

217/785-1705

CONSTRUCTION PERMIT
NSPS -- NESHAP SOURCE

PERMITTEE

Akin Energy, LLC
Attn: Keith Varney
3801 PGA Boulevard, Suite 903
Palm Beach Gardens, Florida 33410

Application No.: 14020004 I.D. No.: 065804AAA
Applicant's Designation: NG-Fired Engines
Date Received: February 6, 2014 Date Issued: December 30, 2014
Subject: Hamilton County Facility
Location: County Road 850N & State Highway 7, Macedonia, Hamilton County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission units and air pollution control equipment consisting of an electrical power generating facility, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s).

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

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

REP:RPS:psj

cc: Region 3

SECTION 1: SOURCE-WIDE PERMIT CONDITIONS

1.0 Introduction

This permit authorizes construction of a facility that would have the capacity to generate up to 140 MW of electricity, using reciprocating engines (the affected facility).

1.1 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 affected facility, such as application of water or dust suppressant sprays to roadways, as necessary to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

1.2 Generally Applicable State Emission Standards

- a. The engines at the affected facility are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit, except as allowed by 35 IAC 212.123(b) and 212.124.
- b. The engines at the affected facility are subject to 35 IAC 214.301, which limits emissions of sulfur dioxide (SO₂) to no more than 2000 ppm.

1.3 Emission Limits for the Affected Facility

The emissions of the emission units of the affected facility and the affected facility as a whole shall not exceed the limits in Attachment 1.

1.4 Emissions of Hazardous Air Pollutants (HAPs)

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

Note: In the event the testing required by this permit indicates that the affected facility is a major source of HAPs, the emission units at the affected facility will be subject to the provisions of 40 CFR Part 63 that are applicable to major sources of HAPs.

- b. For the purpose of this condition and other conditions of this permit for which the regulatory definitions of the terms "startup",

"shutdown" and "malfunction" under the NSPS are not applicable, the definitions of the terms "startup", "shutdown" and "malfunction" under the NESHAP, at 40 CFR 63.2, shall apply and be used, unless these terms are specifically defined in the permit for the affected unit.

- c. The Permittee shall keep records of the annual emissions of HAPs from various emission units at the affected facility to demonstrate that the facility is not a major source of emissions of HAPs. These records shall be compiled on at least an annual basis and the results reported to the Illinois EPA with the Annual Emission Reports that the Permittee must submit for the facility pursuant to 35 IAC Part 254.

1.5 Storage Tanks for Diesel Fuel And Lubricating Oil

- a. This permit is issued based on negligible emissions of VOM from storage tanks for diesel fuel and lubricating oil. For this purpose, total VOM emissions from such tanks shall not exceed nominal emission rates of 0.1 ton/year.

1.6 Good Air Pollution Control Practice

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

- a. At all times, including periods of startup, shutdown, malfunction or breakdown, operate as practicable to minimize emissions.
- b. Conduct routine inspections and perform appropriate maintenance and repairs to facilitate proper functioning of equipment and minimize or prevent malfunctions and breakdowns.
- c. Install, calibrate and maintain required monitoring devices and instrumentation in accordance with good monitoring practices, following the manufacturer's recommended operating and maintenance procedures or such other procedures as otherwise necessary to assure reliable operation of such devices.

1.7 Compliance with Emission Standards And Emission Limits

- a. The emission limits set by this permit apply at all times unless otherwise specified in a particular provision.
- b.
 - i. Unless otherwise provided by applicable rules, emission standards for particulate matter (PM) under applicable regulations that are referenced in the conditions of this permit address only filterable particulate, as would be measured by USEPA Method 5 or other appropriate USEPA Test Methods.
 - ii. Unless otherwise provided by applicable provisions of this permit, emissions limits for PM₁₀ set by this permit address both filterable and condensable particulate. These emission limits for PM₁₀ also serve to address emissions of PM_{2.5}.

- c. When performance or emission testing is conducted, compliance with hourly limits set by this permit shall be determined from the average of the test results, commonly three runs, each nominally one hour in duration.
- d. During periods of operation other than performance testing, compliance with the emission limits set by this permit shall be determined from operating information for emission units, including information for both the amount of fuel burned and the operational condition of the units and their control devices, and from appropriate values for emission rates or emission factors that do not understate actual emissions of the units as they were actually operated. For this purpose, for models of engines for which performance testing has been conducted, values for emission rates or emissions factors developed from the most recent testing of such engines shall be used unless it is determined that this would understate actual emissions of the engine as a general matter or for a particular period of operation, in which case alternative rates or factors shall be developed and used consistent with the principles of credible evidence.
- e.
 - i. Except as provided below or unless otherwise specified in a particular provision, compliance with annual limits established by this permit shall be determined from a rolling total of 12 months of data, i.e., from the sum of the data for the current month and data for the preceding 11 months (12 month total), and shall consider all emissions, including emissions during startup, shutdown, and malfunction and breakdown.
 - ii. For the first year (12 months) of operation, compliance shall be determined for a cumulative total of monthly data, i.e., from the sum of the data for the current month and data for all preceding months.

