217/782-2113

CONSTRUCTION PERMIT -– PSD APPROVAL -- REVISED

PERMITTEE

Christian County Generation, LLC
Attn: Greg Kunkel
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Application No.: 05040027 I.D. No.: 021060ACB
Applicant's Designation: IGCC PLANT
Initial Date Received: April 14, 2005 Initial Date Issued: June 5, 2007
Subject: Integrated Gasification Combined Cycle Power Plant
Date Application for Revised Permit Received: May 5, 2009
Date Revised Permit Issued:
Location: 1630 North 1400 East Road, Taylorville

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission sources and air pollution control equipment consisting of an Integrated Gasification Combined Cycle (IGCC) power plant comprised of three gasifiers and two syngas cleanup trains controlled by a flare; a sulfur recovery unit with tail gas treatment unit and thermal oxidizer; two combined cycle combustion turbines controlled by diluent (nitrogen) injection and selective catalytic reduction (SCR); cooling tower; bulk material handling; storage and loadout; a natural gas-fired auxiliary boiler; and other ancillary operations, 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 Environmental Protection Agency (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 regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency (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 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:RPS:psj

cc: Region 3
USEPA Region V

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Findings for Revised Permit

1a. Christian County Generation, LLC, previously received a construction permit/PSD approval for this integrated gasification combined cycle (IGCC) power plant. The permit became effective on January 28, 2008.

b. On May 5, 2009, Christian County Generation requested that the permit be extended to provide additional time to commence construction.

2. Pursuant to 40 CFR 52.21(r)(2), a PSD permit becomes invalid if construction is not commenced within 18 months after a permit becomes effective. This 18-month period may be extended by the permitting authority upon a satisfactory showing that an extension is justified. The Illinois EPA has determined that the extension requested by Christian County Generation is justified. The proposed plant is a large and complex project. There also are no other proposed projects in the area competing for the air quality resource.

3. The proposed plant is subject to PSD for emissions for nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO) and sulfuric acid mist.

4. This permit includes enhancements to the provisions of the initial permit that establish Best Available Control Technology (BACT) for the proposed plant to address developments since the original permit was issued. Flare Minimization Planning is required for the flare for the gasification block.

5. Other revisions have also been made to the permit based on newly applicable regulations and developments that have arisen since the original permit was issued, including adoption of 35 IAC Part 225, revisions to the federal New Source Performance Standards for Combustion Turbines (i.e., 40 CFR 60, Subparts GG and KKKK), and the vacatur of the federal Clean Air Mercury Rule (CAMR). Limitations are set for the emissions of $PM_{2.5}$ from material handling and roadway/open areas that are lower than the limits for PM_{10}.

6. The air quality analysis accompanying the issuance of the original permit for the project showed that it would not threaten ambient air quality standards or applicable PSD increments for NO_x, SO_2, PM/PM_{10} and CO. New modeling has been conducted for PM_{10} to address additional sources in the area, confirming that PM_{10} air quality is protected with respect to $PM_{2.5}$. Further analysis has also been conducted showing that the plant would not threaten ambient air quality standards for $PM_{2.5}$.

7. The Illinois EPA determined that the application for extension of the permit complies with all applicable Illinois Air Pollution Control Regulations and the federal regulations for the Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. As such, it was appropriate to reissue the permit to extend the period of time during which construction of the plant may commence.

8. Before this permit was issued, a public comment period was held on this draft permit.

The Illinois EPA is issuing this approval to construct the proposed project subject to the following conditions and consistent with the specifications and data included in the application. Any departure from the conditions of this approval or terms expressed in the application would need to receive prior written authorization by Illinois EPA.

SECTION 2: IDENTIFICATION OF SIGNIFICANT EMISSIONS UNITS

Unit Number	Emission Unit	Emission Controls
1	Gasifiers and Syngas Cleanup Trains	
a	Normal Operation	Sulfur recovery unit with tail gas treatment and thermal oxidizer.
b	Startup/Malfunction/ Breakdown/Shutdown	Good operating practices and flaring minimization.
2	Combustion Turbines	Use of clean fuel (cleaned syngas and natural gas), good combustion practices, nitrogen diluent injection and selective catalytic reduction (SCR).
3	Material Handling	Enclosure, filter control, and suppression.
4	Cooling Tower	High efficiency drift eliminators.
5	Natural Gas-Fired Auxiliary Boiler	Low-NO_x burners and good combustion practices.
6	Roadway and Open Areas	Dust suppression and dust control program.

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. The Illinois EPA may extend the 18-month period upon a satisfactory showing that an extension is justified. This condition supersedes Standard Condition 1. (See also 40 CFR 52.21(r)(2).)

b. For purposes of the above provisions, the definitions of "construction" and "commence" at 40 CFR 54.21 (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. For the definition of "begin actual construction," refer to 40 CFR 52.21 (b)(11).

CONDITION 3.3: STATUS OF THE SOURCE RELATIVE TO HAZARDOUS AIR POLLUTANTS (HAPs)

a. This source will not be a major source of hazardous air pollutants (HAP) so that the provisions of 40 CFR Part 63, and Section 112(g) of the Clean Air Act will not apply.

b. Although the plant is not a major source of HAPs for purposes of Section 112 of the Clean Air Act, the Permittee shall operate and maintain the gasification units in a manner that is consistent with the requirements contained in 40 CFR Part 63, Subpart A as effective April 20, 2006, including:

   i. The Permittee shall at all times, including periods of startup, shutdown, and malfunction as defined at 40 CFR 63.2, operate and maintain emission units at the source, 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 relevant standards, i.e., meet the emission standard(s) or comply with the applicable Startup, Shutdown, and Malfunction Plan (Plan), as required 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 Plan), review of operation and maintenance records, and inspection of the unit. [40 CFR 63.6(e)(1)(i)]

ii. The Permittee shall correct malfunctions as soon as practicable after their occurrence in accordance with the applicable Plan. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, the Permittee shall comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices. [40 CFR 63.6(e)(1)(ii)]

c. The Permittee shall develop, implement, and maintain written Startup, Shutdown, and Malfunction Plans (Plans) that describe, in detail, procedures for operating and maintaining the various emission units at the plant 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. These Plans shall be developed to satisfy the purposes set forth in 40 CFR 63.6(e)(3)(i)(A), (B) and (C). The Permittee shall develop its initial plans prior to the initial commencement of operation of emission unit(s).

i. During periods of startup, shutdown, and malfunction of an emission unit, the Permittee shall operate and maintain such unit, including associated air pollution control and monitoring equipment, in accordance with the procedures specified in the applicable Plan required above. [40 CFR 63.6(e)(3)(ii)]

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 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 that actions taken during periods of startup, shutdown, and malfunction were consistent with the applicable Plan, as required by 40 CFR 63.10(d)(5). [40 CFR 63.6(e)(3)(iii)]

iii. If an action taken by the Permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) of an emission unit is not consistent with the procedures specified in the applicable Plan, and the emission unit exceeds a relevant emission standard, 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 in the CAAPP Permit to be issued for the plant. [40 CFR 63.6(e)(3)(iv)]

iv. The Permittee shall make changes to the Plan for an emission unit if required by the Illinois EPA or USEPA, as provided for by 40 CFR 63.6(e)(3)(vii), or as otherwise required by 40 CFR 63.6(e)(viii). [40 CFR 63.6(e)(3)(vii) and (viii)]

v. These Plans are records required by this permit, which the Permittee must retain in accordance with the general requirements for retention and availability of records (General Permit Condition 6). In addition, when the Permittee revises a Plan, the Permittee must also retain and make available the previous (i.e., superseded) version of the Plan for a period of at least 5 years after such revision. [40 CFR 63.6(e)(v) and 40 CFR 63.10(b)(1)]

d. 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.

CONDITION 3.4: MISCELLANEOUS ANCILLARY EQUIPMENT

a. i. Ancillary equipment shall be operated and maintained in accordance with good air pollution control practice to minimize emissions.

ii. The fuel fired in the main fire water pump engine shall be pipeline quality natural gas.

iii. A. Engines firing fuels other than natural gas shall only be used as emergency equipment, as defined at 35 IAC 211.1920.

B. The power output of such engines shall be no more than 1,500 horsepower.

C. Operation of such 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.

iv. This permit is issued based on negligible emissions of each criteria pollutant from the cold cleaning degreaser. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

v. This permit is issued based on negligible emissions of each criteria pollutant from the wastewater treatment plant. For

this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.

Note: These requirements constitute the determination of Best Available Control Technology (BACT) for ancillary equipment, as required under the PSD rules.

b. i. The ancillary equipment shall comply with all applicable emission standards and control requirements of applicable federal New Source Performance Standards (NSPS), 40 CFR Part 60, including the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII, for the engines at the plant.

ii. The 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.

CONDITION 3.5: AUTHORIZATION TO OPERATE EMISSION UNITS

a. i. Under this permit, each gasifier, each syngas cleanup train, the sulfur recovery unit and each CT/HRSG may be operated for a period that ends 180 days after initial startup of the unit 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. This condition supersedes Standard Condition 6. (See Attachment 2)

ii. Upon successful completion of emission testing of a unit demonstrating compliance with applicable requirements or limitations, the Permittee may continue to operate the unit as allowed by Section 39.5(5) of the Environmental Protection Act.

b. i. 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. This condition supersedes Standard Condition 6. (See Attachment 2)

ii. Upon successful completion of applicable emission testing demonstrating compliance with applicable requirements or limitations, the Permittee may continue to operate the remainder of the plant as allowed by Section 39.5(5) of the Environmental Protection Act.

c. For emission units that are subject to federal New Source Performance Standards (NSPS), the Permittee shall fulfill applicable notification requirements of the NSPS, 40 CFR 60.7(a), including:

i. Written notification of commencement of construction no later than 30 days after such date [40 CFR 60.7(a)(1)]; and

ii. Written notification of the actual date of initial startup within 15 days after such date [40 CFR 60.7(a)(3)].

SECTION 4: UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNITS

CONDITION 4.1: UNIT-SPECIFIC CONDITIONS FOR THE GASIFICATION BLOCK

4.1.1 Emission Unit Description

The affected units for the purpose of these unit-specific permit conditions are the various emission streams from the gasification block. The gasification block is the first part of Integrated Gasification Combined Cycle (IGCC) technology, in which a feedstock is converted into a synthetic fuel gas or "syngas". Syngas produced in the gasifiers will be the primary fuel fired in the combined cycle combustion turbines which are the second part of IGCC technology.

The gasification block would have three identical gasifiers. Only two gasifiers would normally be operated, with the third gasifier acting as a reserve or spare to allow the plant to operate at capacity during required maintenance or other outage of one of the gasifiers.

The gasification block would also have two identical gas cleanup trains, each designed to process the syngas produced by one gasifier. In the cleanup trains the raw syngas would be processed to remove contaminants in the raw gas that would otherwise lead to emissions when the gas was used. These contaminants include: 1) mercury; 2) non-slag fine ash, which would otherwise be emitted as particulate matter; and 3) sulfur compounds, which would otherwise be emitted as sulfur dioxide (SO_2). During maintenance or other outage of a gas cleanup train, the plant would run on half capacity with a single train.

