

xx November 2004

Mr. John J. Bahrs  
Vice President-Operations  
Ridgewood Rhode Island Generation LLC  
947 Linwood Avenue  
Ridgewood, NJ 07450

Dear Mr. Bahrs:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the installation of electrical generation equipment at your facility located at 65 Shun Pike, Johnston.

Enclosed is a major source permit issued pursuant to our review of your application.

If there are any questions concerning this permit, please contact me at 222-2808, extension 7011.

Sincerely,

Douglas L. McVay  
Associate Supervising Engineer  
Office of Air Resources

cc: Johnston Building Official  
Michael North - GZA

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR RESOURCES

MAJOR SOURCE PERMIT

*RIDGEWOOD RHODE ISLAND GENERATION LLC*

RI-PSD-7

Pursuant to the provisions of Air Pollution Control Regulation No. 9, this major source permit is issued to:

*Ridgewood Power Management LLC*

For the following:

*Installation of four Caterpillar G3520C lean-burn engine/generator sets. The engines shall burn landfill gas as a fuel.*

Located at: *65 Shun Pike, Johnston*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Ridgewood Rhode Island Generation LLC* from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.

Stephen Majkut, Chief  
Office of Air Resources

Date of issuance

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR RESOURCES**

Permit Conditions and Emission Limitations

**RIDGEWOOD RHODE ISLAND GENERATION LLC**

**RI-PSD-7**

A. Emission Limitations

1. Nitrogen oxides (as nitrogen dioxide (NO<sub>2</sub>))

The emission rate of nitrogen oxides from each engine/generator set exhaust shall not exceed 0.5 gram per brake horsepower hour (g/bhp-hr) or a maximum of 2.46 lbs per hour, whichever is more stringent.

2. Carbon Monoxide (CO)

The emission rate of carbon monoxide from each engine/generator set exhaust shall not exceed 3.0 g/bhp-hr or a maximum of 14.74 lbs per hour, whichever is more stringent.

3. Total nonmethane hydrocarbons (NMHC)

The emission rate of total nonmethane hydrocarbons from each engine/generator set exhaust shall not exceed 20 ppmvd @ 3% O<sub>2</sub> or a maximum of 0.76 lb per hour, whichever is more stringent.

4. Particulate Matter less than 10 microns (PM<sub>10</sub>)

The emission rate of carbon monoxide from each engine/generator set exhaust shall not exceed 0.1 g/bhp-hr or a maximum of 0.49 lbs per hour, whichever is more stringent.

5. Visible emissions from each engine/generator set exhaust shall not exceed 10% opacity except for a period or periods aggregating no more than three minutes in any one hour.

B. Operating Requirements

1. Only landfill gas shall be used as an engine fuel.

2. The landfill gas shall be filtered, dewatered, and compressed prior to use in the engines in accordance with the provisions of 40 CFR 60.752(b)(2)(iii)(C).
3. The owner/operator shall operate each engine at the air-to-fuel ratio that the engine operated at during the performance test required by Condition D.1. or the most recent performance test if a subsequent performance test is conducted.
4. The owner/operator shall operate each engine within 0.5% of the O<sub>2</sub> content in the exhaust gas at the air-to-fuel ratio that the engine operated at during the performance test required by Condition D.1. or the most recent performance test if a subsequent performance test is conducted.

C. Monitoring

1. Total landfill gas flow to the engines shall be continuously measured and recorded.
2. Gross electrical power generation (kw-hrs) shall be continuously measured and recorded for each engine individually and for the four engines combined.
3. Each engine/generator set shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time.
4. The owner/operator shall, on a monthly basis, measure and record the O<sub>2</sub> content in the exhaust gas of each engine.
5. The owner/operator shall conduct quarterly analyses of the landfill gas being used as an engine fuel. At a minimum, the landfill gas should be analyzed for the following compounds: acetone, acrylonitrile, benzene, bromodichloromethane, carbon disulfide, carbon tetrachloride, carbonyl sulfide, chlorobenzene, chlorodifluoromethane, chloroform, cyclohexane, cyclohexane, 1,4 dichlorobenzene, cis-1,2 dichloroethene, trans-1,2 dichloroethene, ethyl benzene, ethyl chloride, ethylene dibromide, ethylene dichloride, ethylidene dichloride, hexane, hydrogen sulfide, isopropanol, mercury, methyl chloride, methyl chloroform, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, propylene dichloride, styrene, 1,1,2,2 tetrachloroethane, tetrachloroethylene, toluene, total chlorides, trichloroethylene, trichlorofluoromethane, vinyl chloride, vinylidene chloride and xylenes. The owner/operator shall keep records of these analyses and provide such records to the Office of Air Resources upon request.

