217/785-1705

CONSTRUCTION PERMIT -– PSD APPROVAL

PERMITTEE

Christian County Generation, LLC
Attn: Greg Kunkel
1044 North 115th Street, Suite 400
Omaha, Nebraska 68154

Application No.: 05040027 I.D. No.: 021060ACB
Applicant's Designation: SNG PLANT
Date Received: April 8, 2010 Date Issued: April 30, 2012
Subject: Production of Substitute Natural Gas and Generation of Electricity
Location: Taylorville Energy Center, 1630 North 1400 East Road, Taylorville

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission units and air pollution control equipment consisting of a plant to produce substitute natural gas (SNG) and generate electricity, including a gasification block with two coal gasifiers and a power block with two turbines, as described in the above referenced application. This permit is granted based upon and subject to the findings and conditions that follow.

In conjunction with this permit, approval is given with respect to the federal regulations for Prevention of Significant Deterioration of Air Quality (PSD) for the plant, as described in the application, in that the Illinois EPA finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the federal Clean Air Act, the federal PSD rules at 40 CFR 52.21, and a Delegation of Authority agreement between the USEPA and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with provisions of 40 CFR 124.19. This approval is based upon the findings that follow. This approval is subject to the following conditions. This approval is also subject to the general requirement that the plant be developed and operated consistent with the specifications and data included in the application and any significant departure from the terms expressed in the application, if not otherwise authorized by this permit, must receive prior written authorization from the Illinois EPA.

If you have any questions on this permit, please call Bob Smet at 217/785-1705.

Edwin C. Bakowski, P.E. Date Signed: _____
Manager, Permit Section
Division of Air Pollution Control

ECB:RPS:psj

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Findings

1a. Christian County Generation, LLC (CCG) has requested a permit for a plant that would gasify coal to make substitute natural gas (SNG). The SNG would either be directly sold as a product or used on-site to fuel combined cycle combustion turbines to generate electricity, which would be fed to the grid. The gasification block would have a nominal daily production capacity of 64 million standard cubic feet of SNG. The power block would have a nominal net electrical output of 602 MW.

b. CCG no longer plans to construct an Integrated Gasification Combined Cycle (IGCC) power plant, which would not have produced SNG, as addressed in a previously issued construction permit. Rather, that plant would have only produced electricity, using syngas from the gasification block as fuel for the combined cycle combustion turbines in the power block.

c. The design coal supply for the plant would be Illinois Basin coal. The design feed rate of coal to the gasification block would be 212 tons of coal per hour.

2. The plant would be located in Taylorville. The site is in an area that is currently designated attainment for all criteria pollutants.

3. The proposed plant is a major source under the PSD rules. This is because the plant will have potential emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_x), particulate matter (as PM, PM_{10} and $PM_{2.5}$), and carbon monoxide (CO) that are more than 100 tons per year, and emissions of greenhouse gases (GHG) that are more than of 100,000 tons per year as carbon dioxide equivalents (CO_2e). The plant's potential emissions of volatile of organic material will also be significant. (Refer to Attachment 1 Table IV for the potential emissions of the plant.)

4. The proposed plant is not a major source for emissions of hazardous air pollutants (HAPs), i.e., as limited by this permit, the potential emissions from the plant will be less than 10 tons of an individual HAP (e.g., methanol, formaldehyde), and will be less than 25 tons in aggregate for total HAPs. Therefore, the plant is not subject to National Emission Standards for Hazardous Air Pollutants (NESHAP), adopted by USEPA under 40 CFR 63 that apply to major sources of HAPs. A case-by-case determination of Maximum Achievable Control Technology (MACT) is also not required for the proposed plant pursuant to Section 112(g) of the federal Clean Air Act.

5. After reviewing the materials submitted by CCG, the Illinois EPA has determined that the project will (i) comply with applicable Board emission standards, (ii) comply with applicable federal emission standards, and (iii) utilize Best Available Control Technology (BACT) on emission units as required by PSD.

Note: The determinations of BACT made by the Illinois EPA for the various emission units at the proposed plant are contained in the

permit conditions for specific emission units that are headed by "Control Technology Determinations".

6. The air quality analysis submitted by CCG and reviewed by the Illinois EPA shows that the proposed project will not cause or contribute to violations of the National Ambient Air Quality Standard for NO_2, SO_2, PM_{10}, $PM_{2.5}$ and CO. The air quality analysis also shows compliance with the Class II allowable increment levels established under the PSD regulations.

7. The Illinois EPA has determined that the application for the proposed plant complies with all applicable Illinois Pollution Control Board Air Pollution Regulations and the federal Prevention of Significant Deterioration of Air Quality Regulations (PSD), 40 CFR 52.21.

8. In conjunction with the issuance of this construction permit, the Illinois EPA is also issuing an Acid Rain permit for the combined cycle turbines at the proposed plant to address requirements of the federal Acid Rain program. The turbines would be affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act. As affected units under the Acid Rain Program, CCG must hold SO_2 allowances each year for the actual emissions of SO_2 from the turbines. The turbines are also subject to emissions monitoring requirements pursuant to 40 CFR Part 75. As the Acid Rain permit relates to the Acid Rain Program, it is not considered part of the PSD approval.

9. A copy of the application, the project summary prepared by the Illinois EPA, a draft of this construction permit, and a draft of the Acid Rain permit were placed in a nearby public repository, and the public was given notice and an opportunity to examine this material and to participate in a public hearing and to submit comments on these matters.

SECTION 2: IDENTIFICATION OF SIGNIFICANT EMISSIONS UNITS

Subsection	Operation and/or Emission Unit(s)
4.1	Gasification Block – Gasification and Sulfur Recovery Unit
4.2	Power Block – Combustion Turbines
4.3	Material Handling
4.4	Cooling Tower
4.5	Auxiliary Boiler
4.6	Methanation Unit Startup Heater
4.7	Emergency Engines
4.8	Methanol Storage Tank
4.9	Equipment Components
4.10	Circuit Breakers
4.11	Roadway and Open Areas
4.12	Zero Liquid Discharge Systems
4.13	Air Separation Unit Oil Mist Vents
4.14	Steam Turbine Generator Maintenance

SECTION 3: SOURCE-WIDE PERMIT CONDITIONS

CONDITION 3.1: EFFECT OF PERMIT

a. This permit does not relieve the Permittee of the responsibility to comply with all local, state and federal regulations that are part of the applicable Illinois' State Implementation Plan, as well as all other applicable federal, state and local requirements.

b. In particular, this permit does not relieve the Permittee from the responsibility to carry out practices during the construction and operation of the plant, such as application of water or dust suppressant sprays to unpaved traffic areas, as necessary to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

CONDITION 3.2: VALIDITY OF PERMIT AND COMMENCEMENT OF CONSTRUCTION

a. This permit shall become invalid if construction is not commenced within 18 months after this permit becomes effective, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable period of time, pursuant to 40 CFR 52.21(r)(2). The Illinois EPA may extend the 18-month period upon a satisfactory showing that an extension is justified. This condition supersedes Standard Condition 1.

b. For purposes of the above provisions, the definitions of "construction" and "commence" at 40 CFR 52.21 (b)(8) and (9) shall apply, which requires that a source must enter into a binding agreement for on-site construction or begin actual on-site construction. (See also the definition of "begin actual construction," 40 CFR 52.21 (b)(11).)

CONDITION 3.3: EMISSIONS OF HYDROGEN SULFIDE (H_2S)

a. This permit is issued based on this plant not being a significant source of hydrogen sulfide (H_2S), i.e., the emissions of H_2S will be less than 10 tons per year. Accordingly, for H_2S, the plant is not subject to the PSD provisions of 40 CFR 52.21 that are applicable to significant emissions from major sources.

CONDITION 3.4: EMISSIONS OF HAZARDOUS AIR POLLUTANTS (HAPs)

a. This permit is issued based on this plant not being a major source of hazardous air pollutants (HAPs), i.e., the emissions of individual HAPs will each be less than 10 tons per year and the total emissions of HAPs will be less than 25 tons per year so that the plant is not subject to the provisions of 40 CFR Part 63 that are applicable to major sources of HAPs.

b. The emissions of lead and mercury from the plant shall not exceed 0.02 and 0.01 tons/year, respectively.

Note: See the unit-specific conditions of this permit for further limits on HAP emissions.

c. For the purpose of this condition and other conditions of this permit for which the regulatory definitions of the terms “startup,” “shutdown” and “malfunction” under the NSPS are not applicable, the definitions of the terms “startup,” “shutdown” and “malfunction” under the NESHAP, at 40 CFR 63.2, shall apply and be used, unless these terms are specifically defined in the permit for the affected unit.

d. The Permittee shall keep records of the monthly and annual emissions of HAPs from the plant, with supporting documentation and calculations, to demonstrate that the plant is not a major source of emissions of HAPs. These records shall be compiled on at least an annual basis and the results reported to the Illinois EPA with the Annual Emission Reports that the Permittee must submit for the plant pursuant to 35 IAC Part 254.

CONDITION 3.5: MISCELLANEOUS ANCILLARY EQUIPMENT

a. i. This permit is issued based on negligible emissions of VOM from storage tanks not addressed in Section 4.8 of this permit, including storage tanks for diesel fuel, triethylene glycol, and ammonia storage tanks. For this purpose, VOM emissions from each tank shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

ii. Storage tanks for diesel fuel shall be equipped or operated with submerged fill pipes.

Note: Condition 3.5(a) constitutes the determination of Best Available Control Technology (BACT) for ancillary equipment, as required under the PSD rules.

b. This permit is issued based on negligible emissions of each PSD pollutant from the wastewater treatment plant, other than the preconcentrator and crystallizer vents of the Zero Liquid Discharge System, which are addressed in Section 4.12 of this permit. For this purpose, emissions of any regulated pollutant shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

c. i. Ancillary equipment shall comply with all applicable emission standards and control requirements of applicable federal New Source Performance Standards (NSPS), 40 CFR Part 60.

ii. Ancillary equipment shall comply with all applicable emission standards and control of requirements of applicable state emission regulations at Title 35, Subtitle B, Chapter I, Subchapter c.

iii. The Permittee shall fulfill applicable requirements of applicable regulations, including provisions for testing, monitoring, recordkeeping, notification and reporting, for ancillary equipment

CONDITION 3.6: GOOD AIR POLLUTION CONTROL PRACTICES

The Permittee shall operate and maintain all emission units at this plant, including associated air pollution control equipment, in a manner consistent with good air pollution control practice, as follows:

a. At all times, including periods of startup, shutdown, malfunction or breakdown, operate as practicable to minimize emissions.

b. Conduct routine inspections and perform appropriate maintenance and repairs to facilitate proper functioning of equipment and minimize or prevent malfunctions and breakdowns.

c. Install, calibrate and maintain required monitoring devices and instrumentation in accordance with good monitoring practices, following the manufacturer’s recommended operating and maintenance procedures or such other procedures as otherwise necessary to assure reliable operation of such devices.

CONDITION 3.7: COMPLIANCE WITH EMISSION STANDARDS AND EMISSION LIMITS

a. The emission limits set by this permit, including BACT limits and other permit limits for emissions, apply at all times unless otherwise specified in a particular provision.

b. i. Unless otherwise provided by applicable rules, emission standards for particulate matter under applicable regulations that are referenced in the conditions of this permit address only filterable particulate, as would be measured by USEPA Method 5 or other appropriate USEPA Test Methods.

   ii. Unless otherwise provided by applicable provisions of this permit, emissions limits for PM_{10} and $PM_{2.5}$ set by this permit address both filterable and condensable particulate.

c. Emission limits set by this permit in lbs/million Btu (lbs/mmBtu) shall apply based on the higher heating value (HHV) of the fuel being burned in the emission unit, rather than the lower heating value (LHV), unless otherwise specified in the relevant permit condition.

d. When emission testing is conducted, compliance with hourly limits set by this permit shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.

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

   ii. For the first year (12 months) of operation, compliance shall be determined for a cumulative total of monthly data, i.e. from the

sum of the data for the current month and data for all preceding months.

CONDITION 3.8: RECORDS FOR MONITORING SYSTEMS AND INSTRUMENTATION

a. The Permittee shall keep records of the data measured by required monitoring systems and instrumentation. Unless otherwise provided in a particular condition of this permit, the following requirements shall apply to such recordkeeping:

   i. For required monitoring systems, data shall be automatically recorded by a central data system, dedicated data logging system, chart recorder or other data recording device. If an electronic data logging system is used, the recorded data shall be the hourly average value of the particular parameter for each hour. During periods when the automatic recording device is out of service, data shall be recorded at least once per shift for periods when the associated emission unit(s) are in service.

   ii. For required instrumentation, the measured data shall be recorded manually at least once per day, unless otherwise specified, with data and time both recorded, for periods when the associated emission unit(s) are in service, provided however that if data from an instrument is recorded automatically, the above provisions for recording of data from monitoring systems shall apply and manual recording of data is not required.

b. The Permittee shall keep records for the operation, calibration maintenance and repair of required monitoring systems and instrumentation. These operating records shall, at a minimum, identify the date and duration of any time when a required monitoring instrument or device was not in operation, with explanation; the performance of manual quality control and quality assurance procedures for the system; and maintenance and repair activities performed for the system.

c. The Permittee shall maintain a file containing a copy of the specifications for each required monitoring device or instrument and the recommended operating and maintenance procedures for the device as provided by its manufacturer.

CONDITION 3.9: RECORDS FOR OPACITY MEASUREMENTS

a. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for emission units at the plant that it conducts or that are conducted on its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to this permit or a request from the Illinois EPA, or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the affected operations, the observed opacity, and copies of the raw data sheets for the measurements.

CONDITION 3.10: RETENTION AND AVAILABILITY OF RECORDS

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

b. The Permittee shall retrieve and print on paper during normal plant 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 plant inspection.

CONDITION 3.11: ADDRESSES FOR THE ILLINOIS EPA

a. Any required reports and notifications shall be sent to the Illinois EPA at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance and Enforcement Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/524-4710

b. A copy of all required reports and notifications, except the Annual Emission Report required by 35 IAC Part 254, shall also be sent to the Illinois EPA Air Regional Field Office at the following address:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

Telephone: 618/346-5120 Fax: 618/346-5155

CONDITION 3.12: AUTHORIZATION TO OPERATE EMISSION UNITS

a. i. Under this permit, each gasifier, gas processing train, and sulfur recovery unit may be operated for a period that ends 365 days after initial startup to allow for equipment shakedown and required emissions testing. This period may be extended by Illinois EPA upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.

ii. The remainder of the plant, excluding the above units, may be operated under this construction permit for a period of 365 days after initial startup of the first gasifier. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties experienced during shakedown of the plant.

b. Upon successful completion of required emission testing, the Permittee may continue to operate emission units as allowed by Section 39.5(5) of the Environmental Protection Act.

c. These conditions supersede Standard Condition 6.

CONDITION 3.13: STANDARD CONDITIONS

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

SECTION 4: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

CONDITION 4.1: UNIT-SPECIFIC CONDITIONS FOR THE GASIFICATION BLOCK

4.1.1 Description of Emission Units

The affected emissions units for the purpose of these unit-specific permit conditions are the units in the gasification block. In the gasification block, two gasifiers convert coal into a synthesis gas or “syngas”. The raw syngas from the gasifiers is then processed to remove contaminants and prepare it for conversion into substitute natural gas (SNG) in the Methanation Unit. The first step in the cleanup of raw syngas is a particulate removal system on each gasifier. Further cleanup of the raw gas then takes place in a gas processing or cleanup train. The gasification block has a single gas cleanup train for the raw syngas output from both gasifiers. In the gas cleanup train, a carbon bed removes mercury from the raw syngas. Sulfur compounds are removed in an Acid Gas Removal (AGR) Unit and sent to the Sulfur Recovery (SR) Unit. In addition to removing sulfur compounds from the raw syngas, the AGR Unit also removes CO_2. The SR Unit uses the Claus Process to convert the sulfur compounds recovered from the raw syngas into liquid sulfur, a byproduct from the plant. The tailgas from the SR Unit will normally be recycled backed to the AGR Unit and not vented to the atmosphere.

During normal operation of the gasification block, emissions occur from the atmospheric vent from the AGR Unit, incidental operations (e.g., storage and handling of sulfur), and the natural gas fired pilot flame in the flare. The CO_2 stream from the AGR unit passes through a catalytic oxidizer to control the CO, VOM and methane present in this stream, before it is vented. This oxidizer also converts the residual sulfur compounds present in this stream to SO_2. The emissions from incidental operations are controlled by another oxidizer followed by a scrubber. The oxidizer converts sulfur compounds in the emissions to SO_2. The caustic scrubber then controls these SO_2 emissions.

During startup, shutdown, and certain upsets of a gasifier or the gas cleanup train, the gasification block may also have emissions from combustion of process gas streams in the flare. These flaring emissions must be minimized through appropriate planning and remedial action to prevent and minimize events that would otherwise necessitate flaring. During startup, shutdown and upsets of the SR Unit, the tailgas from this unit is controlled by the oxidizer and scrubber system that normally only controls incidental operations.

If the CO_2 stream from the AGR Unit is geologically sequestered, as may occur in the future, the atmospheric vent of the AGR would no longer be an emission point during normal operation of the gasification block and sequestration system. Instead, emissions would only occur from this stream when it is not sequestered, e.g., during periods of startup or shutdown when the stream is not suitable for sequestration or when the facilities needed for sequestration of this stream are out of service.

4.1.2-1 Control Technology Determination for the Gasification Process

a. The gasification block shall be designed, equipped and maintained with the following features to minimize and control emissions.

   i. Cleanup systems for the raw syngas for removal of particulate matter, and sulfur compounds, with removal of sulfur compounds shall be conducted with an absorption solvent such as Rectisol® solvent or other comparable absorption solvent.

   ii. Vent systems so that any discharge of process gas (i.e., syngas or acid gas streams) from the gasifiers or gas cleanup units that is not sent to a methanation unit, sulfur recovery plant, or otherwise used can be vented to a combustion device (flare, oxidizer, or other combustion unit) for disposal.

   This requirement does not apply to air or nitrogen introduced into a unit during periods when a unit is shut down, as might be needed to purge the unit in preparation for maintenance or startup.

   iii. An oxidizer or other combustion unit to control CO, VOM and methane in the CO_2 vent streams from the AGR Unit.

   iv. A Claus-type sulfur recovery unit (SR Unit) or other type of SRU for processing the sulfur in the H_2S-rich gas stream produced from regeneration of the adsorption solvent used for control of sulfur compounds into a stable product or waste.

   v. The flare shall be designed to achieve destruction and removal efficiencies of at least 98 percent for CO and VOM and destruction and removal efficiencies of at least 99 percent for methanol and methane.

b. The gasification block shall be operated to comply with the following work practices:

   i. All discharges of process gas to the atmosphere shall be vented to a flare, oxidizer, or other combustion device through a closed vent system, except when a failure of equipment or planning preclude the safe disposal of a gas stream in this manner.

   ii. The operating level of gasifiers at any time shall not exceed the actual working capacity of the gas processing train at that time.

   iii. Process gas shall not be flared except during startup, shutdown, or malfunction due to either failure of equipment

or planning, which precludes the safe handling of the process gas by the gas processing trains.

iv. All acid gas streams produced by cleanup of syngas shall be processed by the SR Unit except in the event of startup or shutdown, when acid gas streams shall be sent to the oxidizer and scrubber for the SR Unit or in the event of malfunction, when acid gas streams shall be sent to the flare or to the oxidizer and scrubber for the SR Unit.

v. Emissions from startup of gasifiers shall be minimized by good operating practices, including coordination with the startup and operation of the gas processing trains.

vi. The flare shall be operated to comply with all relevant requirements of 40 CFR 60.18 except when flaring syngas. As an alternative to complying with the relevant requirements of 40 CFR 60.18 for flaring of syngas, the Permittee may conduct periodic visual observations in accordance with Condition 4.1.8-2(g).

vii. The flare shall be fitted with an automatic igniter device for the pilot flame, which shall be maintained in good working order. The flare shall use nitrogen as a purge gas. Only SNG or natural gas shall be used as fuel for the pilot burners for the flare.

c. The good air pollution control practices used for the gasification block to minimize emissions, including flaring and its associated emissions, shall include the following:

i. Operation of emission units in accordance with written operating procedures that include startup, shutdown, and malfunction plan(s), as further addressed in Condition 4.1.5-2.

ii. Inspection, maintenance, and repair of units in accordance with written maintenance procedures, as further addressed in Condition 4.1.5-2.

iii. Implementation of flare minimization planning, as further addressed in Condition 4.1.5-3.

d. i. The emissions from the CO_2 vent of AGR Unit shall not exceed the following limits:

A. Emissions of GHG shall not exceed 111.4 tons of CO_2e per million scf of SNG produced by the Gasification Block, annual average, with SNG production determined on a gross basis at the outlet of the Methanation Unit, with operational monitoring in accordance with Condition 4.1.8-1(c).

B. Emissions of SO_2, CO, VOM, and PM shall not exceed the hourly limits in Condition 4.1.6(a).

ii. The emissions from the flare shall not exceed the following limits:

A. Emissions of SO_2, NO_x, CO, VOM, and PM shall not exceed the hourly limits in Condition 4.1.6(b). For the purpose of determining compliance with the limit for CO, emissions shall be determined from the CO content of flared process gas using a destruction efficiency of no more than 98 percent for a properly operating flare.

B. The emissions of SO_2, NO_x, CO, VOM, PM, and CO_2e shall not exceed the annual limits in Condition 4.1.6(b). For the purpose of determining compliance with the limits for CO, VOM, and CO_2e, emissions shall be determined from the CO, VOM, and methane contents of the flared process gas using destruction and removal efficiencies for a properly operating flare of no more than 98 percent for CO and VOM other than methanol and 99 percent for methanol and methane.

Note: This condition sets BACT limits for emissions from flaring to accompany the equipment and work practice requirements established as BACT in Condition 4.1.2(a), (b) and (c).

4.1.2-2 Control Technology Determination for the Sulfur Recovery Unit

a. The sulfur recovery unit shall be operated and maintained with a thermal oxidizer followed by a caustic scrubber.

b. i. The emissions of SO_2 from the Sulfur Recovery Unit shall not exceed 0.63 lb/hour except during startup, shutdown, malfunction or breakdown.*

ii. During periods of startup, shutdown, malfunction or breakdown,* emissions of SO_2 from the sulfur recovery unit shall not exceed 64.4 lbs/hour.

* For breakdowns, the alternative limit shall only apply for the three-year period following commencement of operation of the gasification block. After this period, the SO_2 emissions of the sulfur recovery unit shall not exceed 0.63 lb/hour, except during startup, shutdown or malfunction.

c. Good air pollution control practices shall be used for the sulfur recovery unit to minimize emissions, including the measures specified in Condition 4.1.2-1(c)(i) and (ii), during startup, shutdown and malfunction, as further addressed in Condition 4.1.5-2.

d. The emissions of NO_x, CO, VOM, and PM from the sulfur recovery unit shall not exceed the hourly limits in Condition 4.1.6(c).

e. The emissions of CO_2e from the sulfur recovery unit shall not exceed the annual limits in Condition 4.1.6(c).

4.1.3 Applicable State Emission Standards

Affected units are subject to the following state emission standards.

a. The emission of smoke or other particulate matter from an emission unit shall not have opacity greater than 30 percent, pursuant to 35 IAC 212.123(a), except as authorized by 35 IAC Part 201 Subpart I.

b. The emissions of SO_2 into the atmosphere shall not exceed 2000 ppm, pursuant to 35 IAC 214.301.

c. Notwithstanding Conditions 4.1.3(a) and (b), the Permittee is authorized pursuant to 35 IAC 201.149, 201.161 and 201.262 to operate the affected flare in violation of the applicable standards in 35 IAC 212.123(a) and 214.301 (Condition 4.1.3(a) and (b)) during malfunction or breakdown. This authorization is subject to the following terms and conditions.

i. This authorization only allows such continued operation as necessary to prevent risk of injury to personnel or severe damage to equipment, provided however, that operation shall not continue solely for the economic benefit of the owner or operator of the plant. As provided by 35 IAC 201.265, this authorization does not shield the source from enforcement for any such violation and shall only constitute a prima facie defense to such an enforcement action, provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

ii. The Permittee shall operate and maintain the affected flare in accordance with a Startup, Shutdown and Malfunction Plan, as further addressed by Condition 4.1.5-2.

iii. Upon occurrence of excess emissions from the flare due to malfunction or breakdown, the Permittee shall as soon as practicable, repair the unit(s) that are responsible or remove unit(s) from service, so that excess emissions cease in accordance with Conditions 3.5 and 4.1.5-1(e).

iv. The Permittee shall fulfill applicable recordkeeping and reporting requirements of Conditions 4.1.10-1(g), 4.1.11-1(b), and 4.1.11-2(b).

4.1.4 Non-Applicability Provisions

a. This permit is issued based on affected units not being subject to state emission standards for fuel combustion emission units because the units are chemical process units and any recovery of heat from the units is incidental to this function.

b. This permit does not address the control requirements of 35 IAC 215.301, Use of Organic Material, for affected units, as any emissions of organic material directly from such units are to be flared or oxidized (i.e., AGR vent catalytic oxidizer unit), which will assure compliance with the alternative standard of 35 IAC 215.302, providing at least 85 percent control of emissions of organic material.

