

217/782-2113

CONSTRUCTION PERMIT - NSPS

PERMITTEE

PPL Global, LLC  
Attention: James B. Kiefer  
11350 Random Hills Road  
Fairfax, Virginia 22030

Application No: 00080078

I.D. No.: 197899ABC

Applicants Designation: UNIV PARK PROJ

Date Received: August 17, 2000

Subject: Gas Turbine Peaking Power Facility

Date Issued: DRAFT

Location: Dralle Road, East of Interstate 57, University Park

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission unit(s) and/or air pollution control equipment consisting of a natural gas fired peaker power plant with a nominal capacity of 530 MW using 12 simple cycle gas turbines equipped with water-injection burners, selective catalytic reduction (SCR) and catalytic oxidation systems, and associated ancillary equipment 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<sub>x</sub>) in excess of the applicable standards pursuant to 40 CFR 60.332 (a)(1).
- c. The Permittee shall not emit into the atmosphere from any turbine any gases which contain sulfur dioxide (SO<sub>2</sub>) 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 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.
- 3a. Each turbine shall be equipped, operated, and maintained with water-injected burners and a selective catalytic reduction (SCR) system to control NO<sub>x</sub> emissions and a catalytic oxidation system to control emissions of carbon monoxide (CO) and volatile organic material (VOM).

- b. i. The only fuel fired in the turbines shall be natural gas.
- ii. The turbines, in total, shall not fire more than 17,350 million standard cubic feet of natural gas per year. Compliance with this limitation shall be determined from a running total of 12 months of data. Following completion of emission testing in accordance with Condition 13, the Illinois EPA may at the request of the Permittee based on the results of emissions testing, revise the limitation on usage of natural gas in conjunction with appropriate revisions to the applicable short-term emission limits for the turbines.
- c. Hourly emissions from each turbine shall not exceed the limits in Table 1, except during startup, malfunction or breakdown, and shutdown as addressed by Condition 6. These limits are established based on the information provided in the permit application.
- d. i. The annual emissions from the turbines shall not exceed the limits in Table 2. Compliance with these limits shall be determined from a running total of 12 months of data.
- ii. For purposes of determining compliance with the above limits:
  - A. Emissions of NO<sub>x</sub> shall be determined by Continuous Emission Monitoring Systems (CEMS) in accordance with Condition 12(a);
  - B. Emissions of CO, VOM and PM/PM<sub>10</sub>, shall be determined from emission factors developed from testing in accordance with Condition 13, unless emission monitoring is performed for a pollutant in which case it shall be used to determine emissions. In addition, for CO and VOM, unless an alternative factor is established or emissions monitoring is performed, emissions of CO and VOM during an hour that includes a startup shall be presumed to 120 percent of the limitations in Condition 3(c). For example, VOM emissions during an hour with a startup shall be assumed to be 0.72 pounds rather than 0.6 pounds as allowed for normal operation. These presumptions are based on data in the application describing emissions during startup of a turbine and the subsequent shutdown. Any alternative factor for emissions during startup of a turbine shall be based on representative emission testing conducted with USEPA Reference Test Methods. (Refer to Condition 13.)
  - C. Emissions of SO<sub>2</sub> shall be determined from usage of fuel and its sulfur content as determined in accordance with Condition 11;
  - D. The establishment of the above procedures for determining compliance with the annual emission limits shall not shield the Permittee from responsibility for all emissions from the source, including emissions during startup or upset conditions, as other credible information may demonstrate that the above procedures do not adequately account for the actual emissions of the source.

- 4a. The diesel engine shall not operate for more than 500 hours per year. Compliance with this limit shall be determined from a running total of 12 months of data.
  - b. The emissions of the diesel engine shall not exceed the limitations in Table 3.
5. Annual emissions of hazardous air pollutants from the source shall be less than 10 tons of any hazardous pollutant and less than 25 tons in aggregate for any combination of hazardous air pollutants. Compliance with these limits is indirectly addressed by limits on emissions of criteria pollutants from the emission units at the source.