1.8 Records for Monitoring Systems And Instrumentation

- a. The Permittee shall keep records of the data measured by required monitoring systems and instrumentation. Unless otherwise provided in a particular condition of this permit, the following requirements shall apply to such recordkeeping:
 - i. For required monitoring systems, data shall be automatically recorded by a central data system, dedicated data logging system, chart recorder or other data recording device. If an electronic data logging system is used, the recorded data shall be the hourly average value of the particular parameter for each hour. During periods when the automatic recording device is out of service, data shall be recorded at least once per shift for periods when the associated emission unit(s) is in service.
 - ii. For required instrumentation, the measured data shall be recorded manually at least once per day, unless otherwise specified, with data and time both recorded, for periods when the associated emission unit(s) are in service, provided however

that if data from an instrument is recorded automatically, the above provisions for recording of data from monitoring systems shall apply and manual recording of data is not required.

- b. The Permittee shall keep records for the operation, calibration maintenance and repair of required monitoring systems and instrumentation. These operating records shall, at a minimum, identify the date and duration of any time when a required monitoring instrument or device was not in operation, with explanation; the performance of manual quality control and quality assurance procedures for the system; and maintenance and repair activities performed for the system.
- c. The Permittee shall maintain a file containing a copy of the specifications for each required monitoring device or instrument and the recommended operating and maintenance procedures for the device as provided by its manufacturer.

1.9 Records for Opacity Measurements

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

1.10 Retention And Availability of Records

- a. Unless otherwise specified in a particular provision, records required by this permit shall be kept at the facility or be accessible at the facility.
- b. Where a condition requires that a file be kept containing certain information, the file shall be updated as needed to keep the information current. Each new version or update shall be marked with the date that it was prepared and shall become effective on that date unless a later "effective date" is also specified.
- c. The Permittee shall retain all records and logs required by this permit for at least five years from the date of entry (unless a longer retention period is specified by a particular provision), keep the records at a location at the affected facility that is readily accessible to the Illinois EPA and USEPA, and make records available for inspection and copying by the Illinois EPA or USEPA upon request.
- d. In response to an Illinois EPA or USEPA request for records, during the course of an inspection of the facility, the Permittee shall

provide the following information to the Illinois EPA or USEPA or make such information available for copying:

- i. Copies of written records kept at the facility during the inspection.
- ii. Copies of any records retained in an electronic format are accessible at the facility.

1.11 Addresses for the Illinois EPA

- a. Reports and notifications required by this permit shall be sent to the Illinois EPA at the following address unless otherwise indicated:

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

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

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

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

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

1.12 Authorization to Operate Emission Units

- a. Under this permit, the affected facility may be operated for a period that ends one year (365 days) after initial startup to allow for equipment shakedown and required emissions testing. This period may be extended by Illinois EPA upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.
- b. Upon successful completion of required emission testing, the Permittee may continue to operate emission units at the affected facility as allowed by Section 39.5(5) of the Environmental Protection Act.
- c. These conditions supersede Standard Condition 6.

1.13 Standard Conditions

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

UNIT-SPECIFIC CONDITIONS FOR PARTICULAR EMISSION UNIT(S)

SECTION 2.1: UNIT-SPECIFIC CONDITIONS FOR NATURAL GAS-FIRED ENGINES

2.1.1 Introduction

The affected facility will have up to 14 natural gas-fired engines with associated electrical generators (the affected engines). The engines will be equipped with catalytic control systems for emissions nitrogen oxides (NOx), carbon monoxide and organic compounds.

2.1.2 List of Emission Units and Air Pollution Control Equipment

Units	Description	Control Measures
Gas-Fired Engines	14 spark-ignited reciprocating lean-burn internal combustion engines	SCR & Oxidation Catalyst Systems

2.1.3 Applicable Federal Emission Standards for Natural Gas-Fired Engines

- a. i. The affected engines are subject to the NSPS for Stationary Spark Ignition Internal Combustion Engines, 40 CFR 60 Subpart JJJJ (the Spark Ignition Engine NSPS) and related requirements of the NSPS, 40 CFR 60 Subpart A, General Provisions. Pursuant to the NSPS, the affected engines shall comply with the applicable emission standards in Table 1 of 40 CFR 60 Subpart JJJJ.
- ii. As the affected engines are 2010 model year or later stationary spark ignition internal combustion non-emergency engines with rated power output greater than 500 hp, the affected engines must comply with the following emission standards of the Spark Ignition Engine NSPS. Each engine must be operated and maintained so as to achieve these standards over the entire life of the engine. (40 CFR 60.4233(e), 60.4234 and Table 7 of 40 CFR 60 Subpart JJJJ).
 - A. 1.0 g/hp-hour for NOx;
 - B. 2.0 g/hp-hour for CO; and
 - C. 0.7 g/hp-hour for VOC (excluding formaldehyde)
- b. The affected engines are subject to the applicable requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ (the Engine NESHAP) for the affected engines.
- c. As the affected engines are subject to the Spark Ignition Engine NSPS and Engine NESHAP, at all times, the Permittee shall, to the extent practicable, maintain and operate the affected engines, including the affected systems, in a manner consistent with safety and good air pollution control practice for

minimizing emissions, as required pursuant to 40 CFR 60.11(d) and 63.6(e) (3).

