217/782-2113

CONSTRUCTION PERMIT – NSPS- REVISED

PERMITTEE

Calumet Power, LLC
Attention: Steven Matuszak
130 East Randolph Drive, Suite 4200
Chicago, Illinois 60601

Application No: 99100023
Applicants Designation: Calumet
Subject: Gas Turbines (Power Production)
Date Issued: March 24, 2000
Location: 3200 East 98th Street, Chicago

I.D. No.: 031600GGV
Date Received: October 7, 1999

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a natural gas fired electric power plant with two gas turbines as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1a. The turbines are subject to the New Source Performance Standard (NSPS) for Stationary Gas Turbines, 40 CFR 60, Subpart A and GG. The Illinois EPA is administrating NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

b. The Permittee shall not emit into the atmosphere from any turbine any gases which contain nitrogen oxides (NO_X) in excess of the following equation, pursuant to 40 CFR 60.332 (a)(1), except as allowed by 40 CFR 60.332(f):

$$STD = 0.0075\left(\frac{14.4}{Y}\right) + F$$

where:

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

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

F = NO_X emission allowance for fuel-bound nitrogen as defined in 40 CFR 60.332 (a)(3).

c. The Permittee shall not emit into the atmosphere from any turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis, or shall not burn any fuel

which contains sulfur in excess of 0.8 percent by weight, pursuant to 40 CFR 60.333 (a) and (b).

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

2. The turbines are affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and are subject to certain control requirements and emissions monitoring requirements pursuant to 40 CFR Parts 72, 73 and 75. As affected units under the Acid Rain Program, Calumet Power, LLC must also obtain an Acid Rain Permit for operation of the turbines in accordance with 40 CFR 70.30(a)(2)(ii) and 72.32(a).

3. The turbines shall each be equipped, operated, and maintained with water injection in the combustors.

4a. The only fuel fired at the facility shall be natural gas.

b. The turbines, in total, shall not fire more than 3.25 million ft^3 per hour and 5,002 million ft^3 per year of natural gas. Compliance with the annual limit shall be determined from a running total of 12 months of data.

c.i. Hourly emissions from the turbines shall not exceed the following limits, except when ice fog is deemed a traffic hazard by the Permittee:

Pollutant	Emission Limit (lb/hr) Each	Total
Nitrogen oxides(NOx)	151.2	302.4
Carbon Monoxide(CO)	58.9	117.8
Particulate Matter$_{10}$ (PM_{10})	16.3	32.6
Volatile Organic Material (VOM)	11.3	22.6
Sulfur dioxide (SO_2)	7.2	14.4

These limits are based on the information provided in the permit application.

ii Not withstanding the above, when ambient temperature is less than 59^0F, carbon monoxide emissions shall not exceed 221.2 lb each and 442.4 lb hourly total.

d. The annual emissions from the facility (total 2 turbines) shall not exceed the following limits. Compliance with the annual limitations shall be determined from a running total of 12 months of data. For this purpose, a turbine shall be assumed to emit at the applicable limits as specified above, or the value measured with a continuous emission monitoring system.

Pollutant	(tons/year)
NO_X	233.0
CO	97.8
PM_{10}	25.3
VOM	17.4
SO_2	11.2

The above limitations are established pursuant to the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21,and the state rules for Major Stationary Source Construction and Modification, 35 IAC, Part 203. These limitations ensure that the construction and operation of the turbines do not constitute a new major source. For this purpose, the proposed Calumet Power Plant is considered a separate source from the adjacent Calumet Peaking Station, which is now owned and operated by Mission Energy (Midwest Generation LLC).

5. The emission of smoke or other particulate matter from a turbine shall not have an opacity greater than 30 percent, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 201.149, 212.123(b) or 212.124.

6a. This permit is issued based on this source not being a participating source in the Emissions Reduction Market System (ERMS), 35 IAC Part 205, pursuant to 35 IAC 205.200. This is based on the source's actual VOM emissions during the seasonal allotment period from May 1 through September 30 of each year being less than 10 tons.

b. The Permittee shall maintain records to allow the confirmation of actual VOM emissions from the source in tons during each seasonal allotment period, which shall be compiled by November 30 of each year.

c. In the event that the source's VOM emissions during the seasonal allotment period equal or exceed 10 tons, the source shall become a participating source in the ERMS and beginning with the following seasonal allotment period, shall comply with 35 IAC Part 205, by holding allotment trading units (ATUs) for its VOM emissions during each seasonal allotment period.

7a. Under this permit, each turbine may be operated for a period of up to 180 days from initial startup to allow for equipment shakedown and emissions testing as required. This period may be extended by the Illinois EPA upon request of the Permittee if additional time is needed to complete startup or perform emission testing.

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

8. The Permittee shall furnish the Illinois EPA with written notification as follows:

a. The date construction of the turbines commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1).

b. The actual date of initial startup of the turbines, postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3).

9. Each turbine shall each be equipped, operated, and maintained with a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired, pursuant to 40 CFR 60.334 (a).

10.a The Permittee shall monitor sulfur content of the gas fired in the turbines pursuant to the applicable provisions in 40 CFR Part 75, Appendix D, Section 2.3 for pipeline natural gas combustion.

b Monitoring of fuel nitrogen content is not required as natural gas is the only fuel fired in the turbines.

c The above provisions establish a custom schedule for determination of fuel sulfur and nitrogen content in accordance with 40 CFR 60.334 (b)(2) and USEPA's Custom Fuel Monitoring Document dated August 14, 1987.