4.1.5-1 Operating Requirements

a. The amount of solid feedstock fed to the gasification block shall not exceed 5,100 tons per day, weekly average and 1,860,000 tons/year.

b. The total flow of pilot gas to the flare shall not exceed 8,600 scf per day, 30-day rolling average.

c. The gas processing train shall be designed, equipped and maintained with an activated carbon bed for removal of mercury from the raw syngas.

d. i. The sulfur storage facility for the sulfur recovery unit shall be vented back into the sulfur recovery unit or the associated thermal oxidizer.

ii. The combustion temperature within the Sulfur recovery unit oxidizer combustion chamber, 3-hour block average, when emissions are ducted to this device shall not be more than 50°F below the average temperature during the most recent emission test that demonstrated compliance and in no case shall be less than 1,400°F.

e. The Permittee shall operate the gasification block, including the sulfur recovery unit and associated air pollution control equipment, in accordance with good air pollution control practice to minimize emissions, by operating in accordance with detailed written operating procedures as it is safe to do so. These procedures at a minimum shall:

i. Address startup, normal operation, shutdown and malfunction events.

ii. Fulfill applicable requirements of Condition 4.1.5-2 for a Startup, Shutdown and Malfunction Plan, including detailed provisions for review of relevant operating parameters of the gasification train during startup, shutdown and malfunction as necessary to make adjustments and corrections to reduce or eliminate any excess emissions.

iii. With respect to startup address readily foreseeable startup scenarios and provide for appropriate review of the operational condition of a unit prior to initiating startup.

iv. A. With respect to malfunction, identify and address likely malfunction events with specific programs of corrective actions, and provide that upon occurrence of a malfunction that will result in emissions in excess of the otherwise applicable limits in Condition 4.1.2, 4.1.3 and 4.1.4, the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the gasification train or remove the gasification train from service so that excess emissions cease.

B. Consistent with the above, if the Permittee has maintained and operated the gasification block so that malfunctions are infrequent, sudden, not caused by poor maintenance or careless operation, and in general are not reasonably preventable, the Permittee shall proceed in accordance with good air pollution control practice and need not immediately begin shutdown. In no case shall shutdown be delayed solely for the economic benefit of the Permittee.

f. The Permittee shall handle the feedstock for the gasifiers in accordance with a written Feedstock Management Plan. (Refer to Condition 4.1.5-4).

g. The Permittee shall review its operating and maintenance procedures for units and its feedstock management plan for gasifiers, as required above on a regular basis and revise them if needed consistent with good air pollution control practice based on actual operating experience and equipment performance. This review shall occur at least annually if not otherwise initiated by occurrence of a startup, shutdown, malfunction or breakdown that is not adequately addressed by the existing plans or a specific request by the Illinois EPA for such review.

4.1.5-2 Startup, Shutdown and Malfunction Plans

a. i. The Permittee shall develop, implement, and maintain written Startup, Shutdown, and Malfunction Plans (SSM Plan) that describe, in detail, procedures for operating and maintaining the various emission units in the gasification block, including associated emission control systems, during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process, air pollution control and monitoring equipment used to comply with the relevant emission standards and emission control requirements. This SSM Plan shall be developed to satisfy the purposes set forth in 40 CFR 63.6(e)(3)(i)(A), (B) and (C) as amended April 20, 2006. In this regard, with respect to startups, this SSM Plan shall address readily foreseeable startup scenarios. With respect to malfunction, this SSM Plan shall identify and address likely malfunction events with specific programs of corrective actions, and provide that upon occurrence of a malfunction that will result in a deviation, that the

Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the gasifiers or remove gasifiers from service so that the deviation ceases.

ii. For the purpose of this condition and other conditions of this permit for which the regulatory definitions of the terms “startup,” “shutdown” and “malfunction” under the NSPS are not applicable, the definitions of the terms “startup,” “shutdown” and “malfunction” under the NESHAP, at 40 CFR 63.2 (as amended April 20, 2006), shall apply and be used. In addition, as related to the scope of the SSM Plan with respect to malfunctions, the plan shall also address and apply to failures of equipment that could reasonably be preventable and that may be attributable to poor maintenance or careless operation, and shall not be restricted to malfunctions as defined by 40 CFR 63.2. Similarly, requirements for recordkeeping, notification and reporting related to malfunctions shall be applicable for failures of equipment irrespective of the cause of such failure.

Note: Although the plant is not a major source of HAPs for purposes of Section 112 of the Clean Air Act, this permit refers to provisions of the federal NESHAP to establish appropriate work practices for the startup, shutdown and malfunction of emission units in the gasification block.

b. The Permittee shall at all times, including periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2, operate and maintain units in the gasification block, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the applicable standards and limits or comply with the applicable SSM Plan, as provided below. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Illinois EPA and USEPA, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the SSM Plan), review of operation and maintenance records, and inspection of units. [Reflects 40 CFR 63.6(e)(1)(i) as amended April 20, 2006]

i. During periods of startup, shutdown, and malfunction of unit(s) in the gasification block, the Permittee shall operate and maintain such unit(s), including associated air pollution control and monitoring equipment, in accordance with the procedures specified in the applicable SSM Plan. The Permittee shall correct malfunctions as soon as practicable after their occurrence in accordance with the SSM Plan. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, the Permittee shall comply by minimizing emissions during such event consistent with safety and good air pollution control

practices. [Reflects 40 CFR 63.6(e)(1)(ii) and (3)(ii) as amended April 20, 2006]

ii. When actions taken by the Permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the applicable SSM Plan, the Permittee shall keep records for that event which demonstrate that the procedures specified in the Plan were followed. In addition, the Permittee shall keep records of these events as specified in 40 CFR 63.10(b), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the Permittee shall confirm in the periodic compliance report (refer to Conditions 4.1.11-1(c) and 4.1.11-2(c)) that actions taken during periods of startup, shutdown, and malfunction were consistent with the SSM Plan. [Reflects 40 CFR 63.6(e)(3)(iii) as amended April 20, 2006]

iii. If an action taken by the Permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) of unit(s) is not consistent with the procedures specified in the applicable SSM Plan, and the unit(s) exceeds a relevant emission standard or limit, then the Permittee must record the actions taken for that event and must promptly report such actions as specified by 40 CFR 63.6(d)(5), unless otherwise specified elsewhere in this permit or when superseded in the CAAPP Permit for the plant. [Reflects 40 CFR 63.6(e)(3)(iv) as amended April 20, 2006]

c. i. The Permittee shall develop its initial SSM Plan prior to the initial startup of the gasification block. The Permittee shall make changes to the SSM Plan if required by the Illinois EPA or as necessary to satisfy the requirements of this permit or address other changes to procedures for the gasification block. [Reflects 40 CFR 63.6(e)(3)(vii) and (viii) as amended April 20, 2006]

ii. This SSM Plan is a record required by this permit, which the Permittee must retain in accordance with the general requirements for retention and availability of records. In addition, when the Permittee revises the SSM Plan, the Permittee must also retain and make available the previous (i.e., superseded) versions of the Plan for a period of at least 5 years after such revision. [Reflects 40 CFR 63.6(e)(v) and 63.10(b)(1) as amended April 20, 2006]

4.1.5-3 Flaring Minimization Planning

a. The flaring minimization planning conducted by the Permittee for the gasification block pursuant to Condition 4.1.2-1(c)(iii) shall include the preparation and maintenance of Flare

Minimization Plans (FM Plan) for the gasification block that include the following:

i. Technical information for the gasification block, including a general description of the gasification block, including process flow diagram(s) depicting all process units; detailed process flow diagram(s) for the affected flare, including process gas lines, knockout pots, surge drums, and other significant components of the flare.

ii. A general description of the Permittee's written procedures for the operation of the gasification block.

iii. A detailed description of the Permittee's procedures for flaring due to occurrence of process upsets or equipment failures or other reasons, including the provisions in these procedures that act to minimize flaring.

iv. A detailed description of the Permittee's procedures to minimize flaring in conjunction with the startup and shutdown of equipment.

v. A general description of the Permittee's procedures for preventative maintenance of equipment in the gasification block, including the provisions in these procedures that should act to minimize flaring.

vi. A description of the established responsibilities of different personnel at the plant for the operation and maintenance of the gasification block.

vii. A detailed description of the Permittee's procedures for periodic evaluation of flaring activity generally and specific evaluation of flaring incidents, including identification of the causes of flaring, assessment of measures to eliminate or reduce such flaring, and implementation of feasible measures to reduce flaring.

viii. An evaluation of preventative measures to reduce the occurrence and magnitude of flaring for the gasification block, including a schedule for the expeditious implementation of all feasible prevention measures to address the following, including consideration of past flaring activity as information for actual operation of the plant becomes available:

A. Flaring that could reasonably be expected to occur or has occurred during startup or shutdown.

B. Flaring that could reasonably be expected to occur or has occurred due to issues of syngas quality.

C. Flaring caused by the recurrent failure of equipment or a process to operate in a normal or usual manner. The evaluation shall consider the adequacy of

existing maintenance schedules and protocols for such equipment.

b. After the shakedown of the gasification block is complete, the FM Plan shall also include a description of additional procedures or other measures that are installed or implemented to reduce flaring from the gasification block, which addresses the following:

   i. Measures taken within the last five years to reduce flaring which shall specify the year of installation or implementation of each measure.

   ii. Measures that are planned to reduce flaring, which shall specify the year in which operation or implementation of each planned measure is scheduled.

c. i. The Permittee shall submit a copy of the initial FM Plan to the Illinois EPA for review and comments at least 90 days prior to initial startup of the gasification block.

   ii. The Permittee shall review the FM Plan on at least an annual basis and revise the plan so that it is kept current and reflects any changes in the operation of the gasification block.

   iii. The Permittee shall make changes to the FM Plan if required by the Illinois EPA or USEPA to address an apparent deficiency identified in this plan or as otherwise needed to address apparent or possible deficiencies in the Plan identified by the Permittee.

   iv. The FM Plan is a record required by this permit, which the Permittee must retain and make available to the Illinois EPA and USEPA in accordance with the general requirements for retention and availability of records. In addition, when the Permittee revises the Plan, the Permittee must also retain and make available the previous version of the Plan for a period of at least 5 years after such revision.

d. After the shakedown of the gasification block is complete, the Permittee shall also conduct an event-specific investigation or “Root-Cause Analysis” into each “Flaring Incident” at the gasification block to determine the cause(s) of the incident, to take reasonable steps to correct the condition(s) that caused or contributed to such incident, and to further minimize emissions from flaring, as follows. For this purpose, a Flaring Incident is defined as a flaring event that produces excess emissions above permit limits and accompanies the unscheduled shutdown of the gasification block or a malfunction of a process unit that results in process gas being routed to the flare.

   i. A Root Cause Analysis for a Flaring Incident shall consist of a systematic investigation of the incident by identifying and assessing corrective measures that are

available to prevent or reduce the likelihood of recurrence of a similar incident (including design, operation and maintenance changes), and developing a program of interim and long-term corrective actions, if any, as are consistent with good engineering practice, to minimize the likelihood of a recurrence of the Root Cause and all contributing causes to the incident, with a schedule for implementation of such measures if not already completed.

ii. The Permittee shall submit a report to the Illinois EPA for each Root Cause Analysis, which report shall include the following information:

A. Date, time and duration of the incident, and a description of the incident. To the extent that the incident involved multiple releases within a 24-hour period or within subsequent, contiguous non-overlapping periods, the report shall set forth the date, start time and duration of each release.

B. The amount of process gas flared during the incident and the estimated actual emissions of CO, PM, NO_x, VOM and SO_2 from the incident, with supporting data and calculations.

C. A detailed analysis that sets forth the root cause and all contributing causes to the incident, to the extent determinable.

D. An analysis of the measures, if any, that are available to reduce the likelihood of a recurrence of an incident resulting from the same root cause or contributing causes in the future, which analysis discusses and evaluates the alternatives, if any, that are available, including possible operation and maintenance changes, the probable effectiveness of various alternatives, and the cost of the various alternatives.

E. If the analysis concludes that corrective actions are required, a description of those actions and, if not already completed, a schedule for their implementation, with planned commencement and completion dates of various actions.

F. If the analysis concludes that corrective action is not needed, an explanation of the basis for that conclusion.

iii. A report for each such incident and investigation shall be submitted to the Illinois EPA within 45 days of the date of the incident. If the investigation is still underway on this date, the report shall include information for the investigation to that point and a statement of the anticipated date by which a complete follow-up report will

be submitted, with explanation why it is not yet practical to submit a complete report for the incident. Thereafter, the Permittee shall submit follow-up report(s) for the incident at least every 45 days until a complete final report is submitted for the incident.

e. Planning and other activities conducted by the Permittee as part of flaring minimization planning pursuant to this Condition 4.1.5-3 may be combined with planning and activities conducted by the Permittee as part of the preparation and implementation of Startup, Shutdown and Malfunction Plans pursuant to Condition 4.1.5-2 provided that the requirements of this condition are also met.

4.1.5-4 Other Work Practice Requirements

The Permittee shall handle the feedstock for the gasification block in accordance with a written Feedstock Management Plan that shall be designed to provide the gasifiers with a consistent feedstock that meets relevant criteria needed for proper operation of the gasifiers and production of a syngas that can be reliably processed by the gas trains. The Permittee shall review this plan on a regular basis and revise it if needed consistent with good air pollution control practice based on actual operating experience and equipment performance. This review shall occur at least every two years if not otherwise initiated by events that are not adequately addressed by the existing plan or a specific request by the Illinois EPA for such review.

4.1.6 Emission Limits

a. The emissions from the CO_2 vent of the AGR Unit shall not exceed the following limits. The annual limits shall apply on a 12-month rolling basis and take effect one year after the shakedown of the gasification block is complete.

Pollutant	Hourly Limits (Lbs/Hour)	Annual Limits (Tons/Year)
SO_2	29.2 (36.5*)	128
CO	36.6	160
VOM	1.03 (4.01*)	4.52
Methanol	--	2.68
PM	0.06	0.27
COS	--	1.65
CO_2e	--	111.4 tons/million SCF SNG

* Limit for operation during startup, shutdown or malfunction of the gasification block. For this purpose, see the definitions of startup and shutdown in Condition 4.1.6(d).

b. The total emissions from the affected units controlled by flare shall not exceed the following limits. The annual limits shall apply on a 12-month rolling basis.

Pollutant	Hourly Limits (Lbs/Hour)	Annual Limits (Tons/Year)
SO_2	9,036	551
NO_x	129.8	8.51
CO	4,633	315
VOM	19.4	1.14
PM	360.7	2.95
COS	--	0.90
CO_2e	--	26,387

c. The total emissions from the affected units controlled by the control system on the Sulfur Recovery Unit (oxidizer and scrubber) shall not exceed the following limits. The annual limits shall apply on a 12-month rolling average basis.

Pollutant	Hourly Limits (Lbs/Hour)*		Annual Limits (Tons/Year)
	Normal	Other	
SO_2	0.63	64.4	3.05
NO_x	0.35	2.48	1.55
CO	1.39	19.0	6.25
$PM/PM_{10}/PM_{2.5}$	0.053	0.38	0.24
VOM	0.038	20.7	0.27
CO_2e	----	----	4,937

* "Normal" applies to operation during periods other than startup, shutdown, and malfunction of the gasification block. "Other" applies to operation during periods of startup, shutdown and malfunction. For this purpose, see the definitions of startup and shutdown in Condition 4.1.6(d).

d. For the purpose of Conditions 4.1.6(a) and (c), startup and shutdown are defined as follows:

i. "Startup" means a "full startup of the Gasification Block" and does not include a startup of a single gasifier following shutdown of that gasifier, when the other gasifier has continued in operation. A full start-up event for the Gasification Block begins with firing of natural gas in the pilot and main burners of the first gasifier that is being brought on-line commences. A full startup is complete when: 1) The operating rates of both gasifiers are at least 70 percent of the maximum syngas production rate; 2) All syngas is being directed through the process equipment to produce SNG; 3) The resulting SNG is at or above the quality needed so that it can be directed into the combustion turbines and/or exported to the natural gas pipeline; and 4) The liquid elemental sulfur byproduct meets applicable specifications.

ii. "Shutdown" means a "full shutdown of the Gasification Block" and does not include the shutdown of a single gasifier while the remainder of the Gasification Block continues to

operate. A full shutdown of the gasification block begins when the coal feed rate to the first gasifier to be shutdown is reduced to below 70 percent of the maximum coal feed rate and ends when the inert purge of equipment in the Gasification Block is completed.

4.1.7-1 Operational Testing for the Flare

a. Within 90 days of initial startup of the flare, the Permittee shall conduct observations for visible emissions from the flare in accordance with 40 CFR 60.18(f)(1) to verify compliance with 40 CFR 60.18(c)(1).

b. Within 90 days of initial startup of the flare, the Permittee shall perform sampling and analysis of the heat content of the process gas(es) that would be routed to the flare in accordance with 40 CFR 60.18(f)(3).

c. When syngas is sent to the flare and the exit velocity or gas heat content is not expected to meet the relevant requirements in 40 CFR 60.18, as an alternative to complying with the flare design requirements in 40 CFR 60.18, the Permittee may perform a visual observation of the flare for efficient combustion. These observations shall be promptly conducted after the start of such a flaring event unless the circumstances of the event make it infeasible to safely conduct an observation. The records for these observations shall include the following:

i. Date, time and duration of syngas flaring event.

ii. Reason for flaring and a determination of whether the heat content of flared gas or the gas exit velocity of the flare are expected to exceed the limits in 40 CFR 60.18.

iii. The time(s) of observation(s) and the name(s) of the observer(s), or if an observations could not be conducted, the reason(s) why an observation could not be conducted.

iv. The observed condition(s) of the flame, including the nature of the features of the flame that indicate stable combustion and the nature of any features that indicate unstable combustion, such as burn-out or lift-off, i.e., separation(s) between the flare tip and parts of the flame.

4.1.7-2 Emission Testing for the AGR Unit

a. The Permittee shall have emissions tests conducted for the CO_2 vent from the AGR Unit (oxidizer exhaust) as follows at its expense by a qualified testing service while the unit is operating under representative operating conditions.

i. Within 60 days after achieving the maximum rate at which this unit will be operated but not later than 365 days after initial startup of the unit, the Permittee shall have

tests conducted for emissions of CO, SO_2, VOM, methanol, and CO_2.

This deadline for testing may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the shakedown and testing of the cleanup train, provided that the Permittee conducts preliminary emissions measurements and reports the results to the Illinois EPA.

ii. In addition to the emission testing required above, the Permittee shall perform emission tests as provided below as specified by the Illinois EPA within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

Note: Specific requirements for periodic emission testing may be established in the CAAPP Permit for the plant.

b. The following methods and procedures shall be used for testing of emissions, unless other methods adopted or endorsed by USEPA or being developed by USEPA are approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Sulfur Dioxide	Method 6C
Carbon Monoxide	Method 10
Volatile Organic Material	Method 18, 25, or 25A
Methanol	Method 308
Carbon Dioxide	Method 3A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 6.1.

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

A. Feedstock consumption (tons/day);

B. Composition of the feedstock (Refer to Condition 4.1.9), including trace metals (e.g., mercury), chlorine and fluorine content, expressed in weight percent;

C. Significant operating parameters of the gasifiers;

D. Amount of syngas processed by the AGR unit;

E. Gas temperature at the inlet to the oxidizer, and temperature rise across the oxidizer; and

F. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9.

4.1.7-3 Emission Testing for the Sulfur Recovery Unit (SR Unit)

a. i. Within 60 days after achieving the maximum production rate at which the SR Unit will be operated but not later than 180 days after initial startup of the unit, the Permittee shall have tests conducted for emissions of NO_x, SO_2, CO, and VOM as follows at its expense by a qualified testing service while the unit is operating under representative operating conditions.

ii. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of the gasification block, provided that preliminary emissions measurements are conducted and reported to the Illinois EPA.

iii. In addition to the emission testing required above, the Permittee shall perform emission tests as provided below as requested by the Illinois EPA for the sulfur recovery unit within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

Note: Specific requirements for periodic emission testing may be established in the CAAPP Permit for the plant.

b. The following methods and procedures shall be used for testing, unless other methods adopted by or being developed by USEPA are specified or approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Sulfur Dioxides	Method 6C
Nitrogen Oxides	Method 7E
Carbon Monoxide	Method 10
Volatile Organic Material	Method 18, 25, or 25A

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 6.1.

ii. In addition to other information required in a test report, test reports shall include detailed information on the operating conditions of the gasification block and SR Unit during testing, including:

A. The information specified by Condition 4.1.7-2(c)(ii)(A) through (D) and (F); and

D. Operating parameters of the oxidizer and scrubber.

4.1.8-1 Operational Instrumentation and Monitoring for Units in the Gasification Block

a. The Permittee shall install, operate, and maintain instrumentation for the consumption of coal (solid) by the gasifiers.

b. The Permittee shall install, operate and maintain continuous monitoring systems for key operating parameters of the cleanup systems in the gas processing train, including:

i. Temperature at and pressure drop across the cleanup system for mercury; and

ii. Flow rate of the adsorption solvent in the AGR unit.

c. The Permittee shall install, operate and maintain a continuous monitoring system to measure the gross production of SNG by the Gasification Block (scf), as measured at the outlet of the Methanation Unit.

4.1.8-2 Operational Instrumentation and Monitoring for the Flare

a. i. The Permittee shall install, operate and maintain continuous monitoring systems on the flare related to the discharge of process gas (i.e., syngas, SNG, or acid gas streams but not fuel for the pilot flame or purge gas) to the flare for the following parameters:

A. The total flow of process gas sent to the flare (scfm).

B. The H_2S and CO content of the process gas sent to the flare (ppm).

C. The date, time and duration of each occurrence of venting of process gas to the flare.

ii. During periods of low process gas flow to the flare as indicated by operational monitoring (when monitors for process gas flow rate and composition would not provide reliable data), as addressed in the monitoring plan required by Condition 4.1.8-2(g), the Permittee shall estimate the flow rate and composition of process gas using heat and material balance data and relevant operating parameters.

b. The Permittee shall install, operate, and maintain the monitor(s) for flow of process gas to the flare according to the manufacturer’s specifications and requirements. The flow

monitor(s) must be able to correct for the temperature and pressure of the system and output flow in standard conditions as defined in 40 CFR 60.2.

c. The Permittee shall install, operate, and maintain the monitor(s) for the H_2S content of process gas sent to the flare according to Performance Specification 7 of 40 CFR Part 60 Appendix B. The Permittee shall conduct performance evaluations for each H_2S monitor according to the requirements of 40 CFR 60.13(c) and Performance Specification 7 of 40 CFR Part 60 Appendix B. The Permittee shall use Method 11, 15, or 15A of 40 CFR Part 60 Appendix A–5 or Method 16 of 40 CFR Part 60 Appendix A–6 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see 40 CFR 60.17) is an acceptable alternative to EPA Method 15A of 40 CFR Part 60 Appendix A–5. The Permittee shall comply with the applicable quality assurance procedures in 40 CFR Part 60 Appendix F for each H_2S monitor.

d. The Permittee shall install, operate, and maintain the flare CO monitor(s) according to Performance Specification 4 or 4A of 40 CFR Part 60 Appendix B. The Permittee shall conduct performance evaluations for each CO monitor according to the requirements of 40 CFR 60.13(c) and Performance Specification 4 or 4A of 40 CFR Part 60 Appendix B. The Permittee shall use Methods 10, 10A, or 10B of 40 CFR Part 60 Appendix A–4 for conducting the relative accuracy evaluations. The Permittee shall comply with the applicable quality assurance procedures in 40 CFR Part 60 Appendix F for each CO monitor.

e. The Permittee shall continuously monitor the flare for the presence of a flare pilot flame using a thermocouple or any other equivalent device to detect the presence of a flame, which monitoring shall be conducted in accordance with 40 CFR 60.18(f)(2).

f. The Permittee shall install, operate and maintain continuous monitoring systems on each affected flare for the usage of pilot gas, supplemental natural gas, and supplemental SNG, in scfm. Readings shall be taken at least once every 5 minutes and the average hourly values shall be recorded on an hourly and daily basis.

g. The Permittee shall develop and maintain written Monitoring Procedures for the flare addressing the required operational monitoring systems for the flare and associated equipment in the gasification block, which shall include the following information. A copy of these procedures shall be submitted to the Illinois EPA for review prior to the initial startup of the gasification block.

   i. A process flow diagram of the affected flare and equipment in the gasification block as related to flaring, identifying major components, such as the header, stack,

burner(s), purge gas system, pilot gas system, ignition system, assist system and the process gas lines to the flare in the gasification block.

ii. Drawing(s), with dimensions, showing the sampling location(s) at which sampling or monitoring is conducted, accompanied by an explanation of the methods used to select these sampling location, for sampling of flare process gas; flow of flare process gas, pilot gas, supplemental natural gas or SNG, and purge gas; on/off flow indicators, H_2S analyzer, and operating parameters of the gasification block that could provide credible information on the occurrence or nature of flaring.

iii. The type, make, and model of each monitoring device or instrument used for required monitoring, with a description of manufacturer's specifications for the device, including but not limited to range, precision, accuracy, calibration, and recommended procedures for quality control, quality assurance and maintenance.

iv. A description of the data collection and recording device(s) used to store data collected by required monitoring systems.

v. A description of the periods when visual observation(s) would be conducted to verify flame stability, as provided for by Condition 4.1.7-1, and the Permittee's protocols and procedures for these observations.

vi. A description of the low flow operating conditions for the flare during which flow rates and composition of process gas would be determined by engineering analysis, rather than by monitoring, as provided for by Condition 4.1.8-2(b), including an explanation why monitors would not provide reliable data during such conditions and the types of engineering analysis that would be used in place of monitoring.

4.1.8-3 Operational Instrumentation and Monitoring for the AGR Unit

a. The Permittee shall install, operate and maintain continuous monitoring systems on the AGR Unit for the following parameters:

i. The H_2S content of gas entering the oxidizer, which monitoring system shall be operated in accordance with the same performance specifications and quality assurance procedures as the H_2S monitor for the flare specified in Condition 4.1.8-2(c).

ii. The temperatures of the gas stream at the inlet and outlet of oxidizer, which system shall also record the temperature rise across the oxidizer, i.e., the difference between the inlet and outlet temperatures.

iii. The usage of supplemental fuel for the oxidizer.

b. The Permittee shall install, operate and maintain continuous operational monitoring systems for the sour syngas entering the AGR Unit and the sweet syngas exiting the AGR Unit for the flow rate and CO_2 content of the stream. The Permittee shall operate and maintain these monitoring systems according to a site-specific monitoring plan, which shall be submitted at least 60 days before the initial startup of the AGR Unit to the Illinois EPA for its review and comment. With this submission, the Permittee shall submit the proposed type of monitoring equipment and proposed sampling locations.

