



## DEPARTMENT OF NATURAL RESOURCES

## MISSOURI AIR CONSERVATION COMMISSION

## PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **08 2007 - 020** Project Number: 2007-06-026

Parent Company: Aquila, Inc.

Parent Company Address: 10700 E. 350 Highway, Kansas City, MO 64138

Installation Name: Aquila Ralph Green Plant

Installation Address: 101 Front Street, Pleasant Hill, MO 64080

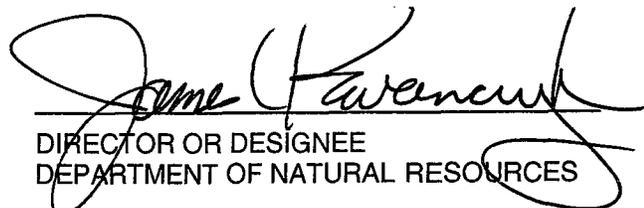
Location Information: Cass County, S19, T46N, R30W

Application for Authority to Construct was made for:  
Flexibility to burn Number 2 fuel oil in the Ralph Green Plant combustion turbine.  
This review was conducted in accordance with Section (5), Missouri State Rule  
10 CSR 10-6.060, *Construction Permits Required*.

- 
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

AUG 28 2007

EFFECTIVE DATE

  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

**You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review.** In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located with 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, Attention: Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2007-06-026

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

Aquila Ralph Green Plant  
Cass County, S19, T46N, R30W

1. Emission Limitation
  - A. Aquila Ralph Green Plant shall emit less than forty (40) tons of nitrogen oxide (NO<sub>x</sub>) in any consecutive twelve (12) month period from the combustion of Number 2 fuel oil in the turbine.
  - B. Aquila Ralph Green Plant shall maintain an accurate record of NO<sub>x</sub> emitted into the atmosphere from the combustion of Number 2 fuel oil in the turbine. Attachment A or an equivalent form approved by the Air Pollution Control Program shall be used for this purpose. Aquila Ralph Green Plant shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Department of Natural Resources' personnel upon request.
  - C. Aquila Ralph Green Plant shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1(B) indicate that the source exceeds the limitation of Special Condition Number 1(A).
2. Stack Testing – NO<sub>x</sub>
  - A. Aquila Ralph Green Plant shall conduct stack performance testing for NO<sub>x</sub> emissions from the turbine to determine the pound of NO<sub>x</sub> emissions per 1000 gallons of Number 2 fuel oil. This emission factor will be used in Attachment A for compliance.
  - B. Within 60 days of achieving the maximum production rate of the process, and in any case, no later than 180 days after initial startup, the owner/operator shall have conducted the required performance tests. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program 30 days prior to the proposed test date so that this program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The

Page No.	4
Permit No.	
Project No.	2007-06-026

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

Proposed Test Plan must be approved by the Director prior to conducting the required emission testing.

- C. Within 60 days after the performance tests, Aquila Ralph Green Plant shall provide the Director with a report that establishes the potential emission rate of NO<sub>x</sub> in pounds per hour, tons per year, and pounds per 1000 gallons Number 2 fuel oil from the turbine stack specified earlier in this condition in order that the Air Pollution Control Program may verify the rates as submitted by Aquila Ralph Green Plant.
3. Operational Limitations
- A. The turbine shall not be operated to generate more than 117 million kilowatt-hours in any one-year period.
  - B. The turbine shall not operate more than 1,500 hours in any one-year period.
  - C. The owner/operator shall maintain, and make available for inspections by the enforcement authority, operating records of electrical power generated, hours of operation, and fuel consumed by this unit.
4. Fuel Sulfur Content
- The sulfur content of the fuel to be used in the turbine shall not exceed 0.05% by weight per shipment for distillate fuel oil. Aquila Ralph Green Plant shall maintain records of the fuel supplier certifications or analytical testing documentation on site for not less than five (5) years for Department of Natural Resources' review.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2007-06-026  
Installation ID Number: 037-0003  
Permit Number:

Aquila Ralph Green Plant  
101 Front Street  
Pleasant Hill, MO 64080

Complete: June 5, 2007

Parent Company:  
Aquila, Inc.  
10700 E. 350 Highway  
Kansas City, MO 64138

Cass County, S19, T46N, R30W

REVIEW SUMMARY

- Aquila Ralph Green Plant has applied for authority to burn Number 2 fuel oil in the Ralph Green Plant combustion turbine.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment, but in insignificant amount.
- Subpart GG, *Standards of Performance for Stationary Gas Turbines*, of the New Source Performance Standards (NSPS) applies to this installation. Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*, applies to the new storage tanks.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- No air pollution control equipment is being used in association with the new equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential Emissions of NO<sub>x</sub> are conditioned to de minimis level.
- This installation is located in Cass County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is required for the equipment as outlined in Special Condition 2.
- A revision to Part 70 Operating Permit application is required for this installation within 1 year of startup of new equipment.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Aquila Ralph Green Plant is operating an electric power generating peaking plant located in Pleasant Hill, Missouri. The primary source of air emissions from this installation is a 74 MW natural gas fired simple cycle combustion turbine. This turbine was issued a construction permit (Permit Number 1280-006) on December 15, 1980 by the Missouri Air Pollution Control Program. In a letter dated January 29, 1981, the United States Environmental Protection Agency (USEPA) Region VII also granted a Prevention of Significant Deterioration (PSD) permit to this natural gas fired combustion turbine. No other construction permit was issued to this installation. This installation is currently operating under the Part 70 Operating Permit OP2007-014.

### PROJECT DESCRIPTION

Aquila Ralph Green Plant currently operates a single General Electric simple cycle combustion turbine using natural gas. In this project, Aquila is seeking the flexibility to burn Number 2 fuel oil in the turbine in the event natural gas is curtailed. According to the information in the application, this combustion turbine was designed with the capability to burn Number 2 fuel oil. Aquila requested a 415 hours per year limitation to burn Number 2 fuel as an alternative fuel. Two 2-million gallon fuel oil storage tanks and piping are expected to be installed at the Ralph Green Plant to provide fuel to the combustion turbine.

### EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis are developed based on the emission testing performed on similar equipment. However, Aquila will determine the emission factors of NO<sub>x</sub> for the combustion turbine through a stack test as outlined in Special Condition 2. The VOC emissions from the storage tanks are calculated using the Environmental Protection Agency's (EPA) TANK 4.0 program. Existing potential emissions were evaluated based on the usage of natural gas and the existing 1500 hours per year permit's limitation on the turbine. The emission factors for the natural gas combustion in the simple cycle turbine are obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 3.1, *Stationary Gas Turbines* (04/2000). Existing actual emissions are taken from Aquila Ralph Green Plant's 2006 Emissions Inventory Questionnaire submittal. Potential emissions of the application represent the potential of the new fuel, assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2006 EIQ)	Potential Emissions of the Application*	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	4.06	0.25	74.43	N/A
SO <sub>x</sub>	40.0	2.09	0.08	39.06	N/A
NO <sub>x</sub>	40.0	196.68	17.37	679.61	< 40.0
VOC	40.0	1.29	0.28	19.6	N/A
CO	100.0	50.4	4.02	173.40	N/A
HAPs	10.0/25.0	0.63	N/D	4.71	N/A

N/A = Not Applicable; N/D = Not Determined

\* Due to the emission limitation on NO<sub>x</sub>, the emissions of other air pollutants are expected to be below their respective de minimis levels.

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential Emissions of NO<sub>x</sub> are conditioned to de minimis level.

### APPLICABLE REQUIREMENTS

Aquila Ralph Green Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

## SPECIFIC REQUIREMENTS

- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Stationary Gas Turbines, 40 CFR Part 60, Subpart GG.*
- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR Part 60, Subpart Kb.*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

\_\_\_\_\_  
Fuad Wadud  
Environmental Engineer

\_\_\_\_\_  
Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 23, 2007, received June 5, 2007, designating Aquila, Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated June 25, 2007.



Mr. Steven D. Brooks  
Environmental Manager  
Aquila Ralph Green Plant  
101 Front Street  
Pleasant Hill, MO 64080

RE: New Source Review Permit - Project Number: 2007-06-026

Dear Mr. Brooks:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please contact Fuad Wadud at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 of telephone (573) 751-4817. Thank you for your time and consideration.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH: fwk

Enclosures

c: Kansas City Regional Office  
PAMS File: 2007-06-026

Permit Number: