



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR QUALITY PROGRAM

TITLE V/STATE OPERATING PERMIT

Issue Date: August 12, 2015

Effective Date: March 16, 2018

Revision Date: March 16, 2018

Expiration Date: ~~August 31, 2020~~

Revision Type: Modification

In accordance with the provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and 25 Pa. Code Chapter 127, the Owner, [and Operator if noted] (hereinafter referred to as permittee) identified below is authorized by the Department of Environmental Protection (Department) to operate the air emission source(s) more fully described in this permit. This Facility is subject to all terms and conditions specified in this permit. Nothing in this permit relieves the permittee from its obligations to comply with all applicable Federal, State and Local laws and regulations.

The regulatory or statutory authority for each permit condition is set forth in brackets. All terms and conditions in this permit are federally enforceable applicable requirements unless otherwise designated as "State-Only" or "non-applicable" requirements.

TITLE V Permit No: 22-05005

Federal Tax Id - Plant Code: 41-1972450-1

Owner Information

Name: NRG ENERGY CTR PAXTON LLC
Mailing Address: 100 N 10TH ST
HARRISBURG, PA 17101-2440

Plant Information

Plant: NRG ENERGY CTR PAXTON LLC/HARRISBURG
Location: 22 Dauphin County 22001 Harrisburg City
SIC Code: 4961 Trans. & Utilities - Steam And Air Conditioning Supply

Responsible Official

Name: DANIEL M QUINN
Title: GENERAL MGR
Phone: (717) 234 - 4600

Permit Contact Person

Name: DAVID S FIEBIG
Title: OPERATIONS MGR
Phone: (717) 231 - 3884

[Signature] William R. Weaver
WILLIAMR. WEAVER, SOUTHCENTRAL REGION AIR PROGRAM MANAGER

Pages 2 – 35 fully redacted

**SECTION E. Source Group Restrictions.**

Group Name: GROUP 001

Group Description: NOx RACT1 Case Specific Requirements

Sources included in this group

**RACT 2 SIP Provisions from Title V Permit
No. 22-05005 Significant Modification issued
03/16/18 (pages 36-38 and 43-44 of permit)**

ID	Name
031	BOILER 12, COMBUSTION ENGINEERING
032	BOILER 13, COMBUSTION ENGINEERING
033	BOILER 14, COMBUSTION ENGINEERING
034	BOILER 15, COMBUSTION ENGINEERING
102	COOPER INDUSTRIES ENGINE 1
103	COOPER INDUSTRIES ENGINE 2

I. RESTRICTIONS.**Emission Restriction(s).**

001 [25 Pa. Code §129.91]

Control of major sources of NOx and VOCs**A.**

No. 12 Boiler (Combustion Engineering) - 105 mmbtu/hr, #6 Oil Fired

No. 13 Boiler (Combustion Engineering) - 214 mmbtu/hr, #6 Oil and Natural Gas Fired

No. 14 Boiler (Combustion Engineering) - 214 mmbtu/hr, #6 Oil and Natural Gas Fired

No. 15 Boiler (Combustion Engineering) - 214 mmbtu/hr, #6 Oil Fired

1. The sources and any associated air cleaning devices are to be:

- a. operated in such a manner as not to cause air pollution.
- b. in compliance with the specifications and conditions of the Reasonably Available Control Technology (RACT) plan ;
- c. operated and maintained in a manner consistent with good operating and maintenance practices.

6. The NOx emissions from the above sources shall not exceed the following limits:

- a. No. 13 Boiler - 0.44 lb/ mmbtu on #6 Oil and 0.23 lb/ mmbtu on Natural Gas
- b. No. 14 Boiler - 0.44 lb/ mmbtu on #6 Oil and 0.23 lb/ mmbtu on Natural Gas
- c. Nos. 12 and 15 Boilers - 0.44 lb/ mmbtu

Note: When fuel borne nitrogen (FBN) in #6 Oil is greater than 0.49 percent, the following NOx limits as per AP-42 Table 1.3-1 Footnote (d) shall be calculated as per the formula:

$$\text{NOx in lb NO}_2/10^3 \text{ gal.} = 20.54 + 104.39(N)$$

Where 'N' is weight percentage of nitrogen in #6 Oil

7. NOx emissions from the Boiler Nos. 12 and 15 shall be calculated as per the AP-42 Emission Factors.

12. The permittee shall monitor and record the sulfur and nitrogen contents of the #6 Oil, on a monthly basis, from the fuel supplier's certificate.