The above limits in Condition 3, 4 and 5 are established to address applicability of 40 CFR 52.21, the federal rules for Prevention of Significant Deterioration of Air Quality (PSD) and Modifications for Hazardous Air Pollutants and the state rules for Major Stationary Source Construction and Modification (MSSCAM), 35 IAC, Part 203. These limitations ensure that the construction and operation of the facility does not constitute a new major source for purposes of these rules.

- 6a. Each turbine shall be operated in a manner consistent with good air pollution control practice to minimize emissions during startup and shutdown including the following. These practices shall be reviewed at least annually and revised as needed consistent with good air pollution control practice based on actual operating experience and performance of the turbines.
- i. The Permittee shall manage the operation of the turbines to minimize multiple startups of a turbine in a single day, unless startup is tripped off, and to provide adequate time to follow the procedures for normal startup of the turbines.
  - ii. Except during startup or shutdown of a turbine or for the purpose of emission testing, after a turbine begins gainful operation, the Permittee shall minimize operation of turbines below 90 percent load and shall not operate turbines below the lowest load at which emission testing conducted in accordance with Condition 13 has demonstrated compliance with the applicable hourly emission limits in Table 1; (See Conditions 3(c) and 13(b)(iii))
  - iii. The Permittee shall operate in accordance with the manufacturer's written instructions or other written instructions developed and maintained by the Permittee that shall include at a minimum the following measures:

Initiation of burner water and SCR reagent injection only after the turbine operating conditions are appropriate

Review of operating parameters of the unit during startup or shutdown as necessary for proper turbine operation with appropriate adjustments to reduce emissions;

Implementation of inspection and repair procedures for a turbine prior to attempting startup following repeated trips.

- iv. The Permittee shall maintain the turbines and associated control systems in accordance with written procedures developed and maintained by them.
  
- b. Upon malfunction or breakdown of the SCR system that will result in NO<sub>x</sub> emissions that are above 8.3 pounds per hour (the limit pursuant to Condition 3(c)), the Permittee shall as soon as practicable repair the SCR system so as to meet this limit or remove the turbine from service:
  - i. Consistent with the above, if the NO<sub>x</sub> emissions do not exceed 41.5 pounds per hour and the Permittee has properly maintained the SCR system for the turbine, the Permittee shall begin shutdown of the turbine within 1 hour (60 minutes), unless such shutdown could endanger personnel or equipment or threaten the stability of the regional electrical power system, in which case shutdown of the turbine shall be undertaken when it is apparent that shutdown can be safely undertaken.
  
  - ii. Notwithstanding the above, if the Permittee determines that the CEMS is inaccurately reporting elevated NO<sub>x</sub> emissions, the Permittee may continue operation provided the Permittee records the information it is relying upon to conclude that NO<sub>x</sub> emissions meet applicable limitations and the CEMS is reporting inaccurate data and the Permittee takes prompt action to resolve the accuracy of the CEMS.
  
  - iii. For this purpose, the Permittee shall be considered to be properly maintaining the SCR system if malfunctions and breakdowns are sudden, infrequent, not caused by poor maintenance or careless operation, and in general are not reasonably preventable. Compliance with these criteria shall be presumed if the SCR system has been available for 90 and 95 percent of the operating time of the turbine in the previous month and year, respectively.
  
- 7a. 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, the Permittee 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).
  
- b.
  - i. The turbines would qualify as Electrical Generating Units (EGU) for purposes of Part 217, Subpart W. As EGU, when this program becomes effective, the Permittee would have to hold NO<sub>x</sub> allowances for the NO<sub>x</sub> emissions of the turbines during each seasonal control period.
  
