



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

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[www.deq.virginia.gov](http://www.deq.virginia.gov)

Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Michael P. Murphy  
Regional Director

January 31, 2013

Mr. Robert L. Greene, Ph. D.  
Environmental Compliance Manager  
INGENCO Wholesale Power, LLC  
INGENCO – King and Queen Facility  
2250 Dabney Road  
Richmond, Virginia 23230

Location: King and Queen County  
Registration No: 52148  
County-Plant: 097-0020

Dear Mr. Greene:

Attached is your Title V permit to operate your power generation facility pursuant to 9 VAC 5 Chapter 80 of the Virginia Regulations for the Control and Abatement of Air Pollution. This permit incorporates provisions from the permit dated July 30, 2012.

The permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

In evaluating the application and arriving at a final decision to issue this permit, the Department deemed the application complete on July 30, 2012.

This approval to operate does not relieve INGENCO Wholesale Power, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

Issuance of this permit is a case decision. The Regulations, at 9 VAC 5-170-200, provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this permit is mailed or delivered to you. Please consult that and other relevant provisions for additional requirements for such requests.

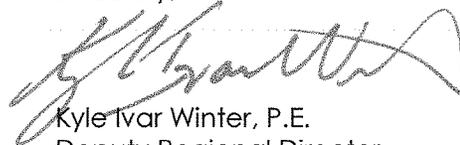
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director  
Department of Environmental Quality  
P.O. Box 1105  
Richmond, Virginia 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please call the regional office at 804-527-5020.

Sincerely,



Kyle Ivar Winter, P.E.  
Deputy Regional Director

JEK/hll/52148TV\_CoverLtr01312013.docx

Attachment: Permit  
NSPS, Subpart IIII (for reference only)  
NESHAP, Subpart ZZZZ (for reference only)  
NESHAP, Subpart JJJJJJ (for reference only)

cc: Director, OAPP (electronic file submission)  
Manager, Data Analysis (electronic file submission)  
Chief, Air Enforcement Branch (3AT13), U.S. EPA, Region III  
Manager/Inspector, Air Compliance



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### Federal Operating Permit Article 1

This permit is based upon the requirements of Title V of the Federal Clean Air Act and Chapter 80, Article 1, of the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution. Until such time as this permit is reopened and revised, modified, revoked, terminated or expires, the permittee is authorized to operate in accordance with the terms and conditions contained herein. This permit is issued under the authority of Title 10.1, Chapter 13, §10.1-1322 of the Air Pollution Control Law of Virginia. This permit is issued consistent with the Administrative Process Act, and 9 VAC 5-80-50 through 9 VAC 5-80-300 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution of the Commonwealth of Virginia.

Authorization to operate a Stationary Source of Air Pollution as described in this permit is hereby granted to:

Permittee Name: Mr. Charles J. Packard, President  
Facility Name: INGENCO Wholesale Power, LLC – King and Queen Plant  
Facility Location: 4443 Iris Road,  
King and Queen County, VA

Registration Number: 52148  
Permit Number: PRO-52148

This permit includes the following programs:

#### Federally Enforceable Requirements - Clean Air Act (Sections I through VII) State Only Enforceable Requirements (Section VIII)

January 31, 2013

Effective Date

January 30, 2018

Expiration Date

  
Deputy Regional Director

January 31, 2013

Signature Date

Table of Contents, 1 page  
Permit Conditions, 34 pages

**Table of Contents**

<b>I. FACILITY INFORMATION .....</b>	<b>3</b>
<b>II. EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION.....</b>	<b>4</b>
<b>III. FUEL BURNING EQUIPMENT REQUIREMENTS – (EMISSION UNITS A1-H6 AND B1) .....</b>	<b>5</b>
A. LIMITATIONS.....	5
B. MONITORING .....	11
C. RECORDKEEPING .....	13
D. TESTING .....	16
E. REPORTING.....	19
<b>IV. FACILITY WIDE CONDITIONS .....</b>	<b>21</b>
A. LIMITATIONS.....	21
<b>V. INSIGNIFICANT EMISSION UNITS.....</b>	<b>22</b>
<b>VI. PERMIT SHIELD &amp; INAPPLICABLE REQUIREMENTS .....</b>	<b>22</b>
<b>VII. GENERAL CONDITIONS .....</b>	<b>24</b>
A. FEDERAL ENFORCEABILITY.....	24
B. PERMIT EXPIRATION .....	24
C. RECORDKEEPING AND REPORTING.....	25
D. ANNUAL COMPLIANCE CERTIFICATION.....	26
E. PERMIT DEVIATION REPORTING .....	27
F. FAILURE/MALFUNCTION REPORTING .....	27
G. SEVERABILITY.....	27
H. DUTY TO COMPLY.....	27
I. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE.....	28
J. PERMIT MODIFICATION .....	28
K. PROPERTY RIGHTS .....	28
L. DUTY TO SUBMIT INFORMATION .....	28
M. DUTY TO PAY PERMIT FEES .....	29
N. FUGITIVE DUST EMISSION STANDARDS.....	29
O. STARTUP, SHUTDOWN, AND MALFUNCTION .....	30
P. ALTERNATIVE OPERATING SCENARIOS .....	30
Q. INSPECTION AND ENTRY REQUIREMENTS.....	30
R. REOPENING FOR CAUSE .....	31
S. PERMIT AVAILABILITY .....	31
T. TRANSFER OF PERMITS .....	31
U. MALFUNCTION AS AN AFFIRMATIVE DEFENSE.....	32
V. PERMIT REVOCATION OR TERMINATION FOR CAUSE.....	33
W. DUTY TO SUPPLEMENT OR CORRECT APPLICATION.....	33
X. STRATOSPHERIC OZONE PROTECTION.....	33
Y. ASBESTOS REQUIREMENTS .....	33
Z. ACCIDENTAL RELEASE PREVENTION.....	34
AA. CHANGES TO PERMITS FOR EMISSIONS TRADING .....	34
BB. EMISSIONS TRADING.....	34
<b>VIII. STATE-ONLY ENFORCEABLE REQUIREMENTS.....</b>	<b>34</b>

## I. Facility Information

### Permittee

INGENCO Wholesale Power, LLC  
King and Queen Plant  
2250 Dabney Rd.  
Richmond, VA 23230

### Facility

INGENCO Wholesale Power, LLC  
King and Queen Plant  
4443 Iris Road  
Little Plymouth, Virginia 23091

### Responsible Official

Mr. Charles J. Packard  
President

### Contact Person

Mr. Robert L. Greene, PhD  
Environmental Compliance Manager  
Phone: (804) 521-3557  
Fax: (804) 521-3583  
E-mail: rgreene@ingenco.com

**County-Plant Identification Number:** 51-097-0020

### Facility Description

NAICS ID# 221119 - Other Electrical Power Generation  
SIC Code: 4931-Electrical Power Generation

The facility is a 16 MW power generation facility. INGENCO Wholesale Power, LLC (INGENCO) King and Queen Plant is one of several facilities in the region operated by INGENCO Distributed Energy. Each INGENCO facility is adjacent to a separately permitted Municipal Solid Waste (MSW) landfill that provides treated landfill gas as fuel. The King and Queen Plant receives its landfill gas from the King and Queen Landfill (Registration No. 40937) which powers forty-eight compression ignition reciprocating internal combustion engines arranged in eight groups of six engines. The King and Queen Plant can also burn diesel or bio-diesel. The facility is located in an area in attainment for all pollutants at the time of public notice. The facility is a major source for NO<sub>x</sub> and CO emissions. The source's permitted emissions for all pollutants are below Prevention of Significant Deterioration (PSD) applicability levels. The facility is currently permitted under the following permits: A State Major New Source Review (NSR) permit issued on August 20, 2008 and amended on July 30, 2012. This permit action pertains to the initial issuance of the Title V Operating Permit. An application for permit was received on June 17, 2008 by the Virginia Department of Environmental Quality (DEQ) and was deemed administratively complete on July 3, 2008. Therefore, the Title V permit application shield remains in place.

## II. Emission Unit and Control Device Identification

Equipment to be operated consists of:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
A1-H6	S-1 through S-8	Forty-eight (48) Detroit Diesel Model 6063-TK35 dual-fuel diesel engines constructed in 2004, each driving a 350 kW generator; arranged in eight groups of six engines each. Each group has a separate exhaust stack, e.g. S1 serving group A1-A6, S2 serving group B1-B6, etc.	550 HP and 3.57 MMBtu/hr heat input each, total for 48 engines, 171.36 MMBtu/hr heat input.	N/A Passive controls: air-to-fuel ratio control, turbo-charging, custom built after coolers and charge-air cooling systems, engine control modules.	-	NO <sub>x</sub> , CO, SO <sub>x</sub> , VOC, PM, PM-10.	07/30/2012
-	-	Landfill gas treatment and transport system components operated by the permittee	3,000 – 4,500 cfm	N/A	-	-	-
B1	B1	Boiler for space heating	0.156 mmbTU/hr	N/A	-	NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, PM/PM-10	(Exempt) 10/10/2007

\*The Size/Rated capacity and PCD efficiency are provided for informational purposes only, and are not applicable requirements.

### **III. Fuel Burning Equipment Requirements – (Emission Units A1-H6)**

#### **A. Limitations**

1. Nitrogen oxide emissions from the 48 dual-fuel diesel engines (A1-H6) shall be controlled by the original equipment manufacturer's air-to-fuel ratio control, turbo-charging and charge-air cooling systems or a change to the engine control module (ECM). The air-to-fuel ratio shall be controlled by a separate engine control module for each engine.

(9 VAC 5-80-110 and Condition 2 of the permit dated July 30, 2012)

2. Nitrogen oxides emissions from the 48 dual-fuel diesel engines (A1-H6) shall also be controlled by supplementary inlet charge-air water-to-air cooling and oversized inlet charge and exhaust ducts. The cooling system shall be capable of maintaining an hourly average inlet charge-air temperature not greater than 140°F. Water shall be provided continuously to each engine inlet charge-air cooler and each engine shall have independent temperature measurement capabilities. The inlet charge-air cooler shall be provided with adequate access for inspection and shall be in operation when any of the 48 dual-fuel diesel engines (A1-H6) are operating.

