u>(1,000 gal/yr)</u>
Boiler No. 1	51.3504	1,670.0490
Boiler No. 2	100.8295	2,060.5275
Boiler No. 3	61.1430	639.4780
Boiler No. 4	53.9524	564.9650

Table 2b
1996-1997 Average Emissions from the Existing West Campus Boilers

<u>Emission Unit</u>	<u>E M I S S I O N S</u>					<u>VOM</u> <u>ton/yr</u>
	<u>CO</u> <u>ton/yr</u>	<u>NO_x</u> <u>ton/yr</u>	<u>PM₁₀</u> <u>ton/yr</u>	<u>SO₂</u> <u>ton/yr</u>	<u>SO₂</u> <u>ton/yr</u>	
Boiler No. 1 (gas)	2.16	7.19	0.20	0.02	0.14	
Boiler No. 1 (oil)	4.18	39.25	7.29	129.79	0.94	
Boiler No. 2 (gas)	4.23	14.12	0.38	0.03	0.28	
Boiler No. 2 (oil)	5.15	48.42	8.99	160.13	1.16	
Boiler No. 3 (gas)	2.57	8.56	0.23	0.02	0.17	
Boiler No. 3 (oil)	1.60	15.08	2.79	49.70	0.36	
Boiler No. 4 (gas)	2.27	7.55	0.21	0.02	0.15	
Boiler No. 4 (oil)	1.41	13.28	2.46	43.91	0.32	
<u>Totals</u>	<u>23.57</u>	<u>153.45</u>	<u>22.55</u>	<u>383.62</u>	<u>3.52</u>	

This table defines the actual emissions from natural gas and No. 6 fuel oil combustion from the existing West Campus boilers averaged over the calendar years 1996 and 1997 and are based on the actual fuel usage, standard emission factors, and a sulfur content for the fuel oil of 0.99 percent by weight.

Attachment A (Continued)Table 3
Emission Offsets from the Existing East Campus GeneratorsTable 3a
1996-1997 Average Operation and Emissions from Existing East Campus Generators

<u>Emission Unit</u>	<u>Operating Hours</u> <u>(Hours/year)</u>	<u>E M I S S I O N S</u>	
		<u>CO</u> <u>ton/yr</u>	<u>VOM</u> <u>ton/yr</u>
East Campus Generator #1	7,951.78	133.59	34.00
East Campus Generator #2	7,691.30	131.14	19.61
<u>Totals</u>		<u>264.73</u>	<u>53.61</u>

This table defines the actual emissions of carbon monoxide (CO) and volatile organic material (VOM) from the existing East Campus generators averaged over the calendar years 1996 and 1997 and are based on the actual operating hours and the emission rates determined from the most recent stack testing.

Table 3b
Future Permitted Emissions of the Existing East Campus Generators

<u>Emission Unit</u>	<u>CO</u> <u>ton/yr</u>	<u>VOM</u> <u>ton/yr</u>
East Campus Generator #1 (Special Condition No. 2.3.6(b)(i))	20.04	9.90
East Campus Generator #2 (Special Condition No. 2.3.6(b)(i))	19.67	5.88
<u>Totals</u>	<u>39.71</u>	<u>15.78</u>

This table defines the actual emissions of carbon monoxide (CO) and volatile organic material (VOM) from the existing East Campus generators based on the results of stack testing and the application of the catalytic converters with minimum control efficiencies of 85% for CO and 70% for VOM.

Table 3c
Net Change in Emissions from the Existing East Campus Generators

<u>Emission Unit</u>	<u>CO</u> <u>ton/yr</u>	<u>VOM</u> <u>ton/yr</u>
East Campus Generator #1 (Future Permitted, Table 3b)	20.04	9.90
East Campus Generator #2 (Future Permitted, Table 3b)	19.67	5.88
East Campus Generator #1 (Past Actual, Table 3a)	-133.59	-33.00
East Campus Generator #2 (Past Actual, Table 3a)	-131.14	-19.61
<u>Totals</u>	<u>-225.02</u>	<u>-36.83</u>

Table 4
Net Changes in Emissions

<u>Emission Unit</u>	E	M	I	S	S	I	O	N	S
	CO	NO _x	PM ₁₀	SO ₂	VOM				
	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>	<u>ton/yr</u>				
Gas Turbines #1 - #3 (combined)	+106.36	+ 87.18	+21.77	+ 8.19	+ 8.54				
Duct Burners #1 - #3 (combined)	+ 60.68	+ 83.43	+ 7.58	+ 0.46	+14.11				
West Generators #1 - 3 (combined)	+ 30.00	+ 33.30	+ 3.39	+ 19.47	+21.57				
West Boilers No. 1 - 4 (combined)	- 23.56	-153.39	-22.54	-383.61	- 3.52				
East Generators #1 & 2 (combined)*	-225.02	--	--	--	-36.83				
<u>Previous Contemporaneous Increase</u>	<u>+ 95.32</u>	<u>- 58.63</u>	<u>- 2.87</u>	<u>- 1.88</u>	<u>+20.08</u>				
Net Change in Emissions	+ 43.78	- 8.11	+ 7.33	-357.37	+24.25				

* There will be no net change in emissions of nitrogen oxides (NO_x), particulate matter less than 10 microns (PM₁₀) or sulfur dioxides (SO₂) as a result of the addition of catalytic converters to the existing East Campus Generators.

RWB:98100093:psj

217/782-2113

March 16, 1999

University of Illinois at Chicago
Attn: Mr. Lyle D. Wachtel
1140 South Morgan Street
Chicago, Illinois 60607

Re: Application No.: 98100093, I.D. No.: 031600CRS
Notice of Public Comment Period

Dear Mr. Wachtel:

The Illinois EPA will be soliciting public comments on the proposed issuance of a Construction Permit for the above referenced application, with an opportunity for a public hearing. The Illinois EPA is authorized by 35 Ill. Adm. Code Part 252 to make permit applications and the Illinois EPA's proposed actions on permit applications available for public comment and hearing. Since the application is subject to public comment, with opportunity for a public hearing, the Illinois EPA has 180 days to take final action on the application under Section 39(a) of the Environmental Protection Act.

For your information, at this time the Illinois EPA has no indication that public interest is sufficient to warrant holding a public hearing.

If you have any questions on this matter, please contact Robert Bernoteit at 217/782-2113.

Sincerely,

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:RWB:psj

cc: Permit File
FOS Region 1

***** PCB 2013-036 *****



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

P.O. Box 19506, Springfield, Illinois 62794-9506

RENEE CIPRIANO, DIRECTOR

217/782-2113

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT
and
TITLE I PERMIT¹

PERMITTEE

University of Illinois at Chicago
Attn: Ann T. Nguyen, Energy Manager
1140 South Morgan Street
Chicago, Illinois 60607

Application No.: 96080077

I.D. No.: 031600CRS

Applicant's Designation:

Date Received: August 21, 1996

Operation of: University Campus

Expiration Date²: June 19, 2007

Date Issued: June 20, 2002

Source Location: 1140 South Morgan Street, Chicago, Cook County

Responsible Official: Kenneth V. Buric, Director of Operations and Maintenance

This permit is hereby granted to the above-designated Permittee to OPERATE a University Campus (West), pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

If you have any questions concerning this permit, please contact Anatoly Belogorsky at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES
DES:AB:psj

COPY
Original Signed by
Donald E. Sutton, P.E.

cc: Illinois EPA, FOS, Region 1

¹ This permit may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the CAA and regulations promulgated thereunder, including 40 CFR 52.21 - federal PSD and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within this permit.

² Except as provided in Condition 8.7 of this permit.

GEORGE H. RYAN, GOVERNOR

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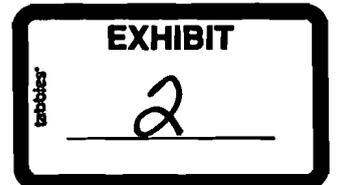


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1.0 SOURCE IDENTIFICATION

1.1 Source

University of Illinois at Chicago
1140 South Morgan Street
Chicago, Illinois 60607
312/996-7159

I.D. No.: 031600CRS
Standard Industrial Classification: 8221, Educational Facility

1.2 Owner/Parent Company

Board of Trustees of the University of Illinois
Administration Building
Urbana, Illinois 61801

1.3 Operator

University of Illinois at Chicago
1140 South Morgan Street
Chicago, Illinois 60607

Ann T. Nguyen, Energy Manager
312/996-7159

1.4 General Source Description

The University of Illinois at Chicago (West Campus) is located at 1140 South Morgan Street (main address) in Chicago and operates power plant and incinerators formerly designated under the following ID's: 031600CRS, 031600DOB, and 031600DOC. West and East Campuses (respectively, 031600CRS and 031600CEV) are considered a single source for the purposes of the Title V Program, 40 CFR 52.21 and 35 IAC Part 203. The University of Illinois at Chicago decides to keep two separate CAAPP permits for West and East Campuses and comply with the rules mentioned above.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ASTM	American Society for Testing and Materials
ATU	Allotment Trading Unit
BAT	Best Available Technology
Btu	British thermal unit
°C	Degrees Celsius
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
Cd	Cadmium
CEMS	Continuous Emission Monitoring System
cfm	Cubic foot per minute
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
ERMS	Emission Reduction Market System
°F	Degrees Fahrenheit
ft	Feet
ft ³	Cubic Feet
G	Grams
gal	Gallons
gr	Grains
HAP	Hazardous Air Pollutant
HCl	Hydrogen Chloride
Hg	Mercury
HMIWI	Hospital/Medical/Infectious Waste Incinerator
hr	hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
°K	Degrees Kelvin
kg	Kilogram
kW	kilowatts
l	liter
LAER	Lowest Achievable Emission Rate
lb	pound
MACT	Maximum Achievable Control Technology
mg	milligram
mmBtu	Million British thermal units
mmscf	Million standard cubic feet
mo	month
MW	Megawatts

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NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
Pb	Lead
NSPS	New Source Performance Standards
PM	Particulate Matter
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods
ppm	parts per million
ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
scf	Standard cubic feet
scm	Standard cubic meters
SO ₂	Sulfur Dioxide
T	Ton
TEQ	Toxic equivalency
T1	Title I - identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New - identifies Title I conditions that are being established in this permit
T1R	Title I Revised - identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
USEPA	United States Environmental Protection Agency
VOM	Volatile Organic Material
wt. %	Weight percent
yr	year

3.0 INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a) (1) and 201.211, as follows:

None

3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a) (2) or (a) (3), as follows:

None

3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a) (4) through (18), as follows:

- a. Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a) (4)].
- b. Furnaces used for melting metals, other than beryllium, with a brim full capacity of less than 450 cubic inches by volume [35 IAC 201.210(a) (6)].
- c. Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons per year, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a) (10)].
- d. Storage tanks of any size containing virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a) (11)].

