



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AIR QUALITY PROGRAM

**TITLE V/STATE OPERATING PERMIT**

Issue Date: November 18, 2013

Effective Date: April 11, 2018

Revision Date: April 11, 2018

Expiration Date: [REDACTED]

Revision Type: Modification, Significant

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: 09-00016**

Federal Tax Id - Plant Code: 23-3064219-12

**Owner Information**

Name: EXELON GENERATION CO LLC

Mailing Address: 1 INDUSTRIAL HWY  
EDDYSTONE, PA 19022-1524

**Plant Information**

Plant: EXELON GENERATION CO/CROYDON GEN STA

Location: 09 Bucks County 09001 Bristol Township

SIC Code: 4911 Trans. & Utilities - Electric Services

**Responsible Official**

Name: BRYAN BENNETT

Title: GENERAL MGR

Phone:

**Permit Contact Person**

Name: ALBERT MHATTON III

Title: MANAGER, ENV. PROGRAMS

Phone: (610) 765 - 5316

[Signature] \_\_\_\_\_

JAMES D. REBARCHAK, SOUTHEAST REGION AIR PROGRAM MANAGER

Pages 2-17, 19-23, 35, 47, and 55-60 redacted entirely.

**SECTION C. Site Level Requirements**

[REDACTED]

**II. TESTING REQUIREMENTS.**

# 007 [REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91, 129.99, 129.100, [REDACTED]]

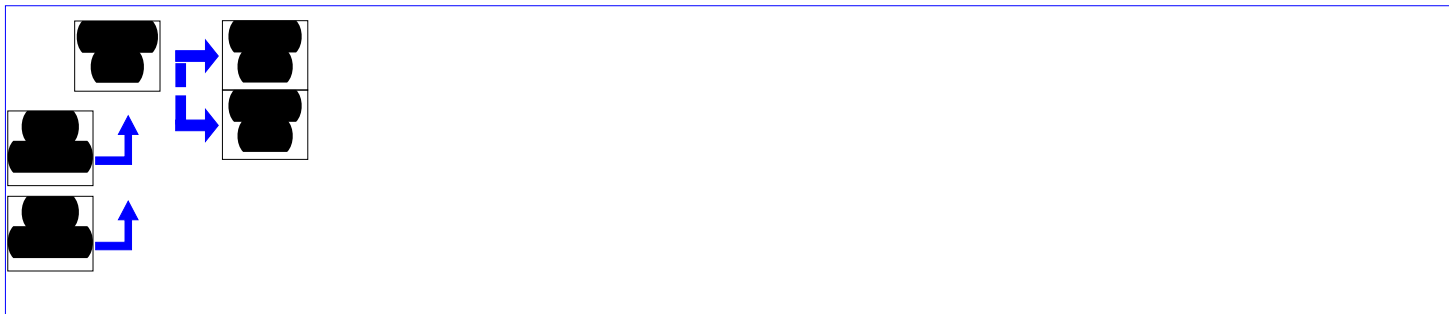
- (a) The permittee shall perform a stack test on at least three (3) of the eight (8) turbines listed in Section A once per permit term.
- (b) If the emissions results for stack testing for one turbine are not within 10% of the emissions results, on a pounds per MMBTU basis, of the other two (2) turbines tested at similar loads and capacities for the stack testing in paragraph (a) above, then the permittee shall test the other five (5) turbines within the permit term.
- (c) If only three (3) turbines are tested in one permit term and if the terms of paragraph (b) above do not apply, stack testing shall be performed on all eight (8) units at least once through every three (3) permit terms.
- (d) The stack testing in paragraphs (a) and (c) above shall be performed at least twelve (12) months prior to the expiration date of each permit.
- (e) The stack test shall, at a minimum, test for the NO<sub>x</sub> emissions in lbs/MMBtu and lbs/hr in accordance with the provisions of 25 Pa. Code Chapters 139 and 145. The stack test shall be performed while the turbines are operating at the maximum normal operating condition.
- (f) At least ninety (90) days prior to the test(s), the permittee shall submit to DEP, for approval, the procedures for the test and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of representative samples.
- (g) At least thirty (30) days prior to the test(s), the Regional Manager shall be informed of the date and time of the test.
- (h) Within sixty (60) days after the source test(s), two copies of the complete test report, including all operating conditions shall be submitted to the Regional Manager for approval.
- (i) In the event that any of the above deadlines cannot be met, the permittee may request an extension for the due date(s) in writing and include a justification for the extension. The Department may grant an extension for a reasonable cause.
- (j) If at any time DEP has cause to believe that air contaminant emissions from any source(s) listed in Section A of this permit may be in excess of the limitations specified in this permit, or established pursuant to, any applicable rule or regulation contained in 25 Pa. Code Article III, the permittee shall be required to conduct whatever tests are deemed necessary by DEP to determine the actual emission rate(s).
- (k) Such testing shall be conducted in accordance with the provisions of 25 Pa. Code Chapter 139, when applicable, and in accordance with any restrictions or limitations established by DEP at such time as it notifies the permittee that testing is required.