(9 VAC 5-80-110 and Condition 3 of the permit dated July 30, 2012)

3. Nitrogen oxides emissions from the 48 dual-fuel diesel engines (A1-H6) shall be controlled by the combustion of treated landfill gas whenever any of the engines are operated in the dual fuel mode. The extent to which the dual fuel operations control Nitrogen Dioxide emissions is dependent upon the heat substitution rate supplied by the treated landfill gas. To ensure that a stable supply of treated landfill gas is being diverted to the facility, the facility shall install and operate a device to monitor and record the process of diverting the collected landfill gas from the landfill gas collection and control system in order to ensure that the process of diverting the landfill gas is operated in accordance with the facilities' standard operating procedures.

(9 VAC 5-80-110 and Condition 4 of the permit dated July 30, 2012)

4. Carbon monoxide emissions from the 48 dual-fuel diesel engines (A1-H6) shall be controlled by limiting the ratio of treated landfill gas heat input to total fuel heat input to up to an average not to exceed 98% on an annual basis. This is accomplished by setting the assumed liquid fuel flow in MMBtus to the compliment of the assumed gas flow rate in Btus. An increase in the heat input ratio to the 48 dual-fuel diesel engines (A1-H6) greater than an average 98% Gas Fraction on an annual basis or a change to the engine control module (ECM) may require a permit to modify and operate. The facility may, on prior approval from the Piedmont Regional Office, operate for short periods at heat input ratios greater than an average 98% Gas Fraction on an annual basis or a change to the engine control module (ECM) for the purposes of research and development.

(9 VAC 5-80-110 and Condition 5 of the permit dated July 30, 2012)

5. Any uncontrolled venting of landfill gas from the 48 dual-fuel diesel engines (A1-H6), the landfill gas treatment system, or the treated landfill gas transport system is prohibited. All treated landfill gas shall be purged from the treated landfill gas transport system prior to shutting down any engine after operating in the dual fuel mode. All atmospheric vents in the treated landfill gas transport system shall be controlled by a lockout-tag-out system or by installing and operating a device to divert the emissions from all vents to an approved landfill gas control system.

(9 VAC 5-80-110 and Condition 6 of the permit dated July 30, 2012)

6. Particulate matter and Volatile Organic Compounds emissions from the 48 dual-fuel diesel engines (A1-H6) shall be controlled by proper engine maintenance practices. The engines shall be repaired and maintained to prevent excess emissions of particulate matter (in the form of PM and PM-10) and Volatile Organic Compounds.

(9 VAC 5-80-110 and Condition 7 of the permit dated July 30, 2012)

7. All components of the treated landfill gas control system, which consists of each one of the 48 dual-fuel diesel engines (A1-H6), the treated landfill gas transport system, and the landfill gas treatment system shall be in operation whenever the facility is operating the engines in a dual fuel mode. If any component of the landfill gas treatment system or treated landfill gas transport system malfunctions, the treated landfill gas transport system shall be shut down and all untreated landfill gas shall be diverted to the remaining engines or to the utility flare(s). If any engine or set of engines malfunctions, that portion of treated landfill gas shall be diverted to the remaining engines, or to the utility flare(s).

(9 VAC 5-80-110 and Condition 8 of the permit dated July 30, 2012)

8. The facility shall determine the heat value of the treated LFG on a weekly basis, using the following formula:

$$\text{Heat Value} \left( \frac{\text{BTU}}{\text{cf}} \right) = \left( \frac{\% \text{ Methane}}{100} \right) \times 992.65 \frac{\text{BTU}}{\text{cf}}$$

A log of the values shall be maintained. The methane-measuring device shall be maintained, calibrated and operated in accordance with approved procedures which shall include, at a minimum, the manufacturer's written requirements or recommendations. The measuring device shall be provided with adequate access for inspection.

(9 VAC 5-80-110 and Condition 15 of the permit dated July 30, 2012)

9. The entire landfill gas treatment system as specified in Condition III.A.13 is required to comply with 40 CFR 60.752 (b)(2)(iii) and shall be installed and operational whenever landfill gas is being transferred to any of the 48 dual-fuel diesel engines (A1-H6). Verification of satisfactory operation of treatment equipment shall, at a minimum, include certification that manufacturer's written requirements or recommendations for installation, operation, and maintenance of the devices shall be followed.

(9 VAC 5-80-110 and Condition 16 of the permit dated July 30, 2012)

10. The approved fuels for the 48 dual-fuel diesel engines (A1-H6) are number 1 and number 2 - distillate oil, bio-diesel fuel oil and treated landfill gas. A change in the fuels may require a permit to modify and operate.

(9 VAC 5-80-110 and Condition 17 of the permit dated July 30, 2012)

11. The facility shall limit consumption of fuel such that neither the total nitrogen oxides (NO<sub>x</sub>) nor total carbon monoxide (CO) emissions exceed 240 tons, for any consecutive 12-month period. The emissions shall be calculated monthly as the sum of each consecutive 12-month period according to the following equations:

Given:

$$\text{NO}_x = \frac{\left[ \left( \frac{A \times CV_{\text{liq}}}{1,000,000\text{Btu}} \right) \times \text{ENO}_x(\text{l}) 11\text{bs/MMBtu} \right] + \left[ \left( \frac{B \times CV_{\text{LFG}}}{1,000,000\text{Btu}} \right) \times \text{ENO}_x(\text{LFG}) \times \text{lb/MMBtu} \right]}{2000\text{lb/ton}}$$

$$\text{CO} = \frac{\left[ \left( \frac{A \times CV_{\text{liq}}}{1,000,000\text{Btu}} \right) \times \text{ECO}_x(\text{l}) 11\text{bs/MMBtu} \right] + \left[ \left( \frac{B \times CV_{\text{LFG}}}{1,000,000\text{Btu}} \right) \times \text{ECO}_x(\text{LFG}) \times \text{lb/MMBtu} \right]}{2000\text{lb/ton}}$$

Where:

A = gallons of liquid fuel consumed as numbers 1 and 2 distillate oil or bio-diesel fuel oil.

B = cubic feet of landfill gas consumed.

CV<sub>liq</sub> = calorific value (heat content) in Btu/gallon of the corresponding liquid fuel as bio-diesel as specified in Condition III.A.12; specifically 131,000 BTU/gallon for bio-diesel or 137,000 Btu/gallon for distillate oil.

CV<sub>LFG</sub> = calorific value (heat content) in Btu/cubic foot of treated landfill gas as determined by Condition III.A.8.

ENO<sub>x</sub> (l) = Emissions factor for NO<sub>x</sub> from liquid fuel as shown in the table below

ENO<sub>x</sub>(lfg) = Emissions factor for NO<sub>x</sub> from landfill gas as shown in the table below.

ECO(l) = Emissions factor for CO from liquid fuel as shown in the table below

ECO(lfg) = Emissions factor for CO from landfill gas as shown in the table below:

Emission Factors

Landfill Gas Substitution Range (NO <sub>x</sub> )	ENO <sub>x</sub> (l)	ENO <sub>x</sub> (lfg)
0%-30%	2.15	- 0.40
31%-80%	1.50	1.50
81%-96%	5.00	0.70
81%-96% (New PCM128 Units)	5.52	0.255
96%- an average ≤98% (New PCM128 Units/Injectors/cams)	4.166	0.187

Landfill Gas Substitution Range (CO)	ECO(l)	ECO(lfg)
0%-54%	0.26	5.25
55%-96%	5.60	0.80
81%-96% (New PCM128 Units)	6.385	0.332
96%- an average ≤98% (New PCM128 Units/Injectors/cams)	7.838	0.524

Such that:

$\text{NO}_x \leq 240$  tons/yr calculated as the sum of each consecutive 12-month period as a product of the heat input contribution from each fuel source.

$\text{CO} \leq 240$  tons/yr calculated as the sum of each consecutive 12-month period as a product of the heat input contribution from each fuel source.

Each equation is valid only if the total heat input contribution from treated landfill gas heat input is less than or equal to 98% of the total heat input for any period of continuous dual-fuel operation, expressed as the ratio of treated landfill gas heat input to total fuel heat input (For each period of continuous dual-fuel operation), according to the following equation:

$$\text{HI}_{\text{LFG}} = \frac{\text{B} \times \text{CV}_{\text{LFG}}}{(\text{A} \times \text{CV}_{\text{liq}}) + (\text{B} \times \text{CV}_{\text{LFG}})} \times 100 \leq 98\%$$

(9 VAC 5-80-110 and Condition 18 of the permit dated July 30, 2012)

12. The fuel oils and treated landfill gas shall meet the specifications below:

Distillate oils which meets the ASTM D396 specifications for numbers 1 and 2 fuel oil:

Maximum sulfur content per shipment: 0.5%  
Average sulfur content: 0.25%  
Heat content: 137,000 BTU/gallon

Bio-diesel fuel oil which meets the ASTM D6751 specifications:

Maximum sulfur content per shipment: 0.5%  
Average sulfur content: 0.25%  
Nominal heat content: 131,000 BTU/gallon

Treated landfill gas:

Minimum heat content: 200 Btu/scf

The heat content of each fuel listed shall be used to calculate the facility's emissions as defined by the emission factors and limits found in Conditions III.A.10, III.A.11, III.A.14, and IV.A.1. The heat content of the treated landfill gas shall be analyzed for gross calorific value using method outlined in Condition III.A.8.

(9 VAC 5-80-110 and Condition 19 of the permit dated July 30, 2012)

13. Treated landfill gas shall be that which is produced by the BFI King and Queen Landfill (Registration Number 40937) as that facility is permitted by the Virginia Department of Environmental Quality and has been processed in accordance with 40 CFR60.752 (b)(2)(iii)(C). The landfill gas treatment system, at a minimum, shall be composed of a de-watering process, filtration through a 10-micron filter, and compression. The facility's de-watering process shall consist of a tertiary or polishing tank with a total capacity of 150 gallons. The primary and secondary knockout tanks are located at the BFI King and Queen Landfill (40937). All landfill gas consumed at the permitted facility shall pass through each component of the landfill gas treatment process prior to use in the combustion process.

(9 VAC 5-80-110 and Condition 20 of the permit dated July 30, 2012)

14. Emissions from the operation of any of the 48 dual-fuel diesel engines (A1-H6) when the facility is operated in either the single fuel or the dual fuel mode shall not exceed the limits specified below.

Particulate Matter	0.3	lb/MMBtu
PM-10	0.3	lb/MMBtu
PM-2.5	0.3	lb/MMBtu
Sulfur Dioxide	0.5	lb/MMBtu
Nitrogen Oxides (as NO <sub>2</sub> )	2.4	lb/MMBtu
Carbon Monoxide	3.0	lb/MMBtu
Volatile Organic Compounds	0.4	lb/MMBtu

Compliance with the lb/MMBtu limits for PM, PM-10, NO<sub>x</sub>, CO and VOC shall be determined by stack testing. All other emission limits are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers III.A.1 through III.A.7 and III.A.10 through III.A.13.

(9 VAC 5-80-110 and Condition 22 of the permit dated July 30, 2012)

15. Visible emissions from the 48 dual-fuel diesel engines (A1-H6) stacks (S1-S8) shall not exceed 10% opacity whenever the engines are operated in a single fuel mode except during one six-minute period in any one hour in which visible emissions shall not exceed 20% opacity. Visible emissions from the 48 dual-fuel diesel engines (A1-H6) stacks (S1-S8) shall not exceed 20% opacity whenever the engines are operated in a dual fuel mode except during one six-minute period in any one hour in which visible emissions shall not exceed 30% opacity. All visible emissions rates shall be determined by EPA Method 9 (reference 40 CFR 60, Appendix A).

(9 VAC 5-80-110 and Condition 24 of the NSR permit dated July 30, 2012)

16. As stated in the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE MACT, Subpart ZZZZ), the facility shall, as a minimum, change the oil and oil filter every 1,440 hours of operation or annually, whichever comes first, for each engine. The facility shall also inspect all hoses and belts every 1,400 hours of operation or annually, whichever comes first, and replace as necessary. The facility shall minimize the engines' time spent at idle during startup and minimize the engines' startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

(9 VAC 5-80-110, 40 CFR §§63.6625 (h) and Table 2d (11) of 40 CFR 63 Subpart ZZZZ)

17. The facility shall combust treated landfill gas from the King and Queen Landfill (Reg. No. 40937) in the 48 dual-fuel diesel engines' (A1-H6) in an amount which is equivalent to 10 percent or more of the gross heat input on an annual basis.

(9 VAC 5-80-110 and 40 CFR §§ 63.6590(b)(2) of 40 CFR 63 Subpart ZZZZ)

18. Except as specified in this permit, the facility is to be operated in compliance with Federal requirements under 40 CFR 63 Subpart JJJJJJ. The facility shall operate the existing boiler (B1) compliant with the applicable work practice standards, emission reduction measures, and management practices listed in Table 2 of 40 CFR 63 Subpart JJJJJJ. The 0.156 mmBTU/hr distillate oil boiler (B1) is an applicable existing boiler (40 CFR §§ 63.11193) and shall comply with all applicable requirements for this size and category of boiler located at an area source.

(9 VAC 5-80-110, 40 CFR 63 Subpart A and 40 CFR §§ 63.11193 of 40 CFR 63 Subpart JJJJJJ)

## **B. Monitoring**

1. The facility shall be equipped with devices to continuously measure and record the consumption of treated landfill gas, distillate oil and bio-diesel fuel oil by the 48 dual-fuel diesel engines (A1-H6). Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, at a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the facility is operating.

(9 VAC 5-80-110 and Condition 9 of the permit dated July 30, 2012)

2. Each of the 48 dual-fuel diesel engines (A1-H6) shall be equipped with a device to continuously measure engine inlet charge-air temperature. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the 48 dual-fuel diesel engines are operating.

(9 VAC 5-80-110 and Condition 10 of the permit dated July 30, 2012)

3. The facility shall be equipped with devices to continuously measure the pressure within the treated landfill gas transport system. At a minimum, devices shall be located just before and just after the 10-micron filter and after the completed treatment process. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the facility is operating.

(9 VAC 5-80-110 and Condition 11 of the permit dated July 30, 2012)

4. The facility shall log observations of landfill gas fraction and inlet charge air temperature for each engine (A1-H6) when operating (engines noted as "OFF" when not running). The log shall contain a minimum of hourly observations processed monthly and stored onsite. The facility will maintain a written log, stored onsite, containing hourly observations for the periods of electronic/computer problems/failure to commence within one hour of an electronic records problem/computer failure. The log shall be used for emissions calculations during periods where some or all electronic data are not available. In the case where no electronic information or manual records are available, the facility will calculate emissions using worse case scenario.

(9 VAC 5-80-110 and Condition 12 of the permit dated July 30, 2012)

5. The monitoring devices used to measure inlet charge-air temperature shall be observed by the facility with a frequency of not less than hourly whenever the engines are operating. The facility shall keep a daily log of the temperature observations from the monitoring devices including the time the observation was recorded.

(9 VAC 5-80-110 and Condition 13 of the permit dated July 30, 2012)

6. The monitoring device used to measure the pressure in the treated landfill gas system shall be observed by the facility whenever treated landfill gas is combusted in the engines with a frequency of not less than daily to ensure good performance of the treatment system. The facility shall keep a daily log of the observations from the monitoring device, including the change in pressure across the 10-micron filter.

(9 VAC 5-80-110 and Condition 14 of the permit dated July 30, 2012)

7. The facility shall drain the polishing tank referenced in Condition III.A.13 at least once each day that landfill gas is consumed by the facility, and observe the presence or absence of any water collected in the tank. The facility shall maintain a daily log of these observations, which shall include the date and time of each observation.

(9 VAC 5-80-110 and Condition 31 of the permit dated July 30, 2012)

8. Once per month, the facility shall conduct an observation of the presence of visible emissions from the operating 48 internal combustion engines (A1-H6). If visible emissions are observed, the facility shall take timely corrective action such that the units resume operation with no visible emissions, or perform a visible emissions evaluation (VEE) in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions from any of the 48 internal combustion engines (A1-H6) does not exceed 10% opacity whenever the engines are operated in a single fuel mode, except during one six-minute period in any one hour in which visible emissions shall not exceed 20% opacity and visible emissions from the 48 dual-fuel diesel engines (A1-H6) stacks (S1-S8) shall not exceed 20% opacity whenever the engines are operated in a dual fuel mode except during one six-minute period in any one hour in which visible emissions shall not exceed 30.0% opacity. The VEE shall be conducted for a minimum of six minutes. If any of the observation exceeds 10% opacity, the VEE shall be conducted for sixty minutes. If compliance is not demonstrated by the VEE, timely corrective action shall be taken such that the operating engines resumes operation that is in compliance with the opacity limit for single or dual fuel mode as appropriate. The facility shall maintain an observation log to demonstrate compliance. The log shall include the date and time of the observation, single or dual fuel operations, whether or not there were visible emissions, any VEE recordings and necessary corrective actions. Upon request by the DEQ, the facility shall conduct additional visible emission evaluations from the 48 internal combustion engines (A1-H6) to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the Director, Piedmont Region.

(9 VAC 5-80-110 and Condition 34 of the permit dated July 30, 2012)

### **C. Recordkeeping**

1. The facility shall obtain a certification from the fuel supplier with each shipment of distillate oil or bio-diesel fuel oil. Each fuel supplier certification shall include the following:
  - a. The name of the fuel supplier;
  - b. The date on which the distillate oil or bio-diesel fuel oil was received;
  - c. The volume of the distillate oil or bio-diesel fuel oil delivered in the shipment;
  - d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications [D396-78] for numbers 1 or 2 fuel oil; and
  - e. The heat value (in Btu/gal) of the bio-diesel fuel oil; and
  - f. A statement that the sulfur content of the distillate oil or bio-diesel fuel oil does not exceed 0.25 % by weight and 0.5% by weight, respectively.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition III.A.12. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-110 and Condition 21 of the permit dated July 30, 2012)

2. The facility shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Piedmont Region. These records shall include, but are not limited to:
  - a. Annual throughput of landfill gas, distillate oil, and biodiesel fuel oil, calculated monthly as the sum of each consecutive 12-month period;
  - b. Daily records of fuel consumption for every period of operation to verify compliance with Condition numbers III.A.4, III.A.11, III.B.4, and III.A.17;
  - c. Daily records of treated landfill gas heat input as the ratio of total heat input for every period of continuous operation to verify compliance with Conditions III.A.4, III.A.11, and III.A.17. Heat input calculations shall be based on the data required by Condition III.B.4;
  - d. Daily log of the polishing tank observation results as described in Condition III.B.7;
  - e. Hourly records of engine inlet charge-air temperature reading to verify compliance with Condition III.A.2;
  - f. All 1 hour periods of operation during which the charge-air temperature as described in Condition III.A.2 exceeds the average charge-air temperature limit of 140° F;
  - g. Monthly and annual emission (in tons) using calculation methods approved by the Piedmont Regional Office to verify compliance with emission limitations in Conditions III.A.11, III.A.14, and IV.A.1. Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period;
  - h. Treated landfill gas transport system pressure readings to verify compliance with Condition III.B.6;
  - i. Weekly landfill gas gross calorific value determination results, including % methane readings as described in Condition III.A.8;
  - j. Results of all stack tests, visible emissions evaluations (VEE), monthly visible emissions evaluations log, and performance evaluations;
  - k. All fuel supplier certifications;
  - l. Scheduled and unscheduled maintenance on the engines;

- m. Operating procedures and operator training records for the engines;
- n. All records generated by the device installed for the purpose of continuously monitoring and recording the status of the device used to divert the collected landfill gas from a utility flare to the landfill gas treatment system and then to the engines (A1-H6), as required by Condition III.A.3;
- o. Calculations demonstrating compliance with Condition III.A.17 (9 VAC 5-80-110);
- p. Any problems or errors suspected with the fuel meters and any corrective action taken (9 VAC 5-80-110).