- e. Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].
- f. Gas turbines and stationary reciprocating internal combustion engines of between 112 kW and 1,118 kW (150 and 1,500 horsepower) power output that are emergency or standby units [35 IAC 201.210(a)(16)].
- g. Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b).

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.2.2), the Permittee shall comply with the following requirements, as applicable:

- 3.2.1 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 215.182, 218.182, or 219.182.
- 3.2.2 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.
- 3.2.3 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 215.301, 218.301, or 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.

3.3 Addition of Insignificant Activities

- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1,

until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).

- 3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.
- 3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Emission Unit	Description	Date Constructed	Emission Control Equipment
Unit 1	Boilers	1950; 1958; 1971; 1975	None
Unit 2	Engines/Generators (3 Units)	2002 (Currently Under Construction)	Catalytic Converter Per Each Unit
Unit 3	Turbines (3 Units with 3 Duct Burners)	2002 (Currently Under Construction)	None
Unit 4	Pathological and General Waste Incinerators (3 Units)	1978; 1989; 1996	None

5.0 OVERALL SOURCE CONDITIONS

5.1 Source Description

- 5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of NO_x, CO, SO₂, and VOM emissions.
- 5.1.2 For purposes of the 031600CRS (West Campus) and Title I of the Clean Air Act, this source is considered a single source with the University of Illinois at Chicago East Campus (031600CEV), located at 1140 South Morgan Street. The source has elected to obtain separate CAAPP permits for these locations.

5.2 Applicable Regulations

- 5.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions) of this permit.
- 5.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:
 - a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.
 - b. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.

5.2.3 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

- b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.2.4 Risk Management Plan

Should this stationary source, as defined in 40 CFR Section 68.3, become subject to the Accidental Release Prevention regulations in 40 CFR Part 68, then the owner or operator shall submit [40 CFR 68.215(a)(2)(i) and (ii)]:

- a. A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR 68.10(a); or
- b. A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the Risk Management Plan (RMP), as part of the annual compliance certification required by 40 CFR Part 70 or 71.

- 5.2.5
- a. Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC after the date issued of this permit, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.
 - b. No later than upon the submittal for renewal of this permit, the owner or operator shall submit, as part of an application, the necessary information to address either the non-applicability of, or demonstrate compliance with all applicable requirements of any potentially applicable regulation which was promulgated after the date issued of this permit.

5.2.6 Episode Action Plan

- a. If the source is required to have an episode action plan pursuant to 35 IAC 244.142, the Permittee shall maintain at the source and have on file with the

* * * * * PCB 2013-036 * * * * *

Illinois EPA a written episode action plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures. The plan shall contain the information specified in 35 IAC 244.144.

- b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared.
- c. If a change occurs at the source which requires a revision of the plan (e.g., operational change, change in the source contact person), a copy of the revised plan shall be submitted to the Illinois EPA for review within 30 days of the change. Such plans shall be further revised if disapproved by the Illinois EPA.
- d. For sources required to have a plan pursuant to 35 IAC 244.142, a copy of the original plan and any subsequent revisions shall be sent to:
 - i. Illinois EPA, Compliance Section; and
 - ii. For sources located in Cook County and outside of the city of Chicago: Cook County Department of Environmental Control; or
 - iii. For sources located within the city of Chicago: Chicago Department of Environmental Control.

5.2.7 This stationary source has a pollutant-specific emissions unit that is subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources: The source must submit a CAM plan for each affected pollutant-specific emissions unit upon application for renewal of the initial CAAPP permit, or upon a significant modification to the CAAPP permit for the construction or modification of a large pollutant-specific emissions unit which has the potential post-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

5.3 Non-Applicability of Regulations of Concern

None

5.4 Source-Wide Operational and Production Limits and Work Practices

In addition to the source-wide requirements in the Standard Permit Conditions in Section 9, the Permittee shall fulfill the following source-wide operational and production limitations and/or work practice requirements:

None

5.5 Source-Wide Emission Limitations

5.5.1 Permitted Emissions for Fees

The annual emissions from the source, not considering insignificant activities as addressed by Section 3.0 of this permit, shall not exceed the following limitations. The overall source emissions shall be determined by adding emissions from all emission units. Compliance with these limits shall be determined on a calendar year basis. These limitations (Condition 5.5.1) are set for the purpose of establishing fees and are not federally enforceable.

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	48.71
Sulfur Dioxide (SO ₂)	284.96
Particulate Matter (PM)	59.40
Nitrogen Oxides (NO _x)	398.95
HAP, not included in VOM or PM	-----
Total	792.02

5.5.2 Emissions of Hazardous Air Pollutants

This permit is issued based on the emissions of HAPs as listed in Section 112(b) of the CAA not being equal to or exceeding 10 tons per year of a single HAP or 25 tons per year of any combination of such HAPs, so that this source is considered a minor source for HAPs.

5.5.3 Other Source-Wide Emission Limitations

- a. The limits on emissions of CO, NO_x, PM₁₀, SO₂, and VOM have been established in Construction Permit 98100093 pursuant to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and the Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 Ill. Adm. Code Part 203. These limits ensure that the construction/modification addressed in this Construction Permit does not constitute a new major source or major modification pursuant to 35 Ill. Adm. Code Part 203. See Conditions 7.2.6 and 7.3.6 for specific emission limits.
- b. Net emissions increases/decreases for both East and West Campuses (respectively, ID's 031600CEV and 031600CRS) are established in Attachment 1.

5.6 General Recordkeeping Requirements

5.6.1 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

Total annual emissions on a calendar year basis for the emission units covered by Section 7 (Unit Specific Conditions) of this permit.

5.6.2 Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

5.7 General Reporting Requirements

5.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the source with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

5.7.2 Annual Emissions Report

The annual emissions report required pursuant to Condition 9.7 shall contain emissions information for the previous calendar year.

5.8 General Operational Flexibility/Anticipated Operating Scenarios

N/A

5.9 General Compliance Procedures

5.9.1 General Procedures for Calculating Emissions

Compliance with the source-wide emission limits specified in Condition 5.5 shall be based on the recordkeeping and reporting requirements of Conditions 5.6 and 5.7, and compliance procedures in Section 7 (Unit Specific Conditions) of this permit.

6.0 EMISSIONS REDUCTION MARKET SYSTEM (ERMS)

6.1 Description of ERMS

The ERMS is a "cap and trade" market system for major stationary sources located in the Chicago ozone nonattainment area. It is designed to reduce VOM emissions from stationary sources to contribute to reasonable further progress toward attainment, as required by Section 182(c) of the CAA.

The ERMS addresses VOM emissions during a seasonal allotment period from May 1 through September 30. Participating sources must hold "allotment trading units" (ATUs) for their actual seasonal VOM emissions. Each year participating sources are issued ATUs based on allotments set in the sources' CAAPP permits. These allotments are established from historical VOM emissions or "baseline emissions" lowered to provide the emissions reductions from stationary sources required for reasonable further progress.

By December 31 of each year, the end of the reconciliation period following the seasonal allotment period, each source shall have sufficient ATUs in its transaction account to cover its actual VOM emissions during the preceding season. A transaction account's balance as of December 31 will include any valid ATU transfer agreements entered into as of December 31 of the given year, provided such agreements are promptly submitted to the Illinois EPA for entry into the transaction account database. The Illinois EPA will then retire ATUs in sources' transaction accounts in amounts equivalent to their seasonal emissions. When a source does not appear to have sufficient ATUs in its transaction account, the Illinois EPA will issue a notice to the source to begin the process for Emissions Excursion Compensation.

In addition to receiving ATUs pursuant to their allotments, participating sources may also obtain ATUs from the market, including ATUs bought from other participating sources and general participants in the ERMS that hold ATUs (35 IAC 205.630) and ATUs issued by the Illinois EPA as a consequence of VOM emissions reductions from an Emissions Reduction Generator or an Intersector Transaction (35 IAC 205.500 and 35 IAC 205.510). During the reconciliation period, sources may also buy ATUs from a secondary reserve of ATUs managed by the Illinois EPA, the "Alternative Compliance Market Account" (ACMA) (35 IAC 205.710). Sources may also transfer or sell the ATUs that they hold to other sources or participants (35 IAC 205.630).

6.2 Applicability

This source is considered a "participating source" for purposes of the ERMS, 35 IAC Part 205.