Note: For the purposes of compliance with this stack test condition, "similar loads and capacities" shall mean that the permittee shall assure that the electrical load and fuel usage (or heat input) are within 10% of each other for the combustion turbines chosen for stack testing in this current permit term.

**SECTION D. Source Level Requirements**

Source ID: 031

Source Name: SIMPLE CYCLE TURBINE #11

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.99.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

[Compliance with the annual capacity restriction above also demonstrates compliance with the annual capacity factor restriction determined under RACT I (25 Pa. Code § 129.91).]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**# 009 [REDACTED]  
[REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

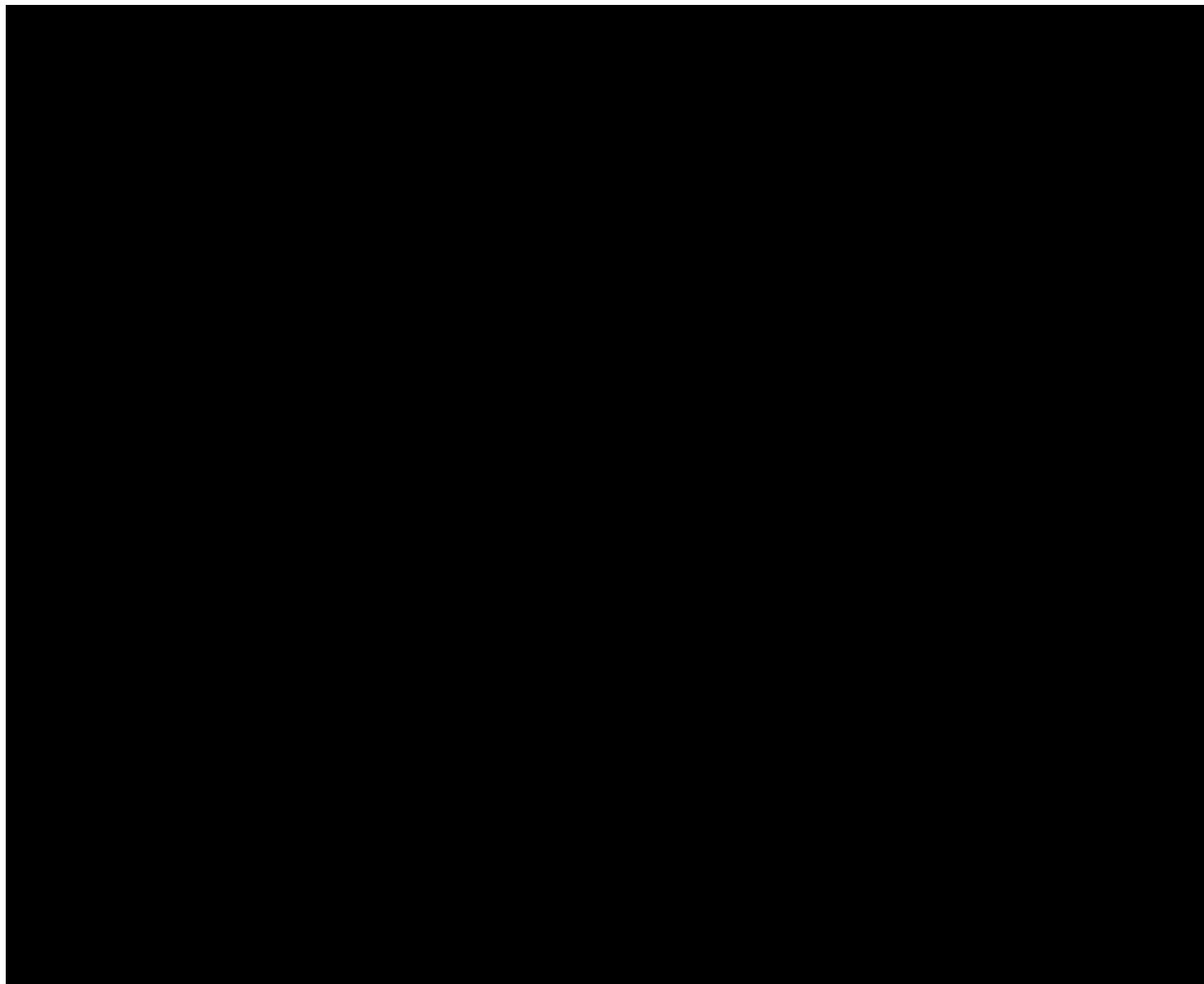
(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also