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-80-110 and Condition 25 of the permit dated July 30, 2012)

- 3. The facility shall maintain all records required by MACT, Subpart ZZZZ, as applicable to the 48 dual-fuel diesel engines (A1-H6) which includes the following:
  - a. A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).
  - b. Records of the occurrence and duration of each malfunction of operation ( i.e., process equipment) or the air pollution control and monitoring equipment.
  - c. Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).
  - d. Records of all required maintenance performed on the air pollution control and monitoring equipment.
  - e. Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
  - f. Records demonstrating compliance with the work and management practices required in Condition III.A.17.
  - g. A copy of a site specific maintenance and operation plan for the engines that is consistent with good air pollution control for minimizing emissions in accordance with 40 CFR §63.6655(e)(3) and Table 6 (9.a.ii).

(9 VAC 5-80-110, §63.6605(a-c), §63.6655(e)(3) and Table 6 (9.a.ii))

4. The facility shall maintain all records required by MACT, Subpart JJJJJJ, as applicable to the boiler (B1) which includes the following:
  - a. A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).
  - b. Records demonstrating compliance with the work and management practices required in Condition III.A.18.

(9 VAC 5-80-110, § 63.11201, § 63.11223 and Table 2(3.) of 40 CFR 63 Subpart JJJJJJ)

#### **D. Testing**

1. Initial and subsequent performance tests shall be conducted for NO<sub>x</sub>, CO and PM-2.5 from the 48 dual-fuel diesel engines (A1-H6) to determine compliance with the emission limits contained in Conditions III.A.11, III.A.14, and IV.A.1. The tests shall be performed while operating in single fuel mode using 100% distillate oil. The tests shall be performed at no less than 80% of the rated capacity of the electrical output on a minimum of one set of six engines. The tests shall be performed, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. The tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Director, Piedmont Region. The facility shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Director, Piedmont Region within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 26 of the NSR permit dated July 30, 2012)

2. Initial and subsequent performance tests shall be conducted for NO<sub>x</sub>, CO, VOC, PM<sub>10</sub> and PM-2.5 pollutant emissions from the 48 dual-fuel diesel engines (A1-H6) to determine compliance with the emission limits contained in Conditions III.A.11, III.A.14, and IV.A.1. The tests shall be performed while operating in dual fuel mode using distillate oil and the maximum landfill gas substitution rate achieved during testing. The dual fuel tests shall be performed at no less than 65% of the rated capacity of the electrical output on a minimum of one set of six engines at two points between 70% and 98% gas fraction on a Btu basis with one point within 4% of the 98% end point. The tests shall be performed, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated, but in no event later than 180 days after start-up of the permitted facility. The tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Director, Piedmont Region. The facility shall submit a test protocol at least 30 days prior to

testing. Two copies of the test results shall be submitted to the Director, Piedmont Region within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 27 of the NSR permit dated July 30, 2012)

3. The initial performance test shall be conducted for NO<sub>x</sub>, CO and PM-2.5 from the 48 dual-fuel diesel engines (A1-H6), within 60 days of the Piedmont Regional Office receiving notice of the combustion of bio-diesel, to determine compliance with the emission limits contained in Conditions III.A.11, III.A.14, and IV.A.1. Separate tests shall be performed while operating in single fuel mode using 100% bio-diesel and in dual fuel mode using various quantities of landfill gas and bio-diesel. The bio-diesel test shall be performed at no less than 80% of the rated capacity of the electrical output on a minimum of one set of six engines. The dual fuel tests shall be performed at no less than 65% of the rated capacity of the electrical output on a minimum of one set of six engines at two points between 70% and 98% gas fraction on a Btu basis with one point within 4% of the 98% end point. The tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Director, Piedmont Region. The facility shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Director, Piedmont Region within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 28 of the NSR permit dated July 30, 2012)

4. Concurrently with the initial and subsequent performance test as required in Conditions III.D.1, III.D.2 and III.D.3, the permittee shall determine the moisture content of the treated landfill gas, as sampled, prior to combustion in any of the 48 dual-fuel diesel engines (A1-H6). The moisture content testing shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 4. Each test shall be reported and data reduced as set forth in 9 VAC 5-50-30. The details of the test are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 29 of the NSR permit dated July 30, 2012)

5. Concurrently with the initial and subsequent performance tests required in Conditions III.D.1, III.D.2 and III.D.3. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the facility on those engines tested. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Director, Piedmont Region. The facility shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, and reported and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Should conditions prevent concurrent opacity observations, the Director, Piedmont Region shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. Two copies of the test result shall be submitted to the Director, Piedmont Region within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 30 of the permit dated July 30, 2012)

6. The performance tests for NO<sub>x</sub>, CO and PM-2.5 required in Conditions III.D.2 and III.D.3 shall at a minimum be conducted once every five years on all eight stacks and before the Title V operating permit renewal application submittal, starting from the completion date of the testing as required in Conditions III.D.1 and III.D.2. Each testing cycle shall evaluate the performance of a different set of six engines (stack) to ensure the accuracy of the equations in Condition III.A.11. Separate tests shall be performed while operating in single fuel mode using 100% liquid fuel and in dual fuel mode using various quantities of landfill gas and liquid fuel. The single fuel oil test shall be performed at no less than 80% of the rated capacity of the electrical output on a minimum of one set of six engines. The dual fuel tests shall be performed at no less than 65% of the rated capacity of the electrical output on a minimum of one set of six engines at two points between 70% and 96% gas fraction on a Btu basis with one point within 4% of the 96% end point. The tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Director, Piedmont Region. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Director, Piedmont Region within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-110 and Condition 32 of the permit dated July 30, 2012)

7. The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Test ports shall be provided when requested at the appropriate locations.

(9 VAC 5-80-110 and Condition 33 of the permit dated July 30, 2012)

## E. Reporting

1. The facility shall furnish written notification to the Director, Piedmont Region:
  - a. The actual date on which the installation of the 36 engines (A1-F6) are installed within 30 days after such date.
  - b. The anticipated start-up date of the engines (A1-F6) postmarked not more than 60 days nor less than 30 days prior to such date.
  - c. The actual start-up date of the additional engines (A1-F6) within 15 days after such date.
  - d. The anticipated date of performance tests of the dual-fuel electrical power generating plant postmarked at least 30 days prior to such date.
  - e. The actual date on which the installation of the additional 12 engines (G1-H6) are installed within 30 days after such date.
  - f. The anticipated start-up date of the additional engines (G1-H6) postmarked not more than 60 days nor less than 30 days prior to such date.
  - g. The actual start-up date of the additional engines (G1-H6) within 15 days after such date.

(9 VAC 5-80-110 and Condition 35 of the permit dated July 30, 2012)

2. The facility shall furnish notification to the Director, Piedmont Region of the date of removal or cessation of operation of the control equipment 30 days prior to such date.

(9 VAC 5-80-110 and Condition 36 of the permit dated July 30, 2012)

3. The facility shall furnish notification to the Director, Piedmont Region of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but not later than four daytime business hours of the malfunction. The facility shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of the occurrence. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the facility shall notify Director, Piedmont Region in writing.

(9 VAC 5-80-110 and Condition 37 of the permit dated July 30, 2012)

4. This permit to construct a dual-fuel electrical power generation facility shall become invalid, unless an extension is granted by the DEQ, if:
  - a. A program of continuous construction is not commenced before the latest of the following:
    - (1) 18 months from the date of this permit;
    - (2) Nine months from the date that the last permit or other authorization was issued from any other governmental agency;
    - (3) Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or
  - b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-110 and Condition 38 of the permit dated July 30, 2012)

5. The modifications associated with this [NSR] permit resulted in a total facility-wide permitted emissions increase of 240.0 tons per year of CO, 240.0 tons per year of NO<sub>x</sub>, 125.4 tons per year PM/PM<sub>10</sub>/ PM<sub>2.5</sub>, 30.7 tons per year SO<sub>2</sub> and 167.2 tons per year VOC. Any application for construction, reconstruction, or modification of this facility submitted subsequent to the application dated April 26, 2007 received by DEQ shall include an analysis of the effect of the construction, reconstruction, or modification on the facility-wide emissions and a determination of the effect of the project on plant-wide production capacity. Further emissions increases related to this construction, reconstruction, or modification shall be evaluated together with the above emission increases to determine whether such activities are subject to any applicable provisions of 9 VAC 5 Chapter 80, Articles 6, 8 and 9 of the State Regulations.

(9 VAC 5-80-110 and Condition 39 of the permit dated July 30, 2012)

6. The emission controls required by this permit will be reevaluated in conjunction with future submittals related to the phased construction activities covered in this permit no later than 18 months prior to the commencement of construction for each phase of the project. Future emission reduction strategies determined to be applicable to future phased construction activities may require amending this permit.

(9 VAC 5-80-110 and Condition 40 of the permit dated July 30, 2012)

7. The facility shall submit all of the notifications in 40 CFR §§63.7 (b) and (c), 63.8 (e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply by the dates specified.

(9 VAC 5-80-110, §§63.6645 (a)(2) and §§63.6665 of 40 CFR 63 Subpart ZZZZ)

8. The permittee shall submit an annual report to the Director, Piedmont Regional Office containing the fuel flow rate of each fuel and the heating values that were used in the calculations demonstrating that the percentage of heat input provided by landfill gas is equivalent to 10 percent or more of the gross heat input on an annual basis and any problems or errors suspected with the fuel meters along with any corrective action taken. This report may be submitted at the same time as the Annual Compliance Certification submittal required in Condition VII.D and be based upon the same time period as the certification.