2.1.4 Non-Applicability Provisions

- a. This permit is issued based on the affected engines not being subject to the requirements of the federal Acid Rain Program because each affected engine meets the new unit utility exemption of 40 CFR 72.7(a). In particular, the generator associated with each engine will have a capacity that is less than 25 MWe and the affected engines will burn gaseous fuel with an annual average sulfur content that is less than 0.05 percent by weight.

Note: The Permittee must demonstrate compliance with the new unit exemption by providing appropriate documentation and carrying out all applicable procedures required under 40 CFR 70.7(b), (d) and (f).

- b. This permit is issued based on the affected engines not being subject to the requirements of 35 IAC Part 212, Subpart L, because a process weight rate cannot be set, due to the nature of engines, so that these rules cannot reasonably be applied, pursuant to 35 IAC 212.323.

2.1.5 Operational Production Limits and Work Practices

- a.
 - i. Natural gas shall be the only fuel fired in the affected engines.
 - ii. The maximum rated firing rate of each affected engine shall not exceed 78.93 mmBtu/hour (high heating value).
- b. The number of startups for all the engines shall not exceed 5,110 per year, rolled monthly.
- c. If the affected engines are not certified, as provided by 40 CFR 60.4243(b) (2) (ii), the Permittee must demonstrate compliance with the emission standards specified in 40 CFR 60.4233(e) and according to the requirements specified in 40 CFR 60.4244, as applicable, and keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollutant control practice for minimizing emissions.
- d. The various work practices of the Spark Ignition Engine NSPS, as addressed in Conditions 2.1.5(c) and (d), the recordkeeping requirements of the NSPS, as addressed in Conditions 2.1.10(a), and the reporting requirements of the NSPS, as addressed in Condition 2.1.11(a), shall also be implemented as a means to comply with limits for emissions of NO_x, CO, VOM, PM/PM₁₀ and HAPs in Condition 2.1.6.

- e. Each affected engine shall be operated in a manner consistent with good air pollution control practice to minimize emissions during startup and malfunction or breakdown including:
 - i. Operation in accordance with the manufacturer's written instructions or other written procedures developed and maintained by the Permittee, which shall include at a minimum the following measures:
 - A. Review of operating parameters of the engine during startup and malfunction or breakdown as necessary to make adjustments to reduce or eliminate excess emissions.
 - B. Operation of the SCR system as soon as and as long as the engine's operating conditions are amenable to its effective use.
 - C. Implementation of inspection and repair procedures for an engine prior to attempting startup following repeated trips during previous attempts to start the engine.
 - ii. Maintenance of the emission control systems in accordance with written procedures developed and maintained by the Permittee.
 - iii. These procedures shall be reviewed by the Permittee at least annually and enhanced consistent with good air pollution control practices based on actual operating experience and equipment performance.
 - iv. Upon malfunction of the SCR system that will result in NOx emissions in excess of the applicable hourly NOx limit in Condition 2.1.6, the Permittee shall as soon as practicable repair the SCR system or remove the affected engine from service so that excess emissions cease.
 - v. Consistent with the above, if the Permittee has maintained and operated the affected engines/SCR systems 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 engine within 60 minutes, unless the malfunction is expected to be repaired in 120 minutes or operation of the affected engine is needed to provide essential service. In such case, shutdown of the engine shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or operation of the affected engine is no longer needed to provide essential service. In no case shall shutdown of an engine be delayed solely for the economic benefit of the Permittee.

2.1.6 Emission Limits

- a. The emissions from the affected engines shall not exceed the following limits. The hourly limits for NOx shall apply on a 1-hour average basis, except for purposes of emission testing as addressed by Condition 2.1.7(c). The hourly limits for other pollutants shall apply on a 3-hour average basis.

Pollutant	Limits per Engine (pounds/hour)	Limits for All Engines, Combined (tons/year)
NOx	1.55/14.4*	127.7
CO	2.87/21.8*	224.1
VOM	2.87/7.2*	186.7
PM/PM ₁₀	1.54/2.4*	96.9
Any Individual HAP	0.10	6.1
Total HAPs	0.35	21.6

* Different limits are set, respectively, for an hour that does not include a startup and an hour that includes a startup.

- b. This permit is issued based on negligible emissions of SO₂ from the affected engines. For this purpose, emissions of SO₂ from each engine shall not exceed 0.10 pounds/hour and 0.44 tons/year.

2.1.7 Emission Testing

- a. Within 180 days of the initial startup of the affected facility, the Permittee shall have tests conducted for affected engines for emissions of NOx, CO, PM, PM₁₀, VOM, VOM excluding formaldehyde, and HAPs by a qualified independent testing service during conditions that are representative of maximum emissions as follows. For this purpose, emissions testing shall be conducted on six engines at the maximum load range, either as selected by the Illinois EPA or randomly selected by the Permittee, with testing of two engines for emissions of NOx, CO, PM/PM₁₀, VOM and HAPs to also be conducted at two load levels below the maximum load range.