**SECTION D. Source Level Requirements**

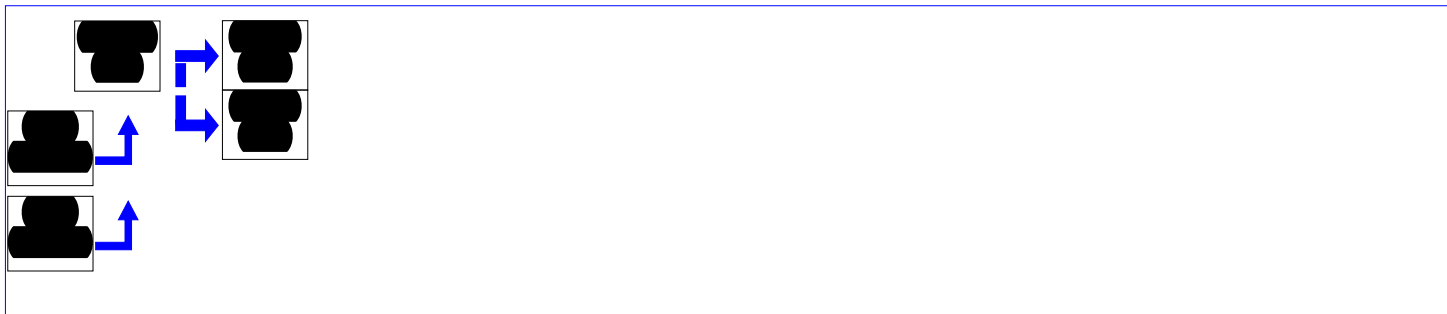
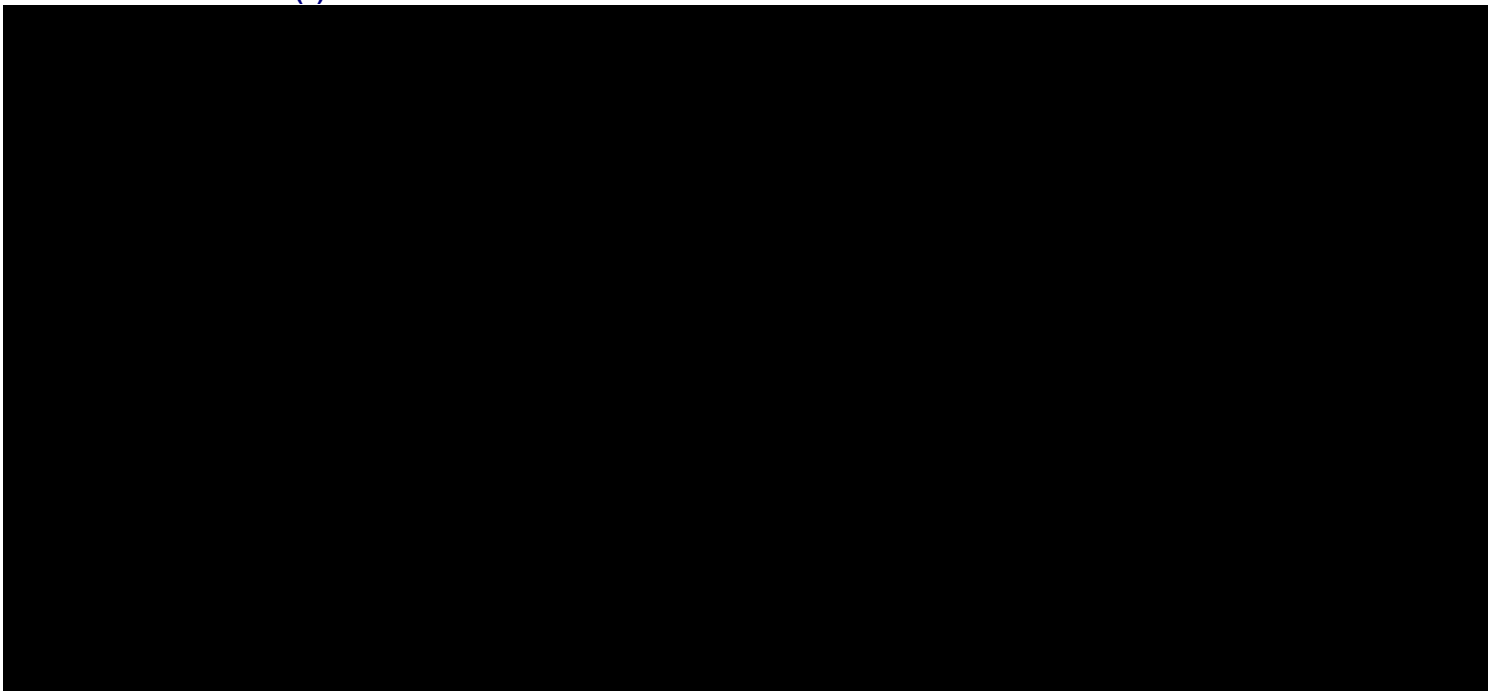
demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]