During normal operation, the only emission points from the gasification block would be the natural gas fired pilot flame in the flare and the exhaust from the sulfur recovery unit. The sulfur recovery unit uses the Claus Process to convert the sulfur compounds recovered from the raw syngas into sulfur, a secondary product from the plant. The emissions of SO_2 from the sulfur recovery unit would be controlled by a tail gas treatment system to reduce the amount of SO_2 emissions, and an oxidizer to assure that emissions occur as SO_2 rather than hydrogen sulfide (H_2S).

During startup or upsets of a gasifier or gas cleanup train, in addition to emissions from the sulfur recovery unit, the gasification block would also have process emissions from the flare from disposal of off-specification syngas in the flare. Emissions from flaring associated with startup of gasifiers would be minimized as natural gas would be used as the startup feedstock to bring the gasifier up to normal operating pressure before coal is fed into the gasifier. The emissions from flaring would also be minimized through appropriate planning and remedial action to prevent and minimize events that would otherwise necessitate flaring. In addition, flared syngas would typically have undergone cleaning prior to flaring.

4.1.2-1 Control Technology Determination for Gasification Block Units

a. Each gasification train shall be operated and maintained with the following features to minimize and control emissions.

   i. A closed vent system, which shall be designed and maintained so that any discharge of syngas or other process gas from the gasifiers or gas cleanup trains that is not sent to the power block can be reintroduced into the gasification block or vented to a flare for disposal. This requirement does not apply to air or nitrogen introduced into unit(s) during periods when a unit is shut down, as might be needed for purposes of maintenance or to purge unit(s) in preparation for startup. This requirement also does not apply to any gas streams sent to the sulfur recovery unit.

   ii. A flare or flares, which shall be designed, operated and maintained to comply with all relevant requirements of 40 CFR 60.18.

   iii. A gas cleanup system for the syngas for removal of sulfur compounds, which shall be conducted with an adsorption solvent with a low organic vapor pressure, such as Selexol solvent, or a formal Leak Detection and Repair Program shall be implemented to address potential emissions from leaking components, in accordance with the relevant provisions of 40 CFR 60, Subpart VV.

   iv. A Claus-type sulfur recovery unit or other unit for processing the sulfur in the hydrogen sulfide (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. Good operating practices.

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

   i. All discharges of syngas or other process gas shall be vented to a flare through the 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 cleanup trains at such time.

   iii. Sour gas shall not be flared except when a malfunction or breakdown, due to either failure of equipment or planning, precludes the safe processing of the sour gas by a gas cleanup train.

iv. All H_2S gas streams produced by cleanup of syngas shall be processed by the sulfur recovery unit except as this is precluded due to startup, shutdown, malfunction or breakdown of this unit, in which case the stream shall be flared. For the flare or flares:

A. Only natural gas shall be used as fuel for the pilot burners for each flare.

B. Each flare shall be fitted with an automatic igniter device for the pilot flame, which device shall be maintained in good working order.

c. The good air pollution control practices used for the gasifiers and gas cleanup trains to minimize emissions shall include the following:

i. Use of natural gas during startup of a gasifier to preheat the gasifier prior to introduction of feedstock into the gasifier and coordination of the startup of gas cleanup train(s) with the startup of the gasifier(s) so as to minimize emissions, prior to introduction of syngas to the combustion turbines;

ii. Operation of units in accordance with written operating procedures that include startup, shutdown and malfunction plan(s) [See also Condition 3.3] and appropriate practices to minimize emissions during startup, shutdown and malfunction, as further addressed in Condition 4.1.5(c).

iii. Implementation of flare minimization planning, as further discussed in Condition 4.1.5-2.

iv. Inspection, maintenance and repair of units in accordance with written maintenance procedures including:

d. The emissions of SO_2, NO_x, CO, PM and sulfuric acid mist from flaring by the gasification block shall not exceed the annual limitations in Condition 4.1.6(a), effective one year after the shakedown of the gasification block is complete. For the purpose of determining compliance with the limitation for CO, emissions shall be determined from the CO content of flared process gas using a destruction efficiency of no more that 99 percent for a properly operating flare.

Note: This condition sets “secondary” BACT limits for the units in the gasification block 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 tail-gas treatment system followed by a thermal oxidizer.

b. i. The emissions of SO_2 from the sulfur recovery unit shall not exceed 100 ppm by volume (dry basis) at 0% oxygen 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 201 lbs/hour, based on a 3-hour average.

* For breakdowns, the alternative emission 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 100 ppm 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(c).

Note: These requirements are applicable for emissions of SO_2 for which continuous emissions monitoring is performed and the numerical limits in Condition 4.1.2-2(b)(ii) address emissions during startup, shutdown and malfunction, as well as for emissions of PM, NO_x, CO and sulfuric acid mist. For emissions of PM, NO_x, CO and sulfuric acid mist applicable annual limits in Table III apply during such periods and serve as “secondary limits” for purposes of BACT, with compliance determined based on engineering analysis and calculations.

4.1.3-1 Applicable Federal Emission Standards

None

4.1.3-2 Applicable State Emission Standards

Each emission unit in the gasification block is 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 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.

4.1.4 Non-applicability of Regulations of Concern

a. This permit is issued based on units in the gasification block not being subject to state emission standards for fuel combustion emission units because the purpose of the gasification block is to produce and process syngas and any recovery of heat from the gasification block is incidental to this purpose.

b. This permit does not address the control requirements of 35 IAC 215.301, Use of Organic Material, for units in the gasification block, as all emissions of organic material from such units are to be flared, which will assure compliance with the alternative standard of 35 IAC 215.302, providing at least 85% control.

4.1.5-1 Operating Requirements

a. The total flow of pilot gas to the flare in the gasification block shall not exceed 100,000 scf per day, 30-day rolling average.

b. i. The sulfur storage facility for the sulfur recovery unit shall be vented back into the sulfur recovery unit or the associated tail gas treatment unit.

ii. The tail gas thermal oxidizer operating temperature shall be at least the temperature during emissions testing of the oxidizer.

c. The Permittee shall operate each gasification train, 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 3.3 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, including so called “hot startups” when the operation of a gasifier or gas cleanup train, or sulfur recovery unit, is only temporarily interrupted, 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 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 trains and sulfur recovery unit so that malfunctions are infrequent, sudden, not caused by poor maintenance or careless operation, and in general are not reasonably preventable, the Permittee shall begin shutdown of a train within 90 minutes, unless the malfunction is expected to be repaired within 120 minutes or such shutdown could threaten the stability of the regional electrical power supply. In such case, shutdown shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or shutdown will not endanger the regional power system. In no case shall shutdown be delayed solely for the economic benefit of the Permittee.

Note: If the Permittee determines that the continuous emission monitoring system (CEMS) for the sulfur recovery unit is inaccurately reporting excess emissions, the unit may continue to operate provided the Permittee records the information it is relying upon to conclude that the unit 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.

e. The Permittee shall handle the feedstock for the gasifiers in accordance with a written Feedstock Management Plan that shall be designed to provide the gasifiers with a consistent feedstock supply that meets relevant criteria needed for proper operation of the gasifiers and production of a syngas that can be reliably processed by the gas cleanup train.

f. 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 Flaring Minimization Planning

a. The flaring minimization planning conducted by the Permittee for the gasification block pursuant to Condition 4.1.2-1(c)(ii)(B) shall include the preparation and maintenance of a Flare Minimization Plan (Plan) for the gasification block that include the following:

   i. Technical information for the gasification block, including a general description of the gasification block, with process flow diagram(s) depicting all process units, and detailed process flow diagram(s) for the affected flare, including process gas lines, knockout pots, surge drums, seal 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 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, which shall specify the year in which operation or implementation of each planned measured is scheduled.

c. i. The Permittee shall submit a copy of the initial 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 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 Plan if required by the Illinois EPA or USEPA to address an apparent deficiency identified in the Plan or as otherwise needed to address apparent or possible deficiencies in the Plan identified by the Permittee.

iv. The Permittee must retain the Plan and make it 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 causes of the incident, to take reasonable steps to correct the conditions 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 (i.e., the flaring of process gas from the gasification block) that accompanies the unscheduled shutdown of a gas processing train.

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, 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 4.1.5-2 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 4.1.5-1 provided that the requirements of this condition are also met.

4.1.6 Emission Limitations

a. Emissions from the gasification block (flare) shall not exceed the limits in Attachment 1, Table III.

b. i. The emissions of the sulfur recovery unit shall not exceed the following limits. Compliance with short-term limits in lbs/hour shall be determined on a 24-hour average for NO_x and CO and a 3-hour average for other pollutants.

Pollutant	Short Term (Pound/Hour)		Annual Total (Tons/Year)
	Normal	Other*	
SO_2	20.82	201.0	91.2
NO_x	16.40	117.0	71.9
CO	9.50	70.3	41.5
$PM/PM_{10}/PM_{2.5}$	0.63	6.4	2.8
VOM	0.63	4.7	2.8

* Periods of startup, shutdown and malfunction.

ii. Emissions of SO_2 from the sulfur recovery unit during startup shall not exceed 0.8 tons per individual startup and 45 tons per year.

4.1.7-1 Operational Testing for the Flare

Within 10 days of initial startup of any unit in the gasification block, the Permittee shall conduct tests of the flare to confirm compliance with relevant requirements of 40 CFR 60.18.

4.1.7-2 Emission Testing for the Sulfur Recovery Unit

a. i. Within 60 days after achieving the maximum production rate at which the sulfur recovery unit will be operated but not

later than 180 days after initial startup of the unit, the Permittee shall have tests conducted for opacity and emissions of NO_x, SO_2, hydrogen chloride, hydrogen fluoride, and mercury and other metals as follows at its expense by an approved testing service while the unit is operating in the maximum range and other 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.

Opacity	Method 9
Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
Nitrogen Oxides	Method 19
Sulfur Dioxides	Method 19
Hydrogen Chloride	Method 26
Hydrogen Fluoride	Method 26
Metals[1]	Method 29
Reduced Sulfur Compounds	Method 15A

Notes:

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

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with the Condition 6.2.

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

A. Feedstock consumption (in tons);

B. Composition of the feedstock (Refer to Condition 4.1.10(b)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;

C. Firing rate (million Btu/hour) and other significant operating parameters of the gasifier;

D. Control device operating rates or parameter; and

E. Opacity of the exhaust from the flare and tail-gas thermal oxidizer, 6-minute averages and 1-hour averages.

4.1.8 Instrumentation

The Permittee shall install, calibrate, maintain, and operate an instrument that continuously monitors and records concentrations of SO_2 of the gases discharged into the atmosphere from the sulfur recovery unit tail-gas thermal oxidizer.

4.1.9-1 Operational Monitoring

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

b. The Permittee shall install, operate and maintain monitoring systems to measure and record key operating parameters of the cleanup systems in each gas cleanup train, including:

i. Temperature at and pressure drop across each cleanup system (mercury, particulate and sulfur compounds);

ii. Flow rate of scrubbant in the particulate cleanup system; and

iii. Flow rate of adsorption solvent.

c. The Permittee shall install, operate and maintain monitoring systems for the sulfur recovery system to measure and record the following:

i. Combustion chamber temperature in the oxidizer.

ii. The occurrence of venting of gas to the flare.