(9 VAC 5-80-110)

## IV. Facility Wide Conditions

### A. Limitations

1. Total emissions from the facility whether it is operated in the single fuel or the dual fuel mode shall not exceed the limits specified below, calculated monthly as the sum of each consecutive 12-month period:

Particulate Matter	52.9	lb/hour	125.4	tons/year
PM-10	52.9	lb/hour	125.4	tons/year
PM-2.5	52.9	lb/hour	125.4	tons/year
Sulfur Dioxide	88.2	lb/hour	30.7	tons/year
Nitrogen Dioxide	383.0	lb/hour	240.0	tons/year
Carbon Monoxide	381.8	lb/hour	240.0	tons/year
Volatile Organic Compounds	70.6	lb/hour	167.2	tons/year

Emissions limits are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition numbers III.A.1 through III.A.7, III.A.10, III.A.11, III.A.12 and III.A.13.

(9 VAC 5-80-110 and Condition 23 of the permit dated July 30, 2012)

## V. Insignificant Emission Units

The following emission units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (5-80-720 B)	Rated Capacity (5-80-720 C)
T1	Fuel oil storage tank	5-80-720 B.	VOC	30,000 Gallon
T2	Fuel oil storage tank	5-80-720 B.	VOC	30,000 Gallon
T3	Lubricating oil storage tank	5-80-720 B.	VOC	1,000 Gallon
T4	Used Lubricating oil storage tank	5-80-720 B.	VOC	1,000 Gallon

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

## VI. Permit Shield & Inapplicable Requirements

Compliance with the provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit and the following requirements which have been specifically identified as being not applicable to this permitted facility:

Citation	Title of Citation	Description of Applicability
9VAC5-40-880 through 9 VAC 5-40-1050	Emission Standards for Fuel Burning Equipment (Rule 4-8)	Rule 4-8 does not apply to stationary internal combustion engines as stated in 9 VAC 5-40-880.E.
40 CFR Part 60 Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	The CI RICEs were constructed before the applicability date of July 11, 2005, and have not been modified.
40 CFR Part 64	Compliance Assurance Monitoring	The CI RICEs do not have add-on pollution control devices.

40 CFR Parts 51, 52, 70, and 71	Title V Greenhouse Gas Tailoring Rule, Phase 1	The facility is an existing source currently not subject to PSD for any pollutant.
40 CFR Part 60 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	The facility is exempt from the standard based on size, largest tanks are 30,000 gallons, and from the Subpart Kb recordkeeping requirements as revised on October 13, 2003.
40 CFR Part 60 Subpart WWW –Specific to Sections Regarding Collection and Destruction of Landfill Gas	Standards of Performance for Municipal Solid Waste Landfills	Source is exempt from sections regarding collection and destruction of landfill gas as long as INGENCO King and Queen Plant's treatment of the landfill gas meets the requirements listed in 40 CFR, Part 60.752(b)(2)(iii)(C)
NSPS Subpart AAAA–Specific to Sections Regarding Collection and Destruction of Landfill Gas	Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001	Source is exempt from sections regarding collection and destruction of landfill gas as long as INGENCO King and Queen Plant's treatment of the landfill gas meets the requirements listed in 40 CFR, Part 60.752(b)(2)(iii)(C)
MACT Subpart A - 40 CFR Part 63.6(d), 63.6(e), 63.6(h), 63.7(e)(1), 63.8(a)(4), 63.8(c)(5), 63.9(d), 63.10(b)(2)(i)-(v), 63.10(d)(3), 63.1(e)(2)(ii), 63.10(e)(4), and 63.11	General Provisions	Facility is exempted by complying with MACT Subpart ZZZZ requirements.

Nothing in this permit shield shall alter the provisions of §303 of the federal Clean Air Act, including the authority of the administrator under that section, the liability of the owner for any violation of applicable requirements prior to or at the time of permit issuance, or the ability to obtain information by the administrator pursuant to §114 of the federal Clean Air Act, (ii) the Board pursuant to §10.1-1314 or §10.1-1315 of the Virginia Air Pollution Control Law or (iii) the Department pursuant to §10.1-1307.3 of the Virginia Air Pollution Control Law.

(9 VAC 5-80-140)

## **VII. General Conditions**

### **A. Federal Enforceability**

All terms and conditions in this permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.

(9 VAC 5-80-110 N)

### **B. Permit Expiration**

This permit has a fixed term of five years. The expiration date shall be the date five years from the date of issuance. Unless the owner submits a timely and complete application for renewal to the Department consistent with the requirements of 9 VAC 5-80-80, the right of the facility to operate shall be terminated upon permit expiration.

1. The owner shall submit an application for renewal at least six months but no earlier than eighteen months prior to the date of permit expiration.
2. If an applicant submits a timely and complete application for an initial permit or renewal under this section, the failure of the source to have a permit or the operation of the source without a permit shall not be a violation of Article 1, Part II of 9 VAC 5 Chapter 80, until the Board takes final action on the application under 9 VAC 5-80-150.
3. No source shall operate after the time that it is required to submit a timely and complete application under subsections C and D of 9 VAC 5-80-80 for a renewal permit, except in compliance with a permit issued under Article 1, Part II of 9 VAC 5 Chapter 80.
4. If an applicant submits a timely and complete application under section 9 VAC 5-80-80 for a permit renewal but the Board fails to issue or deny the renewal permit before the end of the term of the previous permit, (i) the previous permit shall not expire until the renewal permit has been issued or denied and (ii) all the terms and conditions of the previous permit, including any permit shield granted pursuant to 9 VAC 5-80-140, shall remain in effect from the date the application is determined to be complete until the renewal permit is issued or denied.

5. The protection under subsections F 1 and F 5 (ii) of section 9 VAC 5-80-80 F shall cease to apply if, subsequent to the completeness determination made pursuant by section 9 VAC 5-80-80 D, the applicant fails to submit by the deadline specified in writing by the Board any additional information identified as being needed to process the application.

(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

**C. Recordkeeping and Reporting**

1. All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following:
  - a. The date, place as defined in the permit, and time of sampling or measurements.
  - b. The date(s) analyses were performed.
  - c. The company or entity that performed the analyses.
  - d. The analytical techniques or methods used.
  - e. The results of such analyses.
  - f. The operating conditions existing at the time of sampling or measurement.

(9 VAC 5-80-110 F)

2. Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application.

Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

(9 VAC 5-80-110 F)

3. The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than **March 1** and **September 1** of each calendar year. This report must be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:
  - a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31.
  - b. All deviations from permit requirements. For purpose of this permit, deviations include, but are not limited to:
    - (1) Exceedance of emissions limitations or operational restrictions;

- (2) Excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or Compliance Assurance Monitoring (CAM) which indicates an exceedance of emission limitations or operational restrictions; or,
- b. Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.
- c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that "no deviations from permit requirements occurred during this semi-annual reporting period."

(9 VAC 5-80-110 F)

#### **D. Annual Compliance Certification**

Exclusive of any reporting required to assure compliance with the terms and conditions of this permit or as part of a schedule of compliance contained in this permit, the permittee shall submit to EPA and DEQ no later than **March 1** each calendar year a certification of compliance with all terms and conditions of this permit including emission limitation standards or work practices. The compliance certification shall comply with such additional requirements that may be specified pursuant to §114(a)(3) and §504(b) of the federal Clean Air Act. This certification shall be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:

1. The time period included in the certification. The time period to be addressed is January 1 to December 31.
2. The identification of each term or condition of the permit that is the basis of the certification.
3. The compliance status.
4. Whether compliance was continuous or intermittent, and if not continuous, documentation of each incident of non-compliance.
5. Consistent with subsection 9 VAC 5-80-110 E, the method or methods used for determining the compliance status of the source at the time of certification and over the reporting period.
6. Such other facts as the permit may require to determine the compliance status of the source.
7. One copy of the annual compliance certification shall be submitted to EPA in electronic format only. The certification document should be sent to the following electronic mailing address:

R3\_APD\_Permits@epa.gov

(9 VAC 5-80-110 K.5)

**E. Permit Deviation Reporting**

The permittee shall notify the Director, Piedmont Regional Office within four daytime business hours after discovery of any deviations from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the discovery, the permittee shall provide a written statement explaining the problem, any corrective actions or preventative measures taken, and the estimated duration of the permit deviation. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to General Condition VII.C.3 of this permit.

(9 VAC 5-80-110 F.2 and 9 VAC 5-80-250)

**F. Failure/Malfunction Reporting**

In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall, as soon as practicable but no later than four daytime business hours after the malfunction is discovered, notify the Director, Piedmont Regional Office by facsimile transmission, telephone or telegraph of such failure or malfunction and shall within 14 days of discovery provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the Director, Piedmont Regional Office.

(9 VAC 5-20-180 C)

**G. Severability**

The terms of this permit are severable. If any condition, requirement or portion of the permit is held invalid or inapplicable under any circumstance, such invalidity or inapplicability shall not affect or impair the remaining conditions, requirements, or portions of the permit.

(9 VAC 5-80-110 G.1)

**H. Duty to Comply**

The permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Air Act or the Virginia Air Pollution Control Law or both and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or, for denial of a permit renewal application.

(9 VAC 5-80-110 G.2)

**I. Need to Halt or Reduce Activity not a Defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(9 VAC 5-80-110 G.3)

**J. Permit Modification**

A physical change in, or change in the method of operation of, this stationary source may be subject to permitting under State Regulations 9 VAC 5-80-50, 9 VAC 5-80-1100, 9 VAC 5-80-1605, or 9 VAC 5-80-2000 and may require a permit modification and/or revisions except as may be authorized in any approved alternative operating scenarios.

(9 VAC 5-80-190 and 9 VAC 5-80-260)

**K. Property Rights**

The permit does not convey any property rights of any sort, or any exclusive privilege.

(9 VAC 5-80-110 G.5)

**L. Duty to Submit Information**

1. The permittee shall furnish to the Board, within a reasonable time, any information that the Board may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Board copies of records required to be kept by the permit and, for information claimed to be confidential, the permittee shall furnish such records to the Board along with a claim of confidentiality.