13. The fuel supplier's certificate including nitrogen content of the #6 Oil shall be submitted to the Department annually.

14. An annual report containing the following shall be submitted to the Department's Harrisburg District Supervisor by March 1 of the following year:

- a. Monthly and annual natural gas usage for Boiler Nos. 13 and 14
- b. Monthly and annual #6 Oil usage for Boiler Nos. 12 through 15
- c. Record of the fuel borne nitrogen (FBN) in #6 Oil
- d. Record of sulfur content in #6 Oil
- e. Annual record of the facility NOx and VOC emissions

**SECTION E. Source Group Restrictions.**

15. The facility shall operate and maintain the above listed sources as per manufacturer's specifications.
 16. Each boiler shall be stack tested when the boiler's total cumulative steam generation achieves 100 percent of the boiler's annual 100 percent load factor steam generation quantity, or every four years, whichever occurs first.
 - a. For No. 13 Boiler through No. 15 Boiler, the 100 percent load factor steam generation quantity is 1,314,000,000 pounds.
 - b. For No. 12 Boiler, the 100 percent load factor steam generation quantity is 700,000,000 pounds.
 17. Stack testing to determine the emission rate of NOx as NO2 shall be performed separately with #6 Oil and natural gas on Boiler Nos. 13 and 14.
 21. Two copies of the stack test results shall be submitted to the Department Air Quality Program Manager for review within 60 days of completion of testing. The emissions shall be reported in the following units:
 - a. Concentration as Measured - part per million (ppm)
 - b. Specific Output - lb/10³ gallon oil and lb/mmscf gas as applicable
 - c. Total Output, Mass Rate - lb/hr
 - d. Total Output, Heat Rate - lb/mmbtu
- B.
- Two Dual Fuel Internal Combustion Engines 6300 kW/8692 hp Natural Gas #2 Oil Fired (Cooper) Model LSVB-20
1. The sources and any associated air cleaning devices are to be:
 - a. operated in such a manner as not to cause air pollution.
 - b. in compliance with the specifications and conditions of the Reasonably Available Control Technology (RACT) plan ;
 - c. operated and maintained in a manner consistent with good operating and maintenance practices.
 4. NOx emissions from the engines listed above shall not exceed:
 - a. Engine 1 - 4.5 g/hp-hr on dual fuel (natural gas with #2 fuel oil as a pilot fuel) and 11 g/hp-hr on #2 Oil
 - b. Engine 2 :- 3.5 g/hp-hr on dual fuel and 11 g/hp-hr on #2 oil
 5. The emission factor listed in Condition 4 shall not be applied during the engine start and stop subject to maximum of one hour for each start and one hour for each stop.
 - 7.a. Verification of the NOx emission standard listed in Condition 4 shall be conducted utilizing methodology outlined in 25 Pa. Code Section 139 and the Department's Source Testing Manual or by other means approved by the Department.
 - b. The stack testing shall be performed at 30,000 megawatt hours of operation on each engine generator, or after two years, whichever occurs first.
 - c. The first stack test performed after issuance of this operating permit shall be in accordance with 25 Pa. Code Section 139 and the Department's Source Testing Manual.
 - d. Subsequent verification of NOx emission may be performed using a portable analyzer.
 8. Stack test protocol shall be submitted to the Department Air Quality Program Manager 60 days prior to stack test.
 9. The company shall notify the Department of the date and time of stack testing 15 days prior to the stack test.
 10. Two copies of the emission test results shall be submitted to the Department Air Quality Program Manager for review within 60 days of the stack test. The emissions shall be reported in the following units.