  - ii. For purposes of this program, the Permittee may elect low-emitter status for the turbines. If the Permittee elects such status for a turbine, rather than holding NO<sub>x</sub> allowance, the following requirements shall apply to the turbines in addition to other applicable requirements specified by this permit:

- A. The NOx emissions of the turbine shall not exceed 25 tons during the control period in each year;
  - B. The operating hours of the turbine shall not exceed 3000 hours during each control period or such federally enforceable limit on operating hours established in a future permit for the turbine. This limit is established by dividing 25 tons of NOx by the turbine's maximum hourly NOx emission rate during the control period as set by the permit, e.g., 8.3 and 41.5 pounds NOx per hour, with and without the SCR system, respectively, as required by this permit. For purposes of determining compliance with limit, any partial hour of operation shall be treated as a whole hour of operation.
  - C. The turbine's hours of operation, as compared to the above limit, heat input and fuel use during the preceding control period shall be reported to the Illinois EPA by the Permittee by November 1 of each year.
- c. i. This permit is issued based on the source not being a participating source or new participating source under the Emission Reduction Market System (ERMS), 35 IAC Part 205, because its VOM emissions during each seasonal allotment period are less than 10 tons. This reflects an expectation that actual VOM emissions will be much less than allowed by Condition 3(f).
- ii. The Permittee shall become subject to the ERMS as a new participating source if the VOM emissions from the source are 10 tons or greater in any seasonal allotment period. In such case, the Permittee shall hold Allotment Trading Units (ATU) for the source's seasonal VOM emissions in accordance with 35 IAC 205.150(c)(1) and 205.720, beginning with the following seasonal allotment period. For this purpose, the source's VOM emissions shall be determined by the methods and procedures specified in this permit, as may be further enhanced or revised by the Clean Air Act Permit Program (CAAPP) permit for the source.
- iii. The Permittee shall promptly notify the Illinois EPA if the source's VOM emissions are 10 tons or greater in a season [see also Condition 12(e)]. By December 31 of the year in which seasonal VOM emissions are first 10 tons or greater, the Permittee shall submit a request for a revision to this construction permit or the source's CAAPP permit to address applicable requirements of the ERMS. This request shall include a certification acknowledging that it will be required to hold ATUs by the end of each reconciliation period and an explanation of the means by which it plans to obtain ATUs. [35 IAC 205.310(a) and (g)]
- 8a. 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 shakedown or perform emission testing.

- b. Upon successful completion of emission testing demonstrating compliance with applicable limitations, the Permittee may continue to operate the turbines as allowed by Section 39.5 (5) of the Environmental Protection Act.
  - c. This condition supersedes standard Condition 6.
9. 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); and
  - c. The actual date that each turbine begins gainful operation, with electricity produced by the turbine available for sale at more than the minimum or avoided cost of the purchaser, postmarked within 15 days after such date.
- 10a. The Permittee shall equip, operate, and maintain each turbine with a continuous monitoring system to monitor and record the fuel consumption, pursuant to 40 CFR 60.334(a).
- b. The Permittee shall equip, operate, and maintain each turbine with a continuous monitoring system to monitor and record the ratio of water injection into the burner to the fuel being fired in the turbine pursuant to 40 CFR 60.334(a), unless alternative monitoring requirements are approved by USEPA pursuant to 40 CFR 60.13(i).
  - c. The Permittee shall equip, operate, and maintain each turbine with instrumentation to measure relevant operating parameters for the turbines and associated control systems to enable effective control of emissions, including parameters such as ambient temperature, inlet air temperature, turbine, firing rate, SCR reagent injection rate, and exhaust gas temperature at the SCR catalyst.
- 11a. 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, 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 turbines in accordance with 40 CFR 60.334(b) unless alternative provisions are approved by USEPA in accordance with 40 CFR 60.334(b), in which case the Permittee shall comply with such alternative provisions.
- 12a. The Permittee shall install, operate, and maintain a Continuous Emissions Monitoring System (CEMS) on each turbine to measure emissions of NO<sub>x</sub> and demonstrate compliance with the NO<sub>x</sub> limits of this permit. These CEMS shall comply with 40 CFR Part 60 Appendix B Performance Specification 4 and shall be operated and maintained in accordance with applicable provisions of the federal Acid Rain program for continuous emissions monitoring for NO<sub>x</sub>, 40 CFR Part 75. These NO<sub>x</sub> CEMS shall be operational prior to conducting the emission testing required by Condition 13(a)(i).

- b.
  - i. The Permittee shall install, operate and maintain CO CEMS on each turbine to measure emissions of CO and demonstrate compliance with the CO limits of this permit. These CEMS shall comply with 40 CFR Part 60 Appendix B Performance Specification 4 and shall be operated and maintained in accordance with 40 CFR 60.13(d) and (e) at all times that the associated turbines are in operation.
  - ii. In conjunction with the operation of these CO CEMS, the Permittee shall install, operate and maintain a system to monitor ambient temperature at the source. The data measured by this system shall be compiled with the data recorded by the CO CEMS.
  - iii. Notwithstanding the above, in the Clean Air Act Permit Program (CAAPP) permit for the source, the Illinois EPA may relax or remove requirements for CO CEMS if the Permittee demonstrates, through the monitoring that has been performed that the turbines readily comply with applicable emission limits for CO across the normal load and temperature range at which the turbines will operate.
- c. For purposes of determining compliance with the hourly emission limits in Condition 3((c), data from these CEMS shall be applied as a three-hour block average. For periods when a turbine operates for less than three-hours under a single set of operating conditions, so that compliance with hourly emission limits may not be directly determined with the CEMS, the data from these CEMS may provide evidence in conjunction with other operating information for the turbines of compliance or noncompliance with the applicable hourly emission limits.
- 13a. The nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic material (VOM), particulate matter (PM), and oxygen (O<sub>2</sub>) concentrations in the exhaust of the turbines and the opacity of exhaust shall be measured by an independent testing service approved by the Illinois EPA as follows to determine compliance with the emissions limits in Condition 1 and 3:
  - i. Within 60 days after operating a turbine at the greatest load at which it will normally be operated but not later than 180 days after its initial startup;
  - ii. Within 75 days after a written request from the Illinois EPA, for such pollutants listed above as specified by the request; and
  - iii. Any extension to these time periods that may be provided by the Illinois EPA at its discretion shall not alter the Permittee's obligation to perform emission testing for purpose of the NSPS in a timely manner as specified by 40 CFR 60.8.
- b. The following methods and procedures shall be used for testing of emissions:
  - i. USEPA Reference Test Methods shall be used for testing, including the following methods:

Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10

Volatile Organic Material	USEPA Method 18 or 25A
Nitrogen Oxides	USEPA Method 20
Particulate Matter	USEPA Method 5
Particulate Matter <sub>10</sub>	USEPA Method 201 or 201A (40 CFR 51, Appendix M)

- ii. Measurements for NO<sub>x</sub> shall be conducted in accordance with 40 CFR 60.335, as specified below, unless alternative testing procedures are approved by USEPA pursuant to 40 CFR 60.8(b):
  - A. The NO<sub>x</sub> emissions shall be computed for each run using the equation in 40 CFR 60.335(c)(1).
  - B. The span values for Method 20 shall be 300 ppm of NO<sub>x</sub> and 21 percent O<sub>2</sub>, pursuant to 40 CFR 60.335(c)(3).
  - C. The NO<sub>x</sub> emissions shall be determined at four points in the normal operating range of the gas turbines, including the minimum point in the range and peak load, pursuant to 40 CFR 60.335(c)(2).
  - D. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer, pursuant to 40 CFR 60.335(c)(2).
- iii. Measurements for other pollutants shall be conducted as follows:
  - A. CO, PM and VOM concentrations shall be measured at peak, intermediate and minimum gas turbine load, provided however, that if the minimum gas turbine load is 90 percent or more, testing at an intermediate load is not required.
  - B. PM emissions measured by USEPA Method 5, including back half condensable particulate, may be provided as an alternative to measurement of PM<sub>10</sub> emissions using USEPA Method 201 or 201A.
  - C. Measurements for organic hazardous air pollutants in the VOM (e.g., formaldehyde, toluene, acetaldehyde, and acrolein) shall be provided if VOM emissions are measured by Method 18. (See also Condition 13(c)(iii).)
  - D. Measurements shall also be performed for VOM emissions during startup of a turbine, in accordance with a plan approved by the Illinois EPA. For purposes of these measurements, as approved by the Illinois EPA, the Permittee may adapt USEPA Reference Test Methods as necessary to address the short duration and transient conditions of startups.
- c. At least 60 days prior to the actual date of testing, 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 as a minimum:

- i. The person(s) who will be performing sampling and analysis and their experience with similar tests;
  - ii. The specific conditions under which testing shall be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for a turbine will be tracked and recorded;
  - iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations; the test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods; and identification of any organic hazardous air pollutants that will be measured. As part of this plan, the Permittee may set forth a strategy for performing emission testing of selected turbines provided that all turbines are fitted for testing; the identity of the turbines to be tested is determined immediately before testing, by the Illinois EPA or otherwise randomly. The Permittee may also propose a plan for testing across the normal operating range of the turbines; and
  - iv. The proposed plans for testing startup emissions as required by Condition 13(b)(iii)(D), including the number of startups for which measurements will be performed; the procedures that will be followed for startup and subsequent operation of the turbine; the approach that will be generally followed to assure that measurements can be conducted for and will be representative of the startup period; any proposed adaptations to reference test methods; and any other significant considerations for testing of emissions during startup.
- d. 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 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five 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.
- e. Three copies of the final reports for emission tests shall be forwarded to the Compliance Section in Springfield within 30 days after the test results are compiled and finalized. The final report from testing shall contain a minimum:
- i. General information, e.g., date of testing and names of test personnel;
  - ii. A summary of results;
  - 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<sup>3</sup>) and firing rate (million Btu/hr);
  - B. Ambient temperature (°F) and water usage for inlet air cooling (gallons/hour);
  - C. Electrical output (MW);
  - D. Burner water injection rate (lb water/lb fuel);
  - E. Exhaust temperature of the SCR catalyst bed and SCR reagent injection rate; and
- v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- 14a. The Permittee shall maintain records of the following items:
- i. Heat content of the natural gas (Btu/ft<sup>3</sup>) being fired, with supporting documentation, on a quarterly basis;
  - ii. The sulfur content of the fuel used to fire the turbines as determined in accordance with Condition 10
  - iii. Fuel consumption and ratio of water injection into the burner to fuel (for each turbine) as monitored in accordance with Condition 11;
  - iv. A copy of the Final Report(s) for emission testing conducted pursuant to Condition 13;
  - v. Copies of opacity determinations taken for the source by qualified observer(s) using USEPA Method 9.
- b. The Permittee shall maintain the following operating records for the source:
- i. Operating logs for each turbine, which at a minimum shall include daily information for operating hours and fuel consumption and periods of time when inlet air-cooling is used;
  - ii. A maintenance and repair log for each turbine and its associated control systems with dates and nature of activities performed.
  - vi. Fuel consumption, operating hours and number of startups for each turbine, compiled on at least a monthly basis;
  - vii. Consumption of SCR reagent, as determined from inventory record, compiled on at least a monthly basis;
  - viii. Operating hours of the diesel engine, compiled on at least a monthly basis.

- c. The Permittee shall maintain the following detailed records related to startup and shutdown of the turbines:
  - i. The following information for each startup of the turbines:
    - A. Date and time of startup;
    - B. Whether operating personnel for the turbines or air environmental staff are on site during startup; and
    - C. A description of the startup, if written operating procedures are not followed during the startup or significant operating problems occur during the startup, including detailed explanation.
  - ii. The following information for each shutdown of a turbine:
    - A. Date and time of shutdown; and
    - B. A description of the shutdown, if written operating procedures are not followed during the shutdown or significant operating problems occur during the shutdown, including detailed explanation.
- d. The Permittee shall maintain detailed records related to continued operation of a turbine with elevated or above normal emissions due to malfunction or breakdown, including the following:
  - i. The following detailed information for each period of elevated NOx emissions accompanying malfunction or breakdown of the SCR system:
    - A. Date, time and duration of elevated NOx emissions, i.e., emissions in excess of 8.3 pounds per hour;
    - B. Identification of the affected turbine, the NOx emission rate, the operating condition of the turbine, and possible causes for elevated NOx emissions, e.g., interruption or reduction in SCR reagent flow;
    - C. A description of corrective actions taken by the Permittee to return NOx emission to no more than 8.3 pounds per hour;
    - D. If corrective actions did not promptly return NOx emissions to acceptable 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 do so, with supporting documentation;
    - E. 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.
  - ii. The following summary information for periods of elevated NOx emissions accompanying malfunction or breakdown of the SCR system for each month in which a turbine operates:

- A. Hours of operation for each turbine, excluding startup and shutdown (hours/month, hours/year);
  - B. Hours of elevated NO<sub>x</sub> emissions for each turbine, excluding startup and shutdown (hours/month, hours/year);
  - C. Whether the SCR system was available for 90 and 95 percent of the operating time of the turbine in the previous month and year, respectively;
  - D. If the above criteria are not met, an explanation whether the SCR system was properly maintained.
- iii. 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 turbine, a description of the observed opacity, the operating condition of the turbine, and possible causes for above normal opacity, e.g., excess natural gas pressure or low natural gas temperature;
  - D. Whether exceedances of Condition 2 [30 percent opacity] may have occurred, including any Method 9 readings taken by a qualified observer;
  - E. A description of corrective actions taken by the Permittee to restore normal opacity levels;
  - F. If corrective actions did not promptly restore acceptable opacity levels, the time that the Permittee initiated shutdown of the turbine and, if not immediate, a description of the circumstances that made immediate shutdown unsound and a demonstration that shutdown was deferred only until it became safe to so, with supporting documentation;
  - 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.
- e. The Permittee shall maintain the following records related to emissions:
- i. Other data, not addressed above, used or relied upon by the Permittee to determine emissions;
  - ii. Daily emissions of NO<sub>x</sub>, CO, VOM, PM and SO<sub>2</sub> from each turbine determined in accordance with Condition 3(d)(ii), i.e., NO<sub>x</sub> emissions based on CEM data; CO emissions based on CEM data or operating data and emission factors developed from emission testing; VOM and PM emissions calculated from operating data and factors developed from emission testing; and SO<sub>2</sub> emissions

determined in accordance with 40 CFR Part 75, i.e., by usage of fuel and analysis of fuel sulfur content;

- iii. For pollutants for which continuous emission monitoring is performed, the emissions of the pollutant from each turbine recorded hourly (in lb/mmBtu and lb or ton) by combining the pollutant concentration (in ppm) and diluent concentration (in percent O<sub>2</sub> or CO<sub>2</sub>) measurements according to the procedures in 40 CFR 75 Appendix F;
  - iv. Total daily, monthly and annual emissions of NO<sub>x</sub>, CO, VOM, PM and SO<sub>2</sub> from the turbines, which shall be compiled on at least a monthly basis;
  - v. Monthly and annual emissions of NO<sub>x</sub>, CO, VOM, PM and SO<sub>2</sub> from the diesel engine and other ancillary equipment, with supporting calculations, which shall be compiled on at least a monthly basis;
  - vi. The annual emissions of NO<sub>x</sub>, SO<sub>2</sub>, PM, VOM and CO from the source, compiled on at least a monthly basis with supporting calculations.
  - vii. The seasonal emissions of VOM (May through September) from the source.
- 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;
  - iii. Each day in which a turbine did not comply with other applicable requirements.
- g. The Permittee shall maintain records documenting annual review of its operating procedures (see Condition 6).
15. 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.
- 16a. The Permittee shall comply with applicable reporting requirements of the NSPS, 40 CFR 60.7(b), for the continuous monitoring systems required by Condition 12(a) and (b).
- b. 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, as addressed by Table 1B; the total number of startups; and the total fuel consumption during the preceding calendar year.