4.1.8-4 Instrumentation and Monitoring for the Sulfur Recovery Unit

a. The Permittee shall install, operate and maintain continuous monitoring systems on the sulfur recovery unit for the following parameters, which data shall be recorded on an hourly average.

i. The total flow of process gas sent to the oxidizer (scfm).

ii. The total flow of fuel to the oxidizer (scfm).

iii. The temperature in the combustion chamber of the oxidizer.

iv. The pressure drop, recirculating scrubbing liquid flow rate, and makeup scrubbing liquid flow rate for the scrubber.

v. Liquid sulfur production rate (tons).

b. The Permittee shall install, calibrate, maintain, and operate a continuous monitor for the concentrations of SO_2 in the gases discharged into the atmosphere from the sulfur recovery unit scrubber. The Permittee shall install, operate, and maintain this SO_2 continuous emissions monitoring system (CEMS) according to Performance Specification 2 of 40 CFR Part 60 Appendix B. The Permittee shall conduct performance evaluations of the SO_2 CEMS according to the requirements in 40 CFR 60.13(c) and Performance Specification 2 of 40 CFR Part 60 Appendix B. Relative accuracy evaluations shall be conducted using USEPA Methods 6 or 6C or ANSI/ASME Method PTC 19.10–1981, “Flue and Exhaust Gas Analyses”

Note: This ANSI/ASME Method, incorporated by reference at 40 CFR 60.17, is an acceptable alternative to USEPA Method 6.

4.1.9 Sampling and Analysis of Feedstock and Process Gas Streams

a. The Permittee shall sample and analyze the coal (solid) feedstock supplied to the gasification block for heat content, and sulfur, metals, chlorine, and fluorine content using applicable ASTM methods. This activity shall be conducted:

i. In conjunction with emissions testing of the AGR Unit and the Sulfur Recovery Unit (see Conditions 4.1.7-2 and 4.1.7-3).

ii. Within 90 days of acceptance of a feedstock from a new source.

iii. Within 90 days of a written request from the Illinois EPA.

iv. At least once every two calendar years, if a more frequent analysis is not otherwise needed pursuant to the above.

Notes: For purposes of this permit, metals are defined as mercury, arsenic, beryllium, cadmium, chromium, lead, manganese, and nickel.

b. The Permittee shall sample and analyze raw syngas at the outlet of the gasifiers, sour syngas at the inlet to the AGR unit, sweet syngas at the outlet of the AGR Unit, and SNG at the outlet of the gasification block for its sulfur (including total sulfur, H_2S, COS, and CS_2), chlorine, fluorine, metals, VOM and methanol* content using applicable ASTM methods. This activity shall be conducted:

* Sampling and analysis only for sweet syngas and SNG.

i. Within 60 days after achieving the maximum production rate at which the gasification will be operated but not later than 365 days after initial startup.

ii. Within 90 days of acceptance of a feedstock from a new source.

iii. Within 90 days of a written request from the Illinois EPA.

iv. At least once every three calendar years, if a more frequent analysis is not otherwise needed pursuant to the above.

c. The Permittee shall sample and analyze the gas stream from the AGR Unit that is sent to the oxidizer for its COS content using applicable ASTM methods. This activity shall be conducted:

i. In conjunction with emissions testing of the AGR vent (see Conditions 4.1.7-2).

ii. Within 90 days of a written request from the Illinois EPA.

iii. At least once every two calendar years, if a more frequent analysis is not otherwise needed pursuant to the above.

d. The Permittee shall take representative samples at least every three calendar years of the various gas streams that could be vented to the flare and analyze them using applicable ASTM methods for heat content and sulfur, chlorine, fluorine, metals,

VOM, and, for all process streams downstream of the AGR Unit, methanol content.

d. The Permittee shall maintain records for this sampling and analysis activity.

4.1.10-1 Recordkeeping Requirements for Units in the Gasification Block

a. The Permittee shall maintain records of the production of SNG by the plant, million SCF per month, determined as SNG produced by the gasification block, SNG fed to the combustion turbines, and SNG transferred offsite from the plant.

b. The Permittee shall maintain records of the key operating parameters of the cleanup systems in the gas processing train, including: pressure drop across the cleanup system for mercury; and flow rate of the adsorption solvent in the AGR Unit.

c. The Permittee shall maintain records for coal consumption in the gasifiers (tons/day, tons/month and tons/year).

d. The Permittee shall maintain an operating log or other similar records for the affected units in the gasification block that include the information specified in Condition 6.2(a) and the following detailed information:

i. For each startup of unit(s), the nature of the startup, the timing of major steps in the startup, any unusual occurrences during the startup, and any deviations from the established startup procedures, with explanation.

ii. For each shutdown of unit(s), the nature and reason for the shutdown, the timing of major steps in the shutdown, any unusual occurrences during the shutdown, and any deviations from the established shutdown procedures, with explanation.

e. The Permittee shall maintain inspection, maintenance and repair log(s) or other similar records for the affected units in the gasification block that at a minimum include the information specified in Condition 6.2(b) and identify any occasion when the Permittee was unable to carry out its established maintenance procedures, with explanation.

f. The Permittee shall keep records for any deviations from applicable requirements involving the gasification block, which records shall include the information specified by Condition 6.3. These records may be combined with other records required for the gasification block by this permit.

4.1.10-2 Recordkeeping Requirements for the Flare

a. The Permittee shall maintain a file or other record for the flare containing the design destruction and removal efficiencies of the flare for CO, VOM, methanol and methane, with supporting documentation.

b. The Permittee shall keep the following operating records for each event when process gas was flared:

i. Date, time and duration of flaring.

ii. Description of the event, a discussion of the cause(s) and probable cause(s) of the event.

iii. Confirmation that established operating procedures were followed.

iv. Confirmation that the flare functioned properly, i.e., a flame was present and any visible emissions that occurred were in compliance with 40 CFR 60.18(c)(1).

v. The amount and nature of the process gas sent to the flare, with detailed explanation if partially cleaned syngas was flared.

vi. The amount of CO, H_2S and VOM contained in the gas sent to the flare and the amount of CO, H_2S, SO_2 and VOM emitted, pounds/event, with supporting calculations.

vii. Whether SO_2 emissions of the flare(s) may have exceeded the standard of 35 IAC 214.301, i.e., 2000 ppm, on an hourly average.

viii. Corrective actions taken during the event.

ix. A description of any actions taken to prevent or reduce the likelihood of similar future occurrences.

c. The Permittee shall keep the following records related to emissions:

i. A file containing the emission factors that the Permittee uses to calculate emissions of SO_2, NO_x, VOM, CO, PM, CO_2e, COS, methanol, mercury, hydrogen chloride, hydrogen fluoride and other HAPs from the flare, with supporting documentation.

ii. Daily emissions of SO_2, H_2S and CO from the flare based on the monitoring for H_2S and CO content of process gas.

iii. Total daily, monthly and annual emissions of SO_2, CO, NO_x, VOM and PM from the flare, which shall be compiled on at least a monthly basis.

iv. Total monthly and annual emissions of CO_2e, COS and total HAPs from the flare, which shall be compiled on at least a monthly basis.

4.1.10-3 Recordkeeping Requirements for the AGR Unit

a. The Permittee shall keep the following records related to emissions from the CO_2 vent of the AGR Unit:

i. A file containing the emission factors that the Permittee uses to calculate emissions of SO_2, CO, VOM, PM, CO_2e, COS, methanol, mercury, hydrogen chloride, hydrogen fluoride and other HAPs from this unit, with supporting documentation.

ii. Daily emissions of SO_2 and H_2S from this unit based on the AGR vent H_2S content monitor.

iii. Total daily, monthly and annual emissions of SO_2, CO, VOM and PM, from this unit, which shall be compiled on at least a monthly basis.

iv. Total monthly and annual emissions of CO_2e, H_2S, COS, methanol and total HAPs from this unit, which data shall be compiled on at least a monthly basis.

4.1.10-4 Recordkeeping for the Sulfur Recovery Unit

a. The Permittee shall keep the records of sulfur production of the SR Unit (tons/day, tons/month and tons/year).

b. The Permittee shall maintain records for the SO_2 CEMS on the SR Unit (scrubber) required by Condition 4.1.8-4(b) that, at a minimum, shall include:

i. Operating records for the CEMS, including:

A. SO_2 measurements;

B. Continuous monitoring system performance testing measurements;

C. Performance evaluations;

D. Calibration checks;

E. Maintenance and adjustment performed;

F. Quarterly reports submitted in accordance with Condition 4.1.11-2(a); and

G. Records to verify compliance with the limits of Condition 4.1.6(c), including:

1. Hourly SO_2 emissions from the SR Unit as derived from the data obtained by the SO_2 monitor, ppm; and

2. Any hour when the SO_2 emission rate exceeds the applicable limit in Condition 4.1.6(c).

H. Appropriate records to verify compliance with 35 IAC 212.123 (Condition 4.1.3(a)).

c. Operating Records

The Permittee shall maintain the following operating records that at a minimum shall include for each startup of the unit:

i. Date and duration of the startup, i.e., start time and time normal operation achieved;

ii. A detailed description of the startup;

iii. An explanation why established startup procedures could not be performed, if not performed;

iv. The nature of opacity, i.e., severity and duration, during the startup and the nature of opacity at the conclusion of startup, if above normal; and

v. Whether exceedance of Condition 4.1.6(c) may have occurred during startup, with explanation and estimated duration (minutes).

d. Records for Continued Operation During Malfunctions and Breakdowns

The Permittee shall maintain records related to malfunction and breakdown that, as a minimum, shall include:

i. A maintenance and repair log for the unit and associated control equipment, listing each activity performed with date; and

ii. Records for each incident when operation of the unit continued during malfunction or breakdown with excess emissions including the following information:

A. Date and duration of malfunction or breakdown;

B. A detailed explanation of the malfunction or breakdown;

C. An explanation why continued operation of the Sulfur Recovery Unit was necessary;

D. The measures used to reduce the quantity of emissions and the event;

E. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

F. An estimate of the amount of excess emissions released during malfunction/breakdown.

f. The Permittee shall keep the following records related to emissions:

i. A file containing the emission factors that the Permittee uses to calculate emissions of H_2S, NO_x, VOM, CO, PM, CO_2e, methanol, mercury, hydrogen chloride, hydrogen fluoride and other HAPs from this unit, with supporting documentation.

ii. Daily emissions of SO_2 from the sulfur recovery unit caustic scrubber based on SO_2 CEMS.

iii. Total daily, monthly and annual emissions of SO_2, CO, NO_x, VOM and PM from the unit, which shall be compiled on at least a monthly basis.

iv. Total monthly and annual emissions of H_2S, CO_2e, and total HAPs from the unit, which shall be compiled on at least a monthly basis.

4.1.11-1 Reporting for Units in the Gasification Block

a. The Permittee shall promptly notify the Illinois EPA of deviations of unit(s) in the gasification block with permit requirements as follows. Reports shall include the information specified by Condition 6.4:

i. Failure of the flare or the AGR Unit vent oxidizer, e.g., loss of combustion, when operation of the associated process units continues for more than 1 hour (60 minutes) shall be reported to the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three days.

ii. For certain deviations by the affected flare, as specified by Condition 4.1.11-1(b).

iii. The deviations addressed above and all other deviations shall be reported in the periodic compliance reports required by Condition 4.1.11-1(c).

b. The Permittee shall provide the following notifications and reports to the Illinois EPA, concerning each incident when operation of the flare continued during a malfunction or breakdown with SO_2 emissions or opacity in excess of that allowed by 35 IAC 214.301 or 212.123(a), respectively.

i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three days after the incident.

ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing

a detailed explanation of the event, an explanation why continued operation was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or units were shutdown.

c. The Permittee shall submit periodic compliance reports for the gasification block. The reports shall be submitted no later than 30 days after the end of the calendar six month reporting period.

   i. Information related to excess emissions and deviations during the reporting period, if any. When no excess emissions or deviations have occurred or the continuous emissions monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

   ii. A summary of operation and emissions of the gasification block during the reporting period, including the total number of startups of gasifiers, the total number of startups of gas processing trains, the amount of SNG produced by the plant, and the emissions of SO_2, NO_x and CO during the reporting period (tons).

   iii. A listing of each flaring event during the reporting period, i.e., each period when process gas was flared, with date and duration, a description of the event, including cause(s), and whether a event-specific Root Cause Analysis was performed for the event pursuant to Condition 4.1.5-3(d).

d. With its Annual Emission Report, the Permittee shall submit a report to the Illinois EPA for flaring during the previous year, which report shall:

   i. Provide the information specified in Condition 4.1.11-1(c)(iii) for flaring events during the year.

   ii. Summarize flaring activity and emissions during the previous year, including an assessment of the cause(s) for such flaring as related to the number of events and share of emissions, and a summary of each event-specific Root Cause Analysis was performed.

   iii. Include copies of the summaries for flaring activity for the preceding three years as required by Condition 4.1.11-1(d)(ii), as reported in earlier reports, as these summaries become available.

   iv. Summarize actions or measures implemented during the previous year to reduce flaring pursuant to the Root Cause Analyses required by Condition 4.1.5-3(d), and the observed effect of these actions, and the actions or measures

planned for implementation during the current year to reduce flaring pursuant to Root Cause Analyses, and the expected effect of these actions.

v. Summarize other actions or measures implemented during the previous year to reduce flaring, not related to required Root Cause Analyses, and the reason for and observed effect of these actions, and other actions or measures planned for implementation during the current year to reduce flaring, and the reason for and expected effect of these actions.

vi. Include a listing of changes, if any, made to the Flare Minimization Plan, as provided for by Conditions 4.1.5-2(c)(ii) and (iii), with brief description.

vii. Include a listing of significant changes, if any, made to the Monitoring Procedures required by Condition 4.1.8-2(h), with brief description.

viii. Provide confirmation that the required annual verification of the accuracy of the flow monitoring system was conducted, with a summary of results.

4.1.11-2 Reporting for the Sulfur Recovery Unit

a. The Permittee shall submit quarterly reports for SO_2 emissions from the SR Unit. These reports shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement indicating whether compliance with applicable emission standards and control requirements and minimum data requirements was achieved during the reporting period.

i. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;

ii. Specific identification of each period of excess emissions that occurs during startup, shutdown, or malfunctions of the unit, with the nature and cause of any malfunction (if known), the corrective actions taken or preventative measures adopted;

iii. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

iv. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

For the purposes of this report, an exceedance for SO_2 is any hour during which the emission rate of SO_2 in the gases

discharged into the atmosphere from the unit exceeds the applicable limit pursuant to Condition 4.1.6(c).

b. The Permittee shall provide the following notifications and reports to the Illinois EPA, concerning each incident when operation of the Sulfur Recovery Unit continued during malfunction or breakdown with excess emissions as addressed by Condition 4.1.10-4(d).

   i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three days, for each incident.

   ii. Upon completion of the incident, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, within 15 days providing a detailed explanation of the event, an explanation why continued operation of the Sulfur Recovery Unit was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or the amount of acid gas feed to the sulfur recovery unit was reduced.

c. The Permittee shall promptly notify the Illinois EPA of deviations of the Sulfur Recovery Unit with the permit requirements as follows. In addition to the information specified in Condition 6.4, reports shall also include the information below.

   Within 30 days of exceedance of limits in Condition 4.1.6(c) for pollutants other than SO_2, notifications shall also include:

   i. Identification of the limit that may have been exceeded;

   ii. Duration of the deviation;

   iii. An estimate of the amount of emissions in excess of the applicable limit;

   iv. A description of the cause of the deviation; and

   v. When compliance was reestablished.

4.1.11-3 Additional Reporting for the Shakedown Period and the Following Year

a. The Permittee shall provide the Illinois EPA with notice at least 15 days advance prior to initial feeding of coal to a gasifier.

b. During the shakedown period for the gasification block, the Permittee shall promptly notify the Illinois EPA of any event(s) that disrupts orderly shakedown.

c. During the shakedown period for the gasification block and a period that extends for one year (12 months) after the conclusion of the shakedown period, the Permittee shall submit the periodic compliance reports required by Condition 4.1.11-1(c) on a monthly basis, with reports submitted no later than 25 days after the end of each calendar month, beginning with the first month in which any fuel is fired in the unit. During the shakedown period, these reports shall also include the following information:

   i. Operating data for the gasification block (i.e., total operating hours and feedstock usage and SNG production during the reporting period);

   ii. Activities accomplished and significant events related to emissions of the gasification block;

   iii. Current schedule for emission testing;

   iv. A summary of any emission measurements conducted; and

   v. When applicable, notice that all emission testing has been completed and shakedown of the gasification block is considered complete.

CONDITION 4.2: UNIT-SPECIFIC CONDITIONS FOR THE POWER BLOCK

4.2.1 Emission Unit Description

The affected units for the purpose of these unit-specific permit conditions are the two combined cycle combustion turbines (CT), used to generate electric power. The turbines would be fired on SNG from the gasification block or pipeline natural gas.

Exhaust from each turbine will be directed to a heat recovery steam generator (HRSG). The HRSGs will not be equipped with duct burners. Steam generated in the HRSGs will be combined with high—pressure steam from the gasification block and sent to a steam turbine to generate additional electricity.

4.2.2 Control Technology Determination

a. Each CT shall be operated and maintained with the following features to control emissions:

   i. Use of SNG or natural gas for emissions of SO_2 and PM.

   ii. A selective catalytic reduction (SCR) system and dry low-NO_x (DLN) combustors for emissions of NO_x.

   iii. Good combustion practices for emissions of CO, VOM and methane.

b. The emissions from each CT shall not exceed the following limits. Unless otherwise specified, these limits are expressed in terms of fuel heat input to the CT, in mmBtu, higher heating value. For limits for which the specified compliance time period is a 3-hour block with provision for emissions testing, if runs longer than one-hour in duration are performed during emissions testing, the compliance time period during emission testing shall be the total actual duration of the test runs.

   i. Total PM, PM_{10}, and $PM_{2.5}$ – 0.0065 lb/mmBtu. This limit shall apply as a 3-hour block average, with testing to determine compliance with this limit conducted in accordance with Condition 4.2.7.

   ii. NO_x – 2.0 ppmvd @ 15% O_2. This limit shall apply as a 3-hour block average, with compliance determined using continuous monitoring in accordance with Condition 4.2.8-1 using the compliance procedures set forth in the NSPS Subpart KKKK, 40 CFR 60.4340. This limit shall not apply during startup or shutdown as addressed by Condition 4.2.2(d).

   iii. CO – 4.3 ppmvd @ 15% O_2. This limit shall apply as a 3-hour block average, with continuous monitoring conducted in accordance with Condition 4.2.8-1. This limit shall not apply during periods of startup and shutdown of a CT as addressed by Condition 4.2.2(d).

iv. VOM – 0.0013 lb/mmBtu. This limit shall apply as a 3-hour block average, with emission testing to determine compliance conducted in accordance with Condition 4.2.7. This limit shall not apply during periods of startup and shutdown of a CT as addressed by Condition 4.2.2(d).

v. CO_2 - 1201 lbs/MW-hour (gross combustion turbine power output) and 827 lbs/MW-hour (total gross combustion and steam turbine power output excluding power output generated by waste heat steam from the gasification block). These limits shall apply to the combined emissions of the CTs on a 12-month rolling average basis, with continuous monitoring conducted in accordance with Condition 4.2.8-1. These limits shall not apply during periods of startup and shutdown of a CT as addressed by Condition 4.2.2(d).

vi. CO_2e – 2,307,107 tpy. This limit shall apply to the combined emissions of the CTs on 12-month rolling basis, with continuous monitoring to determine CO_2 emissions in accordance with Condition 4.2.8-1 and emission testing to determine methane and N_2O emissions conducted in accordance with Condition 4.2.7.

c. The SNG used in the CTs shall be processed to meet a sulfur content of 0.25 grains sulfur per 100 scf.

d. The Permittee shall use good air pollution control practices to minimize emissions during startup, shutdown and malfunction of a CT as further addressed in Condition 4.2.5-2, including the following:

i. Operation of the CTs and associated air pollution control equipment in accordance with written operating procedures that include startup, shutdown and malfunction plan(s) (See also Condition 4.2.5-2); and

ii. Inspection, maintenance and repair of the CT and associated air pollution control equipment in accordance with written maintenance procedures.

Note: These requirements are applicable for emissions of PM and CO_2e, for which the numerical limits in Condition 4.2.2(b) apply to emissions during startup, shutdown and malfunction, as well as for emissions of NO_x, CO, VOM, and CO_2 for which the numerical limits in Condition 4.2.2(b) do not apply during startup and shutdown. For emissions of these other pollutants for which the numerical limits in Condition 4.2.2(b) do not apply during startup and shutdown, applicable limits in lbs/event in Condition 4.2.6(a) (Attachment 1, Table I), do apply during such periods and serve as “secondary limits” for purposes of BACT, with compliance determined based on engineering analysis and calculations.

4.2.3-1 Applicable Federal Emission Standards

a. Each CT is subject to the New Source Performance Standard (NSPS) for Stationary Combustion Turbines, 40 CFR 60, Subpart KKKK and related provisions in Subpart A. The emissions from each CT shall not exceed the following standards pursuant to the NSPS on and after the date the applicable performance test required to be conducted under 40 CFR 60.8 is or should be completed. In the following, “heat input” means heat input to the combustion turbines and “gross energy output” means the electricity produced by the generators powered by the CTs and steam turbine.

   i. SO_2: 0.90 lbs/MWh gross energy output on a 30-day rolling average basis; or combust fuel with potential sulfur emissions less than 0.60 lb/mmBtu, pursuant to 40 CFR 60.4330(a)(1); and

   ii. NO_x: Pursuant to 40 CFR 60.4320(a) and 60.4325:

      A. 0.43 lb/MWh of useful output (15 ppm at 15% O2) on a 30-day rolling average basis when fired on natural gas alone;

      B. 42 ppm at 15% O2 or 1.3 lbs/MWh of useful output on a 30-day rolling average basis when fired on SNG alone;

      C. If the CT is burning a mixture of natural gas and SNG and the total CT heat input is greater than or equal to 50 percent natural gas, meet the corresponding limit for a natural gas; or

      D. If the CT is burning a mixture of natural gas and SNG and the total CT heat input is greater than 50 percent SNG, meet the corresponding limit for SNG.

b. At all times, the Permittee shall maintain and operate each CT, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

4.2.3-2 Applicable State Emission Standards

a. The emission of smoke or other particulate matter from each CT shall not have opacity greater than 30 percent, pursuant to 35 IAC 212.123(a), except as authorized by 35 IAC Part 201 Subpart I.

b. The emissions of SO_2 into the atmosphere from each CT shall not exceed 2000 ppm, pursuant to 35 IAC 214.301.

c. The emissions of mercury from each CT shall comply with applicable requirements of 35 IAC Part 225, Subpart B.

4.2.3-3 Applicability of Other Regulations of Concern

a. Each CT is an affected unit under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and is subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75. (See Condition 5.1)

b. The CTs qualify as Electrical Generating Units (EGU) for purposes of the NO_x and SO_2 Allowance Programs for Electrical Generating Units, e.g., 35 IAC Part 225. As an EGU, the Permittee would have to hold allowances for the NO_x and SO_2 emissions of the CTs during each calendar year and seasonal control period (NO_x only).

c. The CTs qualify as EGUs under 35 IAC Part 217, Subpart V, which requires NO_x emissions from the CTs not to exceed 0.25 lb/mmBtu of actual heat input during each ozone period (May 1 – September 30).

4.2.4 Non-Applicability Provisions

a. This permit is issued based on CTs not being subject to 40 CFR 60 Subparts GG and Da, the NSPS for Stationary Gas Turbines Generating Units and Electric Utility Steam Generating Units, respectively. This is because the affected turbines will only combust fuel meeting the definition of natural gas found at 40 CFR 60.41Da.

b. This permit is issued based on the CTs not being subject to requirements to monitor opacity under the NSPS or Acid Rain Program because they qualify as gas-fired units for purposes of 40 CFR 75.14(c).

c. This permit is issued based on the CTs not being subject to the following subparts of 35 IAC Part 217:

   i. Subpart D (NO_x General Requirements), because the affected CTs are not units covered by the subpart.

   ii. Subpart Q (Stationary Reciprocating Internal Combustion Engines and Turbines), because the affected CTs are not located in the geographic area covered by the rule.

   iii. Subpart W (NO_x Trading Program for Electrical Generating Units), because it has been repealed.

d. This permit is issued based on the CTs not being subject to 40 CFR 63, Subpart UUUUU, the NESHAP for Coal- and Oil-Fired Electric Utility Steam Generating Units, because the affected turbines will not combust a fuel that meets the definition of coal or oil and will only combust fuel meeting the definition of natural gas found in the NESHAP

4.2.5-1 Operating Requirements

a. The Permittee shall operate each CT and associated air pollution control equipment in accordance with good air pollution control practice to minimize emissions, by operating in accordance with detailed written operating procedures as it is safe to do so. These procedures at a minimum shall:

i. Address startup, normal operation, shutdown and malfunction events.

ii. Fulfill applicable requirements of Condition 4.2.5-2 for a Startup, Shutdown and Malfunction Plan, including detailed provisions for review of relevant operating parameters of the CT systems during startup, shutdown and malfunction as necessary to make adjustments and corrections to reduce or eliminate any excess emissions.

iii. With respect to startup, address readily foreseeable startup scenarios, including so called “hot startups” when the operation of a CT is only temporarily interrupted, and provide for appropriate review of the operational condition of a CT prior to initiating startup of the CT.

iv. A. With respect to malfunction, identify and address likely malfunction events with specific programs of corrective actions, and provide that upon occurrence of a malfunction that will result in emissions in excess of the applicable limits in Condition 4.2.2(b) or 4.2.3, the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the CT or remove the CT from service so that excess emissions cease.