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

4.1.9-2 Operational Instrumentation and Monitoring for the Affected Flare

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

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

   ii. The total flow of process gas sent to the flare (SCFM); and

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

b. The Permittee shall continuously monitor each affected 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).

c. The Permittee shall install, operate and maintain continuous monitoring systems on each affected flare for the usage of pilot gas and purge gas (other than nitrogen or other inert gas) by the flare, 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.

d. The Permittee shall continuously monitor the liquid level and pressure of the seal drum that serves each affected flare, which monitoring devices shall be operated according to the manufacturer’s specifications and requirements.

e. The Permittee shall develop and maintain written Monitoring Procedures for each affected flare addressing the required monitoring systems and the operational monitoring systems for each 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 liquid seal for the flare and the process gas lines for 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 and purge gas; on/off flow indicators, HHV analyzer, total sulfur analyzer, operating parameters of the liquid seal, 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.

4.1.9-3 Sampling and Analysis of Feedstock and Syngas

a. i. The Permittee shall sample and analyze the sulfur and heat content of the feedstock supplied to the gasifiers in accordance with USEPA Reference Method 19 (40 CFR 60, Appendix A, Method 19).

ii. The Permittee shall analyze samples of all feedstock supplies to the gasifiers and the feedstock supply itself for mercury and other metals, chlorine and fluorine content, as follows:

A. Analysis shall be conducted in accordance with USEPA Reference Methods or other method approved by USEPA.

B. Analysis of the feedstock supply to the gasifiers themselves shall be conducted in conjunction with performance testing of a combustion turbine (see Condition 4.2.7).

C. Analysis of representative samples of feedstock shall be conducted in conjunction with acceptance of coal from a new mine or any alternate feedstock.

D. Analysis of representative samples of feedstock shall be conducted at least every two years, if a more frequent analysis is not needed pursuant to the above requirements.

b. The Permittee shall take representative samples of the various gas streams that could be vented to the flare and analyze them using applicable ASTM methods for sulfur, chlorine, fluorine, and mercury and other metals content.

4.1.10-1 Recordkeeping for Units in the Gasification Block

a. The Permittee shall maintain the following records with respect to operation and maintenance of each gasifier and gas cleanup train:

i. An operating log for the unit that at a minimum shall address:

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

ii. Inspection, maintenance and repair log(s) for each unit that at a minimum shall identify 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.

b. The Permittee shall maintain records of the following items related to feedstock used in the gasifiers:

i. Records of the sampling and analysis of feedstock supplied to the gasifiers conducted in accordance with Condition 4.1.9-2.

ii. A. The sulfur content of feedstock, lbs sulfur/million Btu, supplied to the gasifiers, as determined pursuant to Condition 4.1.9-2; and

B. The sulfur content of feedstock supplied to the gasifiers on a 30-day rolling average.

c. 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, including the flare involved in the event and 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(f)(1).

v. The amount and nature of the process gas sent to the flare(s), 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, SO_2 and VOM emitted, pounds/event, with supporting calculations.

vii. Whether SO_2 emissions of the flare 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.

d. The Permittee shall keep records for any period during which any unit deviated from an applicable requirement. These records shall include at least the information specified by Condition 6.3.

4.1.10-2 Recordkeeping for the Sulfur Recovery Unit

a. The Permittee shall maintain the following records for the SO_2 instrumentation on the Tail Gas Recovery Unit/Thermal Oxidizer required by Condition 4.1.8 that at a minimum shall include:

i. Operating records for the SO_2 monitoring system, 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 4.1.12-2; and

G. Records to verify compliance with the limitations of Condition 4.1.6, including:

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

2. Other than during startup, any twelve-hour period when the average SO_2 concentration exceeded 150 ppm at zero percent oxygen on a dry basis.

H. Appropriate records to verify compliance with 35 IAC 212.123 [Condition 4.1.3-2(a)].

b. 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. Whether the startup was a full startup or a startup associated with catalyst regeneration;

iii. If normal operation was not achieved within 4 days for a full startup and 48 hours for a startup associated with catalyst regeneration, an explanation why startup could not be achieved in normal time frame;

iv. A detailed description of the startup;

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

vi. 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

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

c. 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.

d. The Permittee shall maintain records of the following items:

i. Amount of sulfur recovered; and

ii. Monthly and annual emissions of SO_2, PM, NO_x, H_2S, and CO.

4.1.11 Notifications

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 6.5.

4.1.12-1 Reporting for Gasification Units

a. i. The Permittee shall report to the Illinois EPA any and all opacity and emission measurements for any unit in the gasification block (other than the sulfur recovery unit) that is 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 address any deviations from applicable compliance procedures for a unit established by this permit, including specifying periods during which the continuous monitoring systems were not in operation.

b. i. The Permittee shall keep the following operating records for each day that flaring occurs:

A. Date and amount of gas flared;

B. Confirmation that established operating procedures were followed; and

C. Confirmation that the flare functioned properly, i.e., a flame was present and no visible emissions were observed except as allowed by 40 CFR 60.18(f)(i).

ii. The Permittee shall keep the following records for each event when gas that was not fully cleaned was flared (or gas was sent directly to the atmosphere):

A. Date, time and duration of the event;

B. Description of the event;

C. Estimated amount of gas flared or emitted until the situation was corrected or emissions ceased;

D. Corrective actions taken; and

E. Actions taken to prevent or reduce the likelihood of future occurrences.

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 4.1.5-2(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 4.1.10-1(c) 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, a summary of each event-specific Root Cause Analysis was performed, and calculated CO emissions of the flares as compared to the limit in Condition 4.1.5-2(d).

iii. Include copies of the summaries for flaring activity for the preceding three years as required by Condition 4.1.11(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 4.1.5-3(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(e), 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.

4.1.12-2 Reporting for the Sulfur Recovery Unit

a. The Permittee shall submit quarterly reports for SO_2 emissions from the Sulfur recovery 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. 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 twelve-hour period during which the average concentration of SO_2 in the gases discharged into the atmosphere from the sulfur recovery unit exceeds 100 ppm at zero percent oxygen on a dry basis.

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 4.1.10-2(c).

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. Reports shall describe the probable cause of such deviations, any corrective actions or preventive measures taken, and other information below.

Along with the quarterly report for exceedances of the SO_2 limit. Within 30 days of exceedance of other limits in Condition 4.1.6, 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.

CONDITION 4.2: UNIT-SPECIFIC CONDITIONS FOR THE COMBUSTION TURBINES (CTS)

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 produce electric power. The primary fuel for the turbines would be fuel gas (cleaned syngas from the gasification trains). The CTs would also have the capability to burn natural gas, which would be used for startup of the CTs and at times when the gasification trains are out of service and syngas is unavailable.

Exhaust from each CT will be directed to a heat recovery steam generator (HRSG). The HRSGs will not be equipped with duct burners. Steam generated in the HRSG, 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 fuel gas (i.e., syngas, that has been processed by the syngas cleanup system) or natural gas to limit emissions of SO_2 and PM.

ii. A selective catalytic reduction (SCR) system and nitrogen diluent injection to control NO_x emissions; and

iii. Good combustion practices to minimize CO and VOM emissions.

b. The emissions from each CT shall not exceed the following limits. These limits are expressed in terms of fuel heat input to the CT, in million Btu, higher heating value. For limits for which the specified compliance time period is a 3-hour block with provision for emissions testing, if test runs other 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. A. PM (filterable as would be measured by USEPA Method 5)– 0.0090 lb/million Btu for syngas and 0.0070 lb/million Btu for natural gas.

B. Total PM (filterable and condensable as measured by USEPA Methods 5 and 202) – 0.0220 lb/million Btu for syngas and 0.0110 lb/million Btu for natural gas.

These limits shall apply as a 3-hour block average, with compliance determined by emission testing in accordance with Condition 4.2.7 and from equipment operation. These limits shall not apply during startup, shutdown or malfunction as addressed by

Condition 4.2.2(d). These limits also serve to address emissions of PM as PM_{10} and $PM_{2.5}$.

ii. SO_2 – 0.016 lb/million Btu for syngas and 0.001 lb/million Btu for natural gas.

These limits shall apply on a 3-hour block average, with compliance determined using continuous monitoring conducted in accordance with Condition 4.2.9-1, using the compliance procedures set forth in the NSPS, 40 CFR 60.48Da. These limits apply to all operations of a CT, that is, periods of startup, shutdown or malfunction are not excluded from the determination of compliance.

iii. NO_x – 0.034 lb/million Btu for syngas (equivalent to 5.0 ppmvd @ 15% O_2) and 0.025 lb/million Btu for natural gas.

This limit shall apply as a 24-hour block average, with compliance determined using continuous monitoring in accordance with Condition 4.2.9-1 using the compliance procedures set forth in the NSPS, 40 CFR 60.48Da. This limit shall not apply during startup, shutdown or malfunction as addressed by Condition 4.2.2(d).

iv. CO – 0.049 lb/million Btu (equivalent to 25.0 ppmvd) for syngas and 0.0450 lb/million Btu (equivalent to 25.0 ppmvd) for natural gas.

These limits shall apply as a 24-hour block average basis, with continuous monitoring conducted in accordance with Condition 4.2.9-1. This limit shall not apply during periods of startup and shutdown of a CT as addressed by Condition 4.2.2(d).

v. Sulfuric Acid Mist – 0.0035 lb/million Btu (equivalent to 0.4 ppmw) for syngas only).

This limit shall apply as a 3-hour block average, with compliance determined by emission testing in accordance with Condition 4.2.7 and equipment operation. This limit shall not apply during startup, shutdown or malfunction as addressed by Condition 4.2.2(d).

c. The syngas used in the CTs shall be processed to meet the following specification:

Sulfur content: 10 ppm by volume (3-hour block average).

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, including the following:

i. Use of natural gas during startup;

ii. 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 3.3); and

iii. 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 SO_2 for which the numerical limits in Condition 4.2.2(b) address emissions during startup, shutdown and malfunction, as well as for emissions of PM, NO_x, CO and sulfuric acid mist, for which the numerical limits in Condition 4.2.2(b) do not apply during startup, shutdown and malfunction. For emissions of these other pollutants for which the numerical limits in Condition 4.2.2(b) do not apply during startup, shutdown and malfunction, applicable lbs/hour limits in Condition 4.2.6(a) (Attachment 1, Table 1), 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 Electric Utility Steam Generating Units, 40 CFR 60, Subpart Da 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. Opacity: 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity, pursuant to 40 CFR 60.42a(b).

ii. PM: Either 18 ng/J (0.14 lb/MWh) gross energy output or 6.4 ng/J (0.015 lb/mmBtu) heat input, pursuant to 40 CFR 60.42Da.

iii. SO_2: 1.4 lbs/MWh gross energy output on a 30-day rolling average basis, pursuant to 40 CFR 60.43Da.

iv. NO_x: 1.0 lb/MWh gross energy output on a 30-day rolling average basis, pursuant to 40 CFR 60.44Da; and

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 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).

