

217/782-2113

CONSTRUCTION PERMIT - PSD - NSPS

PERMITTEE

Southern Illinois Power Cooperative
Attn: Mr. Richard G. Myott
11543 Lake of Egypt Road
Marion, Illinois 62959-8500

Application No.: 00070029

I.D. No.: 199856AAC

Applicant's Designation: MARION COMBUSTION TURBINES

Date Received: July 12, 2000

Subject: Gas Turbines (Power Production)

Date Issued: June 15, 2001

Location: 11543 Lake of Egypt Road, Marion

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission units and/or air pollution control equipment consisting of two simple cycle gas turbines (natural gas with distillate oil as back up) and one fuel oil storage tank, as described in the above referenced permit application and summarized in Attachment A. This Permit is granted based upon and subject to the findings and Special Conditions which follow:

In conjunction with this permit, approval is given with respect to the Prevention of Significant Deterioration of Air Quality Regulations (PSD) to construct the above referenced project, in that the Illinois Environmental Protection Agency (Illinois EPA) finds that the application fulfills all applicable requirements of 40 CFR 52.21. This approval is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 et. seq., the Federal regulations promulgated thereunder at 40 CFR 52.21 for Prevention of Significant Deterioration of Air Quality (PSD), and a Delegation of Authority agreement between the United States Environmental Protection Agency and the Illinois EPA for the administration of the PSD Program. This approval becomes effective in accordance with the provisions of 40 CFR 124.15 and may be appealed in accordance with the provisions of 40 CFR 124-19. This approval is also based upon and subject to the following findings and conditions which follow:

Findings

- 1a. Southern Illinois Power Cooperative (SIPC) has requested a permit to construct two simple cycle gas turbines for electricity generation at the existing Marion Generating Station. Each of the gas turbines will have a nominal capacity of approximately 83 MW of electricity (based on operation at an ambient temperature of 58⁰ F). The gas turbines will fire natural gas as their primary fuel and distillate oil as a backup fuel. Each gas turbine will control emissions of nitrogen oxides (NO_x) with dry low-NO_x combustors for natural gas firing and water injection for oil firing.

- b. Concurrent with this turbine project, SIPC is proposing to construct a new circulating fluidized bed boiler system that would replace three existing coal fired boilers, Units 1,2 & 3. It has also proposed to install selective catalytic system on Unit 4, the other existing boiler at the Marion Generating Station.

- c. Separate permit applications have been submitted for the new circulating fluidized bed boiler and selective catalytic reduction control system for Unit 4. However, for air quality purposes they can be considered a single project.
2. The gas turbines will be located at the existing Marion Generating Station situated in Williamson County. The area is designated attainment for all criteria air pollutants. The county has a Class II designation of Prevention of Significant Deterioration (PSD) permit review.
- 3a. The existing plant is a major source under PSD rules. The new turbines will have potential annual emissions of 11.0 tons/year of sulfur dioxide (SO₂), 119.0 tons/yr of nitrogen oxides (NO_x), 10.0 tons/yr of particulate matter, 106 tons/yr of carbon monoxide (CO), and 4.0 tons/yr of volatile organic material (VOM).
- b. SIPC has submitted a PSD netting demonstration for all of the proposed projects together. The netting demonstration shows that the proposed facilities will result in a significant increase in emissions for only one regulated PSD pollutant, CO, as shown in Attachment B. All other regulated PSD pollutants will experience either a net decrease or an insignificant net increase in emissions. In particular, SIPC's other projects will result in a substantial decrease in NO_x and SO₂ emissions. Therefore, the gas turbine project is subject to PSD review for only CO and only provisions of this permit that relate to CO emissions are considered part of the PSD approval.
4. The air quality analysis submitted by SIPC and reviewed by the Illinois EPA shows that the proposed projects will not cause a violation of the ambient air quality standards for CO.
5. After reviewing the materials submitted by SIPC, the Illinois EPA has determined that the proposed gas turbine project will comply with (i) applicable state emission standards, (ii) comply with applicable federal emission standards, (iii) comply with applicable Illinois Air Pollution Board Regulations and federal PSD regulations, 40 CFR 52.21, and (iv) utilize Best Available Control Technology (BACT) for emissions of CO.
6. The two gas turbines would be affected units under the Acid Rain Deposition Control Program pursuant to Title IV of the Clean Air Act and would be subject to certain control requirements and emission monitoring requirements pursuant to 40 CFR Parts 72, 73, and 75. As affected units under the Acid Rain Program, an Acid Rain Permit application must be submitted in accordance with the applicable requirements of 40 CFR 72.30 before commencing operation.
7. The two turbines would not be a major source of hazardous air pollutants (HAP). For this purpose, this project, which involves natural gas fired

turbines, to provide additional peaking power capacity, is considered a separate project from the proposed new circulating fluidized bed boiler, which involves a solid fuel fired boiler that replaces three existing boilers and maintains base-load power capacity.

8. A copy of the application, the project summary and a draft of this permit were placed in a location in the vicinity of the project, and the public was given notice and an opportunity to examine this material and to submit comments. A public hearing was held in the vicinity of the Marion Generating Station to allow public comment on this matter.

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

Special Conditions:

1. Standard Conditions for issuance of construction permits, attached hereto and incorporated herein by reference, shall apply to this project, unless superseded by the following Special Conditions.
- 2a.
 - i. 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.
 - ii. The Permittee shall not emit into the atmosphere from any turbine any gases which contain nitrogen oxides (NO_x) in excess of the applicable standards pursuant to 40 CFR 60.332 (a)(1), except as allowed by 40 CFR 60.332(f).
 - iii. The Permittee shall not emit into the atmosphere from any turbine any gases which contain sulfur dioxide (SO₂) 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).
 - iv. 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).
- b. The oil storage tank is subject to the New Source Performance Standard (NSPS) for storage vessels, 40 CPR 60, Subpart A and Kb.
- 3a. Each gas turbine shall be equipped, operated and maintained with dry low-NO_x combustors and water injection for controlling NO_x emissions during natural gas firing and oil firing, respectively.
- b. Each gas turbine shall utilize good combustion practices to reduce emissions of volatile organic material (VOM) and CO, which practices shall include routine maintenance and repair practices and other

periodic assessments of the combustion performance of the turbine to reasonably minimize emissions.

- 4a. The fuels fired in the turbines shall be only natural gas and distillate oil, as defined in 40 CFR 60.41c.
 - b. The annual usage of fuel by the turbines shall not exceed 3,747 million standard cubic feet per year based on 901 Btu/scf LHV. Compliance with this limit shall be determined based on a running total of 12 months of data and considering one gallon of oil equivalent to 420 standard cubic feet, based on equivalent NO_x emissions.
 - c. The sulfur content of the diesel oil shall be limited to a maximum of 0.05% by weight.
 - d. Distillate oil shall only be fired as a backup fuel, that is:
 - i. For purposes of shakedown, evaluation of operation and emission testing of emission units; and
 - ii. At other times when and to the extent that circumstances such as natural gas supply curtailment or breakdown of natural gas delivery systems make it infeasible or impractical for the Permittee to fire natural gas in one or both turbines. However, this requirement does not require that a turbine, once operating on oil, be shutdown if natural gas becomes available for the unit during a day if the unit would then be restarted with natural gas on that same day.
5. Each turbine shall be operated in a manner consistent with good air pollution control practices to minimize emissions during startup and shutdown including:
- a. The Permittee shall manage the operation of the turbines to minimize multiple startups of a turbine in a single day, unless a turbine is tripped off, and to provide adequate time to follow the procedures for normal startup of the turbines, except for requests for immediate delivery of power as would result from unexpected loss of a transmission line or other generating capacity.
 - b. Operation 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:

Review of operating parameters of the turbine during startup or shutdown as necessary to make adjustments to reduce or eliminate excess emissions.

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

- c. The Permittee shall maintain each turbine in accordance with the manufacturer's written instructions or other written procedures developed and maintained by Permittee.
 - d. These written procedures shall be reviewed at least annually and enhanced consistent with good air pollution control practice based on actual operating experience and performance of the turbines.
- 6a.
- i. Emissions from gas turbines shall not exceed the limits in Attachment A, Table 2, except during startup, shutdown, or malfunction as addressed by Condition 8. Compliance with hourly limits shall be determined on a 3-hour block average for all pollutants, consistent with testing and monitoring as required by Conditions 10,11, and 12. Compliance with the annual limits shall be determined from a running total of 12 months of data.
 - ii. In addition, emissions of carbon monoxide (CO) from any turbine shall not exceed 25 ppm by volume at 15 percent oxygen, except during startup, shutdown, or malfunction as addressed by Condition 8.
- b.
- i. Notwithstanding the annual NO_x limit in Table 2, the annual NO_x emissions of the turbines shall not exceed 39.9 tons until such time as either (1) Existing Boiler Units 1, 2 and 3 are permanently shutdown (the new circulating fluidized bed boiler begins operation) or (2) Existing Boiler Unit 4 begins operation with a Selective Catalytic Reduction (SCR) system to control its emissions of NO_x.
 - ii. The Permittee shall notify the Illinois EPA when one of the above action occurs. If the SCR begins operation first, this notification shall include a demonstration that the operation of the SCR will reduce actual annual NO_x emissions of the Unit 4 Boiler by at least 79.1 tons beyond other applicable requirements.
 - iii. For purposes of determining compliance with the above limitations:
 - A. Unless emission monitoring is performed for a pollutant, emissions during periods other than startup shall be determined from emission factors developed from testing in accordance with Condition 10 (NO_x, CO, VOM and PM/PM₁₀) and standard factors (SO₂).
 - B. Unless an alternative factor is established for the pollutant or emission monitoring is performed for the

pollutant, emissions of NO_x, CO and VOM during an hour that includes a startup shall be following emission rates

<u>Pollutant</u>	<u>Natural Gas Firing (Lb/Hr)</u>	<u>Distillate Oil Firing (Lb/Hr)</u>
NO _x	60.0	170.0
CO	76.0	67.0
VOM	2.0	6.0

These assumptions are based on data in the application describing emissions during startup of a turbine. 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 10.)

- C. Compliance with these annual limits ensures that emissions from the gas turbines and other contemporaneous projects do not constitute a major modification subject to PSD for any pollutant except CO.
7. The emission of smoke or other particulate matter from each 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.
 8. Each gas turbine shall be operated in a manner consistent with good air pollution control practice to minimize emissions during startup, malfunction, and shutdown including:
 - a. Upon malfunction of a gas turbine that will result in emissions in excess of the applicable limits in Condition 6, the Permittee shall, as soon as practicable, repair the affected turbine or remove the turbine from service so that excess emissions cease.
 - b. Consistent with the above, if the Permittee has maintained and operated the gas turbines including the water injection system 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 malfunctioning turbine within 90 minutes, unless the malfunction is expected to be repaired within 120 minutes or such shutdown could threaten the stability of the regional electrical power system. In such case, shutdown of the turbine shall be undertaken when it is apparent that repair will not be accomplished within 120 minutes or shutdown will not endanger the regional power system. In no case shall shutdown of the gas be delayed solely for the economic benefit of the Permittee.

- c. Notwithstanding the above, if the Permittee determines that the continuous emission monitoring system (CEMS), if required, is inaccurately reporting excess emissions, the Permittee may continue operation provided the Permittee records the information it is relying upon to conclude that the gas turbine is functioning properly and the CEMS is reporting inaccurate data, and the Permittee takes prompt action to resolve the accuracy of the CEMS.

Conditions 3(b), 5, 6 and 8 as applicable to emissions of CO represent the application of Best Available Control Technology for CO, as required by PSD.

- 9a. 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 reasonably needed to complete shakedown or perform emission testing.
 - b. Upon successful completion of emission testing demonstrating compliance with applicable short term 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.
- 10a.
 - 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, the Permittee shall have emissions tests for the turbines performed as follows by an approved testing service.
 - ii. The Permittee shall have emission tests performed within 45 days of a written request by the Illinois EPA. The Illinois EPA will require these tests if, based on observations by Field personnel, units are poorly maintained or operated so as to make compliance with permit limitations uncertain.
 - iii. Any extension to these time periods that may be provided at its discretion by the Illinois EPA 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.
 - i. The following USEPA methods and procedures shall be used for testing of emissions:

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3 or 3A
Moisture	USEPA Method 4
Particulate Matter	USEPA Method 5
Nitrogen Oxides	USEPA Method 20 or 7 or 7E
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10

Volatile Organic Material	USEPA Method 18 or 25A
PM ₁₀	USEPA Method 201 or 201A (40 CFR 51, Appendix M)

The Permittee may report all PM emissions measured by USEPA Method 5 as PM₁₀, including back half condensable particulate. If the Permittee reports USEPA Method 5 PM emissions as PM₁₀, testing using USEPA method 201 or 201A need not be performed.

- ii. Measurements for NO_x from the CTs 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_x 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_x and 21 percent O₂, pursuant to 40 CFR 60.335(c)(3)
 - C. The NO_x emissions shall be determined while firing both natural gas and oil at four points in the normal operating range of the CTs, 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 while firing both natural gas and oil at peak, intermediate and minimum normal operating CT load.
 - B. PM emissions measured by USEPA Method 5, including back half condensable particulate, may be provided as an alternative to measurement of PM₁₀ 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 10(c)(iii).)
 - D. Unless continuous emissions monitoring is conducted for the particular pollutant, measurements shall also be performed for emissions of NO_x, CO and VOM 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 operating parameters 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 both units are fitted for testing and the identity of the units to be tested are 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 emissions during startup of a CT as required by Condition 10(b)(iii)(D), including the number of startups for which measurements will be performed; the procedures that will be followed for startup 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 for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice, although the Illinois EPA will not accept such notifications if they interfere with the Illinois EPA's ability to observe 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. A summary of results;
 - ii. General information;
 - iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;
 - iv. Detailed description of test conditions, including:
 - A. Fuel consumption (standard ft³);
 - B. Turbine firing rate (million Btu/hr);
 - C. Turbine/Generator output rate (MWe); and
 - D. Water injection rate during backup fuel firing.
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
- 11a. The Permittee shall install, operate, and maintain monitors to measure and record fuel consumption by each turbine.
 - b. The Permittee shall install, operate, and maintain monitors on each turbine to measure and record the ratio of water to fuel when firing backup fuel.
- 12a.
 - i. To demonstrate compliance with the NO_x limits of this permit, the Permittee shall use the procedures detailed in 40 CFR Part 75 Appendix E to determine the hourly NO_x emission rate. If a unit's operations exceed the levels required to be a peaking unit as defined in 40 CFR 72.2, the Permittee shall install, and certify a Continuous Emissions Monitoring (CEM) system on the unit to measure emissions of NO_x no later than December 31 of the following calendar year.
 - ii. At least 30 days prior to installation of a CEM system, the Permittee shall submit to the Illinois EPA for review and comment a detailed monitoring plan. This plan shall describe the configuration and operation of the NO_x CEM system for the gas turbine.
- 13a. The Permittee shall monitor sulfur content of the gas and oil fired in the turbines in accordance with 40 CFR Part 75, Appendix D, Section 2.2 for oil combustion and 2.3 for natural gas combustion.