D. Stack Testing

1. Within 180 days of start-up, initial performance testing shall be conducted on the engine/generator sets. Performance testing shall be conducted for nitrogen oxides,

carbon monoxide and total non-methane hydrocarbons. Start-up shall mean when an engine/generator set goes on-line to produce power for sale.

2. The owner/operator shall record the air-to-fuel ratio setting and the O<sub>2</sub> content in the exhaust gas for each engine during the performance test.
3. A stack testing protocol shall be submitted to the Office of Air Resources for review and approval prior to the performance of any stack tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any performance test.
4. All test procedures used for stack testing shall be approved by the Office of Air Resources prior to the performance of any stack tests.
5. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
6. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitation.
7. A final report of the results of stack testing shall be submitted to the Office of Air Resources no later than 60 days following completion of the testing.
8. All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.

E. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records on a monthly basis:
  - a. The hours of operation of each engine/generator set, including any start-up, shutdown or malfunction in the operations of the facility.
  - b. The total landfill gas flow to each engine.
  - c. Gross electrical power generation in kw-hr for each engine and for the two engines combined.
2. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days, if the quarterly analyses of the landfill gas being used as an engine fuel show that the concentration of any compound exceeds the reportable concentrations in Table 1.

3. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of the engine/generator sets no later than fifteen days after such date.
4. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:
  - a. Change the representation of the facility in the application.
  - b. Alter the applicability of any state or federal air pollution rules or regulations.
  - c. Result in the violation of any terms or conditions of this permit.
  - d. Qualify as a modification under APC Regulation No. 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

5. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
6. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:
  - a. The name and location of the facility;
  - b. The subject source(s) that caused the noncompliance with the permit term;
  - c. The time and date of first observation of the incident of noncompliance;
  - d. The cause and expected duration of the incident of noncompliance;
  - e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the

incident and the operating data and calculations used in estimating the emission rate.

- f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.
7. All records required as a condition of this approval must be made available to the Office of Air Resources or its representative upon request. These records must be maintained for a minimum of five years after the date of each record.

F. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the facility shall be designed, constructed and operated in accordance with the representation of the facility in the permit application dated November 2003, prepared by GZA GeoEnvironmental, Inc.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
3. Operation of this equipment shall not result in the release of raw landfill gas to the atmosphere.
4. The owner/operator shall install and maintain an automatic fail-safe block valve on each engine. The fail-safe block valve must stop the flow of landfill gas in the event of an engine failure.
5. Excess landfill gas, not used as a fuel in an engine, must be flared.
6. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.

G. Startup/Shutdown Conditions and Initial Commissioning

1. Engine startup/shutdown shall be defined as that transient period of time required for the engine temperature parameters to stabilize for steady-state operation. This period shall not exceed 60 minutes.
2. Initial engine commissioning shall be defined as the first 200 hours of combustion engine operation following initial startup or to commercial acceptance, whichever is less.
3. The emission limitations of Conditions A.1, A.2, A.3, A.4 and A.5 shall not apply during engine startup/shutdown conditions or each engines's initial commissioning.
4. The owner/operator shall submit to the Office of Air Resources for review and approval, at least 30 days prior to startup, the procedures to be followed during engine startup/shutdown conditions and initial engine commissioning. The procedures shall be designed to minimize the emission of air contaminants to the maximum extent practical.

Table 1  
Reportable Concentrations

Pollutant	CAS Number	Reportable Concentration (ppm)
Acetone	67641	757,500
Benzene	71432	30
Carbon Disulfide	75150	57,794
Carbonyl Sulfide	463581	2435
Chlorobenzene	108907	160,000
Cyclohexane	110827	234,000
1,4 Dichlorobenzene	106467	16
cis-1,2 Dichloroethene	156592	22,673
Ethyl benzene	100414	30,950
Ethyl chloride	75003	447,058
Ethylidene dichloride	75343	132
Hexane	110543	50,000
Hydrogen sulfide	7783064	823
Isoropropanol	67630	36,574
Mercury	7439976	0.13
Methyl ethyl ketone	78933	99,375
Methyl isobutyl ketone	108101	98,275
Methylene chloride	75092	430
Styrene	100425	24,750
Tetrachloroethylene	127184	28
Toluene	108883	14,272
Trichloroethylene	79016	105
Trichlorofluoromethane	75694	23,809
Vinyl Chloride	75014	72
Xylenes	1330207	21,455
Total Chloride		792