B. Consistent with the above, if the Permittee has maintained and operated a CT and associated air pollution control equipment so that malfunctions are infrequent, sudden, not caused by poor maintenance or careless operation, and in general are not reasonably preventable, the Permittee shall proceed in accordance with good air pollution control practice and need not immediately begin shutdown. In no case shall shutdown of the CTs be delayed solely for the economic benefit of the Permittee.

Note: If the Permittee determines that the CEMS is inaccurately reporting excess emissions, the CT may continue to operate provided the Permittee records the information it is relying upon to conclude that the CT and associated emission control systems are functioning properly and the CEMS is reporting inaccurate data and the Permittee takes prompt action to resolve the accuracy of the CEMS.

b. Except during startup or shutdown of a CT or for the purpose of emission testing, after a CT begins gainful operation, the Permittee shall minimize operation of the CT below 60 percent load and shall not operate CTs below the lowest load at which emission testing conducted in accordance with Condition 4.2.7 has demonstrated compliance with the applicable hourly emission limits in Attachment 1 Table I.

c. i. Each CT and its air pollution control systems shall be operated in a manner consistent with good air pollution control practice to minimize emissions during startup and shutdown including the following:

A. The Permittee shall operate in accordance with written operating procedures that shall include at a minimum the following measures:

1. SCR reagent injection only after the CT operating conditions are appropriate;

2. Review of operating parameters of the CT during startup or shutdown as necessary for proper CT operation with appropriate adjustments to reduce emissions; and

3. Implementation of inspection and repair procedures for a CT prior to attempting an additional startup following repeated trips.

B. The Permittee shall maintain the CTs and associated air pollution control systems in accordance with written procedures that shall include at a minimum the following measures:

1. Periodic inspection of emissions-related components;

2. Timely repair and routine replacement of emissions-related components.

ii. The above procedures may incorporate the manufacturer’s written instruction for operation and maintenance of the CTs and associated control systems. The Permittee shall review these procedures at least annually and shall revise or enhance them if necessary to be consistent with good air pollution control practice based on the actual operating experience and performance of the source.

d. The Permittee shall maintain each CT and associated air pollution control equipment in accordance with good air pollution control practice to assure proper functioning of equipment and minimize malfunctions, including maintaining the CT in accordance with written procedures developed for this purpose.

e. The Permittee shall review its operating and maintenance procedures for the CTs as required above on a regular basis and revise them if needed, consistent with good air pollution control practice based on actual operating experience and equipment performance. This review shall occur at least biannually if not otherwise initiated by occurrence of a startup, shutdown, or malfunction event that is not adequately addressed by the existing plans or a specific request by the Illinois EPA for such review.

f. Planning and other activities conducted by the Permittee as part of startup, shutdown, and malfunction planning pursuant to this Condition 4.2.5-1 may be combined with planning and activities conducted by the Permittee as part of the preparation and implementation of Startup, Shutdown and Malfunction Plans pursuant to Condition 4.2.5-2 provided that the requirements of this condition are also met.

4.2.5-2 Startup, Shutdown and Malfunction Plan

a. i. The Permittee shall develop, implement, and maintain written Startup, Shutdown, and Malfunction Plans (SSM Plan) that describe, in detail, procedures for operating and maintaining the CTs, including associated emission control systems, during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process, air pollution control and monitoring equipment used to comply with the relevant emission standards and emission control requirements. This SSM Plan shall be developed to satisfy the purposes set forth in 40 CFR 63.6(e)(3)(i)(A), (B) and (C) as amended April 20, 2006. In this regard, with respect to startups, this SSM Plan shall address readily foreseeable startup scenarios. With respect to malfunction, this SSM Plan shall identify and address likely malfunction events with specific programs of corrective actions, and provide that upon occurrence of a malfunction that will result in a deviation, that the Permittee shall, as soon as practicable, repair the affected equipment, reduce the operating rate of the CTs or remove CTs from service so that the deviation ceases.

ii. For the purpose of this condition and other conditions of this permit for which the regulatory definitions of the terms “startup,” “shutdown” and “malfunction” under the NSPS are not applicable, the definitions of the terms “startup,” “shutdown” and “malfunction” under the NESHAP, at 40 CFR 63.2 (as amended April 20, 2006), shall apply and be used. In addition, as related to the scope of the SSM Plan with respect to malfunctions, the plan shall also address and apply to failures of equipment that could reasonably be preventable and that may be attributable to poor maintenance or careless operation, and shall not be restricted to malfunctions as defined by 40 CFR 63.2. Similarly, requirements for recordkeeping, notification and

reporting related to malfunctions shall be applicable for failures of equipment irrespective of the cause of such failure.

Note: Although the plant is not a major source of HAPs for purposes of Section 112 of the Clean Air Act, this permit refers to provisions of the federal NESHAP to establish appropriate work practices for the startup, shutdown and malfunction of the CTs.

b. The Permittee shall at all times, including periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2, operate and maintain the CTs, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the applicable standards and limits or comply with the applicable SSM Plan, as provided below. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Illinois EPA and USEPA, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the SSM Plan), review of operation and maintenance records, and inspection of units. [Reflects 40 CFR 63.6(e)(1)(i) as amended April 20, 2006]

i. During periods of startup, shutdown, and malfunction of the CTs, the Permittee shall operate and maintain such unit(s), including associated air pollution control and monitoring equipment, in accordance with the procedures specified in the applicable SSM Plan. The Permittee shall correct malfunctions as soon as practicable after their occurrence in accordance with the SSM Plan. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, the Permittee shall comply by minimizing emissions during such event consistent with safety and good air pollution control practices. [Reflects 40 CFR 63.6(e)(1)(ii) and (3)(ii) as amended April 20, 2006]

ii. When actions taken by the Permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the applicable SSM Plan, the Permittee shall keep records for that event which demonstrate that the procedures specified in the Plan were followed. In addition, the Permittee shall keep records of these events as specified in 40 CFR 63.10(b), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the Permittee shall confirm in the periodic compliance report (refer to Condition 4.2.12(a)) that actions taken during periods of startup, shutdown, and malfunction were consistent with the SSM Plan. [Reflects 40 CFR 63.6(e)(3)(iii) as amended April 20, 2006]

iii. If an action taken by the Permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) of unit(s) is not consistent with the procedures specified in the applicable SSM Plan, and the unit(s) exceeds a relevant emission standard or limit, then the Permittee must record the actions taken for that event and must promptly report such actions as specified by 40 CFR 63.6(d)(5), unless otherwise specified elsewhere in this permit or when superseded in the CAAPP Permit for the plant. [Reflects 40 CFR 63.6(e)(3)(iv) as amended April 20, 2006]

c. i. The Permittee shall develop its initial SSM Plan prior to the initial startup of the CTs. The Permittee shall make changes to the SSM Plan if required by the Illinois EPA or as necessary to satisfy the requirements of this permit or address other changes to procedures for the CTs. [Reflects 40 CFR 63.6(e)(3)(vii) and (viii) as amended April 20, 2006]

ii. This SSM Plan is a record required by this permit, which the Permittee must retain in accordance with the general requirements for retention and availability of records. In addition, when the Permittee revises the SSM Plan, the Permittee must also retain and make available the previous (i.e., superseded) versions of the Plan for a period of at least 5 years after such revision. [Reflects 40 CFR 63.6(e)(v) and 40 CFR 63.10(b)(1) as amended April 20, 2006]

4.2.6 Emission Limits

a. Emissions from the CTs shall not exceed the limits in Attachment 1, Table I.

b. For hourly limits, when emission testing is conducted for a pollutant (see Condition 4.2.7), the results of such testing shall be compiled as the average of the individual test runs to determine compliance with the applicable limit, as provided by 35 IAC Part 283.

4.2.7 Emission Testing

a. i. A. Within 60 days after achieving the maximum production rate at which a CT will be operated but not later than 180 days after initial startup of each CT, the Permittee shall have tests conducted for emissions of NO_x, CO, PM (filterable and condensable), VOM, N_2O, methane and formaldehyde, as follows at its expense by an approved testing service while the CT is operating at maximum operating load and other representative operating conditions, including firing of SNG only. The Permittee may set forth a strategy for performing emission testing in the normal load range of the CTs. In addition, the Permittee may also perform measurements to evaluate emissions at other loads and operating conditions.

B. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of the CTs, provided that initial performance testing required by the NSPS, 40 CFR 60.8, has been completed for the CT and the test report submitted to the Illinois EPA.

ii. Between 21 and 27 months after performance of the initial testing that demonstrates compliance with applicable requirements, the Permittee shall have the emissions of PM, PM_{10}, $PM_{2.5}$, VOM, and any other pollutants specified by the Illinois EPA from each affected CT, while firing SNG, tested as specified below. The Permittee may report all PM emissions as PM_{10} and $PM_{2.5}$, in which case separate testing for PM_{10} and $PM_{2.5}$ need not be performed unless specifically required by the Illinois EPA.

iii. The Permittee shall perform emission tests as provided below as requested by the Illinois EPA for a CT within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

Note: Further requirements for periodic emission testing may be established in the CAAPP Permit for the plant.

b. i. For purposes of emission testing, the following methods and procedures shall be used for testing, unless other methods adopted by or being developed by USEPA are specified or approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Filterable PM (PM, PM_{10}[1] & $PM_{2.5}$[1])	Method 5, 201, or 201A
Condensable PM	Method 202
Nitrogen Oxides[2]	As provided by CFR 60.4400
Carbon Monoxide[2]	Method 10
Volatile Organic Material[3]	Method 18 or 25A
Methane	Method 320
Nitrous Oxide	Method 320
Formaldehyde	Method 18, 25A, 316 or 320

Notes:

[1] Alternate PM test methods may also be used subject to review by the Illinois EPA as part of the review of the test plan (refer to Condition 6.2(a)).

[2] Emission testing shall be conducted for purposes of certification of the continuous emission monitors required by Condition 4.2.8-1. Thereafter, the NO_x

and CO emission data from certified monitors may be provided in lieu of conducting emissions tests.

[3] The Permittee may exclude methane, ethane and other exempt compounds from the results of any VOM test provided that the test protocol to quantify and correct for any such compounds is included in the test plan approved by the Illinois EPA.

ii. For purposes of emission testing for the NSPS, the methods and procedures specified in 40 CFR 60.4400 and 60.4415 shall be used.

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 6.1. In addition to other required information, if test runs that are longer than one-hour in duration are planned, the expected duration of the runs and the reason for extended runs shall be explained.

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

A. Feedstock and fuel (SNG) consumption (in tons and mmscf, respectively);

B. Composition of fuel (Refer to Condition 4.1.9(b)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;

C. Firing rate (mmBtu/hour) and other significant operating parameters of the CT;

D. Control device operating rates or parameters;

E. Opacity of the exhaust from the CT, 6-minute averages and 1-hour averages; and

F. Turbine/Generator output rate (MW_e gross).

4.2.8 Emissions Monitoring

a. i. The Permittee shall install, certify, operate, calibrate, and maintain continuous monitoring systems on each CT for emissions of NO_x, CO, and CO_2 and the concentration of oxygen in the exhaust.

ii. The Permittee shall also operate and maintain these emissions monitoring systems according to site-specific monitoring plan(s), which shall be submitted at least 60 days before the initial startup of a CT to the Illinois EPA for its review and comment. With this submission, the Permittee shall submit the proposed type of monitoring equipment and proposed sampling location(s), which shall be

approved by the Illinois EPA prior to installation of equipment.

iii. The Permittee shall fulfill all applicable requirements for monitoring in the NSPS, 40 CFR 60.13, 60.4340(b), 60.4345, and 40 CFR 60 Appendix B, the federal Acid Rain Program, 40 CFR Part 75, as appropriate and 35 IAC 225, Subparts C, D and E. These rules require that the Permittee maintain detailed records for both the measurements made by these systems and the maintenance, calibration and operational activity associated with the monitoring systems.

b. i. Pursuant to 35 IAC 225.240 through 225.290, as applicable, the Permittee shall install, operate and maintain a continuous or semi-continuous monitoring system to measure the mercury emissions of each CT using monitoring methodology and procedures specified by USEPA for monitoring of mercury emissions units, including 40 CFR Part 75, Subpart I.

ii. Notwithstanding the above, the Permittee may conduct monitoring for emissions of mercury from the CTs using an alternative monitoring methodology, e.g., monitoring the mercury content of the fuel supply to the CTs, if the Illinois EPA approves use of an alternative monitoring methodology for the CTs.

iii. The Permittee shall fulfill other applicable monitoring and recordkeeping requirements of 35 IAC Part 225, Subpart B. For example, if the Permittee complies with 35 IAC Part 225, Subpart B by means of 35 IAC 225.237(a)(1)(A), the Permittee shall monitor the gross electrical output of the generators associated with each CT and the steam turbine in accordance with 35 IAC 225.263.

4.2.9-1 Fuel Sampling and Analysis

a. The Permittee shall monitor sulfur content of the gas fired in the CTs pursuant to the applicable provisions in 40 CFR 60.4360, 40 CFR 60.4365, 40 CFR 60.4370, 40 CFR 75.11(d), and 40 CFR Part 75 Appendix D, for SNG/natural gas combustion.

b. The Permittee shall conduct sampling and analysis of the coal supply to the gasifiers for mercury content in accordance with the requirements of 35 IAC Part 225, Subpart B, if applicable.

4.2.9-2 Operational Monitoring and Measurements

a. The Permittee shall install, evaluate, operate, and maintain meters to measure and record consumption of SNG and natural gas by each CT.

b. i. The Permittee shall install, evaluate, operate, and maintain meters to measure and record the gross electrical

output of the generators associated with each CT and the generator associated with the steam turbine (MW-hour).

ii. The Permittee shall install, evaluate, operate, and maintain meters to measure and record the amount of waste heat steam from the gasification block introduced into the steam turbine and either the total amount of steam introduced into the steam turbine or the amount of steam from the HRSGs on the CTs that is introduced into the steam turbine.

c. The Permittee shall equip, operate, and maintain each CT with instrumentation to measure ambient temperature, inlet air temperature, CT firing rate, SCR reagent injection rate, and flue gas temperature at the SCR catalyst.

d. The Permittee shall maintain the records of the measurements made by these systems and records of maintenance and operational activity associated with the systems.

4.2.10 Recordkeeping

a. The Permittee shall maintain the following records:

i. Records required under 35 IAC 217.712;

ii. Records of the amount of fuel combusted in each CT;

iii. Records of the sulfur content of the fuel used in the CTs as determined in accordance with Condition 4.2.9-1;

iv. Copies of opacity determinations made for the CTs on the behalf of the Permittee by qualified observer(s) using Method 9;

v. A copy of the Final Report(s) for emission testing conducted pursuant to Condition 4.2.7;

vi. Records of all information needed to demonstrate compliance with the NSPS, including performance tests, monitoring data, fuel analysis, and calculations, consistent with the requirements of 40 CFR 60.7(f); and

vii. Records of all information as required by applicable recordkeeping provisions of 35 IAC Part 225, Subpart B.

b. The Permittee shall maintain the following records with respect to operation and maintenance of each CT and associated control equipment:

i. An operating log for each CT that at a minimum shall address:

A. Each startup of the CT, including the date and time, description, if written procedures were not followed,

nature of the startup, sequence and timing of major steps in the startup, any unusual occurrences during the startup, and any deviations from the established startup procedures, with explanation;

B. Each shutdown of the CT, including the date and time, description, if written procedures were not followed, the nature and reason for the shutdown, sequence and timing of major steps in the shutdown, any unusual occurrences during the shutdown, and any deviations from the established shutdown procedures, with explanation; and

C. Each malfunction or breakdown of the CT, that significantly impaired emission performance, including the nature and duration of the event, sequence and timing of major steps in the event, corrective actions taken, any deviations from the established procedures for such an event, and preventative actions taken to address similar events.

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

iii. Fuel consumption, operating hours and number of startups for each turbine, compiled on a monthly basis;

iv. Consumption of SCR reagent, as determined from inventory record, compiled on at least a monthly basis; and

v. Copies of daily records of electricity generation, including the electricity generated by the steam turbine attributable to waste heat steam from the gasification block.

c. The Permittee shall record the following information for any period during which a CT deviated from an applicable requirement:

i. Each period during which a CT exceeded the requirements of this permit, including applicable emission limits, such records shall include at least the information specified by Condition 6.3.

ii. Each period during which opacity of a CT exceeded the level of opacity at which emission testing has demonstrated that the CT would comply with particulate matter emission limits.

d. For each CT, the Permittee shall maintain records of the following items related to emissions:

   i. Daily emissions of NO_x and CO from each CT, based on CEMS data;

   ii. NO_x and CO_2 emissions from each CT recorded hourly in units of lbs/mmBtu, lbs/hour, or tons/hour shall be calculated based on the pollutant concentration in units of ppm according to the procedures in 40 CFR 75 Appendix F;

   iii. Total daily, monthly and annual emissions of NO_x, CO, VOM, PM and SO_2 from the CTs, which shall be compiled on at least a monthly basis. Records of emissions of SO_2, PM, and VOM from each CT shall be based on fuel usage and other operating data for the CT and appropriate emission factors, with supporting documentation;

   iv. Total monthly and annual emissions of CO_2, CO_2e, formaldehyde and total HAPs which shall be compiled on a monthly basis. Records of emissions of CO_2e shall be based on CEMS data for CO_2, fuel usage and other operating data for CTs and appropriate emission factors for methane and N_2O, with supporting documentation.

   v. CO_2 emissions, in lbs/MW-hour, based on the gross power output of the generators associated with the CTs and based on the combined gross power output of the generators associated with the CTs and the steam turbine, but power output generated from waste heat steam from the gasification block.

e. The Permittee shall maintain detailed records related to continued operation of a CT with excess or above normal emissions due to malfunction or breakdown, including the following:

   i. The following detailed information for each period of excess NO_x emissions accompanying malfunction or breakdown of the SCR system:

      A. Date, time and duration of excess NO_x emissions;

      B. Identification of the affected turbine, the NO_x emission rate, the operating condition of the CT, and possible causes for excess NO_x emissions, e.g., interruption or reduction in SCR reagent flow;

      C. A description of corrective actions taken by the Permittee to return NO_x emissions to its permitted limit;

      D. If corrective actions did not promptly return NO_x emissions to acceptable levels, the time that the Permittee initiated shutdown of the CT and, if not

immediate, a description of the circumstances that made immediate shutdown unsound and a demonstration that shutdown was deferred only until it became safe to do so, with supporting documentation; and

E. A description of further investigation and corrective actions taken by the Permittee following shutdown of the CT prior to returning the affected CT to service.

ii. Hours of operation for each CT, excluding startup and shutdown (hours/month, hours/year);

iii. Hours of excess NO_x emissions for each CT, excluding startup and shutdown (hours/month, hours/year);

iv. Whether the SCR system was available for 90 and 95 percent of the operating time of the CT in the previous month and year, respectively;

v. Whether the catalyst was spent (i.e., no longer usable);

vi. If the above criteria are not met, an explanation whether the SCR system was properly maintained; and

vii. The following information for each period of above normal opacity:

A. Date, time and duration of observed opacity above normal;

B. Name and position of observer;

C. Identification of the affected CT, a description of the observed opacity, the operating condition of the CT, and possible causes for above normal opacity, e.g., excess natural gas pressure or low natural gas temperature;

D. Whether exceedances of Condition 4.2.3-2(a) [30 percent opacity] may have occurred, including any Method 9 readings taken by a qualified observer;

E. A description of corrective actions taken by the Permittee to restore normal opacity levels;

F. If corrective actions did not promptly restore acceptable opacity levels, the time that the Permittee initiated shutdown of the turbine and, if not immediate, a description of the circumstances that made immediate shutdown unsound and a demonstration that shutdown was deferred only until it became safe to so, with supporting documentation; and

G. A description of further investigation and corrective actions taken by the Permittee following shutdown of the turbine prior to returning the affected turbine to service.

f. The Permittee shall maintain records that identify:

i. Each period during which a continuous monitoring system was not operational, with explanation;

ii. Each day in which emissions or opacity exceeded an applicable standard or limit; and

iii. Each day in which a turbine did not comply with other applicable requirements.

g. The Permittee shall maintain records documenting its annual review of its operating and maintenance procedures.

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

4.2.11 Notifications

a. The Permittee shall perform all notifications in accordance with 40 CFR 60.7(a).

b. The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements that are not addressed by the regular reporting required below. These notifications shall include the information specified by Condition 6.4.

c. The Permittee shall submit all notifications required by applicable provisions of 35 IAC Part 225, Subpart B.

4.2.12 Reporting

a. The Permittee shall fulfill applicable reporting requirements in the NSPS, 40 CFR 60.7(c), and 60.4375 and 60.4395, for each CT.

b. i. Either as part of the periodic NSPS report or accompanying such report, the Permittee shall report to the Illinois EPA any and all opacity and emission measurements for a CT that are in excess of the respective requirements set by this permit. These reports shall provide for each such incident, the pollutant emission rate, the date and duration of the incident, and whether it occurred during startup, malfunction, breakdown, or shutdown. If an

incident occurred during malfunction or breakdown, the corrective actions and actions taken to prevent or minimize future reoccurrences shall also be reported.

ii. These reports shall also be submitted for each occurrence of elevated emissions from a CT due to malfunction or breakdown, as addressed by the records required by Condition 4.2.10(e), when corrective actions did not promptly restore acceptable emission levels and the shutdown of the CT was not then immediately initiated but was deferred. This report shall include a copy of the relevant records and additional explanation by the Permittee. This report shall be submitted within 30 days of the event.

iii. These reports shall also address any deviations from applicable compliance procedures for a CT established by this permit, including specifying periods during which the continuous monitoring systems were not in operation.

c. The Permittee shall submit all reports required by applicable provisions of 35 IAC Part 225, Subpart B.

d. In conjunction with the Annual Emission Report required by 35 IAC Part 254, the Permittee shall provide:

The operating hours of each turbine, by fuel type; the total number of startups; and the total fuel consumption during the preceding calendar year.

e. The Permittee shall comply with applicable reporting requirements under the Acid Rain Program, with a single copy of such report sent to Illinois EPA, Division of Air Pollution Control Compliance Section.

f. The Permittee shall submit an exceedance report to the Illinois EPA if there is any exceedance of the requirements of Condition 4.2.6 of this permit, as determined by the records required by this permit or by other means. This report shall include the amount of 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.

i. Any exceedance of NO_x or CO emission limits shall be reported with the quarterly report required by the federal NSPS and Acid Rain Program; and

ii. Any other exceedance of applicable requirements shall be reported within 30 days of the event.

CONDITION 4.3: UNIT-SPECIFIC CONDITIONS FOR FEEDSTOCK AND BULK MATERIAL HANDLING, DRYING AND STORAGE

4.3.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are equipment and facilities handling coal, slag and other bulk materials that are involved with the operation of the gasification block, include receiving, transfer, storage, and processing of materials.

The feedstock handling system will include facilities necessary to conduct the following activities: 1) Unload coal from trucks and railcars at their respective delivery points into underground receiving hoppers; 2) Convey the coal from the receiving hoppers to the crusher surge bin or to either active or inactive storage piles; 3) Reclaim the coal in storage piles to the crusher surge bin; 4) Convey the coal from the crusher surge bin to the crusher; 5) Dry and pulverize coal in a preparation plant that includes SNG and natural gas-fired thermal coal dryers; 6) Convey the prepared coal to storage silos; and 7) Convey prepared coal to the hoppers feeding each gasifier, which also vent emissions from depressurization of the lockhoppers feeding the gasifiers.

The active storage pile will be covered with a storage dome exhausted to a fabric filter system for PM control. The inactive storage pile will have sufficient storage capacity to supply the gasification block and a chain reclaimer will transfer coal from the inactive storage pile to a belt conveyor for transport to the crusher surge bin. A portion of the inactive storage pile will be devoted to long-term storage of coal.

4.3.2 Control Technology Determination

a. Other than the affected coal dryers, PM emissions from an affected unit handling a wet material shall be controlled by the following measures. For this purpose, wet material is a material that has sufficient moisture during normal operation to minimize the potential for direct emissions.

   i. Maintaining the material with adequate moisture to prevent visible emissions directly from such unit during the handling, storage or load out of the material.

   ii. Collection of spilled material that could become airborne if it dried or were subject to vehicle traffic as part of the Program for Control of Fugitive Dust as required by Condition 4.11.5.

b. PM emissions from all affected units controlled with baghouses or bin vent filters (see emission units listed in Attachment I Table II with hourly PM emission limits) other than the gasifier coal bunker vents, shall be controlled by:

i. Enclosure of the unit so as to prevent visible fugitive emissions from the affected unit.

ii. Aspiration to a control device designed to emit no more than 0.005 grains PM/dry standard cubic foot (gr/dscf), which device shall be operated in accordance with good air pollution control practice to minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.

c. PM emissions from the gasifier coal bunker vents shall be controlled by:

i. Enclosure of the unit so as to prevent visible fugitive emissions from the affected unit.

ii. Aspiration to a control device designed to emit no more than 0.008 grains PM/dry standard cubic foot (gr/dscf), which device shall be operated in accordance with good air pollution control practice to minimize emissions. For this purpose, the control device shall be a baghouse or other filtration type device unless the Permittee demonstrates and the Illinois EPA concurs that another type of control device is preferable due to considerations of operational safety.

d. i. PM emissions from the units not controlled with baghouses or bin vent filters (see material transfer points and storage piles listed in Attachment 1 Table 2) shall be controlled by wet dust suppression i.e., water spray for TP1 and TP2, and chemical dust suppressant application for TP3 and PIL1.

ii. Emissions from these units shall not exceed 10 percent opacity (6-minute average).

e. All affected units controlled by baghouses or vent filters identified in Conditions 4.3.2(b) and 4.3.2(c) above shall not exceed the hourly and annual limits in Condition 4.3.6(b).

f. CO and VOM emissions from the gasifier coal bunker vents due to lockhopper depressurization shall be controlled by good operating practices in accordance with Condition 4.3.5(d).

g. The affected coal dryers shall be operated and maintained with the following features to control emissions:

i. Use of natural gas;

ii. Low-NO_x burners;

iii. Flue gas recirculation; and

iv. Good combustion practices

h. i. The emissions of methane from coal handling shall not exceed 821 tons/year, 12-month rolling basis.

ii. A. The emissions of CO and VOM from the gasifier coal bunker vents shall not exceed the hourly limits in Condition 4.3.6(b).