- i. The timing for this testing shall be as follows:
- A. Initial testing shall be conducted within 180 days after achieving the maximum operating rate at which engines will be operated, but not later than one year (365 days) after initial startup of an engine, emissions from the engine(s) shall be measured.
 - B. Within 90 days of a written request from the Illinois EPA, the Permittee shall perform testing for engines and pollutants as specified by the Illinois EPA. The Illinois EPA may provide additional time for the performance of these tests upon written request by the Permittee.

- ii. During measurements for filterable PM, the Permittee shall have concurrent observations conducted by a qualified observer(s) using USEPA Method 9 for the opacity of the exhaust of the engine that is being tested.
- iii. Unless otherwise specified, each test shall consist of three separate runs each of at least 60 minutes in duration. For the purpose of determining, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Illinois EPA approval, be determined using the arithmetic mean of the results of the two other runs. [40 CFR 60.8(f)]
- iv. The following USEPA methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA as part of the review of its test plan:

Nitrogen Oxides*	Method 7
Carbon Monoxide*	Method 10
Volatile Organic Material*	Method 18, 25A or 320
Filterable PM and PM ₁₀	Method 5 and 201 or 201A**
Condensable PM	Method 202
Hazardous Air Pollutants	Method 320

* Tests for NO_x, CO, and VOM shall be conducted in accordance with the requirements in 40 CFR 60.4244, provided, however, that total VOC, including formaldehyde, shall also be reported.

** Following the initial performance testing, unless otherwise specified by the Illinois EPA in the request for further testing, the Permittee may use Method 5 to measure filterable emissions of PM₁₀ provided that all PM measured by Method 5 shall be considered to be filterable PM₁₀.

- v. For this emission testing, the Permittee shall submit test plans to the Illinois EPA, notify the Illinois EPA of the planned timing of tests, and submit test reports to the Illinois EPA in accordance with Condition 3.1. For this purpose:
 - A. In the test plan for the initial testing, the Permittee may propose an approach to testing of the engines that would provide for testing of as few as four engines.

- B. In addition to other required information, test reports shall include the horsepower (hp) output during each test run, with supporting data and calculations, and the measured emission rates in grams/hp-hour (output).
- b. i. For the affected engines, if performance tests for emissions of NO_x, CO and VOM are required pursuant to the Spark Ignition Engine NSPS, (for example, if the affected engines are non-certified by the manufacturer or the certified engines are not operated and maintained in accordance with the manufacturer's emissions-related written instructions), the Permittee shall comply with the applicable testing requirements of the NSPS, 40 CFR 60.8, 60.4243(b)(2)(ii) and 60.4244. In particular, pursuant to 40 CFR 60.4243(b)(2)(ii), within one year of startup and using the test methods specified in 40 CFR 60.4244, the Permittee shall have emissions tests conducted for the affected engines. In addition, for subsequent testing, performance testing must be conducted for each affected engine within 3 months of reaching 8,760 hours of operation or every 3 years, whichever comes first.
- ii. If performance testing is not required pursuant to the Spark Ignition Engine NSPS, as provided above, performance testing shall be conducted at least every five years.
- c. Upon written request, as specified by the Illinois EPA, the Permittee shall have the opacity of the exhaust from the affected engines during representative operating conditions determined by a qualified observer in accordance with USEPA Method 9, such testing shall be conducted for each affected engine within 45 calendar days of the request, or on the date the engine next operates, or on the date agreed upon by the Illinois EPA, whichever is later.

2.1.8 Operational Monitoring and Instrumentation

- a. The Permittee shall install, evaluate, operate, and maintain meters to measure and record consumption of natural gas by each affected engine.
- b. The Permittee shall install, evaluate, operate, and maintain meters to measure and record the gross electrical output of the generator(s) associated with each affected engine.
- c. The Permittee shall install, evaluate, operate and maintain monitoring systems on the oxidation catalyst systems on the affected engines for pressure drop and inlet temperature on an hourly average basis.
- d. The Permittee shall equip, operate, and maintain instrumentation on each affected engine to measure ambient temperature, inlet air temperature, engine firing rate, SCR reagent injection rate, and flue gas temperature at the SCR catalyst.

- e. The Permittee shall maintain the records of the measurements made by these monitoring systems and meters and records of maintenance and operational activity associated with this equipment.

2.1.9 Recordkeeping Requirements

- a. For the affected engines, the Permittee shall comply with all applicable recordkeeping requirements of the Spark Ignition Engine NSPS, including 40 CFR 60.4243(b)(2)(ii), and 60.4245(a) and (c).
- b. The Permittee shall maintain a file for each affected engine containing the following:
 - i. Manufacturer's data for the affected engine, including emissions guarantees, horsepower rating, rated maximum fuel heat input, and design fuel consumption rate in Btu/hp or Btu/MW output, the manufacturer's certification of compliance with applicable NSPS emission standards, the operating and maintenance procedures for the engines recommended by the manufacturer, and the SCR and oxidation catalyst systems.
 - ii. The written instructions being followed by the Permittee as good combustion practices and good air pollution control practice to minimize emissions in accordance with Condition 2.1.3(c).
- c. For the affected engines, the Permittee shall keep records of the following information:
 - i. The total fuel usage, on a monthly basis.
 - ii. Operating hours of each affected engine (hours/month and hours/year).
 - iii. The combined operation of the affected engines (engine-hours per month and engine-hours per year).
 - iv. The total number of startups of the affected engines (number per month and number per year).
 - v. The usage of SCR reagent, as determined from inventory record, compiled on at least a monthly basis.
- d. The Permittee shall keep the following records related to the operation and maintenance of the affected engines:
 - i. An operating log that, at a minimum, shall include the information specified by Condition 3.2(a).
 - ii. An inspection/maintenance log, which shall include the information specified by Condition 3.2(b).

- iii. Records for deviations, which shall include the information specified by Condition 3.3.
- e. The Permittee shall maintain detailed records related to continued operation of affected engines with excess or above normal emissions due to malfunction or breakdown, including the following:
 - i. The following information for each period of excess NOx emissions accompanying malfunction or breakdown of an SCR system:
 - A. Date, time and duration of excess NOx emissions.
 - B. Identification of the affected engine, the NOx emission rate, the operating condition of the engine, and possible causes for excess NOx emissions, e.g., interruption or reduction in SCR reagent flow.
 - C. A description of corrective actions taken by the Permittee to return NOx emissions to its permitted limit.
 - D. If corrective actions did not promptly restore compliance, the time that the Permittee initiated shutdown of the engine 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.
 - E. A description of further investigation and corrective actions taken by the Permittee following shutdown of the affected engine prior to returning it to service.
 - ii. Hours of excess NOx emissions for each affected engine, excluding startup and shutdown (hours/month, hours/year).
 - iii. Whether each SCR system was available for 90 and 95 percent of the operating time of the associated affected engine in the previous month and year, respectively.
- e. The Permittee shall maintain the following records related to the emissions of the affected engines:
 - i. For emissions of NOx, CO, PM, PM₁₀, VOM, individual HAP and total HAPs:
 - A file that containing for both hours of operation of an engine with and without a startup: 1) The emission factor(s) used by the Permittee to determine emissions of each pollutant; and 2) The maximum hourly emission rates of each pollutant from an

individual engine (pounds/hour), with supporting documentation and calculations.

B. Records of actual emissions of each pollutant (tons/month and tons/year), based on actual operation and the appropriate emission factors, with supporting calculations.

ii. For emissions of SO₂, a demonstration that the maximum emission emissions are minimal, as provided by Condition 2.1.6(b), with supporting documentation and calculations.

2.1.10 Notification and Reporting Requirements

a. The Permittee shall notify the Illinois EPA prior to commencing construction of the affected facility of the manufacturer and model number of the engines that will be installed.

b. For the affected engines, the Permittee shall comply with the applicable notification and reporting requirements of the Spark Ignition Engine NSPS and the Engine NESHAP, including 40 CFR 60.4245(c) and (d).

c. If there is any deviation from the requirements of this permit, the Permittee shall notify the Illinois EPA as follows, unless otherwise specified in the CAAPP permit for the affected facility. The report shall include information specified in Condition 3.4.

i. Deviations from NSPS and NESHAP requirements shall be reported in accordance with reporting requirements of these rules.

ii. Deviations from other requirements shall be reported in a quarterly report.

CONDITION 2.2: UNIT-SPECIFIC CONDITIONS FOR THE DIESEL ENGINES

2.2.1 Description of Emission Units

The facility will have four diesel engines fired with ultra-low sulfur diesel fuel (the affected engines). Three of the engines will power electrical generators. The two larger units will be used to supply power when the demand is lower than a single natural gas-fired engine generator can readily be operated to provide. The smaller unit will provide emergency electrical power to the facility in the event of a blackout. The fourth engine will power a firewater pump that is in the facility's fire protection system.

2.2.2 List of Emission Units and Air Pollution Control Equipment

Unit	Description
Low-Load Generator Engines	Two engines powering "low-load" generators nominally rated at 2000 kW each
Emergency Generator Engine	Engine powering a generator for emergency electrical power for the facility nominally rated at 563 kW
Emergency Fire Pump Engine	Engine powering water pump for the fire protection system at the facility, nominally rated at 197 hp

2.2.3 Applicable Federal Emission Standards

- a. i. The affected engines are subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart IIII (Compression Ignition Engine NSPS), and related provisions in 40 CFR 60 Subpart A, General Provisions.
- ii. Pursuant to the Compression Ignition Engine NSPS, the affected generator engines must comply with the following emission standards for new nonroad engines with rated power output greater than 560 kW. The Permittee shall comply with these emission limits by installing engines certified to the emission standards for the appropriate model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications (40 CFR 60.4205(b), 40 CFR 60.4202, 40 CFR 89.112(a), and 40 CFR 89.113(a), 40 CFR 60.4211(c)).
 - A. 6.4 g/kWh for NOx plus non-methane hydrocarbons (NMHC),
 - B. 3.5 g/kWh for CO,
 - C. 0.20 g/kWh for PM, and
 - D. Exhaust opacity from the affected engines must not exceed 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent

during the peaks in either the acceleration or lugging modes.

iii. As a model year 2009 or later fire pump engine with a displacement of less than 30 liters per cylinder and a maximum engine power greater than 175 kW but less than 300 kW, the affected firewater pump engine must comply with the emission standards from Table 4 of the Compression ignition Engine NSPS, as follows. The Permittee shall comply with these emission limits by purchasing an engine certified to the emission standards for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications (40 CFR 60.4202(d)).

A. 3.0 g/kWh for NO_x plus NMHC,

B. 2.6 g/kWh for CO, and

C. 0.15 g/kWh for PM.

iv. The diesel fuel used in the affected engines shall meet the requirements of 40 CFR 80.510(b) for nonroad diesel fuel (40 CFR 60.4207(b)).

b. The affected engines are subject to the Engine NESHAP

i. For the low-load generator engines, the Permittee shall comply with all applicable requirements of the Engine NESHAP.

ii. For the fire pump engine and the emergency generator engine, as new stationary reciprocating internal combustion engines located at an area source of HAPs, the affected engines must meet the requirements of the Engine NESHAP by meeting the requirements of Compression Ignition Engine NSPS. No further requirements apply for the affected engines under the Engine NESHAP (40 CFR 63.6590(c)).

2.2.4 Operational Limits and Work Practices

a. Except as provided under 40 CFR 60.4211(g), the Permittee shall operate and maintain the affected engines according to the manufacturer's written instructions related to emissions. In addition, the Permittee may only change those emission-related settings that are permitted by the manufacturer. The Permittee must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as applicable (60.4211(a)).

b. i. Each low-load engine shall not operate more than 400 hours per year.

ii. The affected firewater pump engine and affected emergency generator engine may be operated for the purpose of

maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of the affected units in emergency situations. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in nonemergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as provided for in this provision, is prohibited. (40 CFR 60.4211(f))

2.2.5 Emissions

- a. i. The emissions of each affected low-load generator engine shall not exceed the following limits.

Pollutant	Limits	
	Pounds/Hour	Tons/Year
NOx	28.2	5.6
CO	15.4	3.1
VOM	6.7	1.4
SO ₂	5.5	1.1
PM/PM ₁₀	0.9	0.2

- ii. This permit is issued based on negligible emissions of HAPs from the affected low-load generator engines. For this purpose, emissions of any individual HAP and emissions of total HAPs from each engine shall both not exceed 0.10 tons/year.
- b. This permit is issued based on negligible emissions of NOx, CO, VOM, SO₂, PM/PM₁₀ and HAPs from the affected emergency engine generator and the affected fire pump engine. For this purpose, emissions of each pollutant other than HAPs from each engine shall not exceed 8.0 pounds/hour and 0.44 tons/year. The total emissions of HAPs from each engine shall not exceed 0.10 tons/year.

2.2.6 Operational Monitoring

- a. If an affected emergency engine does not meet the standards of the Compression Ignition Engine NSPS that are applicable to non-emergency engines, the Permittee shall operate and maintain a non-resettable hour meter on that engine, which meter shall be installed prior to initial startup of the engine. (40 CFR 60.4209(a))

2.2.7 Recordkeeping Requirements

- a.
 - i. For the affected engines, the Permittee shall comply with the applicable recordkeeping requirements of the Compression Ignition Engine NSPS.
 - ii. In particular, if an affected emergency engine does not meet the standards of the Compression Ignition Engine NSPS that are applicable to non-emergency engines in the applicable model year, the Permittee must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The Permittee must record the time of operation of such engine and the reason the engine was in operation during that time (60.4214(b)).
- b. For the affected engines, the Permittee shall keep records of the following information:
 - i. The fuel usage of each engine, on a monthly basis.
 - ii. The operating hours of each engine (hours/month and hours/year).
 - iii. The combined operation of the affected low-load generator engines (engine-hours per month and engine-hours per year).
 - iv. The total number of startups of each affected engine (number per month and number per year);
- c. The Permittee shall keep the following records related to the operation and maintenance of the affected engines:
 - i. An operating log that, at a minimum, shall include the information specified by Condition 3.2(a).
 - ii. An inspection/maintenance log, which shall include the information specified by Condition 3.2(b).
 - iii. Records for deviations, which shall include the information specified by Condition 3.3.
- d. The Permittee shall maintain the following records related to the emissions of the affected low-load generator engines:
 - i. For emissions of NO_x, CO, PM, PM₁₀ and VOM:

- A. A file that contains for both hours of operation of an engine with and without a startup: 1) The emission factor(s) used by the Permittee to determine emissions of each pollutant; and 2) The maximum hourly emission rates of each pollutant from an individual engine (pounds/hour), with supporting documentation and calculations.
 - B. Records of actual emissions of each pollutant (tons/month and tons/year), based on actual operation and the appropriate emission factors, with supporting calculations.
- ii. For emissions of SO₂, any individual HAP and total HAPs, a demonstration that the maximum annual emission emissions of each pollutant are negligible, as provided by Condition 2.2.5(a)(ii), with supporting documentation and calculations.
- e. For the affected emergency engine generator and the affected fire pump engine, the Permittee shall maintain a demonstration that the maximum annual emissions of NO_x, CO, PM, PM₁₀, VOM and total HAPs from each engine are negligible, as provided by Condition 2.2.5(b), with supporting documentation and calculations.