11a. This permit is issued based on the turbines being gas-fired peaking units, as specified in 40 CFR Part 75, so that continuous emission monitoring is not required for NO_X. To maintain this status, the three year rolling average annual capacity factor of a turbine shall not be greater than 10 percent, and the highest annual capacity factor shall not be greater than 20 percent in any one of the three averaging years.

b. Should the operation of a turbine exceed the above requirements relating to the definition of a gas-fired peaking unit in 40 CFR 75, the Permittee shall install the appropriate Continuous Monitoring System(s) on the turbine by December 31 of the following calendar year, as defined in 40 CFR 75, in order to remain in compliance with the provisions of the Acid Rain Program.

12a. Within 60 days after achieving the maximum production rate at which the natural gas fired stationary gas turbines will be operated, but not later than 180 days after initial startup, the nitrogen oxides(NO_X), carbon monoxide(CO), volatile organic material(VOM)and oxygen(O_2) concentrations in the exhaust of the turbines shall be measured by an approved independent testing service to determine compliance with the emission limits in Condition 1 and 4 in the following manner:

i. The NO_X emission rate shall be computed for each run using the equation in 40 CFR 60.335(c)(1).

ii. Method 20 of 40 CFR 60, Appendix A, shall be used to determine the NO_X and O_2 concentrations. The span values shall be 300 ppm of NO_X and 21 percent O_2, pursuant to 40 CFR 60.335(c)(3).

iii. The NO_X emissions shall be determined at four points in the normal operating range of the turbine, including the minimum point in the range and peak load, pursuant to 40 CFR 60.335(c)(2).

iv. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer, pursuant to 40 CFR 60.335(c)(2).

v. Method 10 and 18 or 25, respectively, of 40 CFR 60, Appendix A, shall be used to determine CO and VOM concentrations at base turbine load (100% load) and minimum turbine load.

vi. The test at each load shall consist of three separate runs each at least 60 minutes in duration. Compliance shall be determined from the average of the runs provided that the Illinois EPA may accept the arithmetic mean of two of the runs in circumstances described in 40 CFR 60.8(f).

b. The Permittee shall submit a test plan to the Illinois EPA at least 60 days prior to testing. As part of this plan, the Permittee may propose for approval by the Illinois EPA a strategy for performing emission testing of selected turbines provided that all turbines are fitted for testing; the identity of the engines to be tested is determined immediately before testing, by the Illinois EPA or otherwise randomly. The Permittee may also propose a strategy for testing across the normal load range of the turbines.

c. 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 thirty (30) days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. 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 the testing.

d. The Final Report for these tests shall be submitted to the Illinois EPA within 60 days after the date of the tests. The Final Report shall include as a minimum:

i. A summary of results.

ii. General information.

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

iv. Detailed description of test conditions, including:

A. Fuel consumption (standard ft^3);

B. Firing rate (million Btu/hr); and

C. Turbine/Generator output rate (MW);

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

13a. The Permittee shall maintain records of the following items:

i. The sulfur contents of the fuel used to fire the turbines as determined in accordance with Condition 10;

ii. Operating hours and fuel consumption for each turbine, on a daily basis;

iii. Identification of any period when a turbine operated when the ambient temperature was less than 59^0F.

iv. Fuel consumption and ratio of water to fuel being fired for each turbine in accordance with Condition 9;

b. The Permittee shall keep a maintenance/repair log for the water injection system on each turbine.

c. The Permittee shall maintain the following records on at least a quarterly basis:

i. Heat content of the natural gas (Btu/ft^3) being fired during the quarter, with supporting documentation;

ii. Fuel consumption and operating hours for each turbine for each month since the previous record.

iii. The annual emissions of NO_X, SO_2, PM, VOM and CO for each month since the previous record with supporting calculations; and

d. The Permittee shall maintain records that identify:

i. Any periods during which a continuous monitoring system was not operational, with explanation.

ii. Any 1-hour period when a turbine was in operation during which its average water to fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined by test to be necessary to comply with requirements for NO_X emissions, with the average water-to-fuel ratio, average fuel consumption, ambient conditions and turbine load.

iii. Any period when a turbine was in operation during which ice fog was deemed to be a traffic hazard, the ambient conditions existing during the periods, the date and time the water injection system was deactivated, and the date and time the system was reactivated.

iv. Any day in which emission exceeded an applicable standard or limit.

14. These records required by this permit shall be retained for three years and shall be available for inspection and copying by the Illinois EPA.

15a. Pursuant to 40 CFR 60.7(c) and 60.334(c), a report shall be submitted by the Permittee to the Illinois EPA on a quarterly basis no later than 30 days after the end of the calendar quarter. This report shall contain information on any one-hour period when the average water to fuel ratio falls below the ratio needed to show compliance. For such periods, the report shall include the actual water to fuel ratio, average fuel consumption, ambient conditions and turbine load. This report shall also include any periods when a turbine operated without water injection because ice fog was deemed a traffic hazard.

b. If there is any other exceedance of the requirements of Conditions 1 through 4 of this permit, as determined by the records required by this permit or by other means, the Permittee shall submit a report within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

16. Two copies of required reports and notifications concerning equipment operation or repairs, performance testing, or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276
Telephone 217/782-5811 Facsimile 217/782-6348

and one copy shall be sent to the Illinois EPA's regional office at the following address, unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control – Regional Office
1701 South 1st Avenue, 12th Floor
Maywood, IL 60153
Telephone 708/338-7969 Facsimile 708/338-7930

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

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

DES:dcalumet.pmtfev1.3.27.

CC: Region 1