B. The emissions of CO2 from the gasifier coal bunker vents shall not exceed 8,217 tons/year.

iii. A. The emissions of PM, PM_{10}, and $PM_{2.5}$ from the coal dryers shall not exceed the hourly limits in Condition 4.3.6(b).

B. The emissions of SO_2, NO_x, CO, and VOM from the coal dryers shall not exceed the hourly limits in Condition 4.3.6(c).

C. The emissions of CO_2e from the coal dryers shall not exceed 78,523 tons/year, 12-month rolling on a combined basis.

4.3.3-1 Applicable Federal Emission Standards

a. Affected units engaged in handling, drying and processing coal shall comply with applicable requirements of the NSPS for coal Preparation Plants, 40 CFR 60, Subpart Y, and related provisions of 40 CFR 60, Subpart A.

b. Pursuant to NSPS Subpart Y, emissions from thermal dryers shall not exceed the following limits:

i. 0.010 gr PM/dscf (40 CFR 60.252(b)(1)(i)(A))

ii. 10 percent opacity (40 CFR 60.252(b)(1)(i)(B))

c. Pursuant to NSPS Subpart Y, the Permittee shall meet the following emission limits for any coal processing and conveying equipment and coal storage systems (40 CFR 60.254(b)):

i. Except as provided in 40 CFR 60.254(b)(3), the opacity of the exhaust from affected units shall not exceed 10 percent.

ii. PM emissions from any mechanical vent on an affected facility shall not exceed 0.010 gr/dscf.

d. Pursuant to NSPS Subpart Y, for each open storage pile, which includes the equipment used in the loading, unloading, and conveying operations of the affected facility, the Permittee must prepare and operate in accordance with a submitted fugitive

coal dust emissions control plan that is appropriate for the site conditions as specified in 40 CFR 60.254(c)(1) through (6).

e. At all times, the Permittee shall maintain and operate affected units that are subject to NSPS, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

4.3.3-2 Applicable State Emission Standards

a. The emission of smoke or other PM from affected units shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 212.124. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

b. With respect to emissions of fugitive PM, affected units shall comply with 35 IAC 212.301, which provides that emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.

c. The emissions of PM from affected units other than units excluded by 35 IAC 212.323 (refer to Condition 4.3.4(b)) shall comply with the applicable limit pursuant to 35 IAC 212.321, which rule limits emissions based on the process weight rate of emission units and allows a minimum emission rate of 0.55 lb/hour for any individual unit.

4.3.4 Non-Applicability Provisions

a. This permit is issued based on the affected units not being subject to 40 CFR 60, Subpart OOO, as materials handled by affected units are not nonmetallic minerals as defined by 40 CFR 60.671.

b. This permit is issued based on the coal handling operations not being subject to 35 IAC 212.321 pursuant to 35 IAC 212.323, which provides that 35 IAC 212.321 shall not apply to emission units, which, because of the disperse nature of such emission units, such rules cannot reasonably be applied.

c. 35 IAC 212.304, and thus 212.305 will not apply because any storage piles will not have uncontrolled emissions in excess of 50 tons per year.

d. i. The affected units are not subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc because they are not steam generating units as defined by the NSPS.

ii. This permit is issued based on the affected coal dryers not being subject to 35 IAC 212.122, 212.206, 212.207, or 214.162 because the affected units are not fuel combustion emission units as defined by 35 IAC 211.2470.

4.3.5 Operating Requirements

a. With the exception of the inactive coal pile, coal and other bulk materials that have the potential for PM emissions shall be stored in silos, bins, and buildings, without storage of such materials in outdoor piles except on a temporary basis during breakdown or other disruption in the capabilities of the enclosed storage facilities.

b. The Permittee shall implement and maintain control measures for the affected units that minimize visible emissions of PM and provide assurance of compliance with the applicable limits and standards in Conditions 4.3.2, 4.3.3-1 and 4.3.3-2.

c. The affected units, including associated control equipment shall be operated and maintained in accordance with good air pollution control practice to minimize emissions.

d. The Permittee shall prepare a written operations and maintenance plan which shall be submitted for review and approval as part of the application for Clean Air Act Permit Program (CAAPP) permit.

e. Notwithstanding the Fugitive Dust Control Programs required by 40 CFR 60, Subpart Y (Condition 4.3.3-1(d)), the following work practices shall be used to control emissions of fugitive particulate matter from the affected units:

   Solid fuel handling and conveyor transfer operations that are not controlled by filtration control devices shall be sprayed with water or a surfactant solution, utilize choke-feeding, or be treated by an equivalent method of emission control.

f. The Permittee shall only accept coal truck deliveries between the hours of 6 AM and 6 PM.

g. i. Natural gas or SNG shall be the only fuels fired in the affected coal dryers.

   ii. Usage of natural gas or SNG in each affected coal dryer shall not exceed 682 million scf/year.

4.3.6 Emission Limits

a. There shall be no visible fugitive emissions from affected units that are controlled with baghouses.

b. Emissions of PM, PM_{10}, and $PM_{2.5}$ from the affected units shall not exceed the limits in Attachment 1, Table II. Compliance with these limits shall be determined from the amount of material handled and other operating information for affected units, and

appropriate emission factors. Compliance with the applicable annual limits shall be determined on a 12-month rolling basis.

c. The emissions of CO, VOM and CO_2 from the affected gasifier coal bunker vents shall not exceed the following limits on a combined basis. The annual limits shall apply on a 12-month rolling basis.

Pollutant	Lbs/Hour	Tons/Year
CO	21.8	95.7
VOM	0.34	0.70
CO_2	----	8,217

d. The emissions of the affected coal dryers, combined, shall not exceed the following limits. The annual limits shall apply on a 12-month rolling average basis.

Pollutant[1]	Hourly Limits (lb/mmBtu)	Limit (Tons/Year)
NO_x	0.031	20.3
CO	0.082	53.4
VOM	0.0054	3.50
SO_2	0.2 gr sulfur/100 scf fuel	0.39
Hexane (n-hexane)	--	1.14
CO_2e	--	78,523

Note: Emission limits for particulate matter are addressed by Condition 4.3.6(a) and Attachment 1, Table II.

e. Methane emissions from coal handling shall not exceed 821 tons per year on a 12-month rolling average basis. Compliance with this limit shall be determined from data for the methane content of coal and the coal usage of the plant.

4.3.7-1 Initial Performance Testing and Observations

a. Within 60 days after achieving the maximum production rate at which each affected unit subject to emission limits in Conditions 4.3.3-1(b)(i) and (c)(ii) will be operated, but not later than 180 days after initial startup of each such unit, the Permittee shall have PM emissions testing conducted at its expense by a qualified testing service under representative operating conditions. For affected units under NSPS Subpart Y, PM testing shall be conducted in accordance with the relevant requirements of 40 CFR 60.255.

b. Within 60 days after achieving the maximum production rate at which each affected unit will be operated, but not later than 180 days after initial startup of each such unit, the Permittee shall have opacity observations conducted at its expense by a qualified testing service under unit operating conditions that are representative of maximum emissions. For affected units under NSPS Subpart Y, as addressed by Conditions 4.3.3-1(b)(ii) and (c)(i), opacity observations shall be conducted in accordance with the relevant requirements of 40 CFR 60.255.

c. The Permittee shall also have emissions tests conducted for a gasifier coal bunker vent as follows at its expense by a qualified testing service while the unit is operating under representative conditions.

   i. Within 60 days after achieving the maximum rate at which the unit will be operated but not later than 365 days after initial startup of the unit, the Permittee shall have tests conducted for emissions of CO and VOM.

   ii. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of the associated gasifier trains, provided that preliminary emissions measurements are conducted and reported to the Illinois EPA.

   iii. In addition to the emission testing required above, the Permittee shall perform emission tests as provided below as specified by the Illinois EPA within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

d. The Permittee shall have emissions tests conducted for a coal dryer as follows at its expense by an approved testing service while the unit is operating under conditions that are representative of the source’s operations and create the highest rate of emissions.

   i. Within 60 days after achieving the maximum rate at which the unit will be operated but not later than 365 days after initial startup of the unit, the Permittee shall have tests conducted for emissions of NO_x, CO and hexane.

   ii. This period of time may be extended by the Illinois EPA for up to an additional 365 days upon written request by the Permittee as needed to reasonably accommodate unforeseen difficulties in the startup and testing of the associated gasifier trains, provided that preliminary emissions measurements are conducted and reported to the Illinois EPA.

   iii. In addition to the emission testing required above, the Permittee shall perform emission tests as provided below as specified by the Illinois EPA within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

e. In conjunction with the emission testing required by Conditions 4.3.7-1(a), (c) and (d), the Permittee shall have emissions testing for PM_{10} and/or $PM_{2.5}$ conducted for selected affected units at its expense by a qualified testing service under representative operating conditions unless the testing for PM in

conjunction with the condensable particulate matter, if appropriate based on the temperature of the exhaust gas in the stack, demonstrates compliance with applicable limits for PM_{10} and/or $PM_{2.5}$. For this purpose, any additional testing that is required shall be completed within one year of the initial testing required by Conditions 4.3.7-1(a), (c) and (d). The number and types of affected units for which testing is conducted shall be approved by the Illinois EPA as part of its review of the test plan for such testing.

f. The USEPA methods and procedures specified in 40 CFR 60.257 shall be used for PM and opacity measurements. The following methods and procedures shall be used for other testing, unless use of other methods adopted or endorsed by USEPA or being developed by USEPA are approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Particulate Matter (PM_{10} and $PM_{2.5}$)	Method 201 or 201A
Condensable Particulate	Method 202
Nitrogen Oxides	Method 7E
Carbon Monoxide	Method 10
Volatile Organic Material	Method 18, 25, or 25A
Hexane	Method 320

g. Test plan(s), test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 6.1.

4.3.7-2 Periodic Testing and Sampling

a. For each affected unit that is an affected facility subject to a PM emissions standard under the NSPS, 40 CFR 60 Subpart Y, a new performance test after the initial performance test required in Condition 4.3.7-1(a) must be conducted according to the applicable requirements of 40 CFR 60.255(b)(1) and (e).

b. For each NSPS Subpart Y affected facility subject to an opacity standard, a new performance test after the initial performance test required in Condition 4.3.7-1(b) must be conducted according to the applicable requirements of 40 CFR 60.255(b)(2).

c. i. For affected units not subject to the NSPS Subpart Y opacity performance test requirements, the Permittee shall have the opacity of the emissions of the affected units during representative weather and operating conditions determined by a qualified observer in accordance with USEPA Test Method 9, as further specified below.

A. If emissions are normally visible from a unit when it is in operation, as determined by USEPA Reference Method 22, opacity testing shall be conducted at least annually.

B. Upon written request by the Illinois EPA, such testing shall be conducted for specific affected units within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.

ii. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both less than 5.0 percent.

iii. A. The Permittee shall notify the Illinois EPA at least 7 days in advance of the date and time of these tests, in order to allow the Illinois EPA to witness testing. This notification shall include the name and employer of the qualified observer(s).

B. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for testing.

iv. The Permittee shall provide a copy of its observer's readings to the Illinois EPA at the time of testing, if Illinois EPA personnel are present.

v. The Permittee shall submit a written report for this testing within 30 days of the date of testing. This report shall include:

A. Date and time of testing.

B. Name and employer of qualified observer.

C. Copy of current certification.

D. Description of observation conditions, including recent weather.

E. Description of the operating conditions of the affected processes.

F. Raw data.

G. Opacity determinations.

H. Conclusions.

d. Unless otherwise specified for the affected units by a CAAPP permit issued to the source:

i. Within 90 days of a written request from the Illinois EPA, the Permittee shall have the PM, PM_{10} and/or $PM_{2.5}$ emissions at the stacks or vents of affected units, as specified in such request, measured during representative operating conditions, as set forth below.

ii. A. Testing shall be conducted using appropriate USEPA Test Methods, including Method 5 or 17 for PM emissions.

B. Compliance may be determined from the average of three valid test runs, subject to the restrictions and conditions contained in 35 IAC Part 283.

iii. A. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 6.1.

B. In addition to other information required in a test report, test reports shall include a detailed description of the operating conditions of the affected process during testing, including operating rate (tons/hour) and the control measures being used, and representative opacity data (6-minute average) measured during testing.

e. Within 180 days after achieving the maximum rate at which the gasifiers will be operated but not later than 365 days after initial startup of the gasifiers, the Permittee shall sample the vent gas CO_2 content and flow rate of the gasifier coal bunker during lockhopper depressurization events to establish a CO_2 emission factor on a pounds per event basis.

4.3.8 Operational Instrumentation and Monitoring

a. i. The Permittee shall install, operate and maintain systems to measure the pressure drop across each baghouse used to control affected units, other than bin vent filters and other similar filtration devices.

ii. For NSPS Subpart Y affected mechanical vents with fabric filters (baghouses) with design controlled potential PM emissions rates of 28 tons per year or more, if any, the Permittee shall install, calibrate, maintain, and continuously operate a bag leak detection system according to the requirements of 40 CFR 60.256(c) (40 CFR 60.256(b)(1)).

b. The Permittee shall install, calibrate, maintain, and operate monitoring devices for the measurement of the temperature of the gas stream at the exit of the thermal dryers on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within ±3°F (40 CFR 60.256(a)(1)(i)).

c. The Permittee shall install, operate and maintain systems to measure the date and time of lockhopper depressurizations from the gasifier coal bunker vents.

4.3.9 Inspections

a. i. The Permittee shall conduct inspections of affected units on at least a monthly basis with personnel who are not directly responsible for the day-to-day operation of these units, for the specific purpose of verifying that the measures identified in the operating program and other measures required to control emissions from affected units are being properly implemented.

ii. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22, from buildings in which affected units are located and from units from which the Permittee has elected to demonstrate no visible emissions.

b. The Permittee shall perform detailed inspections of the dust collection equipment for affected units while the units are out of service, with an initial inspection performed before any maintenance and repair activities are conducted during the period the unit is out of service and a follow-up inspection performed after any such activities are completed. These inspections shall be conducted at least every 15 months.

4.3.10 Recordkeeping

a. For affected units that are subject to NSPS Subpart Y, the Permittee shall maintain a logbook (written or electronic) on-site and make it available upon request. The logbook shall contain the information required by 40 CFR 60.258(a), including:

i. The manufacturer’s recommended maintenance procedures and the date and time of any maintenance and inspection activities and the results of those activities. Any variance from manufacturer recommendation, if any, shall be noted.

ii. The date and time of periodic coal preparation and processing plant visual observations, noting those sources with visible emissions along with corrective actions taken to reduce visible emissions. Results from the actions shall be noted.

iii. The amount and type of coal processed each calendar month.

iv. The amount of chemical stabilizer or water purchased for use in the coal preparation and processing plant.

v. Monthly certification that the dust suppressant systems were operational when any coal was processed and that manufacturer’s recommendations were followed for all control systems. Any variance from the manufacturer's recommendations, if any, shall be noted.

vi. Monthly certification that the fugitive coal dust emissions control plan was implemented as described. Any variance from the plan, if any, shall be noted. A copy of the applicable fugitive coal dust emissions control plan and any letters from the Administrator providing approval of any alternative control measures shall be maintained with the logbook. Any actions, e.g. objections, to the plan and any actions relative to the alternative control measures, e.g., approvals, shall be noted in the logbook as well.

b. The Permittee shall maintain file(s), which shall be kept current, that contain:

i. The maximum operating capacity of each affected unit or group of related units (tons/hour).

ii. A. For the baghouses and other filter devices associated with affected units, design specifications for each device (type of unit, maximum design exhaust flow (acfm and scfm), filter area, type of filter cleaning, performance guarantee for particulate exhaust loading in gr/scf, etc.), the manufacturer's recommended operating and maintenance procedures for the device, and design specification for the filter material in each device (type of material, surface treatment(s) applied to material, weight, performance guarantee, warranty provisions, etc.).

B. For each baghouse, the normal range of pressure drop across the device and the minimum and maximum safe pressure drop for the device, with supporting documentation.

iii. For affected units that are not controlled with baghouses or other filter-type devices, a detailed description of the work practices used to control emissions of PM pursuant to Condition 4.3.5(b).

iv. The maximum hourly and annual potential PM, PM_{10}, and $PM_{2.5}$ emission rate, in pounds/hour and tons/year, from affected units, either individually or grouped by related units, with supporting calculations and documentation, including detailed documentation for the level of emissions control achieved through the work practices that are used to control PM emissions. The sum of these emission rates shall not exceed the limits in Condition 4.3.6(b).

v. A demonstration that confirms that the above established control measures are sufficient to assure compliance with the above emissions rates and, for units to which Condition 4.3.3-2(c) applies, at the maximum process weight rate at which each affected unit can be operated (tons/hour), with supporting emission calculations and documentation for the emission factors and the efficiency of the control measures being relied upon by the Permittee. Except as addressed by

Conditions 4.3.10(a) and (b)(ii) or testing of PM emissions from an affected unit conducted in accordance with Conditions 4.3.7-1 and 4.3.7-2, this demonstration shall be developed using emission factors for uncontrolled PM emissions published by USEPA, efficiency of control measures, and controlled PM emissions.

c. The Permittee shall keep records for the amount of bulk materials received by or loaded out from the plant by category or type of material (tons/month).

d. The Permittee shall maintain an operating log or other similar records for the affected units that include the information specified in Condition 6.2(a) and the following information for each incident when any unit is operated without the control measures required by Condition 4.3.2 or 4.3.5(b) or (c):

   i. The date of the incident and identification of the unit(s) that were involved.

   ii. A description of the incident, including: the established control measures that were not present or implemented; the established control measures that were present, if any; and other control measures or mitigation measures that were implemented, if any.

   iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.

   iv. Operational data for the incident.

   v. The corrective action(s) taken and the length of time after the incident was identified that the unit(s) continued to operate before established control measures were in place or the operations were shutdown (to resume operation only after established control measures were in place) and, if this time was more than one hour, an explanation why this time was not shorter, including a detailed description of any mitigation measures that were implemented during the incident.

   vi. The estimated total duration of the incident, i.e., the total length of time that the unit(s) ran without established control measures and the estimated amount of material processed during the incident.

   vii. A discussion of the probable cause of the incident and any preventative measures taken.

   viii. An estimate of any additional emissions of PM (pounds) above the PM emissions associated with normal operation that resulted from the incident, if any, with supporting calculations.

ix. A discussion whether any applicable emission standard, as listed in Condition 4.3.2, 4.3.3-1, or 4.3.3-2 or any applicable emission rate, as identified in the records pursuant to Condition 4.3.10(b), may have been violated during the incident, with an estimate of the amount of any excess PM emissions (lbs) and supporting explanation.

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected units and the control measures associated with the affected units, including buildings and enclosures, dust suppression systems and control devices that contain the information specified in Condition 6.2(b) and the following information.

i. The following information for the inspections required by Condition 4.3.9(a):

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the control measures for each affected unit, including the presence of any visible emissions.

C. A description of any maintenance or repair associated with established control measures that are recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

D. A summary of the observed implementation or status of actual control measures, as compared to the established control measures.

ii. The following information for the inspections required by Condition 4.3.9(b):

A. Date and time the inspection was performed and name(s) of inspection personnel.

B. The observed condition of the dust collection equipment.

C. A summary of the maintenance and repair that is to be or was conducted on the equipment.

D. A description of any maintenance or repair that is recommended as a result of the inspection and a review of outstanding recommendations for maintenance or repair from previous inspection(s), i.e., whether recommended action has been taken, is yet to be performed or no longer appears to be required.

E. A summary of the observed condition of the equipment as related to its ability to reliably and effectively control emissions.

f. i. The Permittee shall maintain a file containing information for the heat input capacity of each coal dryer and design emission rates of each coal dryer, with supporting documentation as provided by the manufacturer of the burners.

ii. The Permittee shall maintain records of the total fuel usage or total unit operating hours of the coal dryer burners.

iii. The Permittee shall maintain an operating log or other similar records for the affected coal dryers that include the information specified in Condition 6.2(a).

iv. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected coal dryers that contain the information specified in Condition 6.2(b).

v. The Permittee shall keep records for any deviations from applicable requirements involving the affected coal dryers, which records shall include the information specified by Condition 6.3. These records may be combined with other records required by this section of this permit.

vi. The Permittee shall maintain records of the SO_2, NO_x, CO, VOM, PM, CO_2e, hexane and total HAPs emissions from the affected coal dryers (tons/month and tons/years), with supporting calculations.

g. The Permittee shall maintain the following records for the emissions of the affected units:

i. A file containing the standard emission factors used by the Permittee to determine PM, PM_{10} and $PM_{2.5}$ emissions from the units, with supporting documentation.

ii. Records of PM, PM_{10} and $PM_{2.5}$ emissions based on operating data for the unit(s) and appropriate emission factors, with supporting documentation and calculations.

iii. A file containing the emission factors used by the Permittee to calculate CO, VOM and CO_2e emissions from the gasifier coal bunker vents and methane emissions from coal handling, with supporting documentation.

iv. In order to demonstrate compliance with Condition 4.3.6(e), the Permittee shall keep data for the methane content of coal, as obtained from coal suppliers or by other means, and records for the amount of methane released at the plant on an annual basis from coal handling activities.

4.3.11 Reporting Requirements

a. For the purpose of reports required under 40 CFR 60.7(c), the Permittee shall report semiannually all 6-minute average opacities that exceed the applicable standard (40 CFR 60.258(b)).

b. i. The Permittee shall promptly notify the Illinois EPA of deviations from permit requirements for the affected units. These notifications shall include the information specified by Condition 6.4.

ii. The Permittee shall notify the Illinois EPA within 30 days of deviations that continue for more than 24 hours. For this purpose, time shall be measured from the start of a particular event. The absence of a deviation for a short period shall not be considered to end the event if the deviation resumes. In such circumstances, the event shall be considered to continue until corrective actions are taken so that the deviation ceases or the Permittee takes the affected unit out of service for repairs.

4.3.12 Operational Flexibility

The Permittee is authorized, as follows, to construct and operate affected units that differ from those described in the application in certain respects without obtaining further approval by the Illinois EPA. This condition does not affect the Permittee's obligation to comply with all applicable requirements for affected units:

a. This authorization only extends to changes that result from the detailed design of the project and any refinements to that design of the affected units that occur during construction and the initial operation of the gasification block.

b. With respect to air quality impacts, these changes shall generally act to improve dispersion and reduce impacts, as emissions from individual units are lowered, units are moved apart or away from the fence line, stack heights are increased, and heights of nearby structures are reduced.

c. The Permittee shall notify the Illinois EPA prior to proceeding with any changes. In this notification, the Permittee shall describe the proposed changes and explain why the proposed changes will act to reduce impacts, with detailed supporting documentation.

d. Upon written request by the Illinois EPA, the Permittee shall promptly have air quality dispersion modeling performed to demonstrate that the overall effect of the changes is to reduce air quality impacts, so that impacts from affected units remain at or below those predicted by the air quality analysis accompanying the application.

CONDITION 4.4 UNIT-SPECIFIC CONDITIONS FOR THE COOLING TOWER

4.4.1 Description of Emission Unit

The affected unit for the purpose of these unit-specific conditions is a cooling tower with multiple cells, which will supply the cooling water needed by various units in the gasification block.

The cooling tower is a source of particulate emissions because of mineral material present in the water supply for the tower. This material is emitted to the atmosphere with water droplets that escape from the cooling tower or completely evaporate. These particulate emissions are controlled by drift eliminators, which collect water droplets entrained in the air exhausted from the tower.

4.4.2 Control Technology Determination

a. The affected unit shall be equipped, operated, and maintained with drift eliminators designed to limit the loss of water droplets from the unit to not more than 0.0005 percent of the circulating water flow.

b. The PM, PM_{10}, and $PM_{2.5}$ emissions of the affected unit shall not exceed 0.66 lb/hour, 0.20 lb/hour, and 0.0013 lb/hour, respectively, on a 24-hr average basis, as determined from relevant operating data for the cooling tower and the efficiency of the drift eliminators, using engineering calculations for the emissions of PM, PM_{10}, and $PM_{2.5}$ due to the drift from the unit.

c. The VOM emissions of the affected unit shall not exceed 0.82 lb/hour, on a 3-hour average basis, as determined from relevant operating data for the cooling tower and the VOM concentration in any VOM-containing process streams used as cooling tower makeup water.

4.4.3 Applicable Emission Standards

a. The emission of smoke or other PM from the affected unit shall not have opacity greater than 30 percent. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.123(a)]

b. The affected unit shall comply with 35 IAC 212.301, which provides that emissions of fugitive PM shall not be visible from any process, including any material handling or storage activity, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed exceeds 25 miles per hour, as provided by 35 IAC 212.314.

c. The emissions of PM from the affected unit shall comply with the applicable limit pursuant to 35 IAC 212.321.