(9 VAC 5-80-110 G.6)

2. Any document (including reports) required in a permit condition to be submitted to the Board shall contain a certification by a responsible official that meets the requirements of 9 VAC 5-80-80 G.

(9 VAC 5-80-110 K.1)

**M. Duty to Pay Permit Fees**

The owner of any source for which a permit under 9 VAC 5-80-50 through 9 VAC 5-80-300 was issued shall pay permit fees consistent with the requirements of 9 VAC 5-80-310 through 9 VAC 5-80-350. The actual emissions covered by the permit program fees for the preceding year shall be calculated by the owner and submitted to the Department by April 15 of each year. The calculations and final amount of emissions are subject to verification and final determination by the Department.

(9 VAC 5-80-110 H and 9 VAC 5-80-340 C)

**N. Fugitive Dust Emission Standards**

During the operation of a stationary source or any other building, structure, facility, or installation, no owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
2. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of them in a clean condition;
3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty material. Adequate containment methods shall be employed during sandblasting or similar operations;
4. Open equipment for conveying or transporting material likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion; and,
5. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.

(9 VAC 5-50-90)

**O. Startup, Shutdown, and Malfunction**

At all times, including periods of startup, shutdown, and soot blowing, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Board, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(9 VAC 5-50-20 E)

**P. Alternative Operating Scenarios**

Contemporaneously with making a change between reasonably anticipated operating scenarios identified in this permit, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions under each such operating scenario. The terms and conditions of each such alternative scenario shall meet all applicable requirements including the requirements of 9 VAC 5 Chapter 80, Article 1.

(9 VAC 5-80-110 J)

**Q. Inspection and Entry Requirements**

The permittee shall allow DEQ, upon presentation of credentials and other documents as may be required by law, to perform the following:

1. Enter upon the premises where the source is located or emissions-related activity is conducted, or where records must be kept under the terms and conditions of the permit.
2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of the permit.
3. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit.
4. Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(9 VAC 5-80-110 K.2)

**R. Reopening For Cause**

The permit shall be reopened by the Board if additional federal requirements become applicable to a major source with a remaining permit term of three years or more. Such reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 9 VAC 5-80-80 F.

1. The permit shall be reopened if the Board or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
2. The permit shall be reopened if the administrator or the Board determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
3. The permit shall not be reopened by the Board if additional applicable state requirements become applicable to a major source prior to the expiration date established under 9 VAC 5-80-110 D.

(9 VAC 5-80-110 L)

**S. Permit Availability**

Within five days after receipt of the issued permit, the permittee shall maintain the permit on the premises for which the permit has been issued and shall make the permit immediately available to DEQ upon request.

(9 VAC 5-80-150 E)

**T. Transfer of Permits**

1. No person shall transfer a permit from one location to another, unless authorized under 9 VAC 5-80-130, or from one piece of equipment to another.
2. In the case of a transfer of ownership of a stationary source, the new owner shall comply with any current permit issued to the previous owner. The new owner shall notify the Board of the change in ownership within 30 days of the transfer and shall comply with the requirements of 9 VAC 5-80-200.

3. In the case of a name change of a stationary source, the owner shall comply with any current permit issued under the previous source name. The owner shall notify the Board of the change in source name within 30 days of the name change and shall comply with the requirements of 9 VAC 5-80-200.

(9 VAC 5-80-160)

**U. Malfunction as an Affirmative Defense**

1. A malfunction constitutes an affirmative defense to an action brought for noncompliance with technology-based emission limitations if the requirements of paragraph 2 of this condition are met.
2. The affirmative defense of malfunction shall be demonstrated by the permittee through properly signed, contemporaneous operating logs, or other relevant evidence that show the following:
  - a. A malfunction occurred and the permittee can identify the cause or causes of the malfunction.
  - b. The permitted facility was at the time being properly operated.
  - c. During the period of the malfunction the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.
  - d. The permittee notified the Board of the malfunction within two working days following the time when the emission limitations were exceeded due to the malfunction. This notification shall include a description of the malfunction, any steps taken to mitigate emissions, and corrective actions taken. The notification may be delivered either orally or in writing. The notification may be delivered by electronic mail, facsimile transmission, telephone, or any other method that allows the permittee to comply with the deadline. This notification fulfills the requirements of 9 VAC 5-80-110 F.2.b to report promptly deviations from permit requirements. This notification does not release the permittee from the malfunction reporting requirement under 9 VAC 5-20-180 C.
3. In any enforcement proceeding, the permittee seeking to establish the occurrence of a malfunction shall have the burden of proof.
4. The provisions of this section are in addition to any malfunction, emergency or upset provision contained in any applicable requirement.

(9 VAC 5-80-250)

**V. Permit Revocation or Termination for Cause**

A permit may be revoked or terminated prior to its expiration date if the owner knowingly makes material misstatements in the permit application or any amendments thereto or if the permittee violates, fails, neglects or refuses to comply with the terms or conditions of the permit, any applicable requirements, or the applicable provisions of 9 VAC 5 Chapter 80 Article 1. The Board may suspend, under such conditions and for such period of time as the Board may prescribe any permit for any grounds for revocation or termination or for any other violations of these regulations.

(9 VAC 5-80-190 C and 9 VAC 5-80-260)

**W. Duty to Supplement or Correct Application**

Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrections. An applicant shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete application was filed but prior to release of a draft permit.

(9 VAC 5-80-80 E)

**X. Stratospheric Ozone Protection**

If the permittee handles or emits one or more Class I or II substances subject to a standard promulgated under or established by Title VI (Stratospheric Ozone Protection) of the federal Clean Air Act, the permittee shall comply with all applicable sections of 40 CFR Part 82, Subparts A to F.

(40 CFR Part 82, Subparts A-F)

**Y. Asbestos Requirements**

The permittee shall comply with the requirements of National Emissions Standards for Hazardous Air Pollutants (40 CFR 61) Subpart M, National Emission Standards for Asbestos as it applies to the following: Standards for Demolition and Renovation (40 CFR 61.145), Standards for Insulating Materials (40 CFR 61.148), and Standards for Waste Disposal (40 CFR 61.150).

(9 VAC 5-60-70 and 9 VAC 5-80-110 A.1)

## **Z. Accidental Release Prevention**

If the permittee has more, or will have more than a threshold quantity of a regulated substance in a process, as determined by 40 CFR 68.115, the permittee shall comply with the requirements of 40 CFR Part 68.

(40 CFR Part 68)

## **AA. Changes to Permits for Emissions Trading**

No permit revision shall be required under any federally approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.

(9 VAC 5-80-110 I)

## **BB. Emissions Trading**

Where the trading of emissions increases and decreases within the permitted facility is to occur within the context of this permit and to the extent that the regulations provide for trading such increases and decreases without a case-by-case approval of each emissions trade:

1. All terms and conditions required under 9 VAC 5-80-110, except subsection N, shall be included to determine compliance.
2. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions that allow such increases and decreases in emissions.
3. The owner shall meet all applicable requirements including the requirements of 9 VAC 5-80-50 through 9 VAC 5-80-300.

(9 VAC 5-80-110 I)

## **VIII. State-Only Enforceable Requirements**

The following terms and conditions are not required under the federal Clean Air Act or under any of its applicable federal requirements, and are not subject to the requirements of 9 VAC 5-80-290 concerning review of proposed permits by EPA and draft permits by affected states.

9 VAC 5-50-310, Odorous Emissions

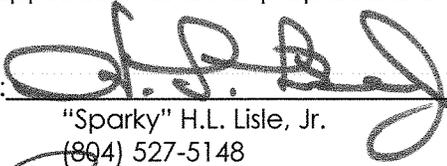
(9 VAC 5-80-110 N)

COMMONWEALTH OF VIRGINIA  
Department of Environmental Quality  
Piedmont Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

INGENCO Wholesale Power, LLC – King and Queen Plant  
King and Queen County, Virginia  
Permit No. PRO-52148

Title V of the 1990 Clean Air Act Amendments require each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, INGENCO Wholesale Power, LLC (INGENCO) King and Queen Plant has applied for a Title V Operating Permit for its King and Queen County facility. The Department of Environmental Quality, Air Quality Division (DEQ) has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:  Date: 01/30/2013  
"Sparky" H.L. Lisle, Jr.  
(804) 527-5148

Air Permit Manager:  Date: 1/30/2013  
James E. Kyle, P.E.

Deputy Regional Director:  Date: 1/31/13  
Kyle J. Winter, P.E.

**FACILITY INFORMATION**

Permittee

INGENCO Wholesale Power, LLC  
2250 Dabney Road  
Richmond, VA 23230

Facility

INGENCO Wholesale Power, LLC  
King and Queen Plant  
4443 Iris Road  
King and Queen County, VA

Responsible Official

Mr. Charles J. Packard

Contact Person

Mr. Robert L. Greene, PhD  
Environmental Compliance Manager  
Phone: (804) 521-3557  
Fax: (804) 521-3583  
Email: [rgreene@ingenco.com](mailto:rgreene@ingenco.com)

County-Plant Identification Number: 51-097-0020

**SOURCE DESCRIPTION**

NAICS ID# 221119 –Other Electrical Power Generation  
SIC Code: 4931 – Electrical Power Generation

The INGENCO King and Queen Plant is a 16 MW power generation facility using 48 Detroit Diesel Series 60 diesel-electric generators arranged into 8 groups of 6 engines each. The INGENCO King and Queen Plant is located adjacent to the King and Queen Landfill (Registration No. 40937), which supplies landfill gas to the INGENCO King and Queen Plant as one of the fuels for the 48 Detroit Diesel Series 60 diesel-electric generators. All landfill gas consumed by the engines must be processed through the landfill gas treatment system on the INGENCO King and Queen Plant site before usage. The landfill gas treatment system is composed of de-watering, filtration, and compression processes. The INGENCO King and Queen Plant is a Title V major source of Nitrogen Oxides (NO<sub>x</sub>) and Carbon Monoxide (CO) and is currently permitted to 240 Tons per Year (TPY) or less for each pollutant. The source is located in an attainment area for all pollutants. The source's permitted emissions for all pollutants are below Prevention of Significant Deterioration (PSD) applicability levels. The facility is currently permitted under the following permits: A State Major New Source Review (NSR) permit issued on August 20, 2008 and amended on July 30, 2012. This permit action pertains to the initial issuance of the Title V Operating Permit. An application for permit was received on June 17, 2008 by the Virginia Department of Environmental Quality (DEQ) and was deemed administratively complete on July 3, 2008. Therefore, the Title V permit application shield remains in place.

**COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, was conducted on December 5, 2012. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the King and Queen Plant has not been found to be in violation of any state or federal applicable requirements at this time.

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**EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION**

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
A1-H6	S-1 through S-8	Forty-eight (48) Detroit Diesel Model 6063-TK35 dual-fuel diesel engines constructed in 2004, each driving a 350 kW generator; arranged in eight groups of six engines each. Each group has a separate exhaust stack, e.g. S1 serving group A1-A6, S2 serving group B1-B6, etc.	550 HP and 3.57 MMBtu/hr heat input each, total for 48 engines, 171.36 MMBtu/hr heat input.	N/A Passive controls: air-to-fuel ratio control, turbo-charging, custom built after coolers and charge-air cooling systems, engine control modules.	-	NO <sub>x</sub> , CO, SO <sub>x</sub> , VOC, PM, PM-10.	07/30/2012
-	-	Landfill gas treatment and transport system components.	3,000 – 4,500 cfm	N/A	-	-	-
B1	B1	Boiler for space heating	0.156 mmBTU/hr	N/A	-	NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, PM/PM-10	(Exempt) 10/10/2007

\*The Size/Rated capacity and PCD efficiency are provided for informational purposes only, and are not applicable requirements.

**EMISSIONS INVENTORY**

A copy of the 2011 annual emission update is attached. Emissions are summarized in the following table:

<i>2011 PLANTWIDE EMISSIONS SUMMARY [TONS PER YEAR]</i>	
<b>CRITERIA POLLUTANTS</b>	<b>2011 ACTUAL EMISSIONS</b>
Particulate Matter (PM <sub>10</sub> )	8.73
Particulate Matter (PM <sub>2.5</sub> )	8.73
Nitrogen Oxides (NO <sub>x</sub> )	20.17
Sulfur Dioxide (SO <sub>2</sub> )	0.06
Carbon Monoxide (CO)	24.39
VOC	11.74

**EMISSION UNIT APPLICABLE REQUIREMENTS - [A1-H6, B1]**

The permit conditions are taken from the following: a NSR permit dated July 30, 2012; 40 CFR Part 60 MACT Subpart ZZZZ, Standards of Performance for Reciprocating Internal Combustion Engines; 40 CFR 63 MACT JJJJJJ National Emission Standards for Area Sources; Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters; 40 CFR 60 NSPS Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills and 9 VAC 5-80-50 et seq., Part II-Article 1 Federal Operating Permits for Stationary Sources. The facility is subject to 9 VAC 5 Chapter 50-Part II-Article 1 New and Modified Stationary Sources Standards of Performance for Visible Emissions and Fugitive Dust/Emissions (Rule 5-1). Virginia has not currently accepted delegation to enforce the RICE MACT.

**Limitations**

1. Emissions of NO<sub>x</sub> from the engines are limited in Conditions III.A.1, III.A.2, and III.A.3 by using passive controls inherent to the design of the engines and standard operating practice, rather than add-on pollution control devices; from Conditions 2, 3, and 4 of the permit dated July 30, 2012.
2. Carbon Monoxide emissions from the engines are limited in Condition III.A.4 by using standard operating practices regulated by devices inherent to the design of the engines; from Condition 5 of the permit dated July 30, 2012.
3. Uncontrolled releases of treated landfill gas from either, the 48 dual-fuel diesel engines, the landfill gas treatment system, or the treated landfill gas transport system are prohibited in Condition III.A.5; from Condition 6 of the permit dated July 30, 2012.

4. Particulate Matter and Volatile Organic Compounds emissions from the 48 dual-fuel diesel engines are limited in Condition III.A.6 by using good operation and maintenance practices; from Condition 7 of the permit dated July 30, 2012.
5. Condition III.A.7 requires proper operation of the 48 dual-fuel diesel engines, treated landfill gas transport system, and the landfill gas treatment system (as specified in Permit Condition III.A.13) whenever the facility is operating the engines in a dual fuel mode; from Condition 8 of the permit dated July 30, 2012.
6. The heat value of the treated LFG fuel is required to be calculated on a weekly basis by Condition III.A.8. Condition III.A.8 requires logs of the calculated LFG fuel heat values to be kept and for the device to measure methane concentration in the treated LFG fuel to be kept at a minimum; properly maintained, calibrated and operated in accordance with the manufacturer's requirements; from Condition 15 of the permit dated July 30, 2012.
7. Proper operation of the landfill gas treatment system is required whenever LFG fuel is being transferred to any of the engines by Permit Condition III.A.9; from Condition 16 of the permit dated July 30, 2012.
8. Condition III.A.10 lists the approved fuels for the engines; from Condition 17 of the permit dated July 30, 2012.
9. The formula and associated variables for calculating the NO<sub>x</sub> and CO emissions based on the type of, ratio of liquid fuel to LFG fuel, and quantity of fuels used, to prevent either criteria pollutant from exceeding the permit limits of 240 tpy or PSD thresholds is defined in Condition III.A.11; from Condition 18 of the permit dated July 30, 2012.
10. The fuel specifications to be used in the engines are defined in Condition III.A.12; from Condition 19 of the permit dated July 30, 2012.
11. The source of LFG fuel for the facility and the minimum treatment specifications for the LFG fuel are defined in Condition III.A.13; from Condition 20 of the permit dated July 30, 2012.
12. Emissions of criteria pollutants from each engine on a pound of pollutant per million BTU basis are limited by Condition III.A.14. Compliance with the established limits will be determined by stack testing of the engines; from Condition 22 of the permit dated July 30, 2012.
13. Hourly and annual emissions from the King and Queen Plant, whether operated in single or dual fuel mode, are limited by Condition IV.A.1; from Condition 23 of the permit dated July 30, 2012. Compliance with these limits may be determined as stated in Condition numbers III.A.1 through III.A.7, III.A.10, III.A.11, III.A.12 and III.A.13.

14. Visible emissions from the engines' stacks are limited to 10% opacity when operated in single fuel mode and 20% opacity when operated in dual fuel mode by Condition III.A.15; from Condition 24 of the permit dated July 30, 2012. The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A.4 cannot be included in any Title V permit (Last sentence exclusion removed from Title V draft permit condition).
15. Operating and maintenance procedures for each engine as stated in 40 CFR 63, Subpart ZZZZ Table 2d (11) are required by Conditions III.A.16 and III.A.17.
16. Area Source Existing Boiler operating procedures as stated in 40 CFR 63, Subpart JJJJJJ are required by Condition III.A.18 for emissions unit ID #: B1. Maximum Achievable Control Technology (MACT); MACT JJJJJJ – National Emission Standard for Hazardous Air Pollutants for Area Sources; Industrial, Commercial, and Institutional Boilers and Process Heaters: The boiler (B1) meets the applicability which includes being located at an area source of HAPs. A general condition was implemented in this Title V permit as it is in a state of flux. This regulation may have some changes possibly in the near future of which a general condition would allow for no changes to have to be made. As a result, at this time EPA issued a letter on March 13, 2012 of "no action assurance (NAA)" regarding certain deadlines\* of this regulation.

\*Note on EPA actions: July 18, 2012 - The EPA is extending the March 13, 2012 No Action Assurance to apply to the deadline for submitting the Notification of Compliance Status regarding initial tune-ups in the final Area Source Boiler rule. The EPA is also amending the expiration date of the No Action Assurance so that it will run until either the final reconsideration rule is issued and becomes effective or to December 31, 2012. For details, please see [Area Source NAA EXTENSION MEMO \(PDF\)](#).

### **Compliance Assurance Monitoring (CAM)**

Generally, the requirements of 40 CFR 64, CAM, apply to each emissions unit meeting all three of the following criteria on a pollutant-by-pollutant basis:

- The unit emits or has the potential to emit (in the absence of add-on control devices) quantities of one or more regulated air pollutants that exceed major source thresholds,
- The unit is subject to one or more emission limitations for the regulated air pollutants for which it is major before control, and
- The unit uses a control device to achieve compliance with one or more of these emission limitations.

The INGENCO King and Queen Plant does not meet the third of these requirements as the 48 dual-fuel diesel engines do not have add-on control devices and rely instead on passive controls inherent to the design of the generators.

### **Periodic Monitoring and Recordkeeping**

The EPA periodic monitoring guidance, dated September 18, 1998, states periodic monitoring is required for each emission point at a source, subject to Title V of the Act, which is subject to an applicable requirement. The INGENCO King and Queen Plant emission units are applicable to MACT Subpart ZZZZ, for the 48 dual-fuel diesel generators, MACT Subpart JJJJJ, for the boiler B1, NSPS Subpart WWW, for the landfill gas treatment and transport system, and the associated monitoring and recordkeeping requirements from these standards.

Periodic monitoring for the INGENCO King and Queen Plant emission units has been determined to consist of obtaining fuel supplier certifications, records to demonstrate compliance with good operating practices, and adhering to a maintenance schedule, all of which are described in State Regulations.

