24 June 2005

Mr. Clifford McGinnis
Vice President of Plant Operations
Block Island Power Company
100 Ocean Avenue
New Shoreham, RI 02807

Dear Mr. McGinnis:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the installation of fuel burning equipment (Engine No. 25) 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 application (Approval Nos. 1858 & 1859).

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: Stacey L. McFadden, P.E., LFR
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. 1858 & 1859

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. 25, a Caterpillar Model No. 3516B diesel fired engine-generator set (Approval No. 1858). Engine No. 25 will replace the existing Engine No. 11. A Caterpillar SCR system (Approval No. 1859) will be used to control NO_X emissions.

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.**

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

BLOCK ISLAND POWER COMPANY

APPROVAL NOs. 1858 & 1859

A. Emission Limitations – Engine No. 25

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

   a. The emission rate of nitrogen oxides discharged to the atmosphere from Engine No. 25 shall not exceed 0.86 grams per brakehorsepower-hour (gr/bhp-hr) or 4.42 lbs. per hour, whichever is more stringent.

   b. Emissions of nitrogen oxides generated from Engine No. 25 shall be treated by an SCR system and reduced by 90% before discharge to the atmosphere.

   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)

   The emission rate of carbon monoxide from the engine exhaust shall not exceed 0.12 gr/bhp-hr unless the rate of emissions is less than 0.93 lbs. per hour.

3. Total Nonmethane Hydrocarbons (NMHC)

   The emission rate of total nonmethane hydrocarbons from the engine exhaust shall not exceed 0.17 gr/bhp-hr unless the rate of emissions is less than 0.88 lbs. per hour.

4. Sulfur Dioxide (SO_2)

   a. The sulfur content of all diesel fuel burned in the engine shall not exceed:

      (1) 500 ppm by weight on or before May 31, 2010.

      (2) 15 ppm by weight on or after June 1, 2010.

b. The emission rate of sulfur dioxide discharged to the atmosphere from the engine shall not exceed:

(1) 0.78 lbs/hr on or before May 31, 2010.

(2) 0.02 lbs/hr on or after June 1, 2010.

On or after June 1, 2010, the Office of Air Resources may relax conditions A.4.a.(2) and A.4.b.(2) if the owner/operator can demonstrate that a shortage of diesel fuel meeting the 15 ppm sulfur content requirement exists.

5. Particulate Matter (PM)

The emission rate of particulate matter discharged from the engine exhaust shall not exceed 0.08 gr/bhp-hr unless the rate of emissions is less than 0.44 lbs. per hour.

6. Ammonia (NH_3)

a. The concentration of ammonia discharged to the atmosphere shall not exceed 10 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 0.22 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 25 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 25 SCR system. This report shall be submitted at least 60 days prior to 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. This visible emission limitation shall not apply during startup of an engine. Engine startup shall be defined as the first five minutes of firing following the initiation of firing.

B. Operating Requirements

1. Engine 22, Engine 23, Engine 24 or Engine 25 shall be operated at all times, except for engine malfunctions/repairs.

2. The SCR system shall be operated at all times that Engine 25 is operating except for:

a. engine startup; Engine startup shall be defined as the first five 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. periods of low loads where the engine exhaust temperature is less than 600°F. At all times, the owner/operator shall operate its facility so as to minimize the period of time that engine exhaust temperature is less than 600°F so as to maximize use of the SCR system.

3. Urea shall be injected into the SCR system whenever the catalyst bed is at or above 600°F.

C. Monitoring

1. Engine 25 shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed operating time.

2. The generator shall be equipped with a kilowatt-hour meter to indicate, in cumulative kilowatt-hours, the power generated by each 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 flowmeter on the urea supply line to monitor overall urea consumption.

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

6. The owner/operator shall measure the concentration, in parts per million (ppm), of nitrogen oxides at the inlet and outlet of the SCR system, once per month, using a portable analyzer, to determine the nitrogen oxides reduction efficiency of the SCR system.

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 (75-80%) and one-one hour test run at a high load condition (90-100%) and a low load condition (50-60%). Compliance with the emission limitations must be demonstrated for each of the test runs.

2. Compliance with the limitation for nitrogen oxides emissions in Condition A.1.d 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: 0.00144 lbs. of NO_x emitted per horsepower-hour.
   d. Engine No. 24: 0.00142 lbs. of NO_x emitted per horsepower-hour.
   e. Engine No. 25: 0.00189 lbs. of NO_x emitted per horsepower-hour.
   d. Engine No. 19: 0.024 lbs of NO_x emitted per horsepower-hour

   The compliance determination shall include periods of low loads where the engine exhaust temperature is less than 600°F and the SCR system is not used. Emission factors during these periods shall be 0.016 lbs./hp-hr for Engine 22, 0.0144 lbs./hp-hr for Engine 23, 0.0142 lbs./hp-hr for Engine 24 and 0.0189 lbs./hp-hr for Engine 25.

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 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. Within 180 days of completing the engine installation, initial performance testing shall be conducted on the engine. Performance testing shall be conducted for nitrogen oxides, carbon monoxide, particulate matter, ammonia and total nonmethane hydrocarbons.

   Thereafter, emission testing shall be conducted annually to determine compliance with the nitrogen oxides emission limitations. Annual emissions testing for nitrogen oxides shall consist of three-one hour test runs at a load typical of representative operation (75-80%).

2. 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.

3. All test procedures used for stack testing shall be approved by the Office of Air Resources prior to the performance of any stack tests.

4. 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.

F. Record Keeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 10 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 10 days after the first of each month, determine and record the hours of operation for each engine 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 10 days after the first of each month, determine and record the kilowatt-hours generated for each engine-generator set 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 10 days after the first of each month, determine and record the fuel usage for Engine 25 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. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of Engine No. 25, no later than fifteen days after such date.

8. Inlet temperature to the SCR system and engine load shall be continuously monitored and recorded in an operating log on an hourly basis. 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.

9. Pressure drop across the SCR catalyst shall be recorded on a monthly basis. 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. Nitrogen oxides reduction efficiency across the SCR catalyst shall be recorded on a monthly basis. 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.

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

12. 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.

13. 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.

14. 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 application prepared by LFR Levine Fricke dated 30 August 2004.

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.1-6 shall not apply during engine startup/shutdown conditions and periods when the engine exhaust temperature is less than 600°F. Engine startup shall be defined as the first five 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 11, a Fairbank Morse, Model 38D8 emergency generator shall be permanently removed from service prior to operation of Engine 25. Once Engine 11 is permanently removed from service, it shall be dismantled or rendered inoperable.

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 25. Ammonia emissions shall be measured using Conditional Test Method 27 (CTM-027) or another method approved by the USEPA and the Director. Ammonia emissions shall be monitored according to the following schedule:

   a. Ammonia emissions shall be measured during the initial performance testing required by Condition E.1.

   b. Thereafter ammonia emissions shall be measured annually until 15,000 hours of SCR system operation after startup and once every 750 operating hours thereafter until the SCR catalyst