- b. The Permittee shall monitor sulfur content and nitrogen content of the fuels being fired in the gas turbine in accordance with 40 CFR 60.334(b), unless USEPA approves a custom schedule for sampling and analysis of the fuel.

14a. The Permittee shall maintain a file of the following items:

- i. The written procedures being followed by the Permittee as good combustion practices and good air pollution control practice to minimize emission in accordance with Conditions 3(b), 5 and 8;
- ii. The heat content of each of the fuel fired in the turbines (Btu/standard ft³ and Btu/gallon);
- iii. The composition of fuel as determined in accordance with Condition 13;
- iv. For the life of fuel oil storage tank, the dimensions of the tank and an analysis showing the capacity of the tank;
- v. A copy of the Final Report(s) for emission testing conducted pursuant to Condition 10.
- vi. Copies of opacity measurements by method 9 performed by or for the source by certified observers.

b. The Permittee shall maintain the following daily operating records for the CTs:

- i. The quantity of fuel consumed for each turbine (standard ft³ and/or gallons);
- ii. Total turbine-operating hours and number of startups for each turbine; and
- iii. Each period when a turbine was fired on backup fuel, with the reason(s) for use of backup fuel and supporting documentation along with water usage in the water injection control system (gal/day).

c. The Permittee shall keep inspection, maintenance, and repair logs with dates and the nature of such activities for each turbine including combustors and water injection system;

d. The Permittee shall maintain the following records related to each startup of the turbines:

- i. Date and time of startup;

- ii. Whether operating personnel for the turbines or air environmental staff are on site during startup; and
 - iii. A description of the startup, if written operating procedures are not followed during the startup or significant problems occur during the startup, including detailed explanation.
- e. The Permittee shall keep the following operating records for the turbines:
- i. Total operating hours of each turbine (hours/month, hours/year (calendar year));
 - ii. Total operating hours of each turbine operated with a water injection (hours/year (calendar year)); and
 - iii. Total operating hours of each turbine operated using backup fuel (distillate oil) (hours/year (calendar year)).
- f. The Permittee shall keep the following records with regard to emissions:
- i. Other data, not addressed above, used or relied upon by the Permittee to determine emissions;
 - ii. NO_x emissions from each turbine recorded hourly, quarterly, and annually. To demonstrate compliance with the NO_x limits of this permit, the Permittee shall use the procedures detailed in 40 CFR Part 75 Appendix E to determine the hourly NO_x emission rate, unless a CEM is installed. If a CEM is installed, then the hourly emission rate (in lb/mmBtu) will be determined by combining the NO_x concentration (in ppm) and diluent concentration (in percent O₂ or CO₂) measurements according to the procedures in 40 CFR 75 Appendix F;
 - iii. Emissions of NO_x, CO, SO₂, VOM, and PM from each turbine (ton/month) compiled at least quarterly. To demonstrate compliance with the NO_x limits of this permit, the Permittee shall use the procedures detailed in 40 CFR Part 75 Appendix E to determine the hourly NO_x emission rate, unless a CEM is installed. If a CEM is installed, then NO_x emissions shall be based on data from the CEM. All other emissions shall be calculated based on fuel consumption, relevant factors developed from emission test data and fuel composition, with supporting calculations;
 - iv. Total annual emissions of NO_x, CO, SO₂, VOM, and PM from the turbines.
- g. The Permittee shall maintain records that identify:

- i. Any periods during which a required continuous monitoring system was not operational, with explanation; and
 - ii. Any day in which emissions exceeded an applicable standard or limit.
 - h. The Permittee shall maintain records documenting annual review of its operating procedures(see condition 5).
15. All records required by this permit shall be retained on site for a period of at least 3 years and shall be readily available for inspection and copying by the Illinois EPA upon request.
- 16a. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to commencement of construction and operation of the turbines:
- i. The date construction of the turbines commenced, postmarked no later than 30 days after such date, pursuant to 40 CFR 60.7(a)(1). The notification for the turbines shall be accompanied by a description of the fuel and water augmentation capabilities of the CT's burner system;
 - ii. The anticipated date of initial startup of the turbines, postmarked not more than 60 days nor less than 30 days prior to such date, pursuant to 40 CFR 60.7(a)(2);
 - iii. The actual date of initial startup of the turbines postmarked within 15 days after such date, pursuant to 40 CFR 60.7(a)(3). This notification shall indicate whether either of the related activities that would reduce NO_x emissions have occurred and if not, when they are anticipated to occur (see Condition 6(b)).
 - iv. 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.
- b. The Permittee shall furnish the Illinois EPA with written notification as follows with respect to firing of backup fuel:
- i. Use of backup fuel in a turbine for more than 180 hours in a rolling 12 month period following completion of shakedown and emission testing; and
 - ii. Use of backup fuel in a turbine for a period of more than 6 hours, other than for purposes of shakedown, emission testing or backup fuel system evaluation.

- 17a. The Permittee shall fulfill applicable reporting requirements in the NSPS, 40 CFR 60.7(c) and 60.49b for each CT. For this purpose, the quarterly reports shall be submitted no later than 30 days after the end of the calendar quarter.
- b. If there is any exceedance of the requirements of Conditions 2 through 8 of this permit that is not addressed in the regular quarterly reports required by Condition 17(a), the Permittee shall submit a written notification to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The notification shall include a description of the exceedance, a copy of relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
- c. In conjunction with the Annual Emission Report required by 35 IAC Part 254, the Permittee shall provide the following information for the preceding calendar year:
- i. The operating hours of each turbine;
 - ii. The operating hours of each turbine with oil;
 - iii. The total number of startups of turbine; and
 - iv. The total natural gas and oil consumption of the CTs.
- d. The Permittee shall comply with applicable reporting requirements under the Acid Rain Program, with a single copy of such report sent to Illinois EPA. This copy shall be sent to the Division of Air Pollution Control, Compliance Section.
- e. If the emission testing required by Condition 10(a)(i) is not performed within 45 days of beginning gainful operation of a turbine, the Permittee shall submit a report summarizing NO_x, CO, and VOM (or hydrocarbon) emission of the turbines as determined by diagnostic measurements, e.g., combustion gas analyzers, during shutdown of the turbines.
- 18a. Any required reports and notifications concerning equipment operation, emissions testing, or a monitoring system shall be sent to the Illinois EPA at the following address unless otherwise indicated:

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

- b. A copy of all reports and notifications, as required above, except the Annual Emission Report required by 35 Ill. Adm. Code 254, shall also be sent to the Illinois EPA 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

- 19a. This permit shall become invalid if construction is not commenced within 18 months after this permit becomes effective, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable period of time. The 18 month period may be extended by the Illinois EPA upon a satisfactory showing that an extension is justified.

- b. This permit shall become invalid as applied to a particular turbine if construction is not commenced as part of commencement of construction of the facility, as addressed above or otherwise, within 18 months after this permit becomes effective, if its construction is discontinued for a period of 18 months or more, or if its construction is not completed within a reasonable period of time.
- c. For purposes of the above provisions, the definitions of "construction" and "commence" at 40 CFR 52.21 (b)(8) and (9) shall apply, which require that a source must enter into a binding agreement for on-site construction or begin actual on-site construction. (Also see the definition of "begin actual construction," 40 CFR 52.21 (b)(11))

This condition reflects provisions of the PSD rules, 40 CFR 52.21(r)(2)
This condition supersedes Standard Condition 1.

- 20. The approval for the above referenced project does not relieve the Permittee of 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.

Please note that additional rules addressing NO_x emissions from these turbines have been adopted by the Illinois Pollution Control Board in response to USEPA's NO_x SIP call" and the development of Illinois' plans for attainment of the ozone air quality standard in the Chicago and Metro-East ozone nonattainment areas. Refer to 35 IAC Part 217, Subpart W, NO_x Trading Program for Electrical Generating Units.

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:SRS:jar

cc: Region 3

Attachment A

Table 1

Significant Emission Units

Unit I.D.	Description	Number	Rated Capacity*	Control
CT 01 and CT 02	Simple Cycle Gas Turbine	2	968.8 Million Btu HHV/Hour 83 MW _e Output	Dry Low-NO _x Combustors (Natural Gas-Fired), Water Injection (Distillate Oil-Fired)

* Nominal capacity are per unit, at an ambient temperature of 58°F

Table 2

Air Emission Limitations Applicable to Each Gas Turbine

Natural Gas-Fired

Pollutant	Concentration	Lb/Hr (Per Unit)	Ton/Yr (Both Units)
NO _x	15 ppmvd @ 15% O ₂	67.0	119
CO	25 ppmvd @ actual O ₂	65.5	106
VOM	1.4 ppmvw @ actual O ₂	2.2	4
SO ₂	-----	4.0	11
TSP/PM ₁₀ *	-----	5.0	10

Distillate Oil-Fired

Pollutant	Concentration	Lb/Hr (Per Unit)	Ton/Yr (Both Units)
NO _x	42 ppmvd @ 15% O ₂	204.8	**
CO	20 ppmvd @ actual O ₂	51.9	**
VOM	3.5 ppmvw @ actual O ₂	5.6	**
SO ₂	-----	60.8	**
TSP/PM ₁₀ *	-----	10.0	**

Notes: Hourly emission limits do not apply during startup, malfunction, or shutdown

* TSP and PM₁₀ emission limits only address front half (filterable) particulates.

** Oil-fired annual emissions may comprise any fraction of the natural gas-fired annual emissions, as long as the total does not exceed the ton/yr limit.

Ton/yr limits were established based on operation of each unit at a 22% annual capacity factor (Operation at full load for approximately 1900 hours per year).

Compliance with lb/hr limits shall be based on a 3-hour block average.

Attachment B

Table 1

Net Emissions Change for Marion Generating Station Modification Projects

		New Unit Emissions - Turbines and CFB Boiler	Emission Decrease	Net Change	Major Modification Threshold
Pollutant	Turbines	(Tons/Yr)	(Tons/Yr)	(Tons/Yr)	(Tons/Yr)
NO _x	119	833.7	2,329.0	- 1,495.3	40
SO ₂	11	3,142.8	12,227.4	- 9,084.6	40
CO	106	888.9	55.4	833.5	100
VOM	4	41.5	9.5	32.1	40
TSP	10	78.1	83.0	- 5.0	25
PM ₁₀	10	70.3	56.4	13.9	15
Lead	---	0.09	0.09	0	0.600
H ₂ SO ₄	---	49.1	278.2	- 229.0	7

Note: The New Unit Emissions represent the operation of the new gas turbines at a projected maximum annual capacity factor of 22%, and the operation of a new fluidized boiler system, including associated material handling operations, at a projected maximum annual capacity factor of 85%. Construction of the gas turbines is addressed in this permit, while construction of the CFB boiler is addressed in a separate permit.

The Emission Decreases represent the actual emission reduction from retirement of three existing boilers (Marion Generating Station Units 1 through 3). It does not include emission decrease from the installation of selective catalytic reduction on a fourth existing boiler (Marion Generating Station Unit 4), as also addressed in a separate permit. The anticipated actual reduction in NO_x emissions from installation of an SCR on Unit 4 is estimated at 2361 tons/year.

The Net Change is the Total Increase minus the Emissions Decrease. As shown in the table, there will not be a net increase above the Major Modification Threshold for any pollutant except CO.

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