4.2.4 Non-Applicability of Regulations of Concern

a. The CTs are not subject to 40 CFR 60, Subparts GG and KKKK, the NSPS for Stationary Gas Turbines and Stationary Combustion Turbines, respectively. This is because of the exemption at 40 CFR 60.40Da(b), which excludes CTs of an IGCC steam generating unit that are subject to 40 CFR 60, Subpart Da.

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 60.49Da(a) and 75.14(c).

c. This permit is issued based on the CTs not being subject to 35 IAC Part 217 Subpart W because this rule is being repealed (refer to proposed 35 IAC 217.751, IPCB Docket R2009-020).

4.2.5 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 3.3 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 begin shutdown of the CT within 90 minutes, unless the malfunction is expected to be repaired within 120 minutes or such shutdown could threaten the stability of the regional electrical power supply. In such case, shutdown of the CT shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or shutdown will not endanger the regional power system. In no case shall shutdown of the CT be delayed solely for the economic benefit of the Permittee.

Note: If the Permittee determines that the continuous emission monitoring system (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. 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. 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 Table 1;

B. 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.

C. 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.

c. 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.

d. 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.

4.2.6 Emission Limitations

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

b. For hourly limitations for which compliance is to be determined on a 24-hour average basis, continuous emission monitoring is required for the pollutant (see Condition 4.2.8-1). Monitoring data shall be compiled on a calendar day basis to determine compliance, except for NO_x and CO for the calendar day in which a startup or shutdown of a CT occurred as addressed by Condition 4.2.5(a) for which monitoring data shall be compiled for the 24-hour period following or preceding such event, as appropriate.

c. For hourly limitations for which compliance is to be determined on a 3-hour average basis, emission testing is required for the pollutant (see Condition 4.2.7). When compliance is determined from such testing, the results of such testing shall be compiled as the average of the individual test runs to determine compliance, 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 opacity and emissions of NO_x, CO, PM (filterable and condensable), VOM, SO_2, hydrogen chloride*, hydrogen fluoride*, sulfuric acid mist*, and mercury* and other metals* 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 syngas 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 load and operating conditions.)

* Testing for these pollutants is only required for firing of syngas.

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, sulfuric acid mist, and any other pollutants specified by the Illinois EPA from each affected CT, while firing syngas, tested as specified below.

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 other 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.

Opacity	Method 9
Location of Sample Points	Method 1
Gas Flow and Velocity	Method 2
Flue Gas Weight	Method 3 or 3A
Moisture	Method 4
PM (PM, PM_{10}[1] and $PM_{2.5}$[1, 2])	Method 5, or Method 201[2], or 201A[2] (40 CFR 51, Appendix M), with Method 19 as specified in 40 CFR 60.48a(b) and Method 202[3]
Nitrogen Oxides[4]	Method 19, as specified in 40 CFR 60.48a(d)
Sulfur Dioxides[4]	Method 19, as specified in 40 CFR 60.48a(c)
Carbon Monoxide[4]	Method 10
Volatile Organic Material[5]	Method 18 and 25A
Metals[6, 7]	Method 29
Hydrogen Chloride[7]	Method 26
Hydrogen Fluoride[7]	Method 26
Sulfuric Acid Mist	Method 8[3]

Notes:

[1] After the emission tests required by Condition 4.2.7(a)(i) and (ii) with the approval of the

Illinois EPA, the Permittee may report all PM emissions measured by USEPA Method 5 as PM_{10} and $PM_{2.5}$, in which case separate testing using USEPA Method 201 or 201A need not be performed.

[2] Testing for emissions of $PM_{2.5}$ shall be conducted using an applicable Recommended Test Method adopted by USEPA in 40 CFR Part 51, Appendix M. If USEPA has not adopted a Recommended Method for testing of $PM_{2.5}$ when testing must be performed, testing for $PM_{2.5}$ shall be conducted using an appropriate Conditional Test Method developed by USEPA, e.g., Conditional Test Method 39 or 40, or a Recommended Test Method proposed by USEPA, subject to review by the Illinois EPA as part of the review of the test plan (refer to Condition 6.2(a)).

[3] Notwithstanding the general requirement to use USEPA test methods, appropriate refinements or adaptations shall be made to the USEPA test methods or other established test methods may be used for testing, subject to review and approval by the Illinois EPA to facilitate accurate and reliable measurements given the composition of the exhaust. In particular, adaptations shall be made to USEPA Method 202, to prevent positive bias from conversion of sulfur dioxide to sulfuric acid in the impingers, for example by additional purges or separate, simultaneous measurements of the sulfuric acid emissions.

[4] 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, SO_2 and CO emission data from certified monitors may be provided in lieu of conducting emissions tests.

[5] 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.

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

[7] As an alternative to emission testing, with approval by the Illinois EPA, the Permittee may determine emissions by sampling and elemental analysis of the fuel, assuming that all material in the fuel is emitted, with appropriate conversion factors applied, e.g., all fluorine is emitted as hydrogen fluoride.

ii. For purposes of emission testing for the NSPS the methods and procedures specified in 40 CFR 60.50Da shall be used.

c. i. Test plans, test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 6.2. 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 (syngas) consumption (in tons and mmscf, respectively);

B. Composition of fuel (Refer to Condition 4.2.10(b)), including the metals, chlorine and fluorine content, expressed in pound per million Btu;

C. Firing rate (million Btu/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).

4.2.8-1 Emissions Monitoring – SO_2, NO_x, and CO

a. i. The Permittee shall install, certify, operate, calibrate, and maintain continuous monitoring systems on each CT for emissions of SO_2, NO_x and CO, and either oxygen or carbon dioxide 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, 60.49Da, 60.334 and 40 CFR 60 Appendix B, and the federal Acid Rain Program, 40 CFR Part 75, as appropriate. 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.

iv. In addition, pursuant to the NSPS, when NO_x or SO_2 emission data are not obtained from a continuous monitoring system because of system breakdowns, repairs, calibration checks and zero span adjustments, emission data shall be obtained by using standby monitoring systems, emission testing using USEPA Reference Methods to provide emission data for a minimum of 90 percent of all operating hours in a CT operating day, in at least 27 out of 30 successive CT operating days, as required by 40 CFR 60.49Da(e).

Note: Fulfillment of the above criteria for availability of emission data from a monitoring system does not shield the Permittee from potential enforcement for failure to properly maintain and operate the system.

b. Notwithstanding the above, the Permittee may conduct monitoring for emissions of SO_2 from the CTs using an alternative monitoring methodology, e.g., using the Optional SO_2 Emission Data Protocol for Gas-Fired and Oil-Fired Unit, 40 CFR Part 75, Appendix D, if USEPA formally approves use of an alternative monitoring methodology for the CTs as provided for by 40 CFR 60.13(i) or 40 CFR 75, Subpart E.

4.2.8-2 Emissions Monitoring – Mercury

a. Pursuant to 35 IAC 225.240 through 275.290, 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.

b. 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 USEPA formally approves use of an alternative monitoring methodology for the CTs, as provided for by 40 CFR 60.13(i) and 40 CFR 75.80(h).

c. The Permittee shall fulfill all applicable monitoring requirements of 35 IAC Part 225, Subpart B.

d. The Permittee shall keep logs for the operation, calibration and maintenance of these monitoring systems.

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 Part 75, Appendix D, for natural gas combustion.

b. The Permittee shall also sample and analyze for the sulfur and nitrogen content on the natural gas being fired in the CTs in accordance with 40 CFR 60.334(h) unless alternative provisions are approved by USEPA in accordance with 40 CFR 60.334(h), in which case the Permittee shall comply with such alternative provisions.

c. 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 25, 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 syngas and natural gas by each CT.

b. The Permittee shall equip, operate, and maintain each CT with other instrumentation to measure relevant operating parameters for the CTs and associated control systems to enable effective control of emissions, including parameters such as ambient temperature, inlet air temperature, CT firing rate, nitrogen diluent injection rate, SCR reagent injection rate, and flue gas temperature at the SCR catalyst.

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

d. If the Permittee complies with 35 IAC Part 225, Subpart B by means of 35 IAC 225.237(a)(i)(A), the Permittee shall monitor the gross electrical output of the generators associated with each CT/HRSG in accordance with 35 IAC 225.263.

4.2.10 Recordkeeping

a. The Permittee shall maintain the following records:

i. Records of the heat content of the natural gas (Btu/ft^3) being fired, with supporting documentation, on a quarterly basis;

ii. Records of the amount of fuel (syngas) combusted in each CT as specified in 40 CFR Part 60, Appendix A, Method 19.

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).

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 the steam charts and daily records of steam and electricity generation.

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, CO, and SO_2 from each CT, based on CEMS data;

ii. For these pollutants, for which CEMS are used, the emissions of the pollutant from each CT recorded hourly (in lbs/mmBtu and lb or ton) by combining the pollutant concentration (in ppm) and diluent concentration (in percent O_2 or CO_2) measurements according to the procedures in 40 CFR 75 Appendix F;

iii. Records of emissions of PM, VOM, fluorides and other pollutants from each CT, based on fuel usage and other operating data for the CT and appropriate emission factors, with supporting documentation; and

iv. 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.

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

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

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

B. Identification of the affected turbine, the NO_x emission rate, the operating condition of the CT, and possible causes for elevated 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 elevated 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 4.2.3-1 [20 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. Pursuant to 40 CFR 60.52Da, 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 6.5.

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 60.51Da, for each CT. For this purpose, quarterly reports shall be submitted to the Illinois EPA no later than 30 days after the end of each calendar quarter.

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, 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; the percentage of operation at different ambient temperature ranges; 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, SO_2 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 COAL AND OTHER BULK MATERIAL HANDLING, STORAGE, PROCESSING AND LOADOUT OPERATIONS

4.3.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are equipment and facilities handling coal and other bulk materials (e.g., slag from the gasifiers) that are involved with the operation of the plant and that have the potential for particulate matter (PM) emissions. Affected units include receiving, transfer, storage, preparation (crushing, screening, etc.) and loading operations, as relevant for particular materials, for these materials.

Emissions of PM from affected units must be controlled by appropriate measures given the nature of the material. In particular, units handling dry materials must be enclosed and aspirated to control equipment if it is practical to do so. For receiving of coal and storage of coal, for which total enclosure is not practicable, measures must be used to very effectively reduce the generation of emissions.

4.3.2 Control Technology Determination

a. 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 required by Condition 4.6.5(a).

b. PM emissions from an affected unit handling a dry material, other than a storage pile for dry material and handling operations associated with the storage pile, shall be controlled by:

   i. Enclosure of the unit so as to prevent visible fugitive emissions, as defined by 40 CFR 60.671, from the affected unit.

   ii. Aspiration to a control device designed to emit no more than 0.01 grains/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 storage piles for dry material, including material handling operations associated with the piles, shall be controlled by application of water or other dust suppressants so as to minimize fugitive emissions to the extent practicable. For this purpose, there shall either:

i. Be no visible emissions from the affected unit, as determined in accordance with USEPA Method 22, or

ii. A nominal control efficiency of 90 percent shall be achieved from the uncontrolled emission rate, as follows, as determined using appropriate USEPA emission factors for particulate emissions from handling of a material dry, in the absence of any control of emissions, and engineering analysis and calculations for the control measures that are actually present:

4.3.3-1 Applicable Federal Emission Standards

a. Affected units engaged in handling 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 the NSPS, the opacity of the exhaust from coal processing and conveying equipment, coal storage systems (other than open storage piles), and coal loading systems shall not exceed 20 percent. [40 CFR 60.252(c)]

c. 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 4.3.5(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 lbs/hour for any individual unit.