6.3 Obligation to Hold Allotment Trading Units (ATUs)

- a. Pursuant to 35 IAC 205.150(c)(1) and 35 IAC 205.720, and as further addressed by Condition 6.8, as of December 31 of each year, this source shall hold ATUs in its account in an amount not less than the ATU equivalent of its VOM emissions during the preceding seasonal allotment period (May 1 - September 30), not including VOM emissions from the following, or the source shall be subject to "emissions excursion compensation," as described in Condition 6.5.
 - i. VOM emissions from insignificant emission units and activities as identified in Section 3 of this permit, in accordance with 35 IAC 205.220;
 - ii. Excess VOM emissions associated with startup, malfunction, or breakdown of an emission unit as authorized in Section 7.0 of this permit, in accordance with 35 IAC 205.225;
 - iii. Excess VOM emissions to the extent allowed by a Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3);
 - iv. Excess VOM emissions that are a consequence of an emergency as approved by the Illinois EPA, pursuant to 35 IAC 205.750; and
 - v. VOM emissions from certain new and modified emission units as addressed by Condition 6.8(b), if applicable, in accordance with 35 IAC 205.320(f).
- b. Notwithstanding the above condition, in accordance with 35 IAC 205.150(c)(2), if a source commences operation of a major modification, pursuant to 35 IAC Part 203, the source shall hold ATUs in an amount not less than 1.3 times its seasonal VOM emissions attributable to such major modification during the seasonal allotment period, determined in accordance with the construction permit for such major modification or applicable provisions in Section 7.0 of this permit.

6.4 Market Transactions

- a. The source shall apply to the Illinois EPA for and obtain authorization for a Transaction Account prior to conducting any market transactions, as specified at 35 IAC 205.610(a).
- b. The Permittee shall promptly submit to the Illinois EPA any revisions to the information submitted for its Transaction Account, pursuant to 35 IAC 205.610(b).

- c. The source shall have at least one account officer designated for its Transaction Account, pursuant to 35 IAC 205.620(a).
- d. Any transfer of ATUs to or from the source from another source or general participant must be authorized by a qualified Account Officer designated by the source and approved by the Illinois EPA, in accordance with 35 IAC 205.620, and the transfer must be submitted to the Illinois EPA for entry into the Transaction Account database.

6.5 Emissions Excursion Compensation

Pursuant to 35 IAC 205.720, if the source fails to hold ATUs in accordance with Condition 6.3, it shall provide emissions excursion compensation in accordance with the following:

- a. Upon receipt of an Excursion Compensation Notice issued by the Illinois EPA, the source shall purchase ATUs from the ACMA in the amount specified by the notice, as follows:
 - i. The purchase of ATUs shall be in an amount equivalent to 1.2 times the emissions excursion; or
 - ii. If the source had an emissions excursion for the seasonal allotment period immediately before the period for the present emissions excursion, the source shall purchase ATUs in an amount equivalent to 1.5 times the emissions excursion.
- b. If requested in accordance with paragraph (c) below or in the event that the ACMA balance is not adequate to cover the total emissions excursion amount, the Illinois EPA will deduct ATUs equivalent to the specified amount or any remaining portion thereof from the ATUs to be issued to the source for the next seasonal allotment period.
- c. Pursuant to 35 IAC 205.720(c), within 15 days after receipt of an Excursion Compensation Notice, the owner or operator may request that ATUs equivalent to the amount specified be deducted from the source's next seasonal allotment by the Illinois EPA, rather than purchased from the ACMA.

6.6 Quantification of Seasonal VOM Emissions

- a. The methods and procedures specified in Sections 5 and 7 of this permit for determining VOM emissions and compliance with VOM emission limitations shall be used for determining seasonal VOM emissions for purposes of the ERMS, with the following exceptions [35 IAC 205.315(b)]:

No exceptions

b. The Permittee shall report emergency conditions at the source to the Illinois EPA, in accordance with 35 IAC 205.750, if the Permittee intends to deduct VOM emissions in excess of the technology-based emission rates normally achieved that are attributable to the emergency from the source's seasonal VOM emissions for purposes of the ERMS. These reports shall include the information specified by 35 IAC 205.750(a), and shall be submitted in accordance with the following:

- i. An initial emergency conditions report within two days after the time when such excess emissions occurred due to the emergency; and
- ii. A final emergency conditions report, if needed to supplement the initial report, within 10 days after the conclusion of the emergency.

6.7 Annual Account Reporting

a. For each year in which the source is operational, the Permittee shall submit, as a component of its Annual Emissions Report, seasonal VOM emissions information to the Illinois EPA for the seasonal allotment period. This report shall include the following information [35 IAC 205.300]:

- i. Actual seasonal emissions of VOM from the source;
- ii. A description of the methods and practices used to determine VOM emissions, as required by this permit, including any supporting documentation and calculations;
- iii. A detailed description of any monitoring methods that differ from the methods specified in this permit, as provided in 35 IAC 205.337;
- iv. If a source has experienced an emergency, as provided in 35 IAC 205.750, the report shall reference the associated emergency conditions report that has been approved by the Illinois EPA;
- v. If a source's baseline emissions have been adjusted due to a Variance, Consent Order, or CAAPP permit Compliance Schedule, as provided for in 35 IAC 205.320(e)(3), the report shall provide documentation quantifying the excess VOM emissions during the season that were allowed by the Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3); and
- vi. If a source is operating a new or modified emission unit for which three years of operational data is not

yet available, as specified in 35 IAC 205.320(f), the report shall specify seasonal VOM emissions attributable to the new emission unit or the modification of the emission unit.

- b. This report shall be submitted by October 31 of each year, for the preceding seasonal allotment period.

6.8 Allotment of ATUs to the Source

- a.
 - i. The allotment of ATUs to this source is 2.30 ATUs per seasonal allotment period.
 - ii. This allotment of ATUs reflects the Illinois EPA's determination that the source's baseline emissions were 0.23 tons per season.
 - iii. The source's allotment reflects 88% of the baseline emissions (12% reduction), except for the VOM emissions from specific emission units excluded from such reduction, pursuant to 35 IAC 205.405, including units complying with MACT or using BAT, as identified in Condition 6.11 of this permit.
 - iv. ATUs will be issued to the source's Transaction Account by the Illinois EPA annually. These ATUs will be valid for the seasonal allotment period following issuance and, if not retired in this season, the next seasonal allotment period.
 - v. Condition 6.3(a) becomes effective beginning in the seasonal allotment period following the initial issuance of ATUs by the Illinois EPA into the Transaction Account for the source.

b. Contingent Allotments for New or Modified Emission Units

The source was issued a construction permit prior to January 1, 1998 for the following new or modified emission units for which three years of operational data is not yet available:

None

- c. Notwithstanding the above, part or all of the above ATUs will not be issued to the source in circumstances as set forth in 35 IAC Part 205, including:
 - i. Transfer of ATUs by the source to another participant or the ACMA, in accordance with 35 IAC 205.630;
 - ii. Deduction of ATUs as a consequence of emissions excursion compensation, in accordance with 35 IAC 205.720; and

- iii. Transfer of ATUs to the ACMA, as a consequence of shutdown of the source, in accordance with 35 IAC 205.410.

6.9 Recordkeeping for ERMS

The Permittee shall maintain copies of the following documents as its Compliance Master File for purposes of the ERMS [35 IAC 205.700(a)]:

- a. Seasonal component of the Annual Emissions Report;
- b. Information on actual VOM emissions, as specified in detail in Sections 5 and 7 of this permit and Condition 6.6(a); and
- c. Any transfer agreements for the purchase or sale of ATUs and other documentation associated with the transfer of ATUs.

6.10 Exclusions from Further Reductions

- a. VOM emissions from the following emission units shall be excluded from the VOM emissions reductions requirements specified in 35 IAC 205.400(c) and (e) as long as such emission units continue to satisfy the following [35 IAC 205.405(a)]:
 - i. Emission units that comply with any NESHAP or MACT standard promulgated pursuant to the CAA;
 - ii. Direct combustion emission units designed and used for comfort heating purposes, fuel combustion emission units, and internal combustion engines; and
 - iii. An emission unit for which a LAER demonstration has been approved by the Illinois EPA on or after November 15, 1990.

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because they meet the criteria as indicated above [35 IAC 205.405(a) and (c)]:

Engines
Boilers
Turbines

- b. VOM emissions from emission units using BAT for controlling VOM emissions shall not be subject to the VOM emissions reductions requirement specified in 35 IAC

205.400(c) or (e) as long as such emission unit continues to use such BAT [35 IAC 205.405(b)].

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because these emission units use BAT for controlling VOM emissions as indicated above [35 IAC 205.405(b) and (c)]:

None

7.0 UNIT SPECIFIC CONDITIONS

7.1 Unit 1: Boilers

7.1.1 Description

Seven natural gas-fired/fuel oil #6 boilers supply steam, for the needs of this source.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Unit 1	<u>Building 921</u>	
	Boiler #1 (97.1 mmBtu/Hr)	None
	Boiler #2 (97.1 mmBtu/Hr)	None
	Boiler #3 (97.1 mmBtu/Hr)	None
	Boiler #4 (97.1 mmBtu/Hr)	None
	Boiler #5 (97.1 mmBtu/Hr)	None
	Boiler #6 (128.45 mmBtu/Hr)	None
	Boiler #7 (90.58 mmBtu/Hr)	None

7.1.3 Applicability Provisions and Applicable Regulations

- a. An "affected boiler" for the purpose of these unit specific conditions, is the boiler described in Conditions 7.1.1 and 7.1.2.
- b. All affected boilers are subject to 35 IAC 216.121. No person shall cause or allow the emission of carbon monoxide into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hr) to exceed 200 ppm, corrected 50 percent excess air.
- c. All affected boilers are subject to the following limitation of 35 IAC 212.206:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hr of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.10 lb/mmBtu).
- d. All affected boilers shall not exceed 1.55 kg of sulfur dioxide per MW-hr of actual heat input when residual fuel oil is burned (1.0 lb/mmBtu), pursuant to 35 IAC 214.122(b) (1) and 35 IAC 214.161(a).
- e. For all affected boilers, the opacity limit shall not exceed the following: No person shall cause or allow the emission of smoke or other particulate matter,

with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122 [35 IAC 212.123 (a)].