**SECTION D. Source Level Requirements**

Source ID: 032

Source Name: SIMPLE CYCLE TURBINE #12

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]



**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.99.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

$[(\text{Last 12 months net electric power generation (MWH)}) \times (100)]$

divided by:

$[(\text{Maximum capacity of unit (MW)}) \times (\text{Number of operating hours in last 12 months})]$

[Compliance with the annual capacity restriction above also demonstrates compliance with the annual capacity factor restriction determined under RACT I (25 Pa. Code § 129.91).]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**# 009 [REDACTED]  
[REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also

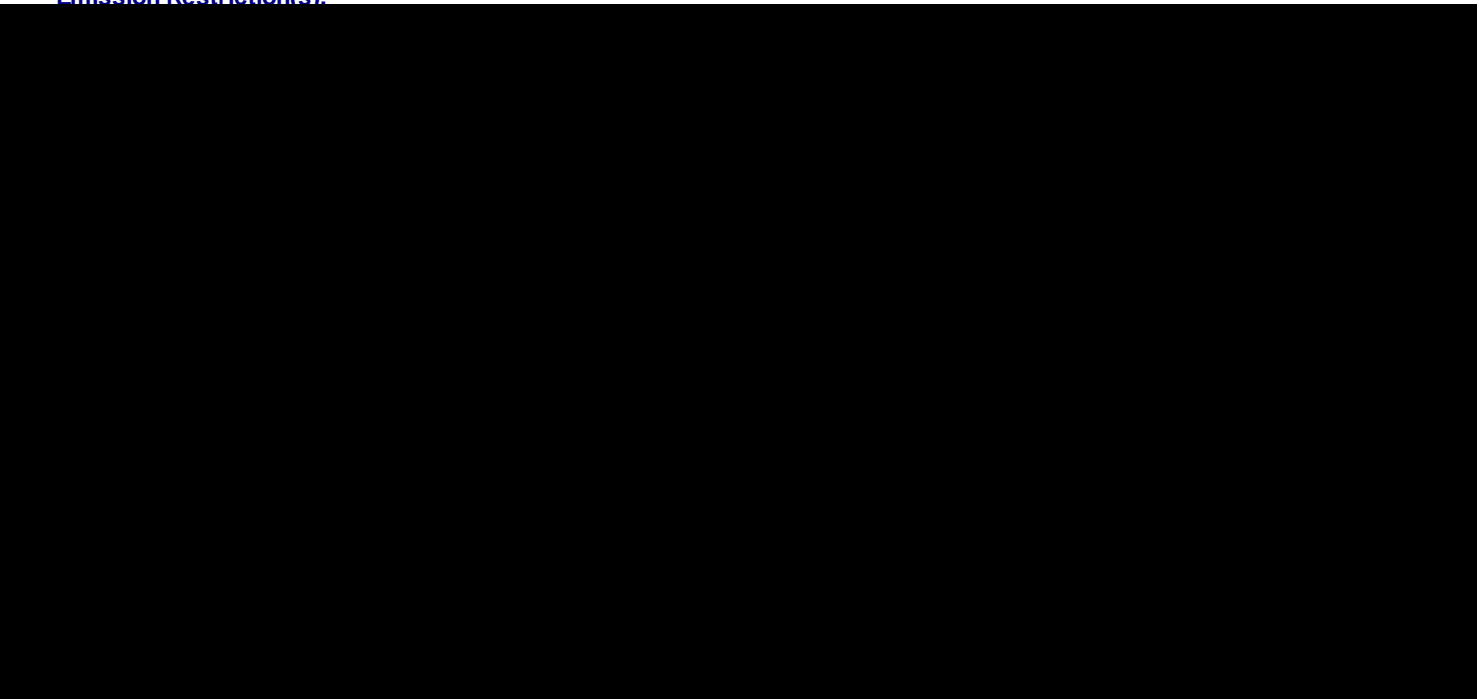
**SECTION D. Source Level Requirements**

demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 033

Source Name: SIMPLE CYCLE TURBINE #21

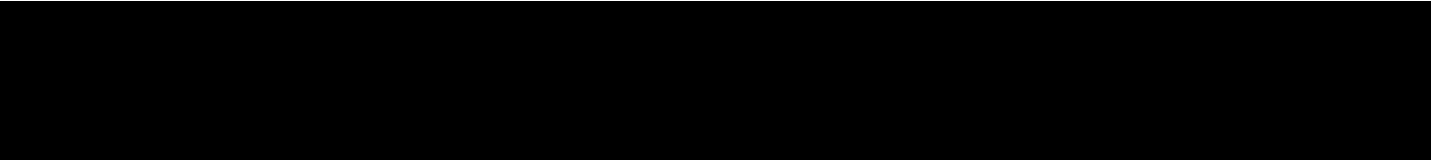
**I. RESTRICTIONS.****Emission Restriction(s).**

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**

# 009 [REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 034

Source Name: SIMPLE CYCLE TURBINE #22

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.99.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