4.3.4 Non-Applicability of Regulations of Possible Concern

This permit is issued based on the storage piles and associated operations and 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, such as stock piles, to which, because of the disperse nature of such emission units, such rules cannot reasonably be applied.

4.3.5 Operating Requirements

a. i. Bulk materials other than coal or slag 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.

ii. Coal storage piles and temporary piles for other materials shall be equipped and operated with adjustable stacker(s), rotary stacker(s), coal ladders or other comparable devices to minimize the distance that material drops when added to the pile and minimize the associated PM emissions.

b. i. 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.

ii. For this purpose, storage piles and associated material handling operations shall be addressed by and controlled in accordance with the control plan for fugitive particulate matter emissions required by Condition 4.6.5(a).

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

4.3.6 Emission Limitations

Emissions of particulate matter from the affected units shall not exceed the following limitations. Compliance with this annual emission limit shall be determined from a rolling total of 12 months of emission data, calculated from the amount of material handled, operating information for affected units, and appropriate emission factors.

PM_{10} - 1.94 tons/year

$PM_{2.5}$ - 1.03 tons/year

4.3.7-1 Initial Performance Testing

a. Within 60 days after achieving the maximum production rate at which each affected unit subject to NSPS will be operated, but not later than 180 days after initial startup of each such unit, the Permittee shall have emissions tests conducted at its expense as follows by an approved testing service to demonstrate compliance with applicable NSPS limits under unit operating conditions that are representative of maximum emissions.

b. The following USEPA methods and procedures shall be used for PM and opacity measurements as specified in 40 CFR 60.254:

PM - Method 5, with the sampling time and sample volume for each run to be at least 60 minutes and 30 dscf and sampling to begin no less than 30 minutes after startup and to terminate before shutdown begins.

Opacity - Method 9, with measurements performed by a certified observer.

c. Test plan(s), test notifications, and test reports shall be submitted to the Illinois EPA in accordance with Condition 3.2.

4.3.7-2 Periodic Testing

a. i. 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 15 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.

b. Unless otherwise specified for the affected units by the source's CAAPP permit:

i. Within 90 days of a written request from the Illinois EPA, the Permittee shall have the PM 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 limitations and conditions contained in 35 IAC Part 283.

iii. The Permittee shall submit a test plan to the Illinois EPA at least 60 days prior to testing, which plan shall include

the information for test plans specified by General Condition 6.2(a).

iv. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. 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 the test. The Illinois EPA may, at its discretion, accept notification with shorter advance notice provided that the Illinois EPA will not accept such notification if it interferes with the Illinois EPA's ability to observe the testing.

v. The Permittee shall expeditiously submit Final Report(s) for required emission testing to the Illinois EPA, no later than 90 days after the date of testing. These reports shall include the information specified in Condition 6.2(c) and the following information:

A. A summary of results.

B. Detailed description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.

C. Detailed description of the operating conditions of the affected process during testing, including operating rate (tons/hour) and the control measures being used.

D. Detailed data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

E. Representative opacity data (6-minute average) measured during testing.

4.3.8 Operational Instrumentation

a. 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.

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

4.3.9 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, the Permittee shall fulfill applicable recordkeeping requirements of the NSPS, 40 CFR 60.7.

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). These control measures are referred to as the "established control measures" in this subsection of this permit.

iv. The designated PM 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. For each category of affected unit (e.g., coal handling), the sum of these emission rates shall not exceed the totals in Table 2 for the category of affected unit. (See also Condition 4.3.7.)

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 it applies, Condition 4.3.3-2(c), 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 Condition 4.3.10(b)(ii) or testing of PM emissions from an affected unit is conducted in accordance with Condition 4.3.7-2, this demonstration shall be developed using emission factors for uncontrolled PM emissions, efficiency of control measures, and controlled PM emissions published by USEPA.

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. i. The Permittee shall keep inspection and maintenance log(s) or other records for the control measures associated with the affected units, including buildings and enclosures, dust suppression systems and control devices.

ii. These records shall include 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.

iii. These records shall include 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.

e. The Permittee shall maintain records of the following for each incident when any affected unit 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, e.g., the measured pressure drop of a baghouse, if the pressure drop of the baghouse, as measured pursuant to Condition 4.3.8, deviated

outside the levels set as good air pollution control practices.

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.

f. 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 emissions from the units, with supporting documentation.

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

g. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for affected units that it conducts or that are conducted at 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 Condition 4.3.7 or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the affected unit, the observed opacity, and copies of the raw data sheets for the measurements.

4.3.11 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable emission standards or operating requirements for the affected units that continue* for more than 24 hours. These notifications shall include the information specified by Condition 6.5.

* 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 Reporting Requirements

a. The Permittee shall submit quarterly reports to the Illinois EPA for all deviations from emission standards, including standards for visible emissions and opacity, and operating requirements set by this permit. These notifications shall include the information specified by Condition 6.5.

b. These reports shall also address any deviations from applicable compliance procedures established by this permit for affected units.

4.3.13 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 plant.

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 this unit-specific condition is a cooling tower, which supplies cooling water to the gasification block, air separation unit, and power block.

The cooling tower is a source of particulate matter (PM) because of mineral material present in the water, which is emitted to the atmosphere due to water droplets that escape from the cooling tower or completely evaporate. The emissions of PM are controlled by drift eliminators, which collect water droplets entrained in the air exhausted from the cooling 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 emissions of particulate matter from the affected unit shall not exceed 1.44 pounds of PM_{10} per hour, 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_{10} due to the drift from the unit.

4.4.3 Applicable State Emission Standards

a. The emission of smoke or other PM from the affected unit 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, 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 Applicability of Other Regulations

None

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 cooling tower.

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

c. i. The affected unit shall be equipped with appropriate features, such as louvered heating coils designed to heat tower plenum air as required, to enable it to be operated without a significant contribution to fogging and icing on offsite roadways during periods when fogging or icing are present in the area or weather conditions are conducive to fogging or icing.

ii. Notwithstanding the above, such features need not be in the affected unit if the Permittee demonstrates by appropriate analysis, as approved in writing by the Illinois EPA, that the cooling tower will be sited and designed and can be operated such that additional features are not needed to prevent a significant contribution to fogging and icing on offsite roadways.

d. Any water supplied to the affected unit that is effluent from a wastewater treatment plant shall be tertiary wastewater, which is effluent treated by micro-filtration and disinfection to comply with the standards in the California Code of Regulations, 22 CCR 60301.230(a)(1) or (2), or other comparable standards approved by the Illinois EPA.

e. 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.

f. The Permittee shall operate and maintain the affected unit in accordance with written operating 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 Limitations

The emissions of particulate matter, as PM_{10}, from the affected unit shall not exceed 1.44 pounds per hour and 6.31 tons per year, as determined from relevant operating data for cooling tower and the efficiency of the drift eliminators, using engineering calculations for the emissions of particulate matter due to the drift from the unit.

4.4.7 Emission Testing

None

4.4.8 Sampling and Analysis Requirement

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

4.4.9 Operational Measurements

Within 90 days after initial operation of the combustion turbines, the Permittee shall test the percent drift achieved by the drift eliminator pursuant to Cooling Technology Institute's Acceptance Test Code No. 140. This test shall be performed by a licensed performance testing service.

4.4.10 Records

a. The Permittee shall keep a file that contains:

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

ii. The suppliers' 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 affected unit or the PM emissions from the affected unit, with supporting documentation.

iv. Calculations for the maximum PM_{10} emissions from the cooling tower (pounds/hour, 24-hour average), based on maximum operating rate of the cooling tower and other factors that result in greatest emissions.

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

b. Records for the actions used to routinely verify the solids contents of the water circulating in the cooling tower, such as sampling and analysis in accordance with the NPDES permit, periodic grab sampling and analysis, conductivity measurements, etc., including:

i. If routine verification will not be conducted pursuant to the NPDES permit, a written description of the procedures, with explanation of how they act to address compliance.

ii. Records for implementation of the procedure, including measured value(s) of relevant parameter(s).

c. The Permittee shall keep the following operating records for the affected unit:

i. 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.

ii. Each occasion when the Permittee took action to prevent a significant contribution to fogging or icing from the affected unit, including the date and duration, the action or actions that were taken, the weather conditions that triggered such actions, and the weather conditions when such actions were terminated.

d. The Permittee shall keep inspection and maintenance logs for the drift eliminators installed in the affected unit.

e. The Permittee shall maintain records for the particulate matter emissions of the affected unit based on the above records, the measurements required by Condition 4.4.9(a), and appropriate emission estimation methodology and emission factors, with supporting calculation.

4.4.11 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements that are not addressed by the regular reporting required by Condition 4.4.12. These notifications shall include the information specified by Condition 6.5.

4.4.12 Reporting

The Permittee shall promptly notify the Illinois EPA of any deviations from the requirements of this permit for the cooling tower as follows. These notifications shall include the information specified by Conditions 6.3 through 6.5.

a. If the cooling tower is equipped with features to address fogging and icing, as addressed by Condition 4.4.5(b), the Permittee shall submit quarterly reports to the Illinois EPA summarizing the records required by Condition 4.4.10(b)(ii) and identifying any deviation from established practices for the use of such features.

b. If the cooling tower is damaged so there is a deviation from an applicable requirements that is not repaired or otherwise corrected within 24 hours, the Permittee shall then immediately notify the Illinois EPA.

c. The deviations addressed above and all other deviations shall be reported with the quarterly compliance report.

CONDITION 4.5: UNIT-SPECIFIC CONDITIONS FOR THE AUXILIARY BOILER

4.5.1 Description of Emission Unit

The affected unit for the purpose of these unit-specific permit conditions is a natural gas-fired "auxiliary" boiler that will be used to supply steam for startup of the gasifiers and the air separation unit. Given its function, the auxiliary boiler will only be operated on an intermittent basis and will be idle most of the time. The nominal rated capacity of the auxiliary boiler is 279 million Btu/hour. Emissions from the boiler are controlled by good combustion practices and low-NO_x burners.

4.5.2 Control Technology Determination

a. The affected boiler shall be operated and maintained with the following features to control emissions:

   i. Low-NO_x burner

   ii. Good Combustion Practices

b. i. The NO_x emissions of the affected boiler shall not exceed 0.036 lb/mmBtu based on a 24-hour block average.

   ii. The CO emissions of the affected boiler shall not exceed 0.037 lb/mmBtu based on a 24-hour block average.

