27 July 2012

Mr. Clifford McGinnes
Chief Operating Officer
Block Island Power Company
100 Ocean Avenue, PO Box 518
New Shoreham, RI 02807

Dear Mr. McGinnes:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the installation of fuel burning equipment (Engine No. 26) and air pollution control equipment at your facility located at 100 Ocean Avenue, Block Island.

Enclosed is a minor source permit issued pursuant to our review of your request (Approval Nos. 2180 & 2181).

If there are any questions concerning this permit, please contact me at 222-2808, extension 7028.

Very truly yours,

Aleida M. Whitney
Senior Air Quality Specialist
Office of Air Resources

cc: Ronald Schroeder, P.E. – Quonset Environmental LLC
Building Official – New Shoreham

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

MINOR SOURCE PERMIT

BLOCK ISLAND POWER COMPANY

APPROVAL NOs. 2180 & 2181

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

Block Island Power Company

For the following:

Installation of Engine No. 26, a Caterpillar Model No. 3516CDITA 2690 HP, 1825 kW diesel-fired engine-generator set (Approval No. 2180). The engine is equipped with an air pollution control system (Caterpillar Clean Emissions Module) consisting of an SCR system to control NOx emissions and a diesel oxidation catalyst to control CO, VOC and PM emissions (Approval No. 2181).

Located at: *100 Ocean Avenue, New Shoreham*

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 *Block Island Power Company* **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.**

Douglas L. McVay, Acting 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

BLOCK ISLAND POWER COMPANY

APPROVAL NOs. 2180 & 2181

A. Emission Limitations – Engine No. 26

1. Nitrogen Oxides (as Nitrogen Dioxide (NO_2))

   a. The emission rate of nitrogen oxides discharged to the atmosphere from Engine No. 26 shall not exceed 0.71 grams per brake horsepower-hour (gr/bhp-hr) or 4.2 lbs. per hour, whichever is more stringent.

   b. Emissions of nitrogen oxides generated from Engine No. 26 shall be treated by an SCR system and reduced to at least 89 ppmv (adjusted to 54% relative humidity and 25˚C), before discharge to the atmosphere. The NO_x concentration shall be corrected for intake air temperature and humidity following the procedures in 40 CFR 89.418.

   c. The quantity of nitrogen oxides emitted from the entire facility shall not exceed 70,000 lbs in any consecutive 12-month period.

2. Carbon Monoxide (CO)

   a. The emission rate of carbon monoxide from the engine exhaust shall not exceed 0.17 gr/bhp-hr or 0.51 lbs. per hour, whichever is more stringent.

   b. Emissions of carbon monoxide generated from Engine No. 26 shall be treated by a diesel oxidation catalyst before discharge to the atmosphere.

3. Total Nonmethane Hydrocarbons (NMHC)

   a. The emission rate of total nonmethane hydrocarbons from the engine exhaust shall not exceed 0.06 gr/bhp-hr or a maximum of 0.34 lbs. per hour, whichever is more stringent.

   b. Emissions of total nonmethane hydrocarbons generated from Engine No. 26 shall be treated by a diesel oxidation catalyst before discharge to the atmosphere.

4. Sulfur Dioxide (SO_2)

   a. The sulfur content of all diesel fuel burned in the engine shall not exceed 15 ppm by weight.

   b. The emission rate of sulfur dioxide discharged to the atmosphere from the engine shall not exceed 0.033 lbs/hr.

5. Particulate Matter (PM)

   a. The emission rate of particulate matter discharged from the engine exhaust shall not exceed 0.06 gr/bhp-hr or a maximum of 0.33 lbs. per hour whichever is more stringent.

   b. Emissions of particulate matter generated from Engine No. 26 shall be treated by a diesel oxidation catalyst before discharge to the atmosphere.