2.2.8 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA of deviations of the affected engines with the permit requirements with the reports required by Condition 2.1.11(c). These notifications shall include the information specified in Condition 3.4.

CONDITION 2.3: UNIT-SPECIFIC CONDITIONS FOR THE FUEL HEATERS

2.3.1 Description of Emission Unit

The affected facility will have two natural gas-fired thermal fluid heaters (the affected heaters) to heat the fuel supply for the natural gas-fired engines. Only one fuel heater will typically be operating at a time.

2.3.2 List of Emission Units and Air Pollution Control Equipment

Units	Description	Control Measures
Fuel Heaters	Two natural-gas fired heaters, each nominally rated at 3.73 mmBtu/hour	Good combustion practices

2.3.3 Non-Applicability Provisions

- a. The affected heaters are not subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc, because their rated heat input is less than 10 mmBtu/hour.
- b. The affected heaters are not subject to the NESHAP, 40 CFR 63 Subpart JJJJJJ, because they are "process heaters" located at an area source for HAPs, and not boilers as defined by 40 CFR 63.11237.

2.3.4 Operational Limits and Requirements

- a. Natural gas shall be the only fuel fired in the affected heaters.
- b. The rated heat input capacity of the each of the affected heaters shall not exceed 3.73 mmBtu/hour.
- c. The combined fuel usage in the affected heaters shall not exceed 32.0 million scf/year.

2.3.5 Emission Limits

- a. The emissions of the affected heaters shall not exceed the following limits.

Pollutant	Limits	
	Each Heater (Pounds/Hour)	Combined (Tons/Year)
NOx	0.20	0.88
CO	0.16	0.70
VOM	0.11	0.48

- b. This permit is issued based on negligible emissions of PM, PM₁₀, SO₂ and total HAPs from the affected heaters. For this purpose,

the emissions of each pollutant from each affected heater shall not exceed 0.10 pounds/hour and 0.44 tons/year.

2.3.6 Recordkeeping Requirements

- a. For the affected heaters, the Permittee shall maintain a file that contains information for the heat input capacity and design emission rates, with supporting documentation as provided by the manufacturer of the heaters.
- b. For the affected heaters, the Permittee shall maintain monthly records of the total of both units' fuel usage (mmscf) and operating hours.
- c. For the affected heaters, the Permittee shall maintain an operating log or other similar records for the heaters that include the information specified in Condition 3.2(a).
- d. For the affected heaters, the Permittee shall keep inspection, maintenance and repair logs or other similar records for the heaters that contain the information specified in Condition 3.2(b).
- e. The Permittee shall keep records for any deviations from applicable requirements involving the affected units, which records shall include the information specified by Condition 3.3. These records may be combined with other records required by this section of this permit.
- f. The Permittee shall maintain the following records related to the emissions of the affected heaters:
 - i. For emissions of NO_x, CO and VOM:
 - A file that contains: 1) The emission factor(s) used by the Permittee to determine emissions of each pollutant; and 2) The maximum hourly emission rates of each pollutant from an individual heater (pounds/hour), with supporting documentation and calculations.
 - B. Records of actual emissions of each pollutant (tons/month and tons/year), based on actual operation and the appropriate emission factors, with supporting calculations.
 - ii. For emissions of PM, PM₁₀, SO₂ and total HAPs, a demonstration that the maximum annual emission emissions of each pollutant are negligible, as provided by Condition 2.3.5(b), with supporting documentation and calculations.

2.3.7 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA of deviations of the affected heaters with the permit requirements with the reports

required by Condition 2.1.11(c). These notifications shall include the information specified in Condition 3.4.

SECTION 3: GENERAL PERMIT CONDITIONS

CONDITION 3.1: GENERAL REQUIREMENTS FOR EMISSION TESTING

- a.
 - i. Except as provided below, by Condition 3.1(a)(ii), at least 60 days prior to the actual date of 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 emissions testing that will be conducted in accordance with the procedures used for previous tests accepted by the Illinois EPA or the previous test plan submitted to and approved by the Illinois EPA, provided that the Permittee's notification for testing, as required below, contains the information specified by 35 IAC 283.220(d)(1)(A), (B) and (C).
- b.
 - i. The Permittee shall notify the Illinois EPA prior to performing emissions testing required by this permit to enable the Illinois EPA to observe the tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date, and identify the testing that will be performed. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of testing. Notwithstanding 40 CFR 60.8(d), the Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
 - ii. This notification shall also identify the parties that will be performing testing and the set or sets of operating conditions under which testing will be performed.
- c. Three copies of the Final Reports for emission tests shall be forwarded to the Illinois EPA within 30 days after the test results are compiled and finalized but not later than 90 days after the date

of testing. At a minimum, the Final Report for testing shall contain the following.