4.5.3-1 Applicable Federal Emission Standards

a. The affected boiler is subject to the New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db and related provisions of 40 CFR 60 Subpart A.

b. Sulfur dioxide (SO_2) emissions from the affected boiler shall not exceed 87 ng/J (0.20 lb/million Btu), based on a 30-day rolling average pursuant to 40 CFR 60.42b(k). This standard shall apply at all times, pursuant to 40 CFR 60.45b(a).

c. At all times, the Permittee shall maintain and operate the affected boiler, 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:

a. The affected boiler is subject to 35 IAC 212.122(b), which provides that emissions of smoke or other particulate matter shall not have an opacity greater than 20 percent, except as allowed by 35 IAC 212.122(b) and 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 212.122(a)]

b. The affected boiler is subject to 35 IAC 216.121, which provides that emissions of carbon monoxide (CO) into the atmosphere shall not exceed 200 ppm, corrected to 50 percent excess air. [35 IAC 216.121]

c. The affected boiler is subject to 35 IAC 217.121, which provides that emissions of nitrogen oxide (NO_x) shall not exceed 0.2 lb/mmBtu of actual heat input in any one-hour period (35 IAC 217.121(a)).

4.5.3-3 Applicability of Other Regulations of Concern

None

4.5.4 Non-Applicability of Regulations of Concern

a. i. The affected boiler is not subject to the NSPS standards for PM and opacity, 40 CFR 60.43b because the SO_2 emissions will not exceed 0.32 lb/mmBtu heat input, as provided by 40 CFR 60.43b(h)(5).

ii. The affected boiler is not subject to the NSPS standards for NO_x, 40 CFR 60.44b, because the capacity factor of the boiler is limited to no more than 10 percent, as provided by 40 CFR 60.44b(l)(2).

iii. Continuous monitoring systems for NO_x emissions and opacity are not required for the affected boiler pursuant to the NSPS because the boiler is only fired on natural gas and has an annual capacity factor that is no more than 10 percent (see Condition 4.6.5(c)), so that these monitoring requirements of the NSPS do not apply, as provided by 40 CFR 60.48b(i) and 60.44b(j).

Note: If these criteria were not met, the affected boiler would be subject to requirements of the NSPS, as appropriate.

b. This permit is issued based on the affected boiler not being subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart DDDDD, for Industrial, Commercial, and Institutional Boilers and Process Heaters because the source is not major for HAP.

Note: If the source were major for HAP, the affected boiler would be subject to this NESHAP.

c. The affected boiler is not subject to the Title IV (i.e., Acid Rain) provisions of the federal Clean Air Act since it is an industrial boiler.

4.5.5 Operational Limits and Work Practices

a. Natural gas shall be the only fuel fired in the affected boiler.

b. The usage of natural gas in the affected boiler shall not exceed 138 mmscf/year.

c. The annual capacity factor of the affected boiler shall not exceed 10 percent.

4.5.6 Emission Limitations

The emissions of the affected boiler shall not exceed the following limitations. Compliance with short-term limits in lbs/million Btu and lbs/hour shall be determined on a 24-hour average for NO_x and CO and a 3-hour average for other pollutants.

Pollutant	Lbs/mmBtu	Lbs/Hour	Tons/Year
CO	0.037[a]	10.3	2.6
$PM/PM_{10}/PM_{2.5}$	0.007	2.0	0.5
VOM	0.004	1.1	0.3
NO_x	0.036[a]	10.0	2.5
SO_2	0.006	1.7	0.4

Notes: [a] BACT Limit

4.5.7 Testing Requirements

a. i. Within 60 days after achieving the maximum production rate at which the affected boiler will be operated, but not later than 180 days after initial startup, the Permittee shall have emission tests conducted for emissions of NO_x, PM, CO and VOM, and opacity as specified below at its expense, by an approved testing service while the affected boiler is operating at maximum load and other representative operating conditions.

ii. In addition to the emission testing required above, the Permittee shall perform emission tests as requested by the Illinois EPA for the affected boiler within 45 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA. The operating conditions during such testing shall be consistent with those specified by the Illinois EPA.

b. The following methods and procedures shall be used for testing of emissions of the affected boiler, unless another method is 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 Content	Method 4

Nitrogen Oxides[1]	Method 7, 7E or 19
Opacity	Method 9
Carbon Monoxide	Method 10
Volatile Organic Material[2]	Method 18 and Method 25 or 25A
Particulate Matter[3]	Methods 5 and 202

[1] Test in accordance with 40 CFR 60, Subparts A and Db as specified in 40 CFR 60.48b(d).

[2] 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 such compounds is included in the test plan approved by the Illinois EPA.

[3] Testing for particulate matter (filterable and condensable) is required.

c. The Permittee shall submit a plan for emission testing to the Illinois EPA at least 60 days prior to the initial startup of the boiler.

d. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification and test protocol for the expected date of testing shall be submitted a minimum of thirty days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. 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.

e. Three copies of the Final Report for these tests shall be promptly submitted to the Illinois EPA and in no case later than 60 days after the completion of the testing, and shall include as a minimum:

i. A summary of results that includes:

- Boiler load (e.g., firing rate)

- Boiler operating parameters (i.e., steam produced and oxygen content in the flue gas leaving the boiler)

- Measured emission rates of all pollutants measured

- 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

- A statement whether compliance was demonstrated

ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule.

iii. Detailed description of test conditions, including:

- Pertinent process information (e.g. fuel type , quantity)

- Control equipment information, i.e., equipment condition and pressure drop, flow rates, and other operating parameters during testing

iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

f. 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.

4.5.8 Monitoring Requirements

None

4.5.9 Recordkeeping Requirements

a. The Permittee shall maintain a file or other records for the affected boiler that contains the following information:

i. The maximum rated heat input of the affected boiler with supporting documentation.

ii. Records of the Permittee’s established operating and maintenance procedures for the affected boiler.

b. The Permittee shall maintain records of information for NO_x for the affected boiler, for each boiler operating day, pursuant to the NSPS, 40 CFR 60.49b(p), which includes, but is not limited to:

i. Calendar date;

ii. The number of hours of operation; and

iii. A record of the hourly steam load.

c. Records for sulfur content (wt. percent) of the fuel supply to the affected boiler, including copies of the supplier certification of the fuel supplied to the affected boiler, as required by 40 CFR 60.45b(k), used to satisfy these requirements.

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

i. Daily records of fuel use, in accordance with 40 CFR 60.49b(d); and

ii. Amount of fuel consumed 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). The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

e. The Permittee shall maintain the following logs or other records for the affected boiler:

i. Each startup of the affected boiler, including the date and duration of each startup, and note any deviations from normal startup procedures, as set forth in the Permittee's written operating procedure.

ii. An operating log that, at a minimum, includes:

A. The information required by 40 CFR 60.7(b)

B. Information on any malfunction or breakdown, including cause, duration and whether the affected boiler continued to operate during that time.

iii. A maintenance and repair log for the affected boiler listing each activity performed with date.

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

i. Any period of time, including startup, shutdown, or malfunction, when emissions exceed an applicable limit.

ii. The annual NO_x, CO, VOM, PM, SO_2 and HAP emissions from the affected boiler, based on continuous emissions monitoring data, fuel consumption or applicable emission factors with supporting calculations.

4.5.10 Reporting and Notification Requirements

a. The Permittee shall fulfill applicable reporting requirements of the NSPS, 40 CFR 60.7 and 60.49b, for the affected boiler by sending the following notifications and reports to the Illinois EPA:

i. Notification of the date of initial startup of the affected boiler, as provided by 40 CFR 60.7. This notification shall include: (1) the design heat input capacity of the affected boiler, (2) identification of the fuels to be

combusted in the boiler, and (3) the annual capacity factor at which the Permittee anticipates operating the affected boiler.

ii. Reports containing the information recorded under 40 CFR 60.49b(b).

iii. Reports for excess emissions (see Condition 4.5.10(c)). These reports shall be prepared and submitted in conformance with the requirements, content and schedule contained in 40 CFR 60.7 and 60.49b(v).

iv. A report for the maximum rated heat input capacity data of the affected boiler.

b. The Permittee shall immediately notify the Illinois EPA of any occurrence when the NO_x emissions from the affected boiler exceed the applicable emission standard or limitation or emissions of other pollutants exceed the applicable standard or limitation.

c. i. The Permittee shall submit excess emission reports for any calendar quarter during which there are excess NO_x emissions from the affected boiler pursuant to the NSPS. If there are no excess NO_x emissions during the calendar quarter, the Permittee shall submit a report stating that no excess emissions occurred during the reporting period. Excess emissions are defined as any calculated emission rate that exceeds the applicable limit in Condition 4.5.6.

ii. Except for deviations by the affected boiler addressed by the above quarterly reports, the Permittee shall notify the Illinois EPA of any deviations of the affected boiler from any applicable requirement of this permit as outlined in Conditions 4.5.10(a)(iii) and (c).

iii. The reporting period for the reports is quarterly. All reports shall be submitted and be postmarked by the 30th day following the end of the reporting period.

CONDITION 4.6: UNIT-SPECIFIC CONDITIONS FOR ROADWAYS AND OTHER OPEN AREAS

4.6.1 Description of Emission Units

The affected units for the purpose of these unit-specific conditions are roadways, parking areas, the slag disposal landfill and other open areas associated with the operation of the plant, 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.

4.6.2 Control Technology Determination

a. The opacity of fugitive particulate matter emissions from affected units, except during periods of high wind speeds, shall not exceed 15 percent opacity. For this purpose, opacity and the presence of high wind speeds shall be determined in accordance with 35 IAC 212.109 and 35 IAC 212.314, respectively.

b. i. Good air pollution control practices shall be implemented to minimize dust emissions from affected units. After construction of the plant is complete, these practices shall provide for pavement on all regularly traveled roads and treatment (flushing, vacuuming, dust suppressant application, etc.) of roadways and areas that are routinely subject to vehicle traffic for very effective and effective control of dust, respectively (nominal 90 percent control for paved roads and areas and 85 percent control for 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, roads that experience heavy use during regularly occurring maintenance of the plant during the course of a year, shall all 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 used primarily for periodic maintenance and 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.

4.6.3-1 Applicable Federal Emission Standards

None

4.6.3-2 Applicable State Emission Standards

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, storage activity, or any landfilling operation 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.

4.6.3-3 Applicability of Other Regulations

None

4.6.4 Non-Applicability of Regulations of Concern

None

4.6.5 Operational and Production Limits and Work Practices

a. The Permittee shall carry out control of fugitive particulate matter emissions from affected units in accordance with a written operating program describing the measures being implemented in accordance with Conditions 4.6.2 and 4.6.3 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., vacuum truck, water spray, surfactant spray, water flushing, dust suppressant application, or 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 12 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 matter 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 fugitive dust control program, 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.

4.6.6 Emission Limitations

The emissions of particulate matter from affected units in total shall not exceed the following limits. Compliance with these limits shall be determined by vehicle traffic and other operating data for the plant, information for the implementation of the operating program, appropriate emission factors, and engineering calculations:

PM_{10} - 1.1 tons/year
$PM_{2.5}$ - 0.22 tons/year

4.6.7-1 Emission Testing

None

4.6.7-2 Opacity Observations

a. The Permittee shall conduct performance 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 6.2.

i. Performance observations shall first be completed no later than 30 days after the date that initial emission testing of the affected combustion turbines are performed, as required by Condition 4.2.8, in conjunction with the measurements of silt loading on the affected units required by Condition 4.6.10.