4.4.4 Non-Applicability Provisions

This permit is issued based on the affected unit not being subject to the NESHAP for Industrial Process Cooling Towers (40 CFR 63, Subpart Q) because chromium-based water treatment chemicals will not be used.

4.4.5 Operating Requirements

a. Chromium-based water treatment chemicals, as defined in 40 CFR 63.401, shall not be used in the affected unit.

b. i. Only non-VOM additives shall be used in the affected unit.

ii. Plant process wastewater shall not be introduced into cooling water, other than through unintentional leaks, which shall promptly be repaired.

c. The Permittee shall operate and maintain the affected unit, including the drift eliminators, in a manner consistent with good air pollution control practices for minimizing emissions.

d. The Permittee shall operate and maintain the affected unit in accordance with written procedures, which procedures shall be kept current. These procedures shall address the practices that will be followed as good air pollution control practices and the actions that will be followed to prevent a significant contribution to icing and fogging on offsite roadways.

4.4.6 Emission Limits

The emissions of PM, PM_{10}, and $PM_{2.5}$ from the affected unit shall not exceed 2.90, 0.87, and 0.006 tons/year, respectively, as determined by appropriate emission factors and engineering calculations.

4.4.7 Operational Measurements

Within one year (365 days) after initial startup of the gasification block, the Permittee shall test the percent drift achieved by the drift eliminator in accordance with the Cooling Technology Institute’s Acceptance Test Code No. 140. This test shall be performed by a licensed performance testing service.

4.4.8 Sampling and Analysis of Cooling Water

a. The Permittee shall sample and analyze the water being circulated in the affected unit on at least a monthly basis for the total dissolved solids content. Measurements of the total dissolved solids content in the wastewater discharge associated with the affected unit, as required by a National Pollution Discharge Elimination System permit, may be used to satisfy this requirement if the effluent has not been diluted or otherwise treated in a manner that would significantly reduce its total dissolved solids content.

b. Upon written request by the Illinois EPA, the Permittee shall promptly have the water circulating in the affected unit sampled and analyzed for the presence of hexavalent chromium in accordance with the procedures of 40 CFR 63.404(a) and (b).

c. The Permittee shall sample and analyze any VOM-containing process water streams used as makeup on at least a quarterly basis for the strippable VOM concentration using an appropriate TCEQ or ASTM Method or other established method.

d. The Permittee shall keep records for this sampling and analysis activity, including documentation for sampling and analysis as well as the resulting data that is collected.

4.4.9 Records

a. The Permittee shall keep a file that contains the following information for the affected unit:

i. The design loss specification for the drift eliminators installed in the unit.

ii. The supplier's recommended procedures for inspection and maintenance of the drift eliminators.

iii. The operating factors, if any, used to determine the amount of water circulated in the unit or the PM, PM_{10}, $PM_{2.5}$, and VOM emissions from the unit, with supporting documentation.

iv. Copies of the Material Safety Data Sheets or other comparable information from the suppliers of the various water treatment chemicals that are added to the water circulated in the unit.

v. Calculations for the maximum VOM, PM, PM_{10}, and $PM_{2.5}$ emissions from the unit (pounds/hour on a 3-hour average basis for VOM and pounds/hour on a 24-hour average basis for PM), based on the maximum operating rate of the unit and other factors that result in greatest emissions.

b. The Permittee shall keep the records for the amount of water circulated in the affected unit, gallons/month. As an alternative to direct data for water flow, these records may contain other relevant operating data for the unit (e.g., water flow to the unit) from which the amount of water circulated in the unit may be reasonably determined.

c. The Permittee shall maintain an operating log or other similar records for the affected units in the gasification block that include the information specified in Condition 6.2(a).

d. The Permittee shall keep inspection and maintenance logs for the affected unit, including the drift eliminators installed in the affected unit, which shall include the information specified in Condition 6.2(b).

e. The Permittee shall maintain records for the PM, PM_{10}, $PM_{2.5}$, and VOM emissions of the affected unit based on the above records, the measurements required by Conditions 4.4.7 and 4.4.8, and appropriate USEPA emission estimation methodology and emission factors, with supporting calculations.

4.4.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA of deviations of the affected unit with permit requirements. These notifications shall include the information specified by Condition 6.4.

   i. If the cooling tower is damaged so there is a deviation from an applicable requirement that is not repaired or otherwise corrected within 24 hours, the Permittee shall notify the Illinois EPA as soon as possible during normal working hours, but no later than three days after the event occurred.

   ii. All other deviations shall be reported with the periodic compliance reports required by Condition 4.4.10(b).

b. The Permittee shall submit periodic compliance reports to the Illinois EPA for the affected units, which reports shall include information for deviations during the reporting period, if any. These reports shall be submitted with the periodic reports required by Condition 4.1.11-1(c).

CONDITION 4.5: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILER

4.5.1 Description

The affected unit for the purpose of these unit-specific conditions is the gas-fired auxiliary boiler at the plant. This boiler will be used to supply steam for the operation of the plant, including startup of units in the gasification block. Given its functions, this boiler would not operate continuously. This boiler will fire SNG produced at the plant itself or commercial natural gas that is piped to the plant. The boiler's emissions of NO_x will be controlled by low-NO_x burners and flue gas recirculation.

4.5.2 Control Technology Determination

a. The affected unit shall be equipped and operated with the following to control emissions:

   i. Use of natural gas or SNG.

   ii. Ultra low-NO_x Burners.

   iii. Flue Gas Recirculation

   iv. Good Combustion Practices, including burner management system.

   v. Feedwater Economizer and automated blowdown control system.

b. i. The emissions of the affected unit shall not exceed the following limits, in lbs/mmBtu, 3-hour block average:

Pollutant	Auxiliary Boiler
NO_x	0.011
CO	0.037
PM	0.0075
VOM	0.0054

   ii. The emissions of CO_2e from the affected unit shall not exceed 161.5 lb per mmBtu of steam output, on a 12-month rolling average basis.

c. The sulfur content of fuel used in the affected unit shall not exceed 0.2 gr sulfur/100 dscf.

4.5.3-1 Applicable Federal Emission Standards

a. The affected unit is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db and related provisions in 40 CFR 60, Subpart A, General Provisions.

b. The affected unit shall comply with the applicable NSPS standard for NO_x emissions, as follows, on and after the date on which

the initial performance test is completed or is required to be completed under 40 CFR 60.8, whichever date comes first:

i. 86 ng/J (0.20 lb/million Btu) on a 30-day rolling average, pursuant to 40 CFR 60.44b(a) and (i), or alternatively,

ii. A limit set by USEPA pursuant to 40 CFR 60.44b(f).

c. At all times, the Permittee shall maintain and operate the affected unit, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, pursuant to 40 CFR 60.11(d).

4.5.3-2 Applicable State Emission Standards

The affected unit is subject to the following state emission standards:

a. i. The emission of smoke or other particulate matter from the affected unit shall not have an opacity greater than 20 percent, except as allowed by 35 IAC 212.122(b) or 212.124. [35 IAC 212.122(a)]

ii. Compliance with this limit shall be determined by 6-minute averages of opacity measurements in accordance with USEPA Reference Method 9. [35 IAC 212.109 and 212.122(a)]

b. The CO emissions into the atmosphere from the affected unit shall not exceed 200 ppm, corrected to 50 percent excess air. [35 IAC 216.121]

4.5.4 Non-Applicability Provisions

a. The affected unit is not subject to the Title IV (i.e., Acid Rain) provisions of the federal Clean Air Act since it does not qualify as an electrical generating unit for the purpose of the Acid Rain program.

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

i. The affected unit is not subject to the limits of the NSPS for PM or opacity because it only burns natural gas or SNG.

ii. The affected unit is not subject to the SO_2 standards of the NSPS, 40 CFR 60, Subpart Db, because the unit only fires fuels with a potential SO_2 emission rate of 0.32 lb/mmBtu heat input or less. [40 CFR 60.42b(k)(2), 60.47b(f) and 60.49b(r)]

iii. The affected unit is not subject to the opacity monitoring requirements of the NSPS, 40 CFR 60.48b, because it only

burns gaseous fuels, without post-combustion technology to reduce SO_2 or PM emissions. [40 CFR 60.48b(j)(2)]

iv. The affected unit is not subject to any requirements of the NSPS, 40 CFR 60, Subpart D, because it is subject to the NSPS, 40 CFR 60, Subpart Db. [40 CFR 60.40b(j)]

c. The affected unit is not subject to the NSPS, 40 CFR 60 Subpart Da, because it is does not meet the definition of an "electric utility steam generating unit" in 40 CFR 60.41Da.

d. The affected unit is not subject to the NESHAP Subpart JJJJJJ Industrial, Commercial, and Institutional Boilers at Area Sources because the affected unit is defined as a gas-fired unit (40 CFR 63.11195(e)).

4.5.5 Operational and Production Limits and Work Practice

a. Natural gas or SNG shall be the only fuel combusted in the affected unit.

b. The annual capacity factor, as defined by 40 CFR 60.41b, of the affected unit shall not exceed 50 percent.

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

4.5.6 Emission Limits

The emissions of the affected unit shall not exceed the following limits. The annual limits apply on a 12-month rolling average basis and address all emissions from the unit, including emissions during startup, shutdown, malfunction and breakdown.

Pollutant	Hourly Limits (Lbs/Hour)	Annual Limits (Tons/Year)
SO_2	0.17	0.37
NO_x	3.00	6.56
CO	10.3(15.0[1])	22.6
$PM/PM_{10}/PM_{2.5}$[2]	2.08	4.55
VOM	1.50	3.29
Hexane (n-hexane)	--	1.08
CO_2e	--	74,013

Notes:

1. This alternate CO limit applies during periods of startup, shutdown, and malfunction or breakdown.

2. Limits for PM address total emissions of particulate matter, including both filterable and condensable particulate. All PM is assumed to be less than 2.5 microns in aerodynamic diameter.

4.5.7 Emission Testing Requirements

a. The Permittee shall have emissions testing performed for the affected unit as follows at its expense by a qualified testing service under representative operating conditions:

i. Initial performance testing for emissions of NO_x required under the NSPS shall be conducted in accordance with 40 CFR 60.8 and 60.46b(e).

ii. Within 60 days after achieving the maximum rate at which the unit will be operated but not later than 365 days after initial startup of the unit, the Permittee shall have tests conducted for emissions of CO, PM, VOM and hexane.

iii. In addition to the emission testing required above, the Permittee shall perform emission tests as requested by the Illinois EPA for affected unit(s) within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

Note: Specific requirements for periodic emission testing may be established in the CAAPP Permit for the plant.

b. i. The methods and procedures for testing emissions of PM and NO_x and opacity shall be in accordance with 40 CFR 60.46b.

ii. The following methods and procedures shall be used for testing, unless use of other methods adopted or endorsed by USEPA or being developed by USEPA are approved by the Illinois EPA.

Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Filterable particulate ($PM/PM_{10}/PM_{2.5}$)	Method 5 or Method 201 or 201A
Condensable particulate	Method 202
CO[1]	Method 10
VOM	Methods 18 or 25A
Hexane	Method 320

Note:

1. CO emission testing shall be conducted for the purpose of certification of the continuous emission monitor required by Condition 4.5.8-1(b). Thereafter, CO emission data from certified monitors may be provided in lieu of conducting emissions tests.

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 6.1.

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

A. Fuel consumption, by type (in million scf);

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

C. Composition of fuel (Refer to Condition 4.1.9(b)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;

D. Opacity of the exhaust, 6-minute averages, as determined by USEPA Method 9.

4.5.8-1 Emissions Monitoring Requirements

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

i. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of these CEMS. This CEMS shall be operated during all periods of operation of the affected units except for CEMS breakdowns and repairs. This CEMS shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive units operating days as specified and pursuant to 40 CFR 60.48b(f). Data is to be obtained in the scheduling and course of performing calibration checks, and zero and span adjustments as specified in the NSPS.*

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

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

iii. These CEMS shall also be used to determine compliance with the NO_x limits in Condition 4.5.6.

b. The Permittee shall install, calibrate, operate and maintain CEMS for measuring CO emissions from the affected unit.

i. The relevant monitoring procedures in 40 CFR 60.48b(j)(4) shall be followed for these CEMS until and unless USEPA adopts procedures that would be directly applicable for continuous monitoring of CO emissions from these units.

ii. These CEMS shall be used to determine compliance with the CO limitations in Conditions in 4.5.2, 4.5.3-2 and 4.5.6.

4.5.8-2 Operational Monitoring Requirements

a. The Permittee shall install, calibrate, operate and maintain a continuous operational monitoring system for the affected unit for steam production, pounds per hour, and the temperature and pressure of the steam.

4.5.8-3 Opacity Observations

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

4.5.9 Recordkeeping Requirements

a. The Permittee shall maintain a file that contains the following information:

i. The rated heat input capacity of the affected unit, with supporting documentation.

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

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

i. Calendar date;

ii. The average hourly emission rates (expressed in lbs/million Btu heat input) measured or predicted;

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

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

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

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

vii. Identification of “F” factor used for calculations, method of determination, and type of fuel combusted;

viii. Identification of the times when the pollutant concentration exceeded full span of the CEMS;

ix. Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3; and

x. Results of daily CEMS drift tests and quarterly accuracy assessments as required under 40 CFR Part 60 Appendix F, Procedure 1.

c. The Permittee shall keep the following records for the CO CEMS required by Condition 4.5.8-1(b) for the affected boiler:

i. All measurements needed to demonstrate compliance with the applicable standards and limits for CO including, but not limited to, 15-minute averages of CEMS data and raw performance evaluation measurements that support data that the Permittee is required to report.

ii. Records of CO emissions as compared to applicable limits and standards and the date, start time and duration of any deviation from an applicable standard or limitation, and whether the deviation occurred during period of startup, shutdown, or malfunction.

iii. Each period during which a CEMS is malfunctioning or inoperative.

iv. All results of CEMS performance evaluations.

v. All CEMS calibration checks and all adjustments and maintenance performed on the CEMS.

vi. All measurements as may be necessary to determine the conditions of performance tests and performance evaluations.

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

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

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

iii. For the affected unit, pursuant to 40 CFR 60.49b(r), the Permittee shall either:

A. Obtain and maintain at the affected facility fuel receipts from the fuel supplier that certify that the gaseous fuel meets the definition of natural gas as defined in 40 CFR 60.41b and the applicable sulfur limit. Reports shall be submitted to the Administrator certifying that only natural gas and/or other fuels that are known to contain insignificant amounts of sulfur were combusted in the affected facility during the reporting period; or

B. Develop and submit a site-specific fuel analysis plan to the Administrator for review and approval no later than 60 days before the date you intend to demonstrate compliance. Each fuel analysis plan shall include a minimum initial requirement of weekly testing and each analysis report shall contain, at a minimum, the following information:

1. The potential sulfur emissions rate of the representative fuel mixture in ng/J heat input;

2. The method used to determine the potential sulfur emissions rate of each constituent of the mixture. For distillate oil and natural gas a fuel receipt or tariff sheet is acceptable;

3. The ratio of different fuels in the mixture; and

4. The Permittee can petition the Administrator to approve monthly or quarterly sampling in place of weekly sampling.

e. The Permittee shall maintain an operating log or other similar records for the affected units that include the information specified in Condition 6.2(a) and the following information:

i. For each startup of an affected unit, the information specified by 40 CFR 60.7(b) and identification of any deviations from normal startup procedures, as set forth in the Permittee’s written operating procedures, with explanation.

ii. For each shutdown of an affected unit, the nature and reason for the shutdown, the timing of major steps in the shutdown, any unusual occurrences during the shutdown, and any deviations from the established shutdown procedures, with explanation.

iii. For malfunctions or breakdowns, the information required by 40 CFR 60.7(b) and, if excess emissions occurred:

A. An explanation why continued operation of the affected unit was necessary.

B. The rates or magnitude of excess emissions during the event.

f. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected unit that contain the information specified in Condition 6.2(b).

g. The Permittee shall keep the following records related to the emissions of NO_x, CO, VOM, SO_2, PM, CO_2e, hexane and total HAPs from the affected unit:

i. If continuous monitoring is performed for a pollutant, the emissions of the pollutant from the affected unit based on continuous emissions monitoring data, in tons/month and tons/year.

ii. If continuous monitoring is not performed for a pollutant:

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

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

iii. The enthalpy or heat content of the steam produced by the affected unit, mmBtu/month and mmBtu/year, determined from monitored data for the amount, temperature, and pressure of the steam produced by the unit.

4.5.10 Notification and Reporting Requirements

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

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

ii. Periodic reports for excess emissions, as further addressed by Condition 4.5.10(d).

b. The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the affected units as follows. These notifications shall include the information specified by Condition 6.4.

i. If there is an exceedance of a state emission or opacity standard other than during startup or shutdown, e.g., due to a malfunction or breakdown event, the Permittee shall immediately notify the Illinois EPA in accordance with Condition 4.5.10(c).

ii. If there is a deviation from other applicable requirements for PM emissions or opacity that is not repaired or otherwise corrected within two hours (120 minutes), the Permittee shall notify the Illinois EPA within 30 days.

iii. The deviations addressed above and all other deviations shall be reported in the periodic compliance reports required by Condition 4.5.10(d).

c. i. Pursuant to 35 IAC 201.263, the Permittee shall immediately report to the Illinois EPA, Regional Office, by telephone or fax upon continued operation of an affected unit during a malfunction or breakdown of the affected unit or associated control equipment when such continued operation would cause an exceedance or violation of the applicable state emission standard.

ii. The Permittee shall submit a written follow-up report to the Illinois EPA within five business days providing a detailed explanation of the event and explanation why continued operation of the affected unit was necessary, the length of time during which operation continued under such conditions, the measures by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or the unit was taken out of service.

d. The Permittee shall submit periodic compliance reports to the Illinois EPA for the affected unit, which reports shall include the following information. These reports shall be submitted on a semi-annual basis, with each report submitted no later than 30 days following the end of the reporting period:

i. Information related to excess emissions and deviations:

A. As related to the NSPS standard for NO_x emissions or the NO_x limit in Condition 4.5.2, the information required for reporting of exceedances under 40 CFR 60.7(c) or (d) and 60.49b(h) and (j). If there are no such exceedances during the reporting period, the report shall state that no exceedances occurred during the reporting period.

B. Information for other deviations during the reporting period, if any.

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

ii. A summary of operation and emissions of the affected boiler during the reporting period, including the amounts of fuel used, total operating hours, number of startups by type, and average hourly emission rates for NO_x and CO.

CONDITION 4.6: UNIT-SPECIFIC CONDITIONS FOR METHANATION “STARTUP” HEATER

4.6.1 Description of Emission Unit

The affected unit for the purpose of these unit-specific conditions is the natural gas-fired heater for in the methanation unit, primarily to heat nitrogen used during catalyst replacements.

4.6.2 Control Technology Determination

a. The affected unit shall be operated and maintained with the following features to control emissions:

i. Use of natural gas or SNG.

ii. Low-NO_x burner.

iii. Good combustion practices.

b. i. The affected unit shall comply with the following emission limits, which are in lbs/mmBtu, 3-hour average:

Pollutant	Limits
NO_x	0.047
CO	0.073
PM	0.0075
VOM	0.0054

ii. The emissions of CO_2e from the affected unit shall not exceed 1,363 tons/year.

c. The sulfur content of fuel used in the affected unit shall not exceed 0.2 gr sulfur/100 dscf.

4.6.3 Applicable Emission Standards

a. The affected unit is subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc, and related provisions in 40 CFR 60, Subpart A, General Provisions.

4.6.4 Non-Applicability Provisions

a. The affected unit is not subject to the NESHAP Subpart JJJJJJ Industrial, Commercial, and Institutional Boilers at Area Sources because the affected unit is a gas-fired unit as defined by 40 CFR 63.11195(e).

4.6.5 Operational Production Limits and Work Practices

a. Natural gas or SNG shall be the only fuel fired in the affected unit.

b. The rated heat input capacity of the affected unit shall not exceed 85 mmBtu/hour.

c. The affected unit shall not operate for more than 500 hours/year.

d. Fuel usage in the affected unit shall not exceed 23.7 million scf/year.

4.6.6 Emission Limits

The emissions of the affected unit shall not exceed the following limits. The annual limits apply on a 12-month rolling basis:

Pollutant	Hourly Limits (Lbs/Hour)	Annual Limits (Tons/Year)
SO_2	0.027	0.0068
NO_x	2.09	0.52
CO	3.27	0.82
$PM/PM_{10}/PM_{2.5}$[1]	0.34	0.084
VOM	0.24	0.061
CO_2e	--	1,363

Notes:

1. Limits for PM address total emissions of particulate matter, including both filterable and condensable particulate. All PM is assumed to be less than 2.5 microns in aerodynamic diameter.

4.6.8 Recordkeeping Requirements

a. The Permittee shall record and maintain records of the amount of each fuel combusted during each calendar month (40 CFR 60.48c(g)(2)).

b. The Permittee shall maintain a file containing information for the heat input capacity and design emission rates, with supporting documentation as provided by manufacturer of the burner.

c. The Permittee shall maintain records of the total unit operating hours.

d. The Permittee shall maintain an operating log or other similar records for the affected units that include the information specified in Condition 6.2(a).

e. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected units that contain the information specified in Condition 6.2(b).

f. The Permittee shall keep records for any deviations from applicable requirements involving the affected units, which records shall include the information specified by Condition 6.3. These records may be combined with other records required by this section of this permit.

g. The Permittee shall maintain records of the SO_2, NO_x, CO, VOM, PM, CO_2e, and total HAP emissions from the affected unit (tons/month and tons/years), with supporting calculations.

4.6.9 Reporting Requirements

a. The Permittee shall notify the Illinois EPA of deviations of the affected units with the permit requirements with the periodic compliance reports required by Condition 4.1.11-1(c). These notifications shall include the information specified in Condition 6.4.

CONDITION 4.7: UNIT-SPECIFIC CONDITIONS FOR EMERGENCY ENGINES

4.7.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are two diesel-fueled emergency engine generators (nominal capacity 2 MW) and two smaller diesel-fueled firewater pump engines (nominal 575 horsepower). The emergency generators will be used to supply critical plant equipment power during power outages, and the firewater pumps will be used for fire protection. Other than during plant emergency situations, each engine will normally be operated for less than one hour per week per engine for routine testing, maintenance, and inspection purposes only.

4.7.2 Control Technology Determination

a. i. The emergency generator engines shall be designed and operated to comply with the following limits, which shall apply on a 3-hour average:

Pollutant	Emergency Generator Engines
$NMHC+NO_x$	6.4 g/kWh
CO	0.29 g/hp-hour
SO_2	0.041 lb/hour
PM	0.035 g/hp-hour
VOM	0.11 g/hp-hour

ii. The emissions of CO_2e from the emergency generator engines shall not exceed 1,567 tons/year.

iii. The emergency generator engines shall be certified by the manufacturer to not exceed a brake-specific fuel consumption rate of 6,479 Btu/hp-hour.

b. i. The firewater pump engines shall be designed and operated to comply with the following limits, 3-hour average:

Pollutant	Firewater Pump Engines
NO_x	2.6 g/hp-hour
CO	0.67 g/hp-hour
SO_2	0.01 lb/hour
PM	0.090 g/hp-hour
VOM	0.086 g/hp-hour

ii. The emissions of CO_2e from the firewater pump engines shall not exceed 328 tons/year.

iii. The fire pump engines shall be certified by the manufacturer to not exceed a brake-specific fuel consumption rate of 6,647 Btu/hp-hour.

4.7.3-1 Applicable Federal Emission Standards

a. i. The affected units are subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII and related provisions in 40 CFR 60, Subpart A, General Provisions.

ii. As 2007 model year or later emergency stationary compression ignition (CI) internal combustion engines (ICE) with a displacement of less than 30 liters per cylinder that are not fire pump engines, the emergency generator engines must comply with the following NSPS Subpart IIII emission standards for new nonroad CI engines with rated power output greater than 560 kW. The Permittee shall comply with these emission limits by purchasing an engine certified to the emission standards for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications (40 CFR 60.4205(b), 40 CFR 60.4202, 40 CFR 89.112(a), and 40 CFR 89.113(a), 60.4211(c)).

A. 6.4 g/kWh for NO_x plus non-methane hydrocarbons (NMHC),

B. 3.5 g/kWh for CO,

C. 0.20 g/kWh for PM, and

D. Exhaust opacity from must not exceed 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent during the peaks in either the acceleration or lugging modes.

iii. As model year 2009 or later fire pump engines with a displacement of less than 30 liters per cylinder, the firewater pump engines must comply with the following emission standards from Table 4 of NSPS Subpart IIII applicable to units with a maximum engine power greater than 225 kW but less than 450 kW. The Permittee shall comply with these emission limits by purchasing an engine certified to the emission standards for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications (40 CFR 60.4205(c) and 60.4211(c)).

A. 4.0 g/kWh for NO_x plus NMHC,

B. 3.5 g/kWh for CO, and

C. 0.20 g/kWh for PM.

iv. The diesel fuel used in the affected engines shall meet the requirements of 40 CFR 80.510(b) for nonroad diesel fuel (40 CFR 60.4207(b)).

b. As new stationary reciprocating internal combustion engines (RICE) located at an area source, the affected engines must meet the requirements of NESHAP Subpart ZZZZ by meeting the requirements of NSPS Subpart IIII, for compression ignition engines. No further requirements apply for the affected engines under NESHAP Subpart ZZZZ (63.6590(c)).

4.7.3-2 Applicable State Emission Standards

a. The affected engines are subject to 35 IAC 214.301, which limits emissions of SO_2 to no more than 2000 ppm.