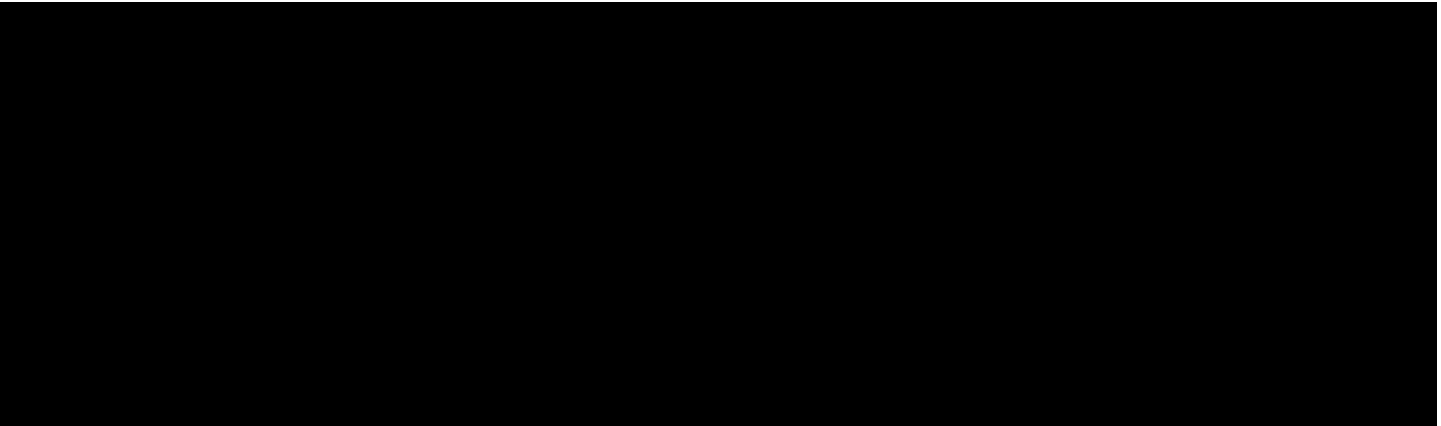
[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

[Compliance with the annual capacity restriction above also demonstrates compliance with the annual capacity factor restriction determined under RACT I (25 Pa. Code § 129.91).]



**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**

# 009

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also

**SECTION D. Source Level Requirements**

demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 035

Source Name: SIMPLE CYCLE TURBINE #31

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NOx emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.99.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

[Compliance with the annual capacity restriction above also demonstrates compliance with the annual capacity factor restriction determined under RACT I (25 Pa. Code § 129.91).]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**# 009 [REDACTED]  
[REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also

**SECTION D. Source Level Requirements**

demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 036A

Source Name: SIMPLE CYCLE TURBINE #32

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NOx emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

$[(\text{Last 12 months net electric power generation (MWH)}) \times (100)]$

divided by:

$[(\text{Maximum capacity of unit (MW)}) \times (\text{Number of operating hours in last 12 months})]$



**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**# 009 [REDACTED]  
[REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