6. Ammonia (NH_3)

   a. The concentration of ammonia discharged to the atmosphere shall not exceed 30 ppmv, on a dry basis, corrected to 15 percent O_2 (1-hour average).

   b. The emission rate of ammonia discharged to the atmosphere shall not exceed 0.53 lbs. per hour.

   c. The ammonia limitations in Conditions A.6.a and A.6.b shall be reviewed by the Department after the first complete catalyst life cycle of the Engine No. 26 SCR system. The owner/operator shall submit to the Office of Air Resources a report summarizing ammonia monitoring data for the first complete catalyst life cycle of the Engine No. 26 SCR system. This report shall be submitted at least 60 days after the end of the first complete catalyst life cycle. After completion of this review, the Department may establish a new lower ammonia slip limitation for the facility. Any new ammonia slip limitation shall be based on historical data obtained from this facility and shall provide for operational flexibility and an appropriate margin of compliance. Calculation of any new ammonia slip limitation shall be based on statistical methods, numerical methods or other appropriate analytical methodology that is deemed acceptable by the Department.

      Nothing in this condition shall preclude the Department from establishing a lower ammonia slip limitation if it determines that unreacted ammonia, either alone or in combination with other emissions, may be injurious to

human, plant or animal life, cause damage to property or unreasonably interfere with the enjoyment of life and property.

7. Opacity

Visible emissions from any engine at the facility 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. There shall be no more than four engines operating simultaneously at the facility at any given time.

2. The air pollution control system and urea injection system shall be operated at all times that Engine No. 26 is operating except for:

a. engine startup; Engine startup shall be defined as the first ten minutes of firing following the initiation of firing;

b. engine shutdown; Engine shutdown shall be defined as the cessation of operation for any purpose.

C. Continuous Monitoring

1. Engine No. 26 shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time for the unit.

2. The generator shall be equipped with a kilowatt-hour meter to indicate, in cumulative kilowatt-hours, the power generated by the engine-generator set.

3. The owner/operator shall install and operate a thermocouple to measure inlet temperature to the SCR system.

4. The owner/operator shall install and operate a flow meter on the urea supply line to monitor overall urea consumption.

5. The owner/operator shall install and operate a manometer or similar device to monitor pressure drop across the SCR catalyst.

6. The concentration, in parts per million (ppm), of nitrogen oxides at the outlet of the SCR system shall be monitored continuously and read a minimum of once per shift and the date, time and measurement shall be recorded. The requirement to measure nitrogen oxides concentration shall be waived for any shift where Engine No. 26 is not in operation.

D. Compliance Determinations

1. Compliance with the emission limitations in Conditions A.1-6 shall be based on one-hour average concentrations. Initial performance testing shall consist of three-one hour test runs at a load typical of representative operation (70-80%) and one-one hour test run at a high load condition (90-100%) and one-one hour test run at a low load condition (50-60%). Compliance with the emission limitations must be demonstrated for each load condition. Where multiple test runs are required at a single load condition, compliance is to be demonstrated based on the average of the test runs at that load condition.

2. Compliance with the limitation for nitrogen oxides emissions in Condition A.1.c shall be determined by using the procedures in Attachment A and the following emission factors:

   a. Engine No. 22: 0.0016 lbs. of NO_x emitted per horsepower-hour.
   b. Engine No. 23: 0.0013 lbs. of NO_x emitted per horsepower-hour.
   c. Engine No. 24: 0.0014 lbs. of NO_x emitted per horsepower-hour.
   d. Engine No. 25: 0.0020 lbs. of NO_x emitted per horsepower-hour.
   e. Engine No. 26: 0.0016 lbs. of NO_x emitted per horsepower-hour.

3. Compliance with the diesel fuel sulfur limits may be determined based on a certification from the fuel supplier. Fuel supplier certifications shall include the following information:

   a. The name of the fuel supplier;

   b. The sulfur content of the fuel from which the shipment came or the shipment itself;

   c. The location of the fuel when the sample was drawn for analysis to determine the sulfur content of the fuel, specifically including whether the fuel was sampled as delivered to Block Island Power Company or whether the sample was drawn from fuel in storage at the fuel supplier's facility or another location;

   d. The method used to determine the sulfur content of the fuel.

4. As an alternative to fuel supplier certification, the owner/operator may elect to sample the fuel prior to combustion. Sampling and analysis shall be conducted for the fuel in the initial tank(s) of fuel to be fired in the engines and after each new shipment of fuel is received. Samples shall be collected from the fuel tank immediately after the fuel tank is filled and before any fuel is combusted.