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.

4.6.8 Operational Measurements

The Permittee shall conduct measurements of the silt loading on various affected roadway segments and parking areas, as follows:

a. Sampling and analysis of the silt loading 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 the date that initial emission testing of the affected CTs are performed, as required by Condition 4.2.7.

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 6.2, 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 or a new test plan is requested by the Illinois EPA.

4.6.9 Records

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 emission rate, in tons/year, from each category of affected units (e.g., traffic associated with receiving of coal, with supporting calculations and documentation. The sum of these rates shall not exceed the annual limit on emissions in Condition 4.6.6.

b. The Permittee shall maintain records documenting implementation of the operating program required by Condition 4.6.5, 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 General Condition 6.3 and an estimate of the additional PM emissions that resulted, if any, with supporting calculations.

d. The Permittee shall keep records for the measurements conducted for affected units pursuant to Condition 4.6.8, including records for the sampling and analysis activities and results.

e. The Permittee shall maintain records for the PM emissions of the affected units to verify compliance with the limits in Condition 4.6.6, based on operating data for the affected gasification trains 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.

4.6.10 Notifications

The Permittee shall notify the Illinois EPA within 30 days of deviations from applicable requirements for affected units that are not addressed by the regular reporting required below. These notifications shall include the information specified by General Condition 6.5.

4.6.11 Reporting

The Permittee shall submit quarterly reports to the Illinois EPA for affected units stating the following: the dates any necessary control measures were not implemented; a listing of those control measures; the reasons that the control measures were not implemented; and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not 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 no later than 45 calendar days from the end of each calendar quarter.

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 TRADING PROGRAM

The NO_x Trading Program, as addressed below, will only be applicable if the Illinois Pollution Control Board does not take action on the repeal of 35 IAC 217, Subpart W (IPCB Docket R2009-020).

a. Description of NO_x Trading Program

The NO_x Trading Program is a regional "cap and trade" market system for large sources of NO_x emissions in the eastern United States, including Illinois. It is designed to reduce and maintain NO_x emissions from the emission units covered by the program within a budget in order to contribute to attainment and maintenance of the ozone ambient air quality standard in the multi-state region covered by this program, as required by Section 110 of the CAA. The NO_x Trading Program applies in addition to other applicable requirements for NO_x emissions and in no way relaxes these other requirements.

An electrical generating unit (EGU) that is subject to the NO_x Trading Program is referred to as a "budget EGU." Sources that have one or more EGU or other units subject to the NO_x Trading Program are referred to as budget sources.

The NO_x Trading Program controls NO_x emissions from budget EGUs and other budget units during a seasonal control period from May 1 through September 30 of each year, when weather conditions are conducive to formation of ozone in the ambient air. By November 30 of each year, the allowance transfer deadline, each budget source must hold "NO_x allowances" for the actual NO_x emissions of its budget units during the preceding control period. The USEPA will then retire NO_x allowances in the source's accounts in amounts equivalent to its seasonal emissions. If a source does not have sufficient allowances in its accounts, USEPA would subtract allowances from the source's future allocation for the next control period and impose other penalties as appropriate. Stringent monitoring procedures developed by USEPA apply to budget units to assure that NO_x emissions are accurately determined.

The number of NO_x allowances available for budget sources is set by the overall budget for NO_x emissions established by USEPA. This budget requires a substantial reduction in NO_x emissions from historical levels as necessary to meet air quality goals. In Illinois, existing budget sources initially receive their allocation or share of the NO_x allowances budgeted for EGUs in an amount determined by rule [35 IAC Part 217, Appendix F]. Between 2007 and 2011, the allocation mechanism for existing EGUs gradually shifts to one based on the actual utilization of EGU in preceding control periods. New budget EGUs, for which limited utilization data may be available, may obtain NO_x allowances from the new source set-aside (NSSA), a portion of the overall budget reserved for new EGUs.

In addition to directly receiving or purchasing NO_x allowances as described above, budget sources may transfer NO_x allowances from one of their units to another. They may also purchase allowances in the

marketplace from other sources that are willing to sell allowances that they have received. Each budget source must designate an account representative to handle all its allowance transactions. The USEPA, in a central, national system, maintains allowance accounts and record transfer of allowances among accounts.

The ability of sources to transfer allowances serves to minimize the costs of reducing NO_x emissions from budget units to comply with the overall NO_x budget. In particular, the NO_x emissions of budget units that may be most economically controlled will be targeted by sources for further control of emissions. This will result in a surplus of NO_x allowances from those units that can be transferred to other units at which it is more difficult to control NO_x emissions. Experience with reduction of SO_2 emissions under the federal Acid Rain program has shown that this type of trading program not only achieves regional emission reductions in a more cost-effective manner, but also results in greater overall reductions than application of traditional emission standards to individual emission units.

The USEPA developed the plan for the NO_x Trading Program with assistance from affected states. Illinois rules for the NO_x Trading Program for EGUs are located in 35 IAC Part 217, Subpart W and have been approved by the USEPA. These rules provide for interstate trading, as mandated by Section 9.9 of the Environmental Protection Act. Accordingly, these rules refer to and rely upon federal rules at 40 CFR Part 96, which have been developed by USEPA for certain aspects of the NO_x Trading Program, and which an individual state must follow to allow for interstate trading of NO_x allowances.

Note: This narrative description of the NO_x Trading Program is for informational purposes only and is not enforceable.

b. Applicability

The following emission units at this source are budget EGUs for purposes of the NO_x Trading Program. Accordingly, this source is a budget source and the Permittee is the owner or operator of a budget source and budget EGU. In this condition, these emission units are addressed as budget EGU.

Combustion Turbine 1
Combustion Turbine 2

c. General Provisions of the NO_x Trading Program

i. This source and the budget EGUs at this source shall comply with all applicable requirements of Illinois' NO_x Trading Program, i.e., 35 IAC Part 217, Subpart W, and 40 CFR Part 96 (excluding 40 CFR 96.4 (b) and 96.55 (c), and excluding 40 CFR 96, Subparts C, E and I), pursuant to 35 IAC 217.756(a) and 217.756(f)(2).

ii. Any provision of the NO_x Trading Program that applies to a budget source (including any provision applicable to the account representative of a budget source) shall also apply to the owner

or operator of such budget sources and to the owner and operator of each budget EGU at the source, pursuant to 35 IAC 217.756(f)(3).

iii. Any provision of the NO_x Trading Program that applies to a budget EGU (including any provision applicable to the account representative of a budget EGU) shall also apply to the owner and operator of such budget EGU, pursuant to 35 IAC 217.756(f)(4).

d. Requirements for NO_x Allowances

i. By November 30 of each year, the allowance transfer deadline, the account representative of each budget EGU at this source shall hold allowances available for compliance deduction under 40 CFR 96.54 in the budget EGUs compliance account or the source's overdraft account in an amount that shall not be less than the budget EGUs total tons of NO_x emissions for the preceding control period, rounded to the nearest whole ton, as determined in accordance with 40 CFR 96, Subpart H, plus any number necessary to account for actual utilization (e.g., for testing, start-up, malfunction, and shutdown under 40 CFR 96.42(e) for the control period, pursuant to 35 IAC 217.756(d)(1)). For purposes of this requirement, an allowance may not be utilized for a control period in a year prior to the year for which the allowance is allocated, pursuant to 35 IAC 217.756(d)(5).

ii. The account representative of a budget EGU that has excess emissions in any control period, i.e., NO_x emissions in excess of the number of NO_x allowances held as provided above, shall surrender the allowances as required for deduction under 40 CFR 96.54(d)(1), pursuant to 35 IAC 217.756(f)(5). In addition, the owner or operator of a budget EGU that has excess emissions shall pay any fine, penalty, or assessment, or comply with any other remedy imposed under 40 CFR 96.54(d)(3) and the Environmental Protection Act, pursuant to 35 IAC 217.756(f)(6). Each ton of NO_x emitted in excess of the number of NO_x allowances held as provided above for each budget EGU for each control period shall constitute a separate violation of 35 IAC Part 217 and the Environmental Protection Act, pursuant to 35 IAC 217.756(d)(2).

iii. An allowance allocated by the Illinois EPA or USEPA under the NO_x Trading Program is a limited authorization to emit one ton of NO_x in accordance with the NO_x Trading Program. As explained by 35 IAC 217.756(d)(6), no provision of the NO_x Trading Program, the budget permit application, the budget permit, or a retired unit exemption under 40 CFR 96.5 and no provision of law shall be construed to limit the authority of the United States or the State of Illinois to terminate or limit this authorization. As further explained by 35 IAC 217.756(d)(7), an allowance allocated by the Illinois EPA or USEPA under the NO_x Trading Program does not constitute a property right. As provided by 35 IAC 217.756(c)(4), allowances shall be held, deducted from, or transferred among allowance accounts in accordance with 35 IAC Part 217, Subpart W, and 40 CFR 96, Subparts F and G.

e. Monitoring Requirements for Budget EGUs

i. The Permittee shall comply with the monitoring requirements of 40 CFR Part 96, Subpart H, for each budget EGU and the compliance of each budget EGU with the emission limitation under Condition 3 (d)(i) shall be determined by the emission measurements recorded and reported in accordance with 40 CFR 96, Subpart H, pursuant to 35 IAC 217.756(c)(1), (c)(2) and (d)(3).

ii. The account representative for the source and each budget EGU at the source shall comply with those sections of the monitoring requirements of 40 CFR 96, Subpart H, applicable to an account representative, pursuant to 35 IAC 217.756(c)(l) and (d)(3).

f. Recordkeeping Requirements for Budget EGUs

Unless otherwise provided below, the Permittee shall keep on site at the source each of the following documents for a period of at least five years from the date the document is created. This period may be extended for cause at any time prior to the end of the five years, in writing by the Illinois EPA or the USEPA (35 IAC 217.756(e)(1)).

i. The account certificate of representation of the account representative for the source and each budget EGU at the source and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with 40 CFR 96.13, as provided by 35 IAC 217.756 (e)(1)(A). These certificates and documents must be retained on site at the source for at least five years after they are superseded because of the submission of a new account certificate of representation changing the account representative.

ii. All emissions monitoring information, in accordance with 40 CFR 96, Subpart H, (provided that to the extent that 40 CFR 96, Subpart H, provides for a three year period for retaining records, the three year period shall apply,) pursuant to 35 IAC 217.756(e)(1)(B).

iii. Copies of all reports, compliance certifications, and other submissions and all records made or required under the NO_x Trading Program or documents necessary to demonstrate compliance with requirements of the NO_x Trading Program, pursuant to 35 IAC 217.756(e)(1)(C).

iv. Copies of all documents used to complete a budget permit application and any other submission under the NO_x Trading Program, pursuant to 35 IAC 217.756(e)(1)(D).

g. Reporting Requirements for Budget EGUs

i. The account representative for this source and each budget EGU at this source shall submit to the Illinois EPA and USEPA the reports and compliance certifications required under the NO_x

Trading Program, including those under 40 CFR 96, Subparts D and H and 35 IAC 217.774, pursuant to 35 IAC 217.756(e)(2).

ii. These submittals need only be signed by the designated representative, who may serve in place of the responsible official for this purpose as provided by Section 39.5(1) of the Environmental Protection Act, and submittals to the Illinois EPA need only be made to the Illinois EPA, Air Compliance Section.

h. Allocation of NO_x Allowances to Budget EGUs

i. For the first four control periods that a budget EGU identified in Condition 5.2(b) operates, it will not be entitled to direct allocations of NO_x allowances because the EGU will be considered a “new” budget EGU, as defined in 35 IAC 217.768(a)(1).

ii. A. After the first four control periods, as addressed above, the budget EGU will cease to be “new” budget EGU and the source will be entitled to an allocation of NO_x allowances for the budget EGU as provided in 35 IAC 217.764. For example, for 2010, the allocation of NO_x allowances will be governed by 35 IAC 217.764(e)(2) and (b)(4).