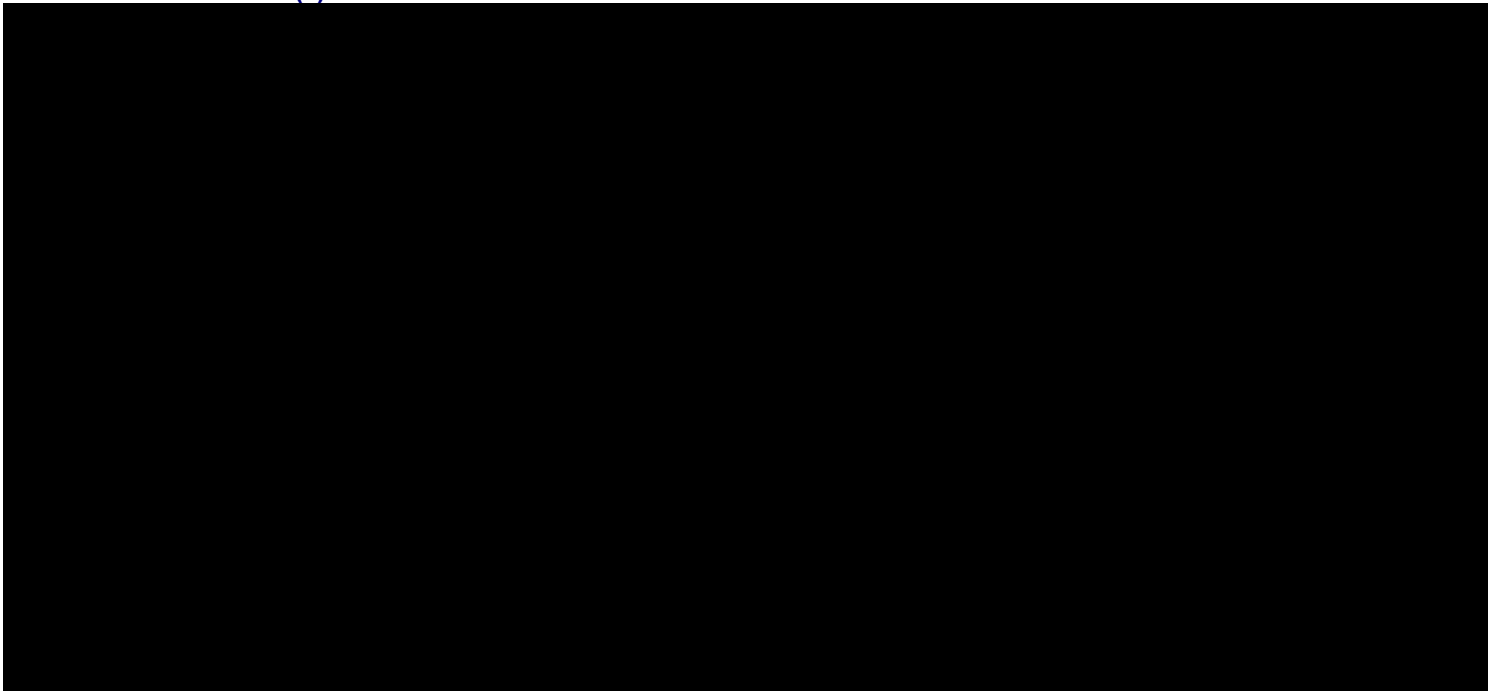
- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 037

Source Name: SIMPLE CYCLE TURBINE #41

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.99.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

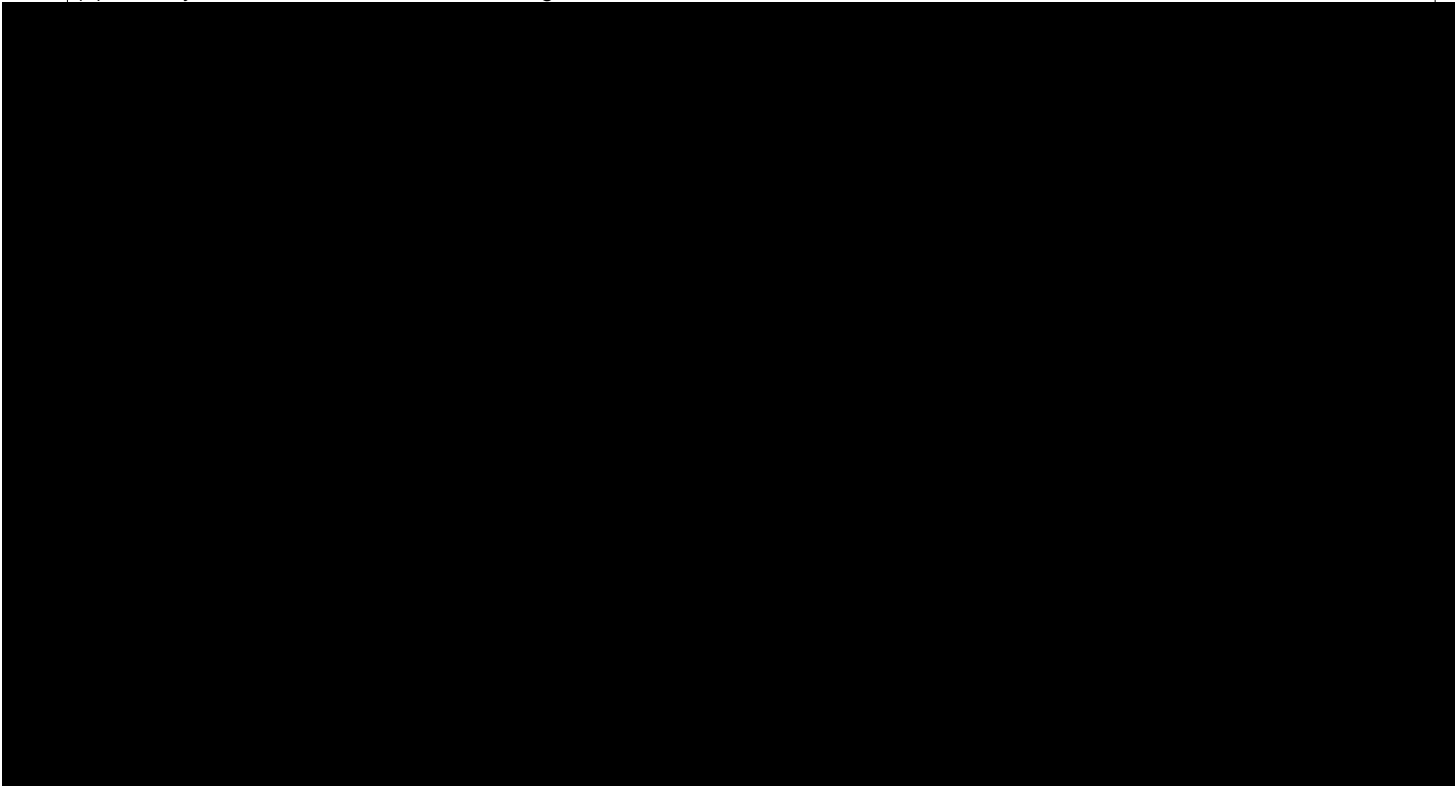
[Compliance with the annual capacity restriction above also demonstrates compliance with the annual capacity factor restriction determined under RACT I (25 Pa. Code § 129.91).]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.****# 009 [25 Pa. Code §127.441]****Operating permit terms and conditions.**