- c. The Permittee shall comply with applicable reporting requirements under the Acid Rain Program, with a single copy of such report sent to Illinois EPA upon request. This copy shall be sent to the Division of Air Pollution Control, Compliance Section.
- 17a. The Permittee shall submit an exceedance report to the Illinois EPA if there is any exceedance of the requirements of Conditions 1 through 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<sub>x</sub> emission limits shall be reported with the quarterly report required by the federal NSPS and Acid Rain Program;
  - iv. Any other exceedance of applicable requirements shall be reported within 30 days of the event.
- b. The Permittee shall submit a malfunction/breakdown report to the Illinois EPA for each occurrence of elevated emissions from a turbine, as addressed by the records required by Condition 14(d), when corrective actions did not promptly restore acceptable emission levels and the shutdown of the turbine 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.
- 18a. If the emission testing required by Condition 13(a)(i) is not performed within 45 days of beginning gainful operation of a turbine, the Permittee shall immediately submit a report to the Illinois EPA summarizing CO and VOM (or hydrocarbon) emissions of the turbines as determined by diagnostic measurements, e.g., combustion gas analyzers, during shakedown of the turbines.
- b. The Permittee shall notify the Illinois EPA within 10 days if CO, NO<sub>x</sub> or PM<sub>10</sub> emissions of the facility, in total, go above 225, 225 or 150 tons/year, as calculated following condition 14(e)(vi). This notification shall explain whether this appears to be due to unusually high demand for power or represents levels of demand that may be expected to continue in the future.
  - c. The Permittee shall notify the Illinois EPA within 10 days if the diesel engine operates for more than 325 hours in a year. The Permittee shall measure the emissions of NO<sub>x</sub>, CO and VOM from the diesel engine using appropriate USEPA Reference Methods and the procedures set forth in Condition 13e(c), (d), and (e) within 90 days of such date.

19. 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      Fax: 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  
9511 West Harrison  
DesPlaines, Illinois 60016

Telephone: 847/294-4000      Fax: 847/294-4018

- 20a. This Permit for the above referenced project does not relieve the Permittee from the responsibility to comply with all Local, State and Federal Regulations which 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, to minimize fugitive dust and prevent an air pollution nuisance from fugitive dust, as prohibited by 35 IAC 201.141.

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

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

DES:MNP

CC: Region 1

PPL Global, University Park  
 ID No.: 197899ABC

Table 1A

Hourly Emission Limits<sup>1</sup> for Pollutants other than Carbon Monoxide for Each Turbine

<u>Pollutant</u>	<u>Limit</u> (pound/hour)
NO <sub>x</sub>	8.3 <sup>2,3</sup>
PM/PM <sub>10</sub>	12.0
VOM	0.6
SO <sub>2</sub>	1.2

1. Limits based on vendor/manufacture data and information provided in the permit application.
2. Emissions of 8.3 pounds of NO<sub>x</sub> per hour are equivalent to achievement of an NO<sub>x</sub> emission rate of 5 ppm NO<sub>x</sub> at 15 percent O<sub>2</sub> or 0.019 pound NO<sub>x</sub> per million Btu (HHV) heat input to the turbine.
3. During malfunction or breakdown of the SCR system, as addressed by Condition 6(b), NO<sub>x</sub> emissions shall not exceed 41.5 pounds/hour.

Table 1B

Hourly Emission Limits for Carbon Monoxide for Each Turbine<sup>1</sup> (pounds/hour)

Ambient Temperature			
<u>Greater than 73 °F</u>	<u>Between 40 and 73 °F</u>	<u>Between 40 and 23 °F</u>	<u>Less than 23 °F</u>
8.0	13.8	22.3	31.7

1. Limits based on vendor/manufacture data and information provided in the permit application.

Table 2

Annual Emission Limits for Turbines<sup>1</sup>

<u>Pollutant</u>	<u>Emissions</u> (tons/year)
NO <sub>x</sub>	239.0
CO	242.5
PM/PM <sub>10</sub>	244.74
VOM	24.25
SO <sub>2</sub>	50.0

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Table 3

Emission Limits for the Diesel Engine

<u>Pollutant</u>	<u>Hourly Emissions</u> (pounds/hour)	<u>Annual Emissions</u> (tons/year)
NO <sub>x</sub>	33.6	8.4
CO	8.9	2.225
PM/PM <sub>10</sub>	1.1	.253
VOM	0.9	.225
SO <sub>2</sub>	5.3	1.325

Table 4

Annual Emission Limits for Source (tons/year)

<u>Pollutant</u>	<u>Turbines</u>	<u>Diesel Engine</u>	<u>Total</u>
NO <sub>x</sub>	239.0	8.4	247.5
CO	242.5	2.23	245.7
PM/PM <sub>10</sub>	244.74	.26	245.0
VOM	24.25	.22	24.5
SO <sub>2</sub>	50.0	1.33	51.33