4.7.4 Non-Applicability Provisions

None

4.7.5 Operational Production Limits and Work Practices

a. Except as provided under 40 CFR 60.4211(g), the Permittee shall operate and maintain the emergency generator and fire pump engines according to the manufacturer's written instructions related to emissions. In addition, the Permittee may only change those emission-related settings that are permitted by the manufacturer. The Permittee must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as applicable (60.4211(a)).

b. The emergency generator and firewater pump engines may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of the affected units in emergency situations. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in nonemergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as provided for in this provision, is prohibited. (40 CFR 60.4211(f))

c. The operation of the affected engines shall not exceed 500 hours per year, provided, however, that the Illinois EPA may authorize temporary operation of engines in excess of 500 hours per year

to address extraordinary circumstances that require operation of this device, by issuance of a separate state construction permit addressing such circumstances.

4.7.6 Emission Limits

a. The emissions from the engines shall not exceed the limits in Attachment 1, Table IV.

b. i. Total emissions of CO_2e from the emergency generator engines shall not exceed 1,567 tons per year.

ii. Total emissions of CO_2e from the fire pump engines shall not exceed 328 tons per year.

4.7.7 Operational Monitoring

a. If an affected engine does not also meet the standards of the NSPS, 40 CFR 60 Subpart IIII, that are applicable to non-emergency engines, the Permittee shall operate and maintain a non-resettable hour meter on the engine, which meter shall be installed prior to initial startup of the engine. (40 CFR 60.4209(a))

4.7.8 Recordkeeping Requirements

a. If an affected engine does not also meet the standards of the NSPS, 40 CFR 60 Subpart IIII, applicable to non-emergency engines in the applicable model year, the Permittee must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The Permittee must record the time of operation of the engine and the reason the engine was in operation during that time (60.4214(b)).

b. The Permittee shall maintain records of fuel consumption of each set of affected engines on a monthly basis.

c. The Permittee shall maintain monthly and 12-month rolling records of emissions of NO_x, CO, SO_2, VOM, PM, and CO_2e from each set of affected engines.

4.7.9 Reporting Requirements

a. The Permittee shall notify the Illinois EPA of deviations of the affected engines with the permit requirements with the periodic compliance reports required by Condition 4.1.11-1(c). These notifications shall include the information specified in Condition 6.4.

CONDITION 4.8: UNIT-SPECIFIC CONDITIONS FOR METHANOL STORAGE TANK

4.8.1 Description

The affected unit for the purpose of these unit-specific conditions is the methanol storage tank at the plant for use in storing the Rectisol® solvent used in the AGR Unit. This storage tank is equipped with an internal floating roof and seals to minimize loss of material and emissions of VOM by evaporation.

4.8.2 Control Technology Determination

a. The affected unit shall be equipped and operated with an internal floating roof meeting the requirements of Condition 4.8.3 to control VOM emissions.

b. The emissions of VOM from the methanol tank shall not exceed 0.11 tons/year on a calendar year basis, excluding losses from roof landings.

4.8.3 Applicable Federal Emission Standards

a. The affected tank is subject to the NSPS for Volatile Organic Liquid Storage Vessels, 40 CFR 60 Subpart Kb, and associated General Provisions, 40 CFR 60 Subpart A. Specifically, the Permittee shall operate and maintain the affected tank with a fixed roof in combination with an internal floating roof meeting the following specifications of 40 CFR 60.112b(a)(1):

i. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

ii. The internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the floating roof:

A. A foam-or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

B. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the

edge of the floating roof. The lower seal may be vapor-mounted, but both must be continuous.

C. A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

iii. Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

iv. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

v. Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

vi. Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer’s recommended setting.

vii. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

viii. Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

ix. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

4.8.4 Non-Applicability Provisions

a. This permit is issued based on the affected tank not being subject to 35 IAC 215.121(b) and 215.122(b) because the vapor pressure of stored material is less than 2.5 psia at 70°F.

b. The affected tank is not subject to the requirements of 35 IAC 215.123(b) because it is subject to the NSPS, 40 CFR 60 Subpart Kb.

4.8.5 Operating Limitations

a. The affected tank shall not store VOL with a maximum true vapor pressure of 2.5 psia or greater at 70°F.

b. The throughput of the affected tank shall not exceed 2,030,000 gallons/year, total.

4.8.6 Emission Limits

The emissions of VOM from the affected tank shall not exceed 0.21 tons/year on a calendar year basis as determined using the methodology in USEPA's Compilation of Air Pollutant Emissions Factors, AP-42, the latest version of the TANKS program, or other methodology published by USEPA, including emissions due to roof landings.

4.8.7 Inspection Requirements

a. For the affected tank, after installing the permanently affixed roof and internal floating roof (required to meet the NSPS), the Permittee shall visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the Permittee shall repair the items before filling the tank. [40 CFR 60.113b(a)(1)]

b. For tanks equipped with a liquid-mounted or mechanical shoe primary seal, the Permittee shall visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the tank, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the tank from service within 45 days. If a failure that is detected during this inspection cannot be repaired within 45 days and if the tank cannot be emptied within 45 days, a 30-day extension may be requested from the Illinois EPA in the required inspection report. Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the Permittee will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

c. As the tank is equipped with a double-seal system as specified in Condition 4.8.3(a)(ii)(B), the Permittee shall:

i. Visually inspect the tank as specified in Condition 4.8.7(d) at least every 5 years; or

ii. Visually inspect the tank as specified in Condition 4.8.7(b).

d. The Permittee shall visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the tank with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of tanks conducting the annual visual inspection as specified in Conditions 4.8.7(b) and (c)(ii) and at intervals no greater than 5 years in the case of tanks specified in Condition 4.8.7(c)(i).

4.8.8 Recordkeeping Requirements

a. The Permittee shall maintain readily accessible records of the dimensions of the affected tank and an analysis of the capacity of the tank. These records shall be kept for the life of the tank. [40 CFR 60.116b(b) and 35 IAC 215.129(f)]

b. i. The Permittee shall keep records of the VOL stored in the affected tank, the period of storage, and the maximum true vapor pressure of the VOL during the respective storage period based on the actual monthly storage temperature. [40 CFR 60.116b(c) and (e)]

ii. The Permittee shall keep records of throughput (gallons/month and gallons/year) and physical properties (vapor pressure and molecular weight) of the VOL as stored in the affected tank.

c. The Permittee shall maintain an operating log or other similar records for the affected tank that include the information specified in Condition 6.2(a) and the following information:

i. A record of the date when a floating roof in the affected tank is set on its legs or other support devices and the date when the roof was refloated, with information indicating whether the process of filling, emptying, or refilling was continuous.

d. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected tank that contain the

information specified in Condition 6.2(b) and the following information required by 40 CFR 60.115b(a)(2):

i. A record of each inspection performed as required by Condition 4.8.7, which shall contain the date the affected tank was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

e. The Permittee shall maintain records of VOM emissions from the affected tank, tons/month and tons/year, with supporting calculations.

4.8.9 Reporting Requirements

a. The Permittee shall fulfill applicable notification and reporting requirements of the NSPS, 40 CFR 60.7 and 60.115b, for the affected tank, including:

i. Notifying the Illinois EPA in writing at least 30 days prior to the filling or refilling of the affected tank for which an inspection is required by the NSPS to afford the Illinois EPA the opportunity to have an observer present. If the inspection required by the NSPS is not planned and the Permittee could not have known about the inspection 30 days in advance or refilling the tank, the Permittee shall notify the Illinois EPA at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Illinois EPA at least 7 days prior to the refilling. [40 CFR 60.113b(a)(5)]

ii. Providing the following reports for inspection of the control equipment (internal floating roof) on the affected tank:

A. Furnish the Illinois EPA with a report that describes the control equipment and certifies that the control equipment meets the specifications of the NSPS. This report shall be an attachment to the notification of initial startup required by 40 CFR 60.7(a)(3). [40 CFR 60.115b(a)(1)]

B. If any of the conditions described in Condition 4.8.7(b) are detected during a required annual visual inspection, a report shall be furnished to the Illinois EPA within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made. [40 CFR 60.115b(a)(3)]

C. After each inspection required by Condition 4.8.7(c) that finds holes or tears in the seal, or defects in the internal floating roof, or other control equipment defects listed in Condition 4.8.7(c)(ii), a report shall be furnished to the Illinois EPA within 30 days of the inspection. The report shall identify the storage tank and the reason it did not meet the specifications of Condition 4.8.5(a) or 4.8.7(c) and list each repair made. [40 CFR 60.115b(a)(4)]

b. The Permittee shall notify the Illinois EPA of deviations of the affected tank with the permit requirements. These reports shall include the information specified by Condition 6.4 and be submitted with the periodic reports required by Condition 4.1.11-1(c), unless otherwise provided by Condition 4.8.9(a)(ii).

CONDITION 4.9: UNIT-SPECIFIC CONDITIONS FOR EQUIPMENT COMPONENTS

4.9.1 Description

The affected units for the purpose of these unit-specific conditions are equipment components, such as pumps, compressors, valves, and flanges in the piping and ductwork that have the potential for emissions if they leak. These equipment leak emissions are minimized by program to identify such leaks and repair them.

4.9.2 Control Technology Determination

a. i. For the equipment leak components identified below, the Permittee shall implement an LDAR program in accordance with Condition 4.9.6 to reduce VOM emissions:

A. Components in triethylene glycol service within the SNG drying process of the Gasification/Syngas Conditioning/Methanation process areas;

B. Components in methanol, propylene (refrigerant), and acid gas service within the AGR Unit process area;

C. Components in sour gas and acid gas service within the SRU process area; and

D. Components in methanol and propylene service within the miscellaneous minor process areas.

ii. This condition, excluding A above, shall not apply to components (1) where the VOM in the containing process stream has an aggregate partial pressure or vapor pressure of less than 0.044 pounds per square inch, absolute (psia) at 68°F or (2) the operating pressure is at least 5 kilopascals (0.725 psi) below ambient pressure. Equipment excluded from the LDAR program on this basis shall be identified in a list, piping and instrumentation diagram (P&ID) or electronic database.

b. For all other equipment leak components not addressed in Condition 4.9.2(a), the Permittee shall implement good work practices to ensure that equipment leaks discovered during routine walk-throughs by operators during the normal course of their work are repaired in accordance with the repair timeframes specified in the LDAR program to control emissions of VOM, CO, CO_2, and methane.

c. The Permittee shall route emissions from pressure relief valves (PRV) in the gasification block to a flare (or other combustion device offering an equivalent level of control for VOM, CO, and methane) to control emissions of VOM, CO, and methane.

d. The emissions of VOM, CO, and CO_2e from affected components, in total, shall not exceed 2.44, 30.5, 1,255 tons/year, respectively.

4.9.3 Applicable Emission Standards

None

4.9.4 Non-Applicability Provisions

a. The affected components are not subject to the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI), 40 CFR 60, Subpart VVa, because the SNG and recovered sulfur produced at this plant are not products covered by the SOCMI NSPS.

b. The affected components are not subject to the requirements of 35 IAC Part 215, Subpart Q, Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment, pursuant to the applicability provisions at 35 IAC 215.420, because none of the chemicals produced at the plant are synthetic organic chemicals or polymers listed in 35 IAC Part 215, Appendix D.

c. This affected components are not subject to the requirements of 35 IAC 215.142 because the vapor pressure of Rectisol® solution and other volatile organic liquids (VOL) used at the plant are below 2.5 psia at 70°F.

4.9.5 Emission Limits

Emissions of VOM, CO, CO_2, CO_2e, COS and methanol from the affected components shall not exceed 2.44, 30.5, 177.4, 1,255, 1.05 and 1.00 tons/year, respectively, as determined by use of appropriate USEPA methodology for estimating emissions from leaking components.

4.9.6 Leak Detection and Repair Monitoring Requirements

a. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be located to be reasonably accessible for leak-checking during plant operation. Non-accessible or “inaccessible” (as defined in 40 CFR 63.174(h)) components shall be identified in a list to be made available upon request. The non-accessible components may be identified by one or more of the methods described in Condition 4.9.5. If an “unsafe-to-monitor” (as defined in 40 CFR 63.168(h)) component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe-to-monitor times. A “difficult-to-monitor” (as defined in 40 CFR 63.168(i)) component for which quarterly monitoring is specified may instead be monitored annually.

b. Gas or hydraulic testing of the new and reworked accessible piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Accessible connectors shall be inspected by

visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

c. Accessible valves and sampling connections shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

d. A check of the reading of the pressure-sensing device to verify disc integrity shall be performed weekly and recorded in the unit log.

e. The gas analyzer required for Conditions 4.9.7(c), 4.9.7(g), and 4.9.7(j) shall conform to requirements listed in Method 21 of 40 CFR Part 60, Appendix A. The gas analyzer shall be calibrated with methane. In addition, the response factor of the instrument for a specific VOM of interest shall be determined and meet the requirements of Section 8 of Method 21. If mixtures of VOM are being monitored, the response factor shall be calculated for the average composition of the process fluid. If a response factor less than 10 cannot be achieved using methane, then the instrument may be calibrated with one of the VOM to be measured or any other VOM so long as the instrument has a response factor of less than 10 for each of the VOM to be measured.

f. Replacements for leaking components shall be re-monitored within 15 days of being placed back into VOM service.

g. All pump, compressor, and agitator seals shall be monitored with an approved gas analyzer at least quarterly or be equipped with a shaft sealing system that prevents or detects emissions of VOM from the seal. Seal systems designed and operated to prevent emissions or seals equipped with automatic seal failure detection and alarm systems need not be monitored. These seal systems may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

h. Damaged or leaking valves or connectors found to be emitting VOM in excess of 500 parts per million by volume (ppmv) or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Damaged or leaking

pump, compressor, and agitator seals (in light liquid and gas/vapor service) found to be emitting VOM in excess of 2,000 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Damaged or leaking pump and agitator seals (in heavy liquid and gas/vapor service) found to be emitting VOM in excess of 500 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. A first attempt to repair the leak must be made within 5 days. Records of the first attempt to repair shall be maintained.

i. Every reasonable effort shall be made to repair a leaking component within 15 days after the leak is found. If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within 15 days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list. The cumulative daily emissions from all components on the delay of repair list shall be estimated by multiplying the hourly mass emission rate by 24 for each component. When the cumulative daily emission rate of all components on the delay of repair list times the number of days until the next scheduled unit shutdown is equal to or exceeds the total emissions from a unit shutdown, the Illinois EPA shall be notified and may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown. This notification shall be made within 15 days of making this determination.

j. In addition to the weekly physical inspection required by Condition 4.9.6(b), all connectors in gas\vapor and light liquid service shall be monitored quarterly with an approved gas analyzer in accordance with the relevant leak monitoring and repair provisions of Conditions 4.9.7(c) through(i). The leak definition for this annual connector monitoring is 500 ppmv. Alternative monitoring frequency schedules of 40 CFR Part 63.174(b)(3)(ii) through (v), may be used in lieu of the monitoring frequency required by this condition.

k. Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the removal of a component for repair or replacement results in an open-ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 24 hours. If the repair or replacement is not completed within 24 hours, the line or valve must have a cap, blind flange, plug, or second valve installed.

4.9.7 Recordkeeping Requirements

a. The Permittee shall maintain a leaking component monitoring log or other similar records for the affected components covered in Condition 4.9.2(a), that contains the following information. Notwithstanding other provisions of this permit, the Permittee need only retain these records for a minimum of two years from the date on which information was entered in the records.

   i. The name of the area and process equipment where the component is located;

   ii. The type of component (e.g., valve, pump seal);

   iii. The identification number of the component;

   iv. The date, time, and results for weekly physical inspections required in Condition 4.9.6(b);

   v. The date, time, test method, and instrument reading for periodic monitoring using a gas analyzer;

   vi. The date on which a leaking component is discovered;

   vii. The date on which a leaking component is repaired;

   viii. The date and instrument reading of the recheck procedure after a leaking component is repaired;

   ix. A record of the calibration of the monitoring instrument;

   x. The identification number of leaking components placed on delay of repair which cannot be repaired until process unit shutdown;

   xi. Justification for implementing delay of repair for components on the delay of repair list;

   xii. Daily emissions from components on delay of repair list in comparison to emission expected from a process unit shutdown (refer to Condition 4.9.7(i)) compiled on a monthly basis;

   xiii. The total number of components inspected and the total number of components found leaking during that monitoring period.

b. The Permittee shall maintain a leaking component log or other similar records for the affected components covered in Condition 4.9.2(b) that contains the following information.

   i. The date, time, component type, process area, associated process equipment, and detection method (i.e., audio, visual, or olfactory) for any leaks discovered during routine walk-throughs;

ii. The date on which a leaking component is repaired; and

iii. List of leaking components discovered by inspections required under Condition 4.9.2(b) placed on delay of repair which cannot be repaired until process unit shutdown. This list shall be kept separately from the delay of repair list required under Condition 4.9.8(a).

c. The Permittee shall maintain records on at least an annual basis of the VOM, CO, H_2S, CO_2e, methanol, COS and total HAP emissions of the affected components (tons/year), with supporting documentation and calculations.

4.9.8 Reporting Requirements

a. The Permittee shall notify the Illinois EPA with the periodic reports required by Condition 4.1.11-1(c) of deviations from applicable requirements for affected components. These notifications shall include the information specified by Condition 6.4.

CONDITION 4.10: UNIT-SPECIFIC CONDITIONS FOR CIRCUIT BREAKERS

4.10.1 Description

The affected units for the purpose of these unit-specific conditions are circuit breakers in the electrical distribution systems at the plant that use sulfur hexafluoride (SF_6), which is a greenhouse gas. Although the affected units will be closed, pressurized systems with no vent or stack for direct emissions, leaks of SF_6 may occur.

4.10.2 Control Technology Determination

a. To control SF_6 emissions, the affected units shall be low leak rate design circuit breakers, guaranteed by the manufacturer to have an annual leak rate of no more than 0.5 percent when operated with a leak detection system.

b. The emissions of SF_6 shall not exceed 12.2 pounds/year, on a 12-month rolling basis.

4.10.3 Applicable Emission Standards

None

4.10.4 Operating Requirements

The Permittee shall promptly respond to any alarm from the leak detection systems on the affected units, as required by Condition 4.10.5, by investigating the unit involved and expeditiously implementing appropriate corrective action based on the results of the investigation, by either action to prevent further loss of SF_6 from the subject unit (e.g., repairing the leak or making changes to operating practices for the unit) or appropriate repairs to the leak detection system.

4.10.5 Emission Limit

a. Emissions of SF_6 from the affected units, in total, shall not exceed 12.2 pounds per year (0.0061 tons per year) on a 12-month rolling basis.

4.10.6 Monitoring Requirements

a. The Permittee shall install, operate, and maintain a leak detection system on each affected unit, which system shall indicate the level of SF_6 or dielectric material in the unit (e.g., pressure of the material in the unit) and provide an alarm in the event that the level of material in the affected unit falls below the set point or level recommended by the manufacturer of the unit.

4.10.7 Recordkeeping Requirements

a. The Permittee shall keep a file or other records containing the following information:

i. Copies of the manufacturers' guarantees for the design leak rate of SF_6 from circuit breakers, percent loss on an annual basis.

ii. The recommended operating and maintenance procedure(s) for the affected unit as related to the use of SF6 provided by the manufacturer(s) of the units.

iii. The recommended operating and maintenance procedure(s) provided by the manufacturer(s) of the leak detection systems required by Condition 4.10.6.

b. The Permittee shall maintain records of the additions of dielectric material or SF_6 to each affected unit, with identity of the unit, date, and type and amount of material added.

c. The Permittee shall maintain records for the total addition of dielectric material or SF_6 to affected units (pounds/month), based on inventory data for the usage of materials.

d. The Permittee shall maintain records for the total emissions of SF_6 from the affected units (pounds/month and pounds/year), as determined from either the records required by Condition 4.10.7(a) or (b), with supporting calculations.

4.10.8 Reporting Requirements

a. The Permittee shall notify the Illinois EPA with the periodic reports required by Condition 4.1.11-1(c) of deviations from applicable requirements for affected units. These notifications shall include the information specified by Condition 6.4.

CONDITION 4.11: UNIT-SPECIFIC CONDITIONS FOR ROADWAYS AND OTHER OPEN AREAS

4.11.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are roadways, parking areas, and other open areas at the plant (such as storage yards for the inactive coal and slag piles), which may be sources of fugitive particulate matter due to vehicle traffic or windblown dust. These emissions are controlled by paving and implementation of work practices to prevent the generation and emissions of particulate matter.

4.11.2 Control Technology Determination

a. The opacity of fugitive particulate matter emissions from affected units shall not exceed 10 percent opacity. For this purpose, opacity shall be determined in accordance with 35 IAC 212.109, respectively.

b. i. Good air pollution control practices shall be implemented to minimize dust emissions from affected units. After construction activity is complete, these practices shall provide for pavement on all regularly traveled roads and treatment (sweeping) of roadways and areas that are routinely subject to vehicle traffic for effective control of dust (nominal 90 percent control for both paved and unpaved roads and areas).

ii. For this purpose, roads that serve any office building, employee parking areas or are used on a daily basis by operating and maintenance personnel for the plant in the course of their typical duties shall be considered to be subject to regular travel and are required to be paved. Regularly traveled roads shall be considered to be subject to routine vehicle traffic except as they are currently inactive or as traffic has been temporarily blocked off. Other roads shall be considered to be routinely traveled if activities are occurring such that they are experiencing significant vehicle traffic.

c. The handling of material collected from any affected unit associated with the plant by sweeping or vacuuming trucks shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods to control PM emissions.

4.11.3 Applicable State Emission Standards

a. All affected units shall comply with 35 IAC 212.301, which provides that emissions of fugitive particulate matter shall not be visible from any process, including material handling and storage activities, when looking generally toward the zenith at a point beyond the property line of the source, except when the wind speed is greater than 25 miles per hour, as provided by 35 IAC 212.314.

4.11.4 Non-Applicability Provisions

None

4.11.5 Operational and Production Limits and Work Practices

a. The Permittee shall carry out control of fugitive particulate emissions from affected units in accordance with a written operating program describing the measures being implemented in accordance with Conditions 4.11.2 and 4.11.3 to control emissions at each unit with the potential to generate significant quantities of such emissions, which program shall be kept current.

i. The written operating program shall include:

A. Maps or diagrams indicating the location of affected units with the potential to generate significant quantities of fugitive particulate matter, with description of the unit (length, width, surface material, etc.) and volume and nature of expected vehicle traffic, or other activity on such unit, and an identification of any roadways that are not considered routinely traveled, with justification.

B. A detailed description of the emissions control technique(s) (e.g., sweeping) for the affected unit, including: typical application rate; type and concentration of additives; normal frequency with which measures would be implemented; circumstances, in which the measure would not be implemented, e.g., recent precipitation; triggers for additional control (e.g., observation of 8 percent opacity); and calculated control efficiency for PM emissions.

ii. The Permittee shall submit copies of the written operating program to the Illinois EPA for review as follows:

A. A program addressing affected units during the construction of the plant shall be submitted within 30 days of beginning actual construction of the plant.

B. A program addressing affected units with the operation of the affected plant shall be submitted within 90 days of initial start up of the plant.

C. Significant amendments to the program by the Permittee shall be submitted within 30 days of the date that the amendment is made.

iii. A revised operating program shall be submitted to the Illinois EPA for review within 90 days of a request from the Illinois EPA for revision to address observed deficiencies in control of fugitive particulate emissions.

b. The Permittee shall conduct inspections of affected units on at least a weekly basis during construction of the plant and on a monthly basis thereafter with personnel not directly responsible for the day-to-day implementation of the operating program, for the specific purpose of verifying that the measures identified in this program and other measures required to control emissions from affected units are being properly implemented.

4.11.6 Emission Limits

Emissions of PM, PM_{10}, and $PM_{2.5}$ from the affected units shall not exceed 31.5, 6.14, and 0.92 tons/year, respectively. Compliance with these limitations shall be determined from the amount and nature of vehicle traffic associated with the operation of the plant, specific operating information for affected units, and appropriate emission factors published by USEPA.

4.11.7 Opacity Observations

a. The Permittee shall conduct observations, which include a series of observations of the opacity of fugitive emissions from the affected units as follows to determine the range of opacity from affected units and the change in opacity as related to the amount and nature of vehicle traffic and implementation of the operating program. For performance observations, the Permittee shall submit test plans, test notifications and test reports, as specified by General Condition 6.1.

   i. In conjunction with the measurements of silt loading on the affected units required by Condition 4.11.8, performance observations shall first be completed no later than 30 days after the date that construction of process units in the gasification block are completed, provided, however, that observation may be deferred as long as heavy construction equipment is on the site preventing paving of roadways.

   ii. Performance observations shall be repeated within 30 days in the event of changes involving affected units that would act to increase opacity (so that observations that are representative of the current circumstances of the affected units have not been conducted), including changes in the amount or type of traffic on affected units, changes in the standard operating practices for affected units, such as application of salt or traction material during cold weather, and changes in the operating program for affected units.

b. Compliance observations shall be conducted for affected units on at least a quarterly basis to verify opacity levels and confirm the effectiveness of the operating program in controlling emissions.

c. Upon written request by the Illinois EPA, the Permittee shall conduct performance or compliance observations, as specified in the request. Unless another date is agreed to by the Illinois

EPA, performance observations shall be completed within 30 days and compliance observations shall be completed within 5 days of the Illinois EPA's request.