1. Condition III.B.1 requires the continuous measurement and recording of the quantity of each type of allowable fuel consumed by each engine and the proper installation, maintenance, calibration and operation of each monitoring device; from Condition 9 of the permit dated July 30, 2012.
2. Condition III.B.2 requires the continuous measurement of the inlet charge-air temperature for each engine and the proper installation, maintenance, calibration and operation of each monitoring device; from Condition 10 of the permit dated July 30, 2012.
3. Condition III.B.3 requires continuous measurement of the pressure within the LFG transport system and the proper installation, maintenance, calibration and operation of each monitoring device; from Condition 11 of the permit dated July 30, 2012.
4. Continuous monitoring and recording of the LFG fraction and inlet charge-air temperature each engine as well as hourly written logs of each value in the event of a computer malfunction/ failure are required by Condition III.B.4; from Condition 12 of the permit dated July 30, 2012.
5. Hourly observation of devices used to measure the inlet charge-air temperature for each engine while in operation and a daily log of these observations are required by Condition III.B.5; from Condition 13 of the permit dated July 30, 2012.
6. Hourly observation of the devices used to measure the pressure of the treated landfill gas transport system whenever LFG fuel is used in the dual-fuel diesel engines and a daily log of these observations are required by Condition III.B.6; from Condition 14 of the permit dated July 30, 2012.
7. Daily determination and recording of the water remaining after draining each treated LFG polishing tank is required by Condition III.B.7, at least once each day LFG fuel is combusted in the dual-fuel diesel engines; from Condition 31 of the permit dated July 30, 2012.

8. Condition III.B.8 describes how the opacity limits for the engines will be monitored by having a monthly opacity observation schedule providing a reasonable assurance of compliance with the applicable opacity limits; from Condition 34 of the permit dated July 30, 2012.
9. Conditions III.C.1 requires fuel certifications from suppliers of distillate oils; from Condition 21 of the permit dated July 30, 2012.
10. Conditions III.C.2 includes the requirements for maintaining records of all emissions monitoring and operating parameters and testing required by the permit; from Condition 25 of the permit dated July 30, 2012.
11. Condition III.C.3 incorporates by reference the recordkeeping requirements in MACT ZZZZ.
12. Condition III.A.18 and III.C.4 incorporates by reference the recordkeeping requirements in MACT JJJJJJ.

### **Testing**

The facility completed the process to amend the permit to allow several ways to fuel switch and also reduce emissions. The full range of testing conditions are applicable to ongoing verification that emission reductions from modified ECM128 modules, cams and injectors for Detroit Diesel Series 60 diesel engines; also allow fuel switch to emulsified diesel oil (reduces fuel BTU flow rate, reduces engine temperature based on cooling from water and results in reduced maximum emissions). PM-2.5 testing is now included because an approved method is available. The facility has completed the initial performance test for the 36 installed engines (10/24/2008) The facility is permitted to install an additional 12 engines as part of a phased construction plan that evaluates the BACT at that time (when LFG flow is sufficient).

1. Condition III.D.1 requires performance tests to demonstrate compliance with NO<sub>x</sub>, CO and PM-2.5 emissions limits after commencement of using emulsified number 2 fuel oil; from Condition 26 of the permit dated July 30, 2012.
2. Condition III.D.2 requires performance tests to demonstrate compliance with NO<sub>x</sub>, CO and PM-2.5, VOC and PM10 emissions limits from 98% LFG fraction use; from Condition 27 of the permit dated July 30, 2012.
3. Condition III.D.3 requires performance tests to demonstrate compliance with NO<sub>x</sub>, CO and PM-2.5 emissions limits after commencement of using bio-diesel in the engines while operating in single fuel mode from Condition 28 of the permit dated July 30, 2012.
4. Condition III.D.4 requires the determination of the moisture content of the LFG to be performed concurrent with the performance tests being conducted in Conditions III.D.1 through III.D.2; from Condition 29 of the NSR.

5. Condition III.D.5 requires VEEs to be performed concurrent with the performance tests being conducted in Conditions III.D.1 through III.D.3; from Condition 30 of the permit dated July 30, 2012.
6. Condition III.D.6 requires each set of six engines to be performance tested in continual rotation so that every set is tested every Title V Permit term; from Condition 32 of the Permit dated July 30, 2012.
7. Condition III.D.7 requires the operator to provide testing and monitoring ports and use appropriate test method(s) in accordance with procedures approved by the Department; from Condition 33 of the Permit dated July 30, 2012.

The 40 CFR 63 Subpart ZZZZ standards for these LFG engines do not contain periodic stack testing requirements at this time. The 40 CFR 63 Subpart JJJJJ standards for the boiler (B1) do not contain periodic stack testing requirements at this time.

## Reporting

1. Condition III.E.1 requires written notification of the anticipated and actual dates of any modification or change to any of the engine control modules and subsequent start up dates for the modified engines; from Condition 35 of the permit dated July 30, 2012.
2. Notification for any removal of the engines passive control equipment is required by Condition III.E.2; from Condition 36 of the permit dated July 30, 2012.
3. Notification of malfunctions and report of estimated excess emissions are required by Condition III.E.3; from Condition 37 of the permit dated July 30, 2012.
4. Notification of request for extension should continuous construction be delayed as required by Condition III.E.4; from Condition 38 of the permit dated July 30, 2012.
5. Notification of analysis for phased construction as required by Condition III.E.5; from Condition 39 of the permit dated July 30, 2012.
6. Evaluation of emission controls for phased construction as required by Condition III.E.6; from Condition 40 of the permit dated July 30, 2012.
7. Condition III.E.7 incorporates by reference submission of the notifications in 40 CFR §§63.7 (b) and (c), 63.8 (e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h).
8. Condition III.E.8 incorporates by reference the reporting requirements specified in Table 7(2) of 40 CFR 63 Subpart ZZZZ.
9. Condition III.A.18 and III.C.4 incorporates by reference the reporting requirements in MACT JJJJJ.

### **Streamlined Requirements**

Conditions 41-47 of the permit, dated July 30, 2012, have been streamlined out as they duplicate the general conditions of the Title V permit for the facility.

### **FACILITY WIDE CONDITIONS**

The facility has facility wide emission limits to keep it from being PSD applicable for NOx and CO. Hourly and annual emissions from the King and Queen Plant, whether operated in single or dual fuel mode, are limited by Condition IV.A.1; from Condition 23 of the permit dated July 30, 2012. The requirements listed in the Title V permit for the individual units are valid for facility wide emissions and do not need to be repeated in this section. Only the emissions limits need to be listed

### **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### **Comments on General Conditions**

#### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §§2.2-604 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 2-09".

This general condition cite(s) the Article(s) that follow(s):  
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80.

#### Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

**F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires notification of malfunction and excess emissions within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

**J. Permit Modification**

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-190. Changes to Permits.

9 VAC 5-80-260. Enforcement.

9 VAC 5-80-1100. Applicability, Permits for New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits for Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

**U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

9 VAC 5-80-110. Permit Content

## **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

### **STATE ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5-50-310, Odorous Emissions

### **INAPPLICABLE REQUIREMENTS**

The Existing Source Rule 4-8, NSPS Subpart IIII, Compliance Assurance Monitoring, Title V Greenhouse Gas Tailoring Rule, Phase 1 and NSPS Subpart Kb do not apply to the facility. In addition, certain portions of NSPS Subpart WWW, MACT Subpart AAAA, and MACT Subpart A do not apply. An explanation for the determination is provided in the following:

Existing Source Rule 4-8 does not apply (9 VAC 5-40-880)

*"E. The provisions of this article do not apply to stationary internal combustion engines."*

NSPS Subpart IIII does not apply until the diesel engines are modified in accordance with 40 CFR 60, NSPS Subpart IIII. The engine configuration and controls were last set by the permit dated July 30, 2012.

*"Subpart III—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

*What This Subpart Covers § 60.4200 Am I subject to this subpart?*

*(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section.*

*For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.*

*(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:*

*(i) 2007 or later, for engines that are not fire pump engines;*

*(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.*

*(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:*

*(i) Manufactured after April 1, 2006 and are not fire pump engines, or*

*(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006. "*

*"(3) Owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005."*

Compliance Assurance Monitoring, 40 CFR Part 64, does not apply to the facility as the CI RICE do not have add-on pollution control devices.

Title V Greenhouse Gas Tailoring Rule, Phase 1, 40 CFR Parts 51,52,70 and 71, does not apply to the facility as it is an existing source not currently subject to PSD for any pollutant.

NSPS Subpart Kb does not apply based on the size of the tanks, largest being 30,000 gallons, and from recordkeeping requirements as revised on October 13, 2003.

NSPS Subpart WWW requirements pertaining to the collection and destruction of the landfill gas are inapplicable to the INGENCO King and Queen Plant as long as the INGENCO King and Queen Plant's treatment of the landfill gas meets the requirements listed in 40 CFR, Part 60.752(b)(2)(iii)(C).

NSPS Subpart AAAA requirements pertaining to the collection and destruction of the landfill gas are inapplicable to the INGENCO King and Queen Plant as long as the INGENCO King and Queen Plant's treatment of the landfill gas meets the requirements listed in 40 CFR, Part 60.752(b)(2)(iii)(C).

Certain MACT Subpart A requirements do not apply to the King and Queen Plant. The inapplicable sections are 40 CFR Part 63.6(d), 63.6(e), 63.6(h), 63.7(e)(1), 63.8(a)(4), 63.8(c)(5), 63.9(d), 63.10(b)(2)(i)-(v), 63.10(d)(3), 63.1(e)(2)(iii), 63.10(e)(4), and 63.11.

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A.4 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

**COMPLIANCE PLAN**

There is no compliance plan for the permit.

**INSIGNIFICANT EMISSION UNITS**

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720B)	Rated Capacity (9 VAC 5-80-720C)
T1	Fuel oil storage tank	9 VAC 5-80-720 B.	VOC	30,000 Gallon
T2	Fuel oil storage tank	9 VAC 5-80-720 B.	VOC	30,000 Gallon
T3	Lubricating oil storage tank	9 VAC 5-80-720 B.	VOC	1,000 Gallon
T4	Used Lubricating oil storage tank	9 VAC 5-80-720 B.	VOC	1,000 Gallon

The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

**CONFIDENTIAL INFORMATION**

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

**PUBLIC PARTICIPATION**

The proposed permit was placed on public notice in The Tidewater Review from December 19, 2012 to January 18, 2013. No comments were received from the public during the public notice period. The US EPA concurrent review ended on January 23, 2013 with an email from EPA Region III declining to comment on the Title V permit or this SOB.