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 (b)(1)-(5) ]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.



[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also

**SECTION D. Source Level Requirements**

demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]

**SECTION D. Source Level Requirements**

Source ID: 038

Source Name: SIMPLE CYCLE TURBINE #42

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

# 004

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

The NO<sub>x</sub> emissions for this turbine shall not exceed 0.70 pounds per million Btu or 587 pounds per hour, whichever is more stringent.

[Compliance with the emission limits derived from RACT I (25 Pa. Code § 129.91) above also demonstrates compliance with the alternate RACT II requirements (25 Pa. Code § 129.99).]

**SECTION D. Source Level Requirements****Throughput Restriction(s).**

# 006

[Additional authority for this permit condition is also derived from 25 Pa. Code § 129.91.]

(a) The capacity factor for this turbine shall not exceed 20% in any 12 consecutive month period. The capacity factor is defined as the ratio of net electrical power generation, in megawatt hours (MWH), for the last twelve (12) months to the maximum capacity of the unit (MW) times the number of hours in the same twelve (12) months.

(b) The rolling 12-month capacity factor is expressed in the following formula:

[(Last 12 months net electric power generation (MWH)) x (100)]

divided by:

[(Maximum capacity of unit (MW)) x (Number of operating hours in last 12 months)]

**SECTION D. Source Level Requirements****IV. RECORDKEEPING REQUIREMENTS.**# 009 [REDACTED]  
[REDACTED]

[Additional authority for this permit condition is also derived from 25 Pa. Code §§ 129.91 [REDACTED]]

(a) The permittee shall record the following information for this turbine:

- (1) Monthly fuel consumption;
- (2) Monthly net electrical power (MWH) generated;
- (3) The dates and times of operation of this turbine, including discharge temperature and operation conditions related to stack opacity;
- (4) Monthly and 12 month rolling capacity factor
- (5) Monthly NOx emissions calculated using the emission factors from the most recent stack test result.

[Compliance with the requirements in paragraph (a) derived from RACT I (25 Pa. Code §§ 129.91 to 129.95) also demonstrates compliance the monitoring requirements of RACT II (25 Pa. Code § 129.100).]