4.11.8 Operational Measurements

a. The Permittee shall conduct measurements of the silt loading on various affected roadway segments and parking areas as follows. This sampling and analysis shall be conducted using the "Procedures for Sampling Surface/Bulk Dust Loading," Appendix C.1 in Compilation of Air Pollutant Emission Factors, USEPA, AP-42. A series of samples shall be taken to determine the average silt loading and address the change in silt loadings as related to the amount and nature of vehicle traffic and implementation of the operating program.

b. Measurements shall be performed by the following dates:

i. Measurements shall first be completed no later than 30 days after construction is completed.

ii. Measurements shall be repeated within 30 days in the event of changes involving affected units that would act to increase silt loading (so that data that is representative of the current circumstances of the affected units has not been collected), including changes in the amount or type of traffic on affected units, changes in the standard operating practices for affected units, such as application of salt or traction material during cold weather, and changes in the operating program for affected units.

iii. Upon written request by the Illinois EPA, the Permittee shall conduct measurements, as specified in the request, which shall be completed within 75 days of the Illinois EPA's request.

c. The Permittee shall submit test plans, test notifications and test reports for these measurements as specified by General Condition 6.1, provided, however, that once a test plan has been accepted by the Illinois EPA, a new test plan need not be submitted if the accepted plan will be followed unless a new test plan is requested by the Illinois EPA.

d. The Permittee shall keep records for the measurements conducted for affected units pursuant to Condition 4.11.8, including records for the sampling and analysis activities and results.

4.11.9 Recordkeeping Requirements

a. The Permittee shall keep a file that contains:

i. The operating factors, if any, used to determine the amount of activity associated with the affected units or the PM emissions from the affected units, with supporting documentation.

ii. The designated PM, PM_{10}, and $PM_{2.5}$ emission rate, in tons/year, from each category of affected units (e.g., traffic associated with receipt of coal), with supporting calculations and documentation. The sum of these rates shall not exceed the annual limits on emissions in Condition 4.11.6.

b. The Permittee shall maintain records documenting implementation of the operating program required by Condition 4.11.5(a), including:

i. Records for each treatment of an affected unit or units:

A. The identity of the affected unit(s), the date and time, and the identification of the truck(s) or treatment equipment used;

B. For application of dust suppressant by truck: target application rate or truck speed during application, total quantity of water or chemical used and, for application of a chemical or chemical solution, the identity of the chemical and concentration, if applicable;

C. For sweeping or cleaning: Identity of equipment used and identification of any deficiencies in the condition of equipment; and

D. For other type of treatment: A description of the action that was taken.

ii. Records for each incident when control measures were not implemented and each incident when additional control measures were implemented due to particular activities, including description, date, a statement of explanation, and expected duration of such circumstances.

c. The Permittee shall record any period during which an affected unit was not properly controlled as required by this permit, which records shall include at least the information specified by Condition 6.3 and an estimate of the additional PM emissions that resulted, if any, with supporting calculations.

d. The Permittee shall maintain records for the PM, PM_{10}, and $PM_{2.5}$ emissions of the affected units, based on operating data for the gasification block and other activities at the plant, the above records for the affected units including data for implementation of the operating program, and appropriate USEPA emission estimation methodology and emission factors, with supporting calculations.

4.11.10 Reporting Requirements

a. The Permittee shall notify the Illinois EPA of deviations of affected units with permit requirements with the periodic reports required by Condition 4.1.11-1(c). These notifications shall include the information specified by Condition 6.4.

b. The Permittee shall submit semi-annual reports to the Illinois EPA for affected units that include the following: the dates any necessary control measures were not implemented; a listing of those control measures; the reasons that the control measures were not implemented; and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not implemented based on a belief that implementation of such control measures would have been unreasonable given prevailing weather conditions. This report shall be submitted to the Illinois EPA with the periodic compliance reports required by Condition 4.1.11-1(c).

4.11.11 Operational Flexibility

The Permittee is authorized, as follows, to construct and operate affected units that differ from those described in the application in certain respects without obtaining further approval by the Illinois EPA. This condition does not affect the Permittee's obligation to comply with all applicable requirements for affected units:

a. This authorization only extends to changes that result from the detailed design of the project and any refinements to that design of the affected units that occur during construction and the initial operation of the gasification block.

b. With respect to air quality impacts, these changes shall generally act to improve dispersion and reduce impacts, as emissions from individual units are lowered, units are moved apart or away from the fence line, and heights of nearby structures are reduced.

c. The Permittee shall notify the Illinois EPA prior to proceeding with any changes. In this notification, the Permittee shall describe the proposed changes and explain why the proposed changes will act to reduce impacts, with detailed supporting documentation.

d. Upon written request by the Illinois EPA, the Permittee shall promptly have air quality dispersion modeling performed to demonstrate that the overall effect of the changes is to reduce air quality impacts, so that impacts from affected units remain at or below those predicted by the air quality analysis accompanying the application.

CONDITION 4.12: UNIT-SPECIFIC CONDITIONS FOR ZERO LIQUID DISCHARGE SYSTEMS

4.12.1 Description of Emission Units

After treatment to remove suspended solids, a stream of water from the gasification block is purged to Zero-Liquid-Discharge system (ZLD) for further processing. The ZLD system includes evaporators, crystallizers, and centrifuges to remove dissolved impurities, which will be trucked off-site for disposal. The purified water stream is recycled for use as quench water for cooling the raw syngas or for use as cooling tower makeup water.

4.12.2 Control Technology Determination

a. Scrubbers shall be used to control VOM-laden vapor streams from the preconcentrator and crystallizer vents in the ZLD wastewater treatment area.

b. The emissions of VOM from the vents of the ZLD wastewater treatment area shall not exceed the following limits, 3-hr average:

i. Preconcentrator vents, total: 0.20 lb/hour.

ii. Crystallizer vent: 0.20 lb/hour.

4.12.3 Applicable State Emission Standards

a. The organic material emission from each of the affected units shall not exceed 8 lbs/hour, pursuant to 35 IAC 215.301, except as authorized by 35 IAC 215.302.

4.12.4 Emission Limits

a. The emissions of VOM from the water treatment preconcentrator vents combined shall not exceed 0.20 lb/hour, 3-hour average, and 0.88 tons/year, 12-month rolling basis.

b. The emissions of VOM from the water treatment crystallizer vent shall not exceed 0.20 lb/hour, 3-hr average, and 0.88 tons/year, 12-month rolling basis.

4.12.5 Operational Instrumentation Requirements

a. The Permittee shall install, calibrate, operate and maintain operational instrumentation for the affected units to measure the pH and flow rate of scrubbing liquid in the preconcentrator and crystallizer scrubbers.

4.12.6 Recordkeeping Requirements

a. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected units that contain the information specified in Condition 6.2(b).

b. The Permittee shall keep records for any deviations from applicable requirements involving the affected units, which records shall include the information specified by Condition 6.3. These records may be combined with other records required by this section of this permit.

c. The Permittee shall maintain the following records for the VOM emissions of the affected units:

   i. A file containing the emission factors used by the Permittee to determine VOM emissions from the units, with supporting documentation.

   ii. Total monthly and annual emissions of VOM from each affected unit, which shall be compiled on at least a quarterly basis.

4.12.7 Reporting Requirements

a. The Permittee shall notify the Illinois EPA of deviations of the affected units with the permit requirements with the periodic compliance reports required by Condition 4.1.11-1(c). These notifications shall include the information specified in Condition 6.4.

CONDITION 4.13: UNIT-SPECIFIC CONDITIONS AIR SEPARATION UNIT OIL MIST VENTS

4.13.1 Description of Emission Units

A cryogenic air separation unit will process air to provide oxygen for use in the gasification and sulfur recovery processes, as well as nitrogen for use at the plant. The only emission units in the air separation unit are the oil mist fans for the large air compressors, which emit a small amount of PM and VOM from entrained oil mist.

4.13.2 Control Technology Determination

a. The Permittee shall operate and maintain the oil lubrication system for the ASU compressors in accordance with manufacturer's specifications.

b. The emissions of PM and VOM from the ASU oil mist fan vents combined, shall not exceed 0.13 lb/hour on a 24-hour average basis.

4.13.3 Applicable State Emission Standards

a. The organic material emissions from each of the affected units shall not exceed 8 lb/hr, pursuant to 35 IAC 215.301, except as authorized by 35 IAC 215.302.

b. The emission of particulate matter from the affected units shall not have opacity greater than 30 percent, pursuant to 35 IAC 212.123(a).

c. The emissions of PM from the affected units shall comply with the applicable limit pursuant to 35 IAC 212.321, which rule limits emissions based on the process weight rate of emission units and allows a minimum emission rate of 0.55 lb/hour for any individual unit.

4.13.4 Emission Limits

a. Emissions of PM and VOM from the ASU oil mist fan vents, combined, shall not exceed 0.13 lb/hour on a 24-hour average, and 0.57 tons/year, 12-month rolling basis.

4.13.5 Inspections

a. The Permittee shall conduct inspections of affected units on at least a quarterly basis for the specific purpose of verifying that the units are operating properly. These inspections shall include observation for the presence of visible emissions, performed in accordance with USEPA Method 22.

4.13.6 Recordkeeping Requirements

a. The Permittee shall keep inspection, maintenance and repair logs or other similar records for the affected units that contain the information specified in Condition 6.2(b).

b. The Permittee shall keep records for any deviations from applicable requirements involving the affected units, which records shall include the information specified by Condition 6.3. These records may be combined with other records required by this section of this permit.

c. The Permittee shall maintain the following records for the PM and VOM emissions of the affected units:

   i. A file containing the emission factors used by the Permittee to determine PM and VOM emissions from the units, with supporting documentation.

   ii. Total monthly and annual emissions of PM and VOM from the affected units, which shall be compiled on at least a quarterly basis.

4.13.7 Reporting Requirements

a. The Permittee shall notify the Illinois EPA of deviations of the affected units with the permit requirements with the periodic compliance reports required by Condition 4.1.11-1(c). These notifications shall include the information specified in Condition 6.4.

CONDITION 4.14: UNIT-SPECIFIC CONDITIONS FOR STEAM TURBINE MAINTENANCE

4.14.1 Description of Emission Units

During periodic maintenance of the steam turbine generator in the power block, a small volume of CO_2, stored on-site in gas cylinders or a tank, will be used to purge air and hydrogen from the casing of the generator.

4.14.2 Control Technology Determination

a. The CO_2 emissions from purging during maintenance of the steam turbine generator shall not exceed 0.51 tons per maintenance event and 1.53 tons per year.

4.14.3 Recordkeeping Requirements

a. The Permittee shall keep records identifying each period in which the steam turbine generator is out of service and maintenance is performed in which CO_2 purging is conducted, which records shall include the date and duration of each such maintenance event and data for the total amount of CO_2 used during the event, in tons.

b. The Permittee shall maintain records of the usage of CO_2 in purging the steam turbine generator (tons/year).

4.14.4 Reporting Requirements

a. The Permittee shall submit an exceedance report to the Illinois EPA if there is any exceedance of the requirements of Condition 4.14.2 of this permit, as determined by the records required by this permit or by other means. This report shall be submitted within 30 days of the event and shall include the amount of 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.

SECTION 5: EMISSION CONTROL PROGRAM CONDITIONS

CONDITION 5.1: ACID RAIN PROGRAM

a. Applicability

Under Title IV of the federal Clean Air Act, Acid Deposition Control, this plant or source is an affected source and the following emission units at the source are affected units for acid deposition (see Condition 4.2 for more information):

Combustion Turbines 1 and 2

Note: Title IV of the Clean Air Act, and other laws and regulations promulgated thereunder, establish requirements for affected sources related to control of emissions of pollutants that contribute to acid rain, i.e., SO_2 and NO_x. For purposes of this permit, these requirements are referred to as Title IV provisions.

b. Applicable Emission Requirements

The owners and operators of the source shall not violate applicable Title IV provisions. In particular, SO_2 emissions of the affected units shall not exceed any allowances that the source lawfully holds under Title IV provisions. [Environmental Protection Act, Sections 39.5(7)(g) and (17)(1)]

Note: Affected sources must hold SO_2 allowances to account for the SO_2 emissions from affected units at the source that are subject to Title IV provisions. Each allowance is a limited authorization to emit up to one ton of SO_2 emissions during or after a specified calendar year. The possession of allowances does not authorize exceedances of applicable emission standards or violations of ambient air quality standards.

c. Monitoring, Recordkeeping and Reporting

The owners and operators of the source and, to the extent applicable, their designated representative, shall comply with applicable requirements for monitoring, recordkeeping and reporting specified by Title IV provisions, including 40 CFR Part 75. [Environmental Protection Act, Sections 39.5(7)(b) and 17(m)]

d. Acid Rain Permit

The owners and operators of the source shall comply with the terms and conditions of the source’s Acid Rain permit. (Environmental Protection Act, Section 39.5(17)(1)]

Note: The source is subject to an Acid Rain permit, which was issued pursuant to Title IV provisions, including Section 39.5(17) of the Environmental Protection Act. Affected sources must be operated in compliance with their Acid Rain permits. A copy of the initial Acid Rain permit is included as an attachment to this permit. Revisions and modifications of this Acid Rain permit,

including administrative amendments and automatic amendments (pursuant to Sections 408(b) and 403(d) of the CAA or regulations thereunder) are governed by Title IV provisions, as provided by Section 39.5(13)(e) of, the Environmental Protection Act, and revision or renewal of the Acid Rain permit may be handled separately from this permit.

e. Coordination with Other Requirements

i. This permit does not contain any conditions that are intended to interfere with or modify the requirements of Title IV provisions. In particular, this permit does not restrict the flexibility under Title IV provisions of the owners and operators of this source to amend their Acid Rain compliance plan. [Environmental Protection Act, Section 39.5(17)(h))

ii. Where another applicable requirement of this permit is more stringent than an applicable requirement of Title IV provisions, both requirements are enforceable and the owners and operators of the source shall comply with both requirements. [Environmental Protection Act, Section 39.5(7)(h)]

CONDITION 5.2: NO_x AND SO_2 TRADING PROGRAMS

a. Applicability

Under 35 IAC Part 225, Subparts C, D and E, this plant or source is an affected source and the following emission units at the source are affected units for the NO_x and SO_2 trading programs (see Condition 4.2 for more information):

Combustion Turbines 1 and 2

b. Applicable Emission Requirements

The owners and operators of the source shall not violate applicable Part 225 provisions. In particular, SO_2 and NO_x emissions of the affected units shall not exceed any allowances that the source lawfully holds under 35 IAC Part 225, Subparts C, D and E provisions.

Note: Affected sources must hold SO_2 and NO_x allowances to account for the SO_2 and NO_x emissions from affected units at the source that are subject to the provisions of Subparts C, D and E of 35 IAC Part 225. Each allowance is a limited authorization to emit up to one ton of SO_2 and NO_x emissions during or after a specified calendar year. The possession of allowances does not authorize exceedances of applicable emission standards or violations of ambient air quality standards.

c. Monitoring, Recordkeeping and Reporting

The owners and operators of the source and, to the extent applicable, their designated representative, shall comply with applicable requirements for monitoring, recordkeeping and reporting specified by Part 225 provisions.

d. Coordination with Other Requirements

i. This permit does not contain any conditions that are intended to interfere with or modify the requirements of Part 225 provisions. In particular, this permit does not restrict the flexibility under Title Part 225 provisions of the owners and operators of this source to amend their Acid Rain compliance plan.

ii. Where another applicable requirement of this permit is more stringent than an applicable requirement of Part 225 provisions, both requirements are enforceable and the owners and operators of the source shall comply with both requirements.

SECTION 6: GENERAL PERMIT CONDITIONS

CONDITION 6.1: GENERAL REQUIREMENTS FOR EMISSION TESTING

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

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

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

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

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

ii. As provided by 35 IAC 283.220(d), the Permittee need not submit a test plan for subsequent emissions testing that will be conducted in accordance with the procedures used for previous tests accepted by the Illinois EPA or the previous test plan submitted to and approved by the Illinois EPA, provided that the Permittee's notification for testing, as required below, contains the information specified by 35 IAC 283.220(d)(1)(A), (B) and (C).

b. i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days* prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days* prior to the actual date of testing. Notwithstanding 40 CFR 60.8(d), the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.

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

c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date

of testing. At a minimum, the Final Report for testing shall contain the following. Copies of emission test reports shall be retained for at least five years after the date that an emission test is superseded by a more recent test.

i. A tabular summary of results which includes:

- Process rates (e.g., feedstock usage rate or firing rate)

- Measured emission rates for different pollutants tested

- Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu

- Compliance demonstrated - Yes/No

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

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g., usage of raw material or fuel and composition.)

- Control equipment information (i.e., monitored data and other relevant operating parameters during testing).

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

CONDITION 6.2: GENERAL REQUIREMENTS FOR “LOGS” OR SIMILAR RECORDS

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

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

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

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

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

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

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

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

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

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

c. The logs required by this permit may be kept in manual or electronic form, and may be part of a larger information database maintained by the Permittee provided that the information required to be kept in a log is readily accessible.

CONDITION 6.3: GENERAL REQUIREMENTS FOR RECORDKEEPING FOR DEVIATIONS

a. Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

CONDITION 6.4: GENERAL REQUIREMENTS FOR REPORTING OF DEVIATIONS

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

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

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

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

b. i. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a reporting period, a compliance report shall be submitted no later than 45 days after the end of the reporting period. This report shall also provide a listing of all deviations for which immediate or 30-day reporting was required, but need not include copies of the previously submitted information.

ii. If there are no deviations during a reporting period, the Permittee shall still submit a compliance report, which report shall state that no deviations occurred during the reporting period.

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

ii. When this permit requires immediate notification, such notification shall be provided by telephone and followed by facsimile or e-mail transmittal of a narrative report.

d. Upon issuance of a CAAPP permit for the plant, the provisions of the CAAPP permit with respect to reporting of deviations will supersede the requirements of this permit.

ATTACHMENTS

ATTACHMENT 1: SUMMARY OF PERMITTED EMISSIONS AND EMISSION LIMITATIONS

Table I: Emission Limits for Combustion Turbines (CTs)

Pollutant	Hourly BACT Limits for Normal Operation[a]	BACT Limits for Startup and Shutdown (lbs/event)[b]				Annual Limits[c] (tons/year)
		Cold Start	Warm Start	Hot Start	Shutdown	
NO_x	2.0 ppm @ 15% O_2	435	120	80	90	169.0
CO	4.3 ppm @ 15% O_2	7,800	2,220	1,320	780	562.6
VOM	0.0013 lb/mmBtu	920	240	150	100	71.4
SO_2	0.25 gr S/100 scf fuel	----	----	----	----	14.3
$PM/PM_{10}/PM_{2.5}$	0.0065 lb/mmBtu	----	----	----	----	89.2
Formaldehyde	----	----	----	----	----	4.96
CO_2	----	291,685	72,860	37,180	30,140	----
CO_2e	----	----	----	----	----	2,307,110

Notes:

a. These hourly limits apply to the individual CTs on a 3-hour average basis, as further addressed in Condition 4.2.2(b). The limits for NO_x, CO, and VOM apply to normal operation of a CT, i.e., periods other than startup and shutdown of the CT, which are addressed by the lb/event limits.

b. Startup of a combustion turbine begins when fuel is first fired in the turbine and ends when stable operation of the burners in low-NO_x mode and the SCR system has been reliably achieved and maintained.

A hot startup occurs when startup takes place when a turbine has operated within the previous 8 hours.

A cold startup occurs when the turbine last operated more than 72 hours ago.

A warm startup occurs when the turbine has not operated within the previous 8 hours but has operated within the previous 72 hours.

c. The annual limits address the combined emissions from the two CTs.

Table II: Particulate Matter ($PM/PM_{10}/PM_{2.5}$) Emission Limits for Bulk Material Operations

Emission Units	Application Designation	EP ID	Hourly Limits (lbs/hr)			Annual Limits (tons/year)		
			PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Coal Handling and Storage	Truck Unloading Building Baghouse	EP13	4.50	2.13	0.32	101.5	49.9	11.6
	Rail Unloading Building Baghouse	EP14	6.43	3.04	0.46			
	Active Storage Dome Baghouse	EP15	4.11	1.95	0.29			
	Reclaim Baghouse	EP16	0.62	0.29	0.044			
	Crusher Tower Baghouse	EP17	1.41	0.67	0.10			
	Coal Grinding Feed Baghouse	EP18	0.18	0.085	0.013			
	Raw Coal Silos Vent #1	EP19	0.076	0.036	0.0054			
	Raw Coal Silos Vent #2	EP20	0.076	0.036	0.0054			
	Coal Milling and Drying	EP21	4.15	2.54	1.32			
	Gasifier Coal Bunker Vent #1	EP22	0.13	0.061	0.0092			
	Gasifier Coal Bunker Vent #2	EP23	0.13	0.061	0.0092			
	Off-Spec Coal Silo Vent	EP24	0.044	0.021	0.0031			
	Material Transfer Points (Total)	TP1-3	0.85	0.40	0.061			
	Inactive Coal Pile (Total)	PIL1	1.63	0.53	0.066			
Lime Handling	Lime Ash Tank Vent	EP25	0.032	0.015	0.0023	0.14	0.067	0.010
Soda Ash	Soda Ash Tank Vent	EP26	0.032	0.015	0.0023	0.14	0.067	0.010
Slag Disposal	Slag Pile Maintenance	PIL2-3	1.71	0.44	0.044	5.12	1.31	0.13
Totals			--	--	--	106.9	51.3	11.8

Table III: Emission Limits for the Gasification Block (tons/year)

Pollutant	AGR Unit CO_2 Vent	SRU	Flare	Total
NO_x	--	1.55	8.51	10.1
CO	160.1	6.25	315.1	481.5
VOM	4.52	0.27	1.14	5.93
SO_2	127.9	3.05	550.8	681.8
$PM/PM_{10}/PM_{2.5}$	0.27	0.24	2.95	3.46
CO_2e	2,510,326	4,937	26,387	2,541,650

Table IV: Permitted Annual Emissions Plant-wide (tons/year)

Pollutant	Power Block[a]	Gasification Block	Auxiliary Boiler	Cooling Tower	Material Handling and Roadways	Storage Tanks[b]	Startup Heater	Leaking Components	Circuit Breakers	Engines and Misc.[c]	Total
NO_x	169.0	10.1	6.56	--	20.3	--	0.52	--	--	21.5	228.0
CO	562.6	481.5	22.6	--	149.0	--	0.82	30.5	--	1.50	1,249
VOM	71.4	5.93	3.29	--	4.19	0.22	0.061	2.44	--	2.79	90.3
SO_2	14.3	681.8	0.37	--	0.39	--	0.0068	--	--	0.024	696.9
PM	89.2	3.46	4.55	2.90	138.4	--	0.084	--	--	0.76	239.4
PM_{10}	89.2	3.46	4.55	0.87	57.5	--	0.084	--	--	0.73	156.4
$PM_{2.5}$	89.2	3.46	4.55	0.0058	12.7	--	0.084	--	--	0.73	110.7
CO_2e	2,307,108	2,541,650	74,013	--	103,980	--	1,363	1,255	146.0	1,895	5,031,409

Notes:

a. “Power Block” addresses the combustion turbines and steam turbine maintenance.

b. “Storage Tanks” addresses tanks for organic liquids, including methanol, glycol and diesel fuel.

c. “Miscellaneous” addresses ZLD Wastewater Treatment and ASU Oil Mist Vents.

ATTACHMENT 2: STANDARD PERMIT CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

5. The issuance of this permit:

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

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

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

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

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

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

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

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

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

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

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

ATTACHMENT 3: ACID RAIN PERMIT

217-785-1705

ACID RAIN PROGRAM PERMIT

Christian County Generation, LLC
Attn: Greg Kunkel, Designated Representative
1044 North 115th Street, Suite 400
Omaha, Nebraska 68154

Oris No.:
Illinois EPA I.D. No.: 021060ACB
Source/Unit: Christian County Generation, LLC, Units 01 and 02
Date Received: April 14, 2005
Date Issued: April 30, 2012
Effective Date: January 1, 2011
Expiration Date: December 31, 2015

STATEMENT OF BASIS:

In accordance with Section 39.5(17)(b) of the Illinois Environmental Protection Act and Titles IV and V of the Clean Air Act, the Illinois Environmental Protection Agency is issuing this Acid Rain Program permit for the Christian County Generation.

SULFUR DIOXIDE (SO_2) ALLOCATIONS AND NITROGEN OXIDE (NO_x) REQUIREMENTS FOR EACH AFFECTED UNIT:

Unit 01 and Unit 02	SO_2 Allowances	These units are not entitled to an allocation of SO_2 allowances pursuant to 40 CFR Part 73.
	NO_x Emission Limitation	None

This Acid Rain Program permit contains provisions related to sulfur dioxide (SO_2) emissions and requires the owners and operators to hold SO_2 allowances to account for SO_2 emissions beginning in the year 2000. An allowance is a limited authorization to emit up to one ton of SO_2 during or after a specified calendar year. Although this plant is not eligible for an allowance allocated by USEPA, the owners or operators may obtain SO_2 allowances to cover emissions from other sources under a marketable allowance program. The transfer of allowances to and from a unit account does not necessitate a revision to this permit (See 40 CFR 74.84).

This permit contains provisions related to nitrogen oxide (NO_x) emissions requiring the owners or operators to monitor NO_x emissions from affected units in accordance with the applicable provisions of 40 CFR Part 75.

This Acid Rain Program permit does not authorize the construction and operation of the affected units as such matters are addressed by Titles I and V of the Clean Air Act. If the construction and operation of one of the affected units is not undertaken, this permit shall not cover such unit.

In addition, notwithstanding the effective date of this permit as specified above, this permit shall not take effect for an individual affected unit until January 1 of the year in which the unit commences operation.

COMMENTS, NOTES AND JUSTIFICATIONS:

This permit does not affect the owner's and operator's responsibility to meet all other applicable local, state, and federal requirements, including requirements addressing SO_2 and NO_x emissions.

PERMIT APPLICATION:

The SO_2 allowance requirements and other standard requirements as set forth in the application are incorporated by reference into this permit. The owners and operators of this source must comply with the standard requirements and special provisions set forth in the application.

If you have any questions regarding this permit, please contact Bob Smet at 217/785-1705.

Edwin C. Bakowski, P.E.
Manager, Permits Section
Division of Air Pollution Control

ECB:RPS:psj

cc: Cecilia Mijares, USEPA Region V
Illinois EPA Region 3