7.1.4 Non-Applicability of Regulations of Concern

- a. Pursuant to 35 IAC 218.303, fuel combustion emission units are not subject to 35 IAC Part 218, Subpart G: Use of Organic Material.
- b. Neither of the affected boilers is subject to 40 CFR Part 60, Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" and Subpart Db "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units" because all these boilers had been constructed prior to June 9, 1989 and June 19, 1984, respectively.
- c. This permit is issued based on the each affected boiler not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM), because the affected boiler does not use an add-on control device to achieve compliance with an emission limitation or standard.

7.1.5 Operating Requirements and Work Practices

- a. Each affected boiler shall only be operated with natural gas or fuel oil #6 as the fuel.
- b. The four affected boilers ##1,2,3, and 4 shall permanently cease operation prior to the initial startup of the three turbines with duct burners (see Subsection 7.3 of this permit) and three engines (see Subsection 7.2 of this permit).

7.1.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5.1, the affected boilers shall not exceed the following limits:

None

7.1.7 Testing Requirements

None

7.1.8 Monitoring Requirements

None

7.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected boilers to demonstrate compliance with conditions of this permit, pursuant to Section 39.5(7) (b) of the Act:

- a. Total natural gas usage for all affected boilers (mmscf/mo and mmscf/yr);
- b. Total fuel oil #6 usage for all affected boilers (gal/mo and gal/yr);
- c. Sulfur content, wt.%, based on the fuel oil #6 supplier certification records; and
- d. Monthly and annual emissions of regulated air pollutants as calculated in accordance with compliance procedures in Condition 7.1.12.

7.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the emission limitations as follows pursuant to Section 39.5(7) (f) (ii) of the Act:

If there is an exceedance of the emission limitations in Conditions 5.5.1 and 7.1.3, as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.1.12 Compliance Procedures

- a. Compliance with Condition 7.1.3 is assumed to be achieved by work-practices inherent in operation of affected boilers, so that no compliance procedures are set in the permit addressing this regulation.
- b. Compliance with the emission limits in Condition 5.5.1 shall be based on the following emission factors:

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i. Natural Gas Mode

Pollutant	Emission Factor (lb/mmscf)	
	Heat Input > 100.0 mmBtu/hr	Heat Input < 100.0 mmBtu/hr
PM	7.6	7.6
NO _x	280.0	100
VOM	5.5	5.5
CO	84.0	84.0
SO ₂	0.6	0.6

These are the emission factors for uncontrolled natural gas combustion in large (> 100 mmBtu/hr) and small boilers (< 100 mmBtu/hr), Tables 1.4-1 and 1.4-2, AP-42, March 1998.

ii. Fuel Oil #6 Mode

Pollutant	Emission Factor (lb/1,000 gal)
NO _x	55
SO ₂	157S**
CO	5
VOM	0.28
PM	7.72

These are the emission factors for fuel oil #6, Table 1.3-1, AP-42, September 1998.

** "S" indicates that the weight % of sulfur in the oil should be multiplied by the value given. With the fuel with 0.5% sulfur, "S" = 0.5.

7.2 Unit 2: Engines/Generators

7.2.1 Description

Natural gas-fired reciprocating engines/generators are planned to use at the source to produce electricity and power. Each engine has a maximum power output of 5 MW. Engine/Generators #1, #2, and #3 are equipped with low temperature catalytic converters to control carbon monoxide and volatile organic material emissions.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Unit 2	Wartsila Model No. 18V28 (or Equivalent), 5 MW Natural Gas-Fired Engines #1-#3	Catalytic Converter (Per Each Unit)

7.2.3 Applicability Provisions and Applicable Regulations

- a. An "affected engine/generator" for the purpose of these unit specific conditions, is the unit described in Conditions 7.2.1 and 7.2.2.
- b. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm, [35 Ill. Adm. Code 214.301].
- c. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exemption: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material 35 Ill. Adm. Code 218.301].
- d.
 - i. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122.
 - ii. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minutes period, provided that such opaque emissions permitted during any 60 minute

period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such emission unit shall be limited to 3 times in any 24 hours [35 IAC 212.123].

7.2.4 Non-Applicability of Regulations of Concern

The affected engine/generator is not subject to the following requirements:

- a. The affected engine/generator is not subject to the requirements of 35 IAC 212.321 because it does not have a process weight rate as defined in 35 IAC 211.5250.
- b. The affected engines/generators are not subject to 35 Ill. Adm. Code 216.121, emissions of carbon monoxide from fuel combustion emission units, because the affected engines/generators are not by definition fuel combustion emission units.
- c. The affected engines/generators are not subject to 35 Ill. Adm. Code 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected engines are not by definition fuel combustion emission units.

7.2.5 Operating Requirements and Work Practices

- a. The catalytic converters shall be operated to control emissions of carbon monoxide (CO) and volatile organic material (VOM) at all times the affected engines are in operation.
- b. The Permittee shall follow good operating practices for the catalytic converters, including periodic inspection, routine maintenance and prompt repair of defects.
- c. The affected engines shall only be operated with natural gas as the fuel.

7.2.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5.1, all affected engines/generators are limited to the following:

- a. Operation and Power Output (per each unit):

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	Rated Output (MW)	Operating Hours (hrs/yr)
Generators #1-#3	5	3,066

b. Emissions:

i. Hourly Emissions (Per Each Unit):

	CO (lb/hr)	NO _x (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	VOM (lb/hr)
Generator #1-#3	6.52	7.24	0.74	4.23	4.69

ii. Annual Emissions (Per Unit and Totals):

	CO (T/yr)	NO _x (T/yr)	PM ₁₀ (T/yr)	SO ₂ (T/yr)	VOM (T/yr)
Generator #1-#3	10.00	11.10	1.13	6.49	7.19
<u>Totals:</u>	30.00	33.30	3.39	19.47	21.57

c. The above limitations were established in Permit 98100093, pursuant to 35 IAC Part 203 and 40 CFR 52.21. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 and 40 CFR 52.21[T1].

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

7.2.7 Testing Requirements

None

7.2.8 Monitoring Requirements

The Permittee shall install and operate a continuous monitoring system to monitor and record the electrical output of each affected engine.

7.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected diesel generators to demonstrate compliance with conditions of this permit, pursuant to Section 39.5(7)(b) of the Act:

a. Records addressing use of good operating practices for the catalytic converters:

- i. Records for periodic inspection of the catalytic converters with date, individual performing the inspection, and nature of inspection; and
 - ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
- b. Electric output of each affected engine, kW-hr/mo, and kW-hr/yr;
 - c. Hours of operation for each engine (per month and per year);
 - d. Monthly and annual aggregate CO, NO_x, PM, SO₂, and VOM emissions from the affected engines shall be maintained, based on the electrical output of the affected engine and the applicable emission factors, with supporting calculations as calculated in accordance with compliance procedures in Condition 7.2.12.

7.2.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the emission limitations as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

If there is an exceedance of the emission limitations in Conditions 7.2.3, 7.2.5 and 7.2.6, as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.2.12 Compliance Procedures

- a. Compliance with Condition 7.2.3 is assumed to be achieved by work-practices inherent in operation of affected engines/generators, including proper operations of the catalytic converters, so that no

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compliance procedures are set in the permit addressing this regulation.

- b. Compliance with the emission limits of Conditions 5.5.1 and 7.2.6 shall be based on the emission factors listed below:

- 1. SO₂ Emissions:

<u>Pollutant</u>	<u>Emission Factor</u> <u>(g/kW-hr)</u>
SO ₂	0.384

This is the uncontrolled emission factors for the Wartsila Model 18V28 natural gas reciprocating engine and were supplied by the manufacturer/vendor.

Generator Emissions (lb) = (Electrical Output, kW-hr) x (The Appropriate Emission Factor, g/kW-hr) x (1 lb/453.59 g)

- ii. The emissions of CO, NO_x, PM₁₀, and VOM from each affected engine shall be determined based on the uncontrolled hourly emission rats of 38.3614, 7.242, 0.739, and 17.3712 lb/hr, respectively, which are the emission rates guaranteed by the manufacturer/vendor.

7.3 Unit 3: Turbines (3 units with 3 Duct Burners)

7.3.1 Description

Gas Turbines are planned to use at this source to produce power and steam. The turbines are natural gas fired, each with a maximum rating of 7 MW. The turbines are each equipped with a duct burner rated at 88 mmBtu/hr to boost exhaust temperatures for steam production.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Unit 3	Turbines (3 Units with 3 Duct Burners)	None

7.3.3 Applicability Provisions and Applicable Regulations

- a. An "affected turbine" for the purpose of these unit specific conditions, is the unit described in Conditions 7.3.1 and 7.3.2.
- b. The emission of smoke or other particulate matter from any emission unit shall not exceed an opacity of greater than 30 percent, except that an opacity of greater than 30 percent but less than 60 percent shall be allowed for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 feet) radius from the center point of any other such emission unit owned or operated by the Permittee, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period, pursuant to 35 Ill. Adm. Code 212.123 and 212.124.
- c. The affected gas turbines are subject to the New Source Performance Standard (NSPS) for Stationary Gas Turbines, 40 CFR 60 Subparts A and GG, because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour (10 mmBtu/hr), based on the lower heating value of the fuel fired and the gas turbine commenced construction, modification, or reconstruction after October 3, 1977, and that has a peak load less than or equal to 107.2 gigajoules per hour (100 mmBtu/hr). The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.

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- i. Pursuant to 40 CFR 60.332(a)(2) and 60.332(c), no owner or operator of an affected gas turbine with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall cause to be discharged into the atmosphere from such gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.015 \frac{(14.4)}{Y} + F$$

Where:

STD = Allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = Manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen calculated from the nitrogen content of the fuel as follows:

Fuel-Bound Nitrogen (Percent by Weight)	F (NO _x Percent by Volume)
N < 0.015	0
0.015 < N < 0.1	0.04 (N)
0.1 < N < 0.25	0.04 + 0.0067(N - 0.1)
N > 0.25	0.005

Where:

N = The nitrogen content of the fuel (percent by weight) determined in accordance with Condition 2.3.7(e).

- ii. Standard for Sulfur Dioxide

- A. No owner or operator subject to the provisions of 40 CFR 60 Subpart GG shall cause to be discharged into the

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atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis [40 CFR 60.333(a)].

- B. No owner or operator subject to the provisions of 40 CFR 60 Subpart GG shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight [40 CFR 60.333(b)].
- d. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, [35 Ill. Adm. Code 214.301].
- e. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 218.302, 218.303, or 218.304 and the following exemption: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 218 Subpart G shall only apply to photochemically reactive material [35 Ill. Adm. Code 218.301].

7.3.4 Non-Applicability of Regulations of Concern

- a. The affected gas turbines are not subject to 35 Ill. Adm. Code 216.121, emissions of carbon monoxide from fuel combustion emission units, because the affected gas turbines are not by definition fuel combustion emission units.
- b. The affected gas turbines are not subject to 35 Ill. Adm. Code 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected gas turbines are not by definition fuel combustion emission units.
- c. This permit is issued based on the affected gas turbines not being subject to 35 Ill. Adm. Code 212.321 because due to the unique nature of this processes, such rules cannot reasonably be applied.
- d. This permit is issued based on the each affected turbine not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM), because the affected boiler does not use an add-on control device to achieve compliance with an emission limitation or standard.

7.3.5 Operating Requirements and Work Practices

- a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected gas turbine in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or the USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source [40 CFR 60.11(d)].
- b. The affected gas turbines shall only be operated with natural gas as the fuel.

7.3.6 Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5.1, the affected turbines are limited to the following:

a. Fuel Usage:

<u>Unit</u>	<u>Fuel Usage (Mft³/mo)</u>	<u>Fuel Usage (Mft³/yr)</u>
Gas Turbines #1-#3 (Combined)	322.89	1,937.34
Duct Burners #1-#3 (Combined)	280.91	1,685.43

b. Emissions:

- i. Emissions of Carbon Monoxide (CO) and Volatile Organic Material (VOM):

<u>Unit</u>	E M I S S I O N S		E M I S S I O N S	
	CO		VOM	
	<u>(T/mo)</u>	<u>(T/yr)</u>	<u>(T/mo)</u>	<u>(T/yr)</u>
Gas Turbines #1-#3 (Combined)	17.73	106.36	1.42	8.54
Duct Burners #1-#3 (Combined)	10.11	<u>60.68</u>	2.40	<u>14.41</u>
Totals		167.04		22.95

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the maximum annual fuel usage, and a lower heating value heat content of natural gas of 900 Btu/ft³.

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ii. Emissions of Nitrogen Oxides (NO_x) and Sulfur Dioxide (SO₂):

<u>Unit</u>	<u>NO_x</u>		<u>SO₂</u>	
	<u>(T/mo)</u>	<u>(T/yr)</u>	<u>(T/mo)</u>	<u>(T/yr)</u>
Gas Turbines #1-#3 (Combined)	14.53	87.18	1.37	8.19
Duct Burners #1-#3 (Combined)	13.90	<u>83.43</u>	0.08	<u>0.46</u>
Totals		170.61		8.65

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the standard emission factor for SO₂ for both the gas turbine and duct burner, the maximum firing rates, and a lower heating value heat content of natural gas of 900 Btu/ft³.

iii. Emissions of Particulate Matter less than 10 Microns (PM₁₀):

<u>Unit</u>	<u>PM₁₀</u>	
	<u>(T/mo)</u>	<u>(T/yr)</u>
Gas Turbines #1-#3 (Combined)	3.63	21.77
Duct Burners #1-#3 (Combined)	1.26	<u>7.58</u>
Totals		29.35

These limits are based on representations of the maximum actual emissions determined from emission factors supplied by the manufacturer/vendor of the affected gas turbine equipment, the maximum annual fuel usage, and a lower heating value heat content of natural gas of 900 Btu/ft³.

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

d. The above limitations were established in Permit 98100093, pursuant to 35 IAC Part 203 and 40 CFR 52.21. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 and 40 CFR 52.21 [T1].

7.3.7 Testing Requirements

- a. To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Illinois EPA or the USEPA to determine the nitrogen content of the fuel being fired [40 CFR 60.335(a)].
- b. In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of 40 CFR Part 60 or other methods and procedures as specified in this section, except as provided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in 40 CFR 60.335(f) [40 CFR 60.335(b)].
- c. Pursuant to 40 CFR 60.335(c), the owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Special Condition 7.3.3(c)(i) and (ii) (see also 40 CFR 60.332 and 60.333(a)) as follows:
- i. Pursuant to 40 CFR 60.335(c)(1), the nitrogen oxides emission rate (NO_x) shall be computed for each run using the following equation:

$$NO_x = (NO_x) (P_c / P_o) 0.5e^{19(H_o - 0.00633)} (288^\circ K / T_a)^{1.51}$$

Where:

NO_x = Emission rate of NO_x at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{x0} = Observed NO_x concentration, ppm by volume.

P_r = Reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mmHg.

P_o = Observed combustor inlet absolute pressure at test, mm Hg.

H_o = Observed humidity of ambient air, g H_2O/g air.

e = Transcendental constant, 2.718.

T_a = Ambient temperature, °K.

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- ii. The monitoring device of Condition 7.3.8(a) (see also 40 CFR 60.334(a)) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with Condition No. 7.3.3(c)(i) (see also 40 CFR 60.332) at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer [40 CFR 60.335(c)(2)].
- iii. Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO_x emissions shall be determined at each of the load conditions specified in Conditions 7.3.7(c)(i) and (c)(ii) (see also 40 CFR 60.335(c)(2)) [40 CFR 60.335(c)(3)].
- d. The owner or operator shall determine compliance with the sulfur content standard in Condition 7.3.3(c)(ii) (See also 40 CFR 60.333(b)) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Illinois EPA and/or USEPA [40 CFR 60.335(d)].
- e. To meet the requirements of Condition 7.3.8 (see also 40 CFR 60.334(b)), the owner or operator shall use the methods specified in Condition 7.3.7 (see also 40 CFR 60.335(a) and (d)) to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency [40 CFR 60.335(e)].
- f. Pursuant to 40 CFR 60.335(f), the owner or operator may use the following as alternatives to the reference methods and procedures specified in Condition 7.3.7 (see also 40 CFR 60.335):

Instead of using the equation in Condition 7.3.7(c)(i) (see also 40 CFR 60.335(b)(1)), manufacturers may develop ambient condition

correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in 40 CFR 60.8 to ISO standard day conditions. These factors are developed for each gas turbine model they manufacture in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They shall be substantiated with data and must be approved for use by the Illinois EPA and/or USEPA before the initial performance test required by 40 CFR 60.8. Notices of approval of custom ambient condition correction factors will be published in the Federal Register [40 CFR 60.335(f)(1)].

7.3.8 Monitoring Requirements

- a. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60 Subpart GG and using water injection to control NO_x emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within ±5.0 percent and shall be approved by the Illinois EPA and/or USEPA [40 CFR 60.334(a)].
- b. The owner or operator of any stationary gas turbine subject to the provisions of 40 CFR 60 Subpart GG shall monitor sulfur content and nitrogen content of the fuel being fired in an affected gas turbine. The frequency of determination of these values shall be determined and recorded daily if the turbine is supplied its fuel without intermediate bulk storage. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Illinois EPA and/or USEPA before they can be used [40 CFR 60.334(b)(2)].

7.3.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected turbines to demonstrate compliance with conditions of this permit, pursuant to Section 39.5(7)(b) of the Act:

- a. A file that includes the nitrogen content of the fuel relied upon, if greater than zero, to determine the applicable standard pursuant to Condition 7.3.3(c)(i)

and show compliance with such standard and the hourly emission limit pursuant to Condition 7.3.6.

- b. Records of the testing pursuant to Condition 7.3.7, which include the following [Section 39.5(7)(e) of the Act]:
 - i. The date, place and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.
- c. Natural gas fuel usage for each affected gas turbine, ft³/mo and ft³/yr;
- d. The nitrogen content of the fuel to be used in the affected gas turbine recorded on a daily basis, except as provided in Condition 7.3.8(b);
- e. The sulfur content of the fuel to be used in the affected gas turbine as monitored pursuant to Condition 7.3.8(b);
- f. The heat content of the fuel used in the affected gas turbine, Btu/ft³; and
- g. Monthly and annual aggregate CO, NO_x, PM₁₀, SO₂, and VOM emissions from the affected gas turbines shall be maintained, based on fuel consumption, the applicable emission factors with supporting calculations, and compliance procedures in Condition 7.3.12.

7.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with the emission limitations as follows pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Pursuant to 40 CFR 60.334(c), periods of excess emissions that shall be reported are defined as follows:

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- i. Nitrogen oxides. Any period in which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required by Condition 7.3.7. Each report shall include the average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Condition 7.3.7(a) (see also 40 CFR 60.335(a)) [40 CFR 60.334(c)(1)].
- ii. Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine may not comply with Condition 7.3.3(c)(ii) [40 CFR 60.334(c)(2)].
- b. Emissions of CO, NO_x, PM₁₀, SO₂, and/or VOM from the affected gas turbine in excess of the limits specified in Condition No. 7.3.6 based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

7.3.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.3.12 Compliance Procedures

- a. Compliance with Condition 7.3.3 is assumed to be achieved by work-practices inherent in operation of affected turbines, so that no compliance procedures are set in the permit addressing this regulation.
- b. To determine compliance with Conditions 5.5.1 and 7.3.6, natural gas combustion emissions from the Gas Turbines #1, #2, and #3 shall be calculated based on the following emission factors:
 - i. Carbon monoxide (CO), nitrogen oxide (NO_x), and volatile organic material (VOM) emissions:

<u>Pollutant</u>	<u>Emission Factor</u> <u>(lb/mmBtu)</u>
CO	0.122
NO _x	0.10
PM ₁₀	0.024
VOM	0.0098

These are the factors for uncontrolled emission factors for the Solar Model Taurus

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70-T9702S natural gas-fired gas turbine based on the lower heating value of natural gas and were supplied by the manufacturer/vender.

Gas Turbine Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

ii. Sulfur Dioxide (SO₂) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
SO ₂	0.94 S

This is the emission factor for uncontrolled gas turbines, Table 3.1-1, AP-42, Volume 1, Fifth Edition, October, 1996. S indicates that the weight % sulfur in the fuel should be multiplied by the value given.

Gas Turbine Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

c. To determine compliance with Conditions 5.5.1 and 7.3.6, natural gas combustion emissions from the Duct Burners #1, #2, and #3 shall be calculated based on the following emission factors:

i. Carbon Monoxide (CO), Nitrogen Oxide (NO_x), Particulate Matter less than 10 Microns (PM₁₀), and Volatile Organic Material (VOM) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
CO	0.08
NO _x	0.11
PM ₁₀	0.01
VOM	0.019

These are the factors for uncontrolled emission from the natural gas-fired duct burners based on the lower heating value of natural gas as provided by the manufacturer/vender.

Duct Burner Emissions (lb) = (Natural Gas Consumed, ft³) x (Lower Heating Value Heat Content, Btu/ft³) x (1 mmBtu/1,000,000 Btu) x (The Appropriate Emission Factor, lb/mmBtu)

ii. Sulfur Dioxide (SO₂) emissions:

<u>Pollutant</u>	<u>Emission Factor (lb/Mft³)</u>
SO ₂	0.0006

This is the emission factor for uncontrolled natural gas combustion in small boilers (< 100 mmBtu/hr), Table 1.4-2, AP-42, Volume 1, Fifth Edition, Supplement D March, 1998.

Duct Burner Emissions (lb) = (Natural Gas Consumed, ft³) x (1 ft³/1,000,000 Mft³) x (The Appropriate Emission Factor, lb/Mft³)

7.4 Unit 4: Pathological and General Waste Incinerators

7.4.1 Description

Three pathological/general waste incinerators are used for disposal of waste generated on site.

7.4.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Equipment	Description	Emission Control Equipment
Unit 4	Incinerator #1	Pathological Waste, Two Chamber Unit with a Maximum Charging Waste Design Capacity 200 lb/hr	None
	Incinerator #2	Pathological/Animal Waste, Two Chamber Unit with a Maximum Charging Waste Design Capacity 200 lb/hr	None
	Incinerator #3	Pathological Waste, Two Chamber Unit with a Maximum Charging Waste Design Capacity 100 lb/hr	None

7.4.3 Applicability Provisions and Applicable Regulations

- a. An "affected incinerator" for the purpose of these unit specific conditions, is an incinerator described in Conditions 7.4.1 and 7.4.2.
- b. No person shall cause or allow the emission of particulate matter into the atmosphere from all incinerators (other than described in 35 IAC 212.181(a) and (b)) for which construction or modification commenced on or after April 14, 1972, to exceed 229 mg/scm (0.1 gr/scf) of effluent gases corrected to 12 percent carbon dioxide [35 IAC 212.181(d)].
- c. Emissions of CO from any incinerator shall not exceed 500 ppm, corrected to 50 percent excess air [35 IAC 216.141].

7.4.4 Non-Applicability of Regulations of Concern

- a. Each affected incinerator is not subject to emission limitations 35 IAC Part 229 "Hospital, Medical & Infectious Waste Incinerators" because these

incinerators are qualified for co-fired combustor exemption (less than 10 percent or less of the weight charged is comprised, in aggregate, of hospital waste and medical/infectious waste), as defined in 35 IAC 229.102 and 229.110(d).

- b. This permit is issued based on the affected incinerator not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM), because the affected incinerator does not use an add-on control device to achieve compliance with an emission limitation or standard.

7.4.5 Operating Requirements and Work Practices

- a. Only pathological waste, general waste, and all other wastes not considered medical/infectious waste under 35 IAC Part 229 are allowed to charge into each affected incinerator at the rate not exceeding limits established in Condition 7.4.2. Such non-medical/infectious wastes shall comprise at least 90% of weight of all wastes introduced into each affected incinerator.
- b.
 - i. The secondary combustion chamber of affected incinerator shall be preheated to the 1400°F prior to introducing waste into the incinerator.
 - ii. This temperature shall be maintained until burnout of waste in the primary chamber is completed.
- c. The condition of affected incinerator shall be inspected on a periodic basis for the presence of deficiencies and any deficiencies shall be expeditiously repaired or an incinerator taken out of service.

7.4.6 Emission Limitations

In addition to Condition 5.2.2, the source wide limitations in Condition 5.5.1, and limitations in Condition 7.4.3 the affected incinerator is subject to the following:

N/A

7.4.7 Testing Requirements

Upon the Illinois EPA request, the following testing shall be performed on the affected incinerator:

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- a. Pursuant to 35 IAC 212.110 and Section 39.5(7)(b) of the Act, testing for PM emissions shall be performed as follows:
 - i. Measurement of particulate matter emissions from stationary emission units subject to 35 IAC Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E [35 IAC 212.110(a)].
 - ii. The volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4 [35 IAC 212.110(b)].
 - iii. Upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 IAC Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA [35 IAC 212.110(c)].
- b. Pursuant to 35 IAC 216.101 and upon written request by the Illinois EPA pursuant to Section 39.5(7)(b) of the Act, Carbon Monoxide concentrations in an effluent stream shall be measured by the non-dispersive infrared method or by other methods approved by the Illinois EPA according to the provisions of 35 IAC 201.

7.4.8 Monitoring Requirements

The affected incinerator shall be equipped with a secondary combustion chamber temperature indicator with continuous recorder to allow verification of compliance with requirements of Condition 7.4.5(b).

7.4.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain the following records for each affected incinerator to demonstrate compliance with Conditions 5.5.1 and 7.4.5, pursuant to Section 39.5(7)(b) of the Act:

- a. A secondary combustion chamber temperature prior and during the time of operation;

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- b. Type and amount of waste charged (lb/hr and tons/yr);
- c. The owner or operator of a co-fired combustor claiming an exemption pursuant to 35 IAC 229.110(d) shall maintain records on a calendar quarter basis of the relative weight of hospital and/or medical/infectious waste, and of all other waste combusted for each affected incinerator;
- d. Monthly and annual emissions from each affected incinerator, based on the amount of waste charged and the applicable emission factors, with supporting calculations;
- e. Operating logs for each affected incinerator, which include time of operation and operating temperature of the secondary chamber; and
- f. Inspection maintenance logs for incinerator, with dates of inspection, maintenance, repair, or other actions completed.
- g. Pursuant to 35 IAC 212.110(e) and Section 39.5(7)(e) of the Act, the owner or operator of an emission unit subject 35 IAC Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed and shall include the following:
 - i. The date, place and time of sampling or measurements;
 - ii. The date(s) analyses were performed;
 - iii. The company or entity that performed the analyses;
 - iv. The analytical techniques or methods used;
 - v. The results of such analyses; and
 - vi. The operating conditions as existing at the time of sampling or measurement.

7.4.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance with any applicable requirements of this permit as follows pursuant to Section 39.5(7)(f)(ii) of the Act:

- a. Within 30 days for each occurrence when the affected incinerator was not operated in compliance with

requirements of Condition 7.4.5, with date, description and explanation;

- b. Within 90 days for each occurrence when the monitoring system required by Condition 7.4.8 was not in service prior to initially charging waste to an incinerator.

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

- a. Compliance with Condition 7.4.3 by affected incinerator is assumed to be achieved by compliance with operating requirements and work-practices specified by Condition 7.4.5.
- b. Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 7.3.9 and the emission factors and formulas listed below:

<u>Pollutant</u>	<u>Emission Factor (lb/Ton burned)</u>
PM	4.67
NO _x	3.56
SO ₂	7.5

These are the emission factors of the pathological waste incineration for Solid Waste Disposal - Commercial/Institutional, FIRE Version 5.0 Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, SCC 50200505 Pathological Incineration, August, 1995.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after April 25, 2002 (the date of issuance of the draft permit) unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

As of the date of issuance of this permit, there are no such economic incentive, marketable permit or emission trading programs that have been approved by USEPA.