- i. General information
 - ii. A tabular summary of results which includes:
 - Process rates (e.g., gas usage rate or firing rate)
 - Measured emission rates for different pollutants tested
 - Emission factor, calculated using the average test results in the terms of the applicable limits, for example, in units of lbs pollutant emitted per mmBtu
 - Compliance demonstrated - Yes/No
 - iii. Description of test method(s) and procedures, including a description of sampling points, sampling train, analysis equipment, and test schedule;
 - iv. Detailed description of test conditions, including:
 - Pertinent process information (e.g., usage of fuel and composition.)
 - Control equipment information (i.e., monitored data and other relevant operating parameters during testing).
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
 - vi. The results of all quality control evaluations, with a copy of all qualified data.
- d. Records of the initial performance test, including operating parameters monitored during the test, shall be kept for the life of the unit. Records of subsequent tests shall be maintained for a minimum of five years.

CONDITION 3.2: GENERAL REQUIREMENTS FOR "LOGS" OR SIMILAR RECORDS

- a. Operating logs or other similar records required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:
 - i. Information identifying periods when an emission unit or group of related emission units was not in service.
 - ii. For periods when a unit or group of related units is in service and operating normally, relevant process and control system information to generally confirm normal operation.

- iii. For periods when a unit or group of related units is in service and is not operating normally, identification of each such period, with detailed information describing the operation of the unit(s), the potential consequences for additional emissions from the unit(s), the potential of any excess emissions from the affected unit(s), the actions taken to restore normal operation, and any actions taken to prevent similar events in the future.
 - iv. Other information as may be appropriate to show that the emission unit or group of related emission units is operated in accordance with good air pollution control practices.
 - b. Inspection, maintenance and repair logs or other similar information required by this permit shall, at a minimum, include the following information related to the emission units and associated control system:
 - i. Identification of equipment, with date, time, responsible employee and type of activity.
 - ii. For inspections, a description of the inspection, findings, and any recommended actions, with reason.
 - iii. For maintenance and repair activity, a description of actions taken, reason for action (e.g., preventative measure or corrective action as a result of inspection), probable cause for requiring maintenance or repair if not routine or preventative, and the condition of equipment following completion of the activity.
 - iv. Other information as may be appropriate to show that the emission unit or group of related emission units is maintained in accordance with good air pollution control practices, including prompt repair of defects that interfere with effective control of emissions.
 - c. The logs required by this permit may be kept in manual or electronic form, and may be part of a larger information database maintained by the Permittee provided that the information required to be kept in a log is readily accessible.

CONDITION 3.3: GENERAL REQUIREMENTS FOR RECORDKEEPING 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 requirements shall include at least the following information: the date, time and estimated duration of the deviation; a description of the deviation; the manner in which the deviation was identified, if not readily apparent; the probable cause for deviation, if known, including a description of any equipment malfunction or breakdown associated with the deviation; information on the magnitude of the deviation, including actual emissions or performance in terms of the applicable standard if measured or readily estimated; confirmation that standard procedures were followed or a description of any event-specific corrective actions taken; and a description of any preventative measures taken to prevent future occurrences, if appropriate.

CONDITION 3.4: GENERAL REQUIREMENTS FOR REPORTING OF DEVIATIONS

- a. The Permittee shall include the following information in records and reports for deviations:
 - i. Identity of the deviation, with date, time, duration and description.
 - ii. Describe the effect of the deviation on compliance, with an estimate of the excess emissions that accompanied the deviation, if any.
 - iii. Describe the probable cause of the deviation and any corrective actions or preventive measures taken.
- b.
 - i. Unless otherwise specified in a particular condition of this permit, if deviation(s) from requirements of this permit occurs during a reporting period, a compliance report shall be submitted no later than 45 days after the end of the reporting period. This report shall also provide a listing of all deviations for which immediate or 30-day reporting was required, but need not include copies of the previously submitted information.
 - ii. If there are no deviations during a reporting period, the Permittee shall still submit a compliance report, which report shall state that no deviations occurred during the reporting period.
- c.
 - i. For the purpose of determining whether a deviation must be reported prior to a periodic compliance report, a deviation shall be considered to continue even if operation of an emission unit is interrupted if the deviation is still present when operation of the unit is resumed.
 - ii. When this permit requires immediate notification, such notification shall be provided by telephone and followed by facsimile or e-mail transmittal of a narrative report.
- d. Upon issuance of a CAAPP permit for the affected facility, the provisions of the CAAPP permit with respect to reporting of deviations will supersede the requirements of this permit for reporting of deviations.

ATTACHMENTS

Attachment 1: Summary of the Permitted Emissions of the Affected Facility (Tons/Year)

Pollutant	Natural Gas Engines	Low-Load Engine Generators	Emergency Engine Generator	Fire Pump Engine	Fuel Heaters	Storage Tanks	Total
NOx	127.7	11.3	0.44	0.44	0.88	---	140.8
CO	224.1	6.2	0.44	0.44	0.70	---	231.9
VOM	186.7	2.8	0.44	0.44	0.48	0.1	191.0
SO ₂	6.16	2.2	0.44	0.44	0.44	---	9.68
PM/PM ₁₀	96.9	0.40	0.44	0.44	0.44	---	98.6
Any Individual HAP	6.1	0.10	0.10	0.10	0.44	---	6.9
Total HAPs	21.6	0.20	0.10	0.10	0.44	---	22.5

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.