B. In accordance with 35 IAC 217.762, the theoretical number of NO_x allowances for these budget EGUs, calculated as the product of the applicable NO_x emissions rate and heat input, as follows, shall be the basis for determining the allocation of NO_x allowances to these EGUs:

1. As provided by 35 IAC 217.762(a)(2), the applicable NO_x emission rates for these EGUs is 0.07 lb/million Btu. This is the permitted emission rates for these EGUs as contained in Condition 2.1.2(b)(iii). The permitted NO_x emission rate is the applicable rate because it is between 0.15 lb/million Btu and 0.055 lb/million Btu, as provided by 35 IAC 217.762(a)(2).

2. The applicable heat input (million Btu/control period) shall be the average of the two highest heat inputs from the control periods four to six years prior to the year for which the allocation is being made, as provided by 35 IAC 217.762(b)(1).

j. Eligibility for NO_x Allowances from the New Source Set-Aside (NSSA)

The Permittee is eligible to obtain NO_x allowances for the budget EGU identified in Condition 5.2(b) from the NSSA, as provided by 35 IAC 217.768, because the budget EGU are “new” budget EGU.

k. Eligibility for Early Reduction Credits

The Permittee is not eligible to request NO_x allowances for the budget EGU identified in Condition 5.2(b) for any early reductions in NO_x emissions, as provided by 35 IAC 217.770.

l. Budget Permit Required by the NO_x Trading Program

i. For this source, this condition of this permit, i.e., Condition 5.2, is the Budget Permit required by the NO_x Trading Program and is intended to contain federally enforceable conditions addressing all applicable NO_x Trading Program requirements. This Budget Permit shall be treated as a complete and segregable portion of this permit, as provided by 35 IAC 217.758(a)(2).

ii. The Permittee and any other owner or operator of this source and each budget EGU at the source shall operate the budget EGU in compliance with this Budget Permit, pursuant to 35 IAC 217.756(b)(2).

iii. No provision of this Budget Permit or the associated application shall be construed as exempting or excluding the Permittee, or other owner or operator and, to the extent applicable, the account representative of a budget source or budget EGU from compliance with any other regulation or requirement promulgated under the Clean Air Act, the Environmental Protection Act, the approved State Implementation Plan, or other federally enforceable permit, pursuant to 35 IAC 217.756(g).

iv. Upon recordation by USEPA, under 40 CFR 96, Subparts F or G, or 35 IAC 217.782, every allocation, transfer, or deduction of an allowance to or from the budget EGUs' compliance accounts or to or from the overdraft account for the budget source is deemed to amend automatically, and become part of, this budget permit, pursuant to 35 IAC 217.756(d)(8). This automatic amendment of this budget permit shall be deemed an operation of law and will not require any further review.

v. No revision of this Budget Permit shall excuse any violation of the requirements of the NO_x Trading Program that occurs prior to the date that the revision to this permit takes effect, pursuant to 35 IAC 217.756(f)(1).

vi. The Permittee, or other owner or operator of the source, shall reapply for a Budget Permit for the source as required by 35 IAC Part 217, Subpart W and Section 39.5 of the Act. For purposes of the NO_x Trading Program, the application shall contain the information specified by 35 IAC 217.758(b)(2).

SECTION 6: GENERAL PERMIT CONDITIONS

CONDITION 6.1: 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 this permit.

CONDITION 6.2: 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.

* For a particular test, the Illinois EPA may at its discretion accept shorter advance notification provided that it does not interfere 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:

i. General information, i.e., testing personnel and test dates;

ii. A summary of results;

iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;

iv. The operating conditions of the emission unit and associated control devices during testing; and

v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.

CONDITION 6.3: GENERAL REQUIREMENTS FOR RECORDS FOR DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, records for deviations from applicable emission standards and control requirements shall include at least the following information: the date, time and estimated duration of the event; a description of the event; the manner in which the event was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction/breakdown associated with the event; 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: RETENTION AND AVAILABILITY OF RECORDS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, 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.

CONDITION 6.5: NOTIFICATION AND REPORTING OF DEVIATIONS

Except as specified in a particular provision of this permit or in a subsequent CAAPP Permit for the plant, notifications and reports for deviation from applicable emission standards and control requirements shall include at least the following information: the date and time of the event, a description of the event, information on the magnitude of the deviation, a description of the corrective measures taken, and a description of any preventative measures taken to prevent future occurrences.

CONDITION 6.6: GENERAL REQUIREMENTS FOR NOTIFICATION AND REPORTS

a. i. Unless otherwise specified in the particular provision of this permit or in the written instructions distributed by the Illinois EPA for particular reports, reports and notifications shall be sent to the Illinois EPA – Air Compliance Section with a copy sent to the Illinois EPA – Air Regional Field Office.

ii. As of the date of issuance of this permit, the addresses of the office that should generally be utilized for the submittal of reports and notifications are as follows:

A. Illinois EPA – Air Compliance Section

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

B. Illinois EPA – Air Regional Field Office

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

C. USEPA Region 5 – Air Branch

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

b. The Permittee shall submit Annual Emission Reports to the Illinois EPA in accordance with 35 IAC Part 254. For hazardous air pollutants, these reports shall include emissions information for at least the following pollutants: hydrogen chloride, hydrogen fluoride, and mercury.

ATTACHMENTS

ATTACHMENT 1: SUMMARY OF PERMITTED EMISSIONS AND EMISSION LIMITATIONS

Table I

Emission Limitations for Combustion Turbines (CTs)

Pollutant	Individual Combustion Turbines				Combined Tons/Year[b]
	Syngas Lbs/Million Btu[a]	Natural Gas Lbs/Million Btu[a]	Rate Lbs/Hour	Averaging Time	
NO_x	0.034[c]	0.025[c]	71.8	24-Hour Average[c]	628.6
CO	0.049[d]	0.045[d]	105.0	24-Hour Average	919.9
VOM	0.0015	0.0017	3.2	3-Hour Average	28.1
SO_2	0.016	0.001	34.2	3-Hour Average	299.2
$PM/PM_{10}/PM_{2.5}$ Filterable[e]	0.009[f]	0.007[f]	18.4	3-Hour Average	161.2
$PM_{10}/PM_{2.5}$ Total	0.022[f]	0.011[f]	47.0	3-Hour Average	405.5
Sulfuric Acid Mist	0.0035[g]	0.0001	7.6	3-Hour Average	66.6
Fluorides[h]	-----	-----	0.07	3-Hour Average	0.6132
Lead[i]	-----	-----	0.0023	3-Hour Average	0.0196
Hydrogen Chloride	-----	-----	0.85	3-Hour Average	7.45
Mercury	0.00002[j]	-----	-----	-----	0.067

Notes:

[a] Compliance with the emission limitation expressed in pound/million Btu heat input shall be determined in accordance with the provisions in Condition 4.2.2(b) based on the higher heating value of the fuel. These emissions limitations are based on the hourly emission rate provided in the application using combustion turbine fuel input, not gasifier heat input. Only the SO_2 limit applies during startup and shutdown.

[b] These limitations address all emissions from the CTs, including emissions that occur during periods of startup, shutdown and malfunction addressed by Condition 4.2.6.

[c] This limitation does not apply during startup and shutdown. The emissions of NO_x from the CTs during such periods are addressed by the lbs/hour BACT limit for NO_x, which applies as a 24-hour block average.

[d] This emission limit does not apply for startup or shutdown of a CT. The emissions of CO from a CT during such periods are addressed by a limitation expressed as 105.0 pounds/hour, 24-hour average basis, which is the product of the design capacity of the CT, in million Btu/hour, and the otherwise applicable BACT limit in lbs/million Btu.

[e] All particulate matter (PM) measured by USEPA Method 5 shall be considered as PM_{10} and $PM_{2.5}$, unless PM emissions are tested by USEPA Method 201 or 20lA as specified in 35 IAC 212.108(a) for PM_{10} and by an applicable Recommended Test Method adopted by USEPA in 40 CFR Part 51, Appendix M or other approved Method for $PM_{2.5}$.

[f] This emission limit does not apply for startup or shutdown of a CT. The emissions of PM/PM_{10} filterable and PM Total from a CT during such periods are addressed by a 22.62 pounds/hour limitation, 3-hour average basis.

[g] This emission limit does not apply for startup or shutdown of a CT. The emissions of H_2SO_4 from a CT during such periods are addressed by a limitation expressed as 7.6 pounds/hour, 3-hour average basis, which is the product of the design capacity of the CT, in million Btu/hour, and the otherwise applicable BACT limit in lbs/million Btu.

[h] The limit for fluorides is expressed as hydrogen fluorides.

[i] The limit for lead is expressed in terms of elemental lead.

[j] Expressed in lbs/MWh, 12-month rolling average (for syngas and natural gas).

TABLE II

Particulate Matter (PM) Emission Limitations for Bulk Material Operations
(Tons per Year)

Emission Units	Application Designation	Tons/Year
Coal Handling and Storage	Railroad Unloading Operations	0.84
Slag Handling and Disposal	Slag Maintenance and Wind Erosion	1.10
Total		1.94

Table III
Permitted Annual Emissions
Plantwide
(Tons Per Year)

Pollutant	Power Block	Gasification Block			Auxiliary Boiler	Cooling Tower	Material Handling and Roadways	Engine	Total
		Sulfur Unit	Flare						
			Normal	Other					
NO_x	628.6	71.9	0.21	48.8	2.5	---	---	0.06	752.0
CO	919.9	41.5	0.20	79.7	2.6	---	---	0.05	1043.9
VOM	28.1	2.8	0.02	2.2	0.3	---	---	0.01	33.4
SO_2	299.2	91.2	0.01	44.9	0.4	---	---	0.01	435.7
$PM_{10}/PM_{2.5}$ (Filterable)	161.2	2.8	0.01	7.1	0.5	6.31	1.94/1.03	0.01	179.9/179.0
Total PM_{10}	405.5	2.8	0.01	7.1	0.5	6.31	1.94	0.01	424.2
Sulfuric Acid Mist	66.5	0.1	---	10.0	0.1	---	---	---	76.7

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

217-782-2113

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:
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 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permits Section
Division of Air Pollution Control

ECB:RPS:psj

cc: Cecilia Mijares, USEPA Region V
Illinois EPA Region 3