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the Conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this

permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;
- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;
- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
 - i. Describe the physical or operational change;
 - ii. Identify the schedule for implementing the physical or operational change;
 - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
 - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
 - v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the Conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 8.6.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

If monitoring is required by any applicable requirements or conditions of this permit, a report summarizing the required monitoring results, as specified in the conditions of this permit, shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January - June	September 1
July - December	March 1

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined;
- d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;
- e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and

- g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

- a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:
 - i. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276
 - ii. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

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iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

iv. USEPA Region 5 - Air Branch

USEPA (AE - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

- b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

8.7 Obligation to Comply with Title I Requirements

Any term, condition, or requirement identified in this permit by T1, T1R, or T1N is established or revised pursuant to 35 IAC Part 203 or 40 CFR 52.21 ("Title I provisions") and incorporated into this permit pursuant to both Section 39.5 and Title I provisions. Notwithstanding the expiration date on the first page of this permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule [Section 39.5(7)(j)(iv) of the Act].

9.1.2 In particular, this permit does not alter or affect the following:

- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
- b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
- c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
- d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless such malfunction or breakdown is allowed by a permit condition [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated thereunder.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Section 39.5(7)(a) and (p)(ii) of the Act and 415 ILCS 5/4]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control

equipment), practices, or operations regulated or required under this permit;

- d. Sample or monitor any substances or parameters at any location:
 - i. At reasonable times, for the purposes of assuring permit compliance; or
 - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any

loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].
- b. Other records required by this permit shall be retained for a period of at least 5 years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Compliance Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance

certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Section, Air Regional Field Office, and USEPA Region 5 - Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.
- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as an attachment to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

- a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence:

- i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency.

Normally, an act of God such as lightning or flood is considered an emergency;

- ii. The permitted source was at the time being properly operated;
 - iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and
 - iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.
- b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations.

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, reopened, and reissued, for cause pursuant to Section 39.5(15) of the Act. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit;
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program;
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or inaccurate statement when establishing the emission standards or limitations, or other terms or conditions of this permit; and
- d. The Illinois EPA or USEPA determines that this permit must be revised to ensure compliance with the applicable requirements of the Act.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation under Section 39.5(15)(b) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable, and should any one or more be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected. The rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements

underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

The right to operate terminates on the expiration date unless the Permittee has submitted a timely and complete renewal application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(l), (n), and (o) of the Act].

10.0 ATTACHMENTS

10.1 Attachment 1 - Net Emissions Increases/Decreases

Table 1

Previous Contemporaneous Emissions Increases

<u>Emission Unit/Activity</u>	<u>Permit</u>	<u>Date Issued</u>					
East Campus Boilers and Engines	97050128	December 1, 1997					
	<u>CO</u> (Ton/yr)	<u>NO_x</u> (Ton/yr)	<u>PM₁₀</u> (Ton/yr)	<u>SO₂</u> (Ton/yr)	<u>VOM</u> (Ton/yr)		
	+99.05	-40.7	-6.11	+21.47	+20.76		

Table 2

Historical Operation and Emissions from the Existing West Campus Boilers

Table 2a

1996-1997 Average Fuel Usage

<u>Emission Unit</u>	<u>Natural Gas Usage</u> (Mft ³ /yr)	<u>No. 6 Fuel Oil Usage</u> (1,000 gal/yr)
Boiler No. 1	51.3504	1,670.0490
Boiler No. 2	100.8295	2,060.5275
Boiler No. 3	61.1430	639.4780
Boiler No. 4	53.9524	564.9650

Table 2b

1996-1997 Average Emissions from the Existing West Campus Boilers

<u>Emission Unit</u>	<u>CO</u> (Ton/yr)	<u>E M I S S I O N S</u> <u>NO_x</u> (Ton/yr)	<u>PM₁₀</u> (Ton/yr)	<u>SO₂</u> (Ton/yr)	<u>VOM</u> (Ton/yr)
Boiler No. 1 (Gas)	2.16	7.19	0.20	0.02	0.14
Boiler No. 1 (Oil)	4.18	39.25	7.29	129.79	0.94
Boiler No. 2 (Gas)	4.23	14.12	0.38	0.03	0.28
Boiler No. 2 (Oil)	5.15	48.42	8.99	160.13	1.16
Boiler No. 3 (Gas)	2.57	8.56	0.23	0.02	0.17
Boiler No. 3 (Oil)	1.60	15.08	2.79	49.70	0.36
Boiler No. 4 (Gas)	2.27	7.55	0.21	0.02	0.15
<u>Boiler No. 4 (Oil)</u>	<u>1.41</u>	<u>13.28</u>	<u>2.46</u>	<u>43.91</u>	<u>0.32</u>
<u>Totals</u>	<u>23.57</u>	<u>153.45</u>	<u>22.55</u>	<u>383.62</u>	<u>3.52</u>

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This table defines the actual emissions from natural gas and No. 6 fuel oil combustion from the existing West Campus boilers averaged over the calendar years 1996 and 1997 and are based on the actual fuel usage, standard emission factors, and a sulfur content for the fuel oil of 0.99 percent by weight.

Table 3

Emission Offsets from the Existing East Campus Generators

Table 3a

1996-1997 Average Operation and Emissions from Existing East Campus Generators

<u>Emission Unit</u>	<u>Operating Hours (Hours/year)</u>	<u>E M I S S I O N S</u>	
		<u>CO (Ton/yr)</u>	<u>VOM (Ton/yr)</u>
East Campus Generator #1	7,951.78	133.59	34.00
<u>East Campus Generator #2</u>	7,691.30	<u>131.14</u>	<u>19.61</u>
Totals		264.73	53.61

This table defines the actual emissions of carbon monoxide (CO) and volatile organic material (VOM) from the existing East Campus generators averaged over the calendar years 1996 and 1997 and are based on the actual operating hours and the emission rates determined from the most recent stack testing.

Table 3b

Future Permitted Emissions of the Existing East Campus Generators

<u>Emission Unit</u>	<u>CO (T/yr)</u>	<u>VOM (T/yr)</u>
East Campus Generator #1	20.04	9.90
<u>East Campus Generator #2</u>	<u>19.67</u>	<u>5.88</u>
Totals	39.71	15.78

This table defines the actual emissions of carbon monoxide (CO) and volatile organic material (VOM) from the existing East Campus generators based on the results of stack testing and the application of the catalytic converters with minimum control efficiencies of 85% for CO and 70% for VOM.

Table 3c

Net Change in Emissions from the Existing East Campus Generators

<u>Emission Unit</u>	<u>CO (T/yr)</u>	<u>VOM (T/yr)</u>
East Campus Generator #1 (Future Permitted, Table 3b)	20.04	9.90
East Campus Generator #2 (Future Permitted, Table 3b)	19.67	5.88
East Campus Generator #1 (Past Actual, Table 3a)	-133.59	-34.00
<u>East Campus Generator #2 (Past Actual, Table 3a)</u>	<u>-131.14</u>	<u>-19.61</u>
Totals	-225.02	-37.83

Table 4Net Changes in Emissions

<u>Emission Unit</u>	E M I S S I O N S				
	CO (T/yr)	NO _x (T/yr)	PM ₁₀ (T/yr)	SO ₂ (T/yr)	VOM (T/yr)
Gas Turbines #1-#3 (Combined)	+ 106.36	+ 87.18	+ 21.77	+ 8.19	+ 8.54
Duct Burners #1-#3 (Combined)	+ 60.68	+ 83.43	+ 7.58	+ 0.46	+ 14.11
West Generators #1-3 (Combined)	+ 30.00	+ 33.30	+ 3.39	+ 19.47	+ 21.57
West Boilers No. #1-#4 (Combined)	- 23.56	- 153.39	- 22.54	- 383.61	- 3.52
East Generators #1 & #2 (Combined)*	- 225.02	-----	-----	-----	- 37.83
<u>Previous Contemporaneous Increase</u>	<u>+ 99.05</u>	<u>- 40.7</u>	<u>- 6.11</u>	<u>+ 21.47</u>	<u>+ 20.76</u>
<u>Net Change in Emissions</u>	<u>+ 47.51</u>	<u>+ 9.82</u>	<u>+ 4.09</u>	<u>- 334.02</u>	<u>+ 23.93</u>

* There will be no net change in emissions of nitrogen oxides (NO_x), particulate matter less than 10 microns (PM₁₀) or sulfur dioxides (SO₂) as a result of the addition of catalytic converters to the existing East Campus Generators.

10.2 Attachment 2 - Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

10.3 Attachment 3 - Guidance on Revising This Permit

The Permittee must submit an application to the Illinois EPA using the appropriate revision classification in accordance with Sections 39.5(13) and (14) of the Act and 35 IAC 270.302. Specifically, there are currently three classifications for revisions to a CAAPP permit. These are:

1. Administrative Permit Amendment;
2. Minor Permit Modification; and
3. Significant Permit Modification.

The Permittee must determine, request, and submit the necessary information to allow the Illinois EPA to use the appropriate procedure to revise the CAAPP permit. A brief explanation of each of these classifications follows.

1. Administrative Permit Amendment
 - Corrects typographical errors;
 - Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;
 - Requires more frequent monitoring or reporting by the Permittee;
 - Allows for a change in ownership or operational control of the source where no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittees has been submitted to the Illinois EPA;
 - Incorporates into the CAAPP permit a construction permit, provided the conditions of the construction permit meet the requirements for the issuance of CAAPP permits; or
 - Incorporates into the CAAPP permit revised limitations or other requirements resulting from the application of an approved economic incentives rule, marketable permits rule, or generic emissions trading rule.
2. Minor Permit Modification
 - Do not violate any applicable requirement;

- Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- Do not require a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis;
- Do not seek to establish or change a permit term or condition for which there is no corresponding underlying requirement and which avoids an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the CAA; and
 - An alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the CAA.
- Are not modifications under any provision of Title I of the CAA; and
- Are not required to be processed as a significant permit modification.

An application for a minor permit modification shall include the following:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;
- The source' s suggested draft permit/conditions;
- Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and
- Information as contained on form 271-CAAPP for the Illinois EPA to use to notify USEPA and affected States.

3. Significant Permit Modification

- Applications that do not qualify as either minor permit modifications or as administrative permit amendments;

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- Applications requesting a significant change in existing monitoring permit terms or conditions;
- Applications requesting a relaxation of reporting or recordkeeping requirements; and
- Cases in which, in the judgment of the Illinois EPA, action on an application for modification would require decisions to be made on technically complex issues.

An application for a significant permit modification shall include the following:

- A detailed description of the proposed change(s), including all physical changes to equipment, changes in the method of operation, changes in emissions of each pollutant, and any new applicable requirements which will apply as a result of the proposed change. Note that the Permittee need only submit revised forms for equipment and operations that will be modified.

The Illinois EPA requires the information on the following appropriate forms to be submitted in accordance with the proper classification:

- Form 273-CAAPP, REQUEST FOR ADMINISTRATIVE PERMIT AMENDMENT FOR CAAPP PERMIT; or
- Form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT; or
- Form 200-CAAPP, APPLICATION FOR CAAPP PERMIT (for significant modification).

Application forms can be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms>.

Note that the request to revise the permit must be certified for truth, accuracy, and completeness by a responsible official.

Note that failure to submit the required information may require the Illinois EPA to deny the application. The Illinois EPA reserves the right to require that additional information be submitted as needed to evaluate or take final action on applications pursuant to Section 39.5(5)(g) of the Act and 35 IAC 270.305.

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10.4 Attachment 4

Form 199-CAAPP, Application For Construction Permit (For CAAPP Sources Only)



Illinois Environmental Protection Agency
 Division Of Air Pollution Control -- Permit Section
 P.O. Box 19506
 Springfield, Illinois 62794-9506

Application For Construction Permit (For CAAPP Sources Only)	For Illinois EPA use only
	I.D. number:
	Permit number:
	Date received:

This form is to be used by CAAPP sources to supply information necessary to obtain a construction permit. Please attach other necessary information and completed CAAPP forms regarding this construction/modification project.

Source Information			
1. Source name:			
2. Source street address:			
3. City:		4. Zip code:	
5. Is the source located within city limits? <input type="checkbox"/> Yes <input type="checkbox"/> No			
6. Township name:		7. County:	8. I.D. number:

Owner Information		
9. Name:		
10. Address:		
11. City:	12. State:	13. Zip code:

Operator Information (if different from owner)		
14. Name		
15. Address:		
16. City:	17. State:	18. Zip code:

Applicant Information	
19. Who is the applicant? <input type="checkbox"/> Owner <input type="checkbox"/> Operator	20. All correspondence to: (check one) <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Source
21. Attention name and/or title for written correspondence:	
22. Technical contact person for application:	23. Contact person's telephone number:

This Agency is authorized to require and you must disclose this information under 415 ILCS 5/39. Failure to do so could result in the application being denied and penalties under 415 ILCS 5 et seq. It is not necessary to use this form in providing this information. This form has been approved by the forms management center.

Summary Of Application Contents	
24. Does the application address whether the proposed project would constitute a new major source or major modification under each of the following programs: a) Non-attainment New Source Review – 35 IAC Part 203; b) Prevention of Significant Deterioration (PSD) – 40 CFR 52.21; c) Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources – 40 CFR Part 63?	<input type="checkbox"/> Yes <input type="checkbox"/> No
25. Does the application identify and address all applicable emissions standards, including those found in the following: a) Board Emission Standards – 35 IAC Chapter I, Subtitle B; b) Federal New Source Performance Standards – 40 CFR Part 60; c) Federal Standards for Hazardous Air Pollutants – 40 CFR Parts 61 and 63?	<input type="checkbox"/> Yes <input type="checkbox"/> No
26. Does the application include a process flow diagram(s) showing all emission units and control equipment, and their relationship, for which a permit is being sought?	<input type="checkbox"/> Yes <input type="checkbox"/> No
27. Does the application include a complete process description for the emission units and control equipment for which a permit is being sought?	<input type="checkbox"/> Yes <input type="checkbox"/> No
28. Does the application include the information as contained in completed CAAPP forms for all appropriate emission units and air pollution control equipment, listing all applicable requirements and proposed exemptions from otherwise applicable requirements, and identifying and describing any outstanding legal actions by either the USEPA or the Illinois EPA? Note: The use of "APC" application forms is not appropriate for applications for CAAPP sources. CAAPP forms should be used to supply information.	<input type="checkbox"/> Yes <input type="checkbox"/> No
29. If the application contains TRADE SECRET information, has such information been properly marked and claimed, and have two separate copies of the application suitable for public inspection and notice been submitted, in accordance with applicable rules and regulations?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable, No TRADE SECRET information in this application

Note 1: Answering "No" to any of the above may result in the application being deemed incomplete.

Signature Block	
This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete.	
30. I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete. Authorized Signature:	
BY:	
_____	_____
AUTHORIZED SIGNATURE	TITLE OF SIGNATORY
_____	_____/_____/_____
TYPED OR PRINTED NAME OF SIGNATORY	DATE

Note 2: An operating permit for the construction/modification permitted in a construction permit must be obtained by applying for the appropriate revision to the source's CAAPP permit, if necessary.

10.5 Attachment 5 - Guidance on Renewing This Permit

Timeliness - Pursuant to Section 39.5(5)(n) of the Act and 35 IAC 270.301(d), a source must submit to the Illinois EPA a complete CAAPP application for the renewal of a CAAPP permit not later than 9 months before the date of permit expiration of the existing CAAPP permit in order for the submittal to be deemed timely. Note that the Illinois EPA typically sends out renewal notices approximately 18 months prior to the expiration of the CAAPP permit.

The CAAPP application must provide all of the following information in order for the renewal CAAPP application to be deemed complete by the Illinois EPA:

1. A completed renewal application form 200-CAAPP, APPLICATION FOR CAAPP PERMIT.
2. A completed compliance plan form 293-CAAPP, COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE FOR CAAPP PERMIT.
3. A completed compliance certification form 296-CAAPP, COMPLIANCE CERTIFICATION, signed by the responsible official.
4. Any applicable requirements that became effective during the term of the permit and that were not included in the permit as a reopening or permit revision.
5. If this is the first time this permit is being renewed and this source has not yet addressed CAM, the application should contain the information on form 464-CAAPP, COMPLIANCE ASSURANCE MONITORING (CAM) PLAN.
6. Information addressing any outstanding transfer agreement pursuant to the ERMS.
7. a. If operations of an emission unit or group of emission units remain unchanged and are accurately depicted in previous submittals, the application may contain a letter signed by a responsible official that requests incorporation by reference of existing information previously submitted and on file with the Illinois EPA. This letter must also include a statement that information incorporated by reference is also being certified for truth and accuracy by the responsible official's signing of the form 200-CAAPP, APPLICATION FOR CAAPP PERMIT and the form 296-CAAPP, COMPLIANCE CERTIFICATION. The boxes should be marked yes on form 200-CAAPP, APPLICATION FOR CAAPP PERMIT, as existing information is being incorporated by reference.

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- b. If portions of current operations are not as described in previous submittals, then in addition to the information above for operations that remain unchanged, the application must contain the necessary information on all changes, e.g., discussion of changes, new or revised CAAPP forms, and a revised fee form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT, if necessary.
8. Information about all off-permit changes that were not prohibited or addressed by the permit to occur without a permit revision and the information must be sufficient to identify all applicable requirements, including monitoring, recordkeeping, and reporting requirements, for such changes.
9. Information about all changes made under 40 CFR 70.4(b)(12)(i) and (ii) that require a 7-day notification prior to the change without requiring a permit revision.

The Illinois EPA will review all applications for completeness and timeliness. If the renewal application is deemed both timely and complete, the source shall continue to operate in accordance with the terms and conditions of its CAAPP permit until final action is taken on the renewal application.

Notwithstanding the completeness determination, the Illinois EPA may request additional information necessary to evaluate or take final action on the CAAPP renewal application. If such additional information affects your allowable emission limits, a revised form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT must be submitted with the requested information. The failure to submit to the Illinois EPA the requested information within the time frame specified by the Illinois EPA, may force the Illinois EPA to deny your CAAPP renewal application pursuant to Section 39.5 of the Act.

Application forms may be obtained from the Illinois EPA website at <http://www.epa.state.il.us/air/forms.html>.

If you have any questions regarding this matter, please contact a permit analyst at 217/782-2113.

Mail renewal applications to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

CERTIFICATE OF SERVICE

I, JENNIFER A. VAN WIE, an Assistant Attorney General, certify that on the 3rd day of January 2013, I caused to be served by U.S. Certified Mail (return receipt requested), the foregoing Complaint to the parties named on the attached Service List, by depositing same in postage prepaid envelopes with the United States Postal Service located at 100 West Randolph Street, Chicago, Illinois 60601.



Jennifer A. Van Wie
Assistant Attorney General
Environmental Bureau
Illinois Attorney General's Office
69 W. Washington Street, Suite 1800
Chicago, Illinois 60602
(312) 814-0609