**SECTION E. Source Group Restrictions.**

- a. Concentrations as Measured - parts per million (ppm)
 - b. Specific Output - g/hp-hr
 - c. Total Output, Mass Rate - lb/hr
 - d. Total Output, Heat Rate - lb/mmbtu
11. The facility shall comply with the record keeping provision of 25 Pa. Code Section 129.95(a) through (d).
12. Facility shall keep the following records for the source, retain these for two years, and make them available to the Department when requested:
- a. Monthly records of running hours and kilowatt hours fed to the grid
 - b. Monthly records of natural gas and #2 Oil usages, separately
 - c. Fuel Supplier's Certificate with percent sulfur content of #2 Oil.
13. The following information and document for each calendar year shall be submitted to the Department's Harrisburg District Supervisor by March 1 of the following year, as per 25 Pa. Code Section 135.3(a):
- a. Sources and Facility Annual NO_x and VOC Emissions
 - b. Sources Operating Hours, Natural Gas Usage, and #2 Oil Usage Computed Monthly and Annually
14. Facility shall report to the Department Air Quality Program Manager any modification to the sources, which is expected to increase NO_x and VOC emissions from each source.
15. This Reasonably Available Control Technology (RACT) operating permit is for the operation of the Cooper Industries Clean Burn System on Engine 2, and Automated Marine Propulsion System (AMPS) Fluid Control Injection System (FCIS) on Engine 1. This operating permit incorporates the Department's NO_x and VOC RACT1 requirements (25 Pa Code §§ 129.91 through 129.95).
17. All adjustments and operation of the engines must minimize pollution and be in accordance with good air pollution control practices.
18. The engines shall be operated and maintained as per manufacturer's specifications.
- Note 1: Upon approval of the case-by-case RACT 2 requirements for Boilers 13 and 14 as a SIP revision, all of the above conditions as they relate to Boilers 13 and 14 will be superseded by the case-by-case RACT 2 requirements for Boilers 13 and 14, and those sources will be deemed removed from this group.
- Note 2: Upon approval as a SIP revision, the following conditions above will be removed from the requirements for Boilers 12 and 15 and Engines 1 and 2: A [1(a), 7, 14, 16, 21]; B [1(a), 7, 8, 9, 10, 12(c), 13, 14]

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

Pages 39-42 fully redacted

**SECTION E. Source Group Restrictions.**

Group Name: GROUP 003

Group Description: NOx RACT2 Case Specific Requirements

Sources included in this group

ID	Name
032	BOILER 13, COMBUSTION ENGINEERING
033	BOILER 14, COMBUSTION ENGINEERING

I. RESTRICTIONS.**Emission Restriction(s).****# 001 [25 Pa. Code §129.99]****Alternative RACT proposal and petition for alternative compliance schedule.**

Boiler No. 13 (Source ID# 032) - 214 mmbtu/hr, #6 Oil and Natural Gas Fired

Boiler No. 14 (Source ID# 033) - 214 mmbtu/hr, #6 Oil and Natural Gas Fired

RESTRICTIONS

(a) Each of the above boilers shall not exceed the following short-term limits:

- (1) 0.44 lb NOx/mmbtu when combusting No. 6 Fuel oil, except as provided in (3)
- (2) 0.23 lb NOx/mmbtu when combusting natural gas.
- (3) When fuel borne nitrogen (FBN) in #6 Oil is greater than 0.49 percent, the lb NOx/mmbtu limits for Boilers 13 and 14 shall be calculated per the following formula, which is taken from AP-42 Table 1.3-1 Footnote (d):

NOx in lb NO₂/10³ gal. = 20.54 + 104.39(N)

Where 'N' is weight percentage of nitrogen in #6 Oil

(b) Each of the above boilers shall not exceed the following fuel usage restrictions:

- (1) No. 6 fuel oil shall be limited to 1,533,300 gallons per year based on a consecutive 12-month rolling period.
- (2) Natural Gas shall be limited to 584,000,000 cubic feet per year based on a consecutive 12-month rolling period.

(c) Each of the above boilers shall not exceed a NOx emission rate of 46.0 tpy based on a consecutive 12-month rolling period.

TESTING REQUIREMENTS

(d) Each of Boilers #13 and #14 shall be tested once every five years for NOx as NO₂. Testing shall be performed separately with No. 6 Fuel Oil and Natural Gas on each boiler. Testing may be done using either traditional stack test methods, or using a portable analyzer.

MONITORING AND RECORDKEEPING REQUIREMENTS

(e) The permittee shall monthly monitor and record the nitrogen of the No. 6 fuel oil, from the fuel supplier's certificate.

(f) The permittee shall retain the all fuel supplier's certificate(s) including nitrogen content of the #6 Oil for the most recent five-year period, and shall make them available to the Department upon request.

(g) The permittee shall keep records to demonstrate compliance with (a) – (d) above as follows:

- (1) The records must include sufficient data and calculations to demonstrate that the requirements of (a) – (d) above are met.
- (2) Data or information required to determine compliance shall be recorded and maintained in a time frame consistent with the averaging period of the requirement.

WORK PRACTICE REQUIREMENTS

**SECTION E. Source Group Restrictions.**

(g) The permittee shall maintain and operate each of the Boilers #13 and #14 in accordance with the manufacturer's specifications and with good operating practices.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional record keeping requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

No additional work practice requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

***** Permit Shield in Effect. *****