E. Stack Testing

1. Beginning in calendar year 2012, emission testing shall be conducted at least once every five years to determine compliance with the nitrogen oxides emission limitations. Emissions testing for nitrogen oxides shall consist of three-one hour test runs at a load typical of representative operation (70-80%).

2. Beginning in calendar year 2012, emission testing shall be conducted every 8760 hours of operation or three years, whichever comes first, to determine compliance with the carbon monoxide emission limitations. Emission testing shall be conducted according to the requirements in Table 4 to Subpart ZZZZ of 40 CFR 63.

3. A stack testing protocol shall be submitted to the Office of Resources for review and approval prior to the performance of any stack tests. A copy of the stack testing protocol for the initial performance testing shall be sent to EPA for review and approval. 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.

5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitation.

6. 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.

7. All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable, unless the Office of Air Resources provides authorization to the owner/operator to conduct the testing without an observer present.

F. Record Keeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine the nitrogen oxides emissions for the entire facility for the previous 12 months. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

2. The owner/operator shall notify the Office of Air Resources in writing within 15 days, whenever the quantity of nitrogen oxides emitted from the facility exceeds 70,000 lbs in any consecutive 12-month period.

3. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the hours of operation for Engine No. 26 for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

4. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the kilowatt-hours generated for Engine No. 26 for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

5. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the fuel usage for Engine No. 26 and the urea consumption for the previous month. The owner/operator shall calculate and record a urea-to-fuel ratio using this data. The owner/operator shall keep records of these determinations and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

6. The owner/operator shall maintain copies of all fuel supplier certifications or fuel analyses and these copies shall be made accessible for review by the Office of Air Resources or its authorized representative and EPA. These records shall include a certified statement, signed by the owner/operator of the facility, that the records represent all of the fuel combusted at the facility.

7. Inlet temperature to the SCR system and engine load shall be continuously monitored and recorded in an operating log once per day. The owner/operator shall keep records of these determinations and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

8. The owner/operator shall maintain records of the concentration, in parts per million (ppm), of nitrogen oxides at the outlet of the SCR system, including any date and time when Engine No. 26 is not operating.

9. Pressure drop across the SCR catalyst shall be recorded on a monthly basis when Engine 26 is operating. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

10. The owner/operator shall maintain properly signed, contemporaneous operating logs, or other relevant evidence to document actions during startup/shutdown periods.

11. 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.

12. Deviations from permit conditions, including those attributable to upset conditions as defined in this permit, shall be reported, in writing, within five (5) business days of the deviation, to the Office of Air Resources. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

13. All records required in this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources or its authorized representative and EPA upon request.

G. Malfunctions

1. Malfunction means a sudden and unavoidable breakdown of process or control equipment. In the case of a malfunction of any air pollution control system, all reasonable measures shall be taken to assure resumption of the designed control efficiency as soon as possible. In the event that the malfunction of an air pollution control system is expected or may reasonably be expected to continue for longer than 24 hours and if the owner/operator wishes to operate the source on which it is installed at any time beyond that period, the Director

shall be petitioned for a variance under Section 23-23-15 of the General Laws of Rhode Island, as amended. Such petition shall include, but is not limited to, the following:

a. Identification of the specific air pollution control system and source on which it is installed;

b. The expected period of time that the air pollution control system will be malfunctioning or out of service;

c. The nature and quantity of air contaminants likely to be emitted during said period;

d. Measures that will be taken to minimize the length of said period;

e. The reasons that it would be impossible or impractical to cease the source operation during said period.

2. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:

a. The malfunction was not attributable to improperly designed equipment, lack of preventative maintenance, careless or improper operation or operator error;

b. The malfunction is not part of a recurring pattern indicative of inadequate design, operation or maintenance;

c. Repairs were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable.

d. All possible steps were taken to minimize emissions during the period of time that repairs were performed.

e. Emissions during the period of time that the repairs were performed will not:

(1) Cause and increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by Air Pollution Control Regulation No. 22 and any Calculated Acceptable Ambient Levels; and

(2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.

f. The reasons that it would be impossible or impractical to cease the source operation during said period.

g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.

H. Other Permit Conditions

1. To the extent consistent with the requirements of this approval and applicable Federal and State laws, the facility shall be designed, constructed and operated in accordance with the representation of the equipment in the permit applications prepared by Quonset Environmental Associates dated July 2010 and September 2011.

2. Employees of the Office of Air Resources or its authorized representatives and EPA 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. The emission limitations of Condition A.1-7 shall not apply during engine startup/shutdown conditions. Engine startup shall be defined as the first ten minutes of firing following the initiation of firing. Engine shutdown shall be defined as the cessation of operation for any purpose

4. The Office of Air Resources shall reopen and revise this permit:

a. If it determines that a material mistake was made in establishing the operating restrictions; or,

b. If it determines that inaccurate emission factors were used in establishing the permit.

5. The owner/operator may appeal any final determination by the Office of Air Resources to reopen and revise an emission limitation or permit condition to the Administrative Adjudication Division for Environmental Matters (AAD). Appeals must be filed within 30 days of the Office of Air Resources final determination.

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.

7. Engine No. 19, a 1615 horsepower Caterpillar emergency engine-generator set shall be permanently removed from service prior to operation of Engine No. 26. Once Engine 19 is permanently removed from service, it shall be dismantled or rendered inoperable.

8. The owner/operator is subject to the requirements of 40 CFR 60, Subpart A (General Provisions) and 40 CFR 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines). Compliance with all applicable provisions therein is required.

I. Excess Emissions Due to an Emergency

As the term is used in this condition an "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of his source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes this source to exceed any emission limitation or condition under this permit, due to unavoidable increases in emission attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

The owner/operator may seek to establish that noncompliance with an emission limitation or condition under this permit was due to an emergency. To do so, the owner/operator shall demonstrate the affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An emergency occurred and that the owner/operator can identify the cause(s) of the emergency;

2. The permitted facility was at the time being properly operated;

3. During the period of the emergency the owner/operator took all reasonable steps to minimize levels of emissions that exceeded the emissions standards, or other requirements in this permit; and

4. The owner/operator submitted notice of the emergency to the Office of Air Resources within 2 working days of the time when emission limitations or permit conditions were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish the occurrence of an emergency.

J. Monitoring of Ammonia Emissions

1. The owner/operator shall monitor ammonia emissions from the SCR system for Engine No. 26. Ammonia emissions during stack testing shall be measured using Conditional Test Method 27 (CTM-027) or another method approved by the USEPA and the Director. Periodic routine ammonia emissions monitoring may be performed using Draeger detector tubes. Ammonia emissions shall be monitored according to the following schedule:

   a. Ammonia emissions shall be measured at least annually until 15,000 hours of SCR system operation after startup and once every 750 operating hours thereafter until the SCR catalyst is replaced.

   b. This testing schedule may be revised by the Office of Air Resources if it determines, based on the ammonia emissions testing in Condition J.1.a for the Engine No. 26 SCR system, that the above schedule is not sufficient to monitor compliance with Condition A.6 of this permit.

Attachment A
Compliance Determination
Block Island Power
Condition A.1.d

Engine Number	Engine HP Rating	Engine KW Rating	Engine Hours (previous 12 months) (1)	Maximum Power Output (kW-hrs) (2)	Actual Power Output (kW-hrs) (previous 12 months) (3)	Load Factor (4)	NOx Emission Factor (lb/hp-hr) (5)	NOx Emissions Maximum Load (lbs/hr) (6)	NOx Emissions (tons) (previous 12 months) (7)
22	1971	1390					0.0016	3.10	
23	1855	1285					0.0013	2.40	
24	2374	1640					0.0014	3.37	
25	2628	1825					0.0020	5.27	
26	2690	1825					0.0016	4.20	

Notes:
1. Information determined pursuant to Condition F.3 of this permit
2. Maximum Power Output = Engine Hours x Engine kW rating
3. Information determined pursuant to Condition F.4 of this permit
4. Load Factor = Actual Power Output/Maximum Power Output
5. Emission factors for Engines 22, 23, 24, 25 and 26 are based on current NO_x emission limitation and rated engine HP
6. NO_x Emissions Maximum Load = Current NO_x Emission limitation
7. NO_x Emissions = NO_x Emissions Maximum Load x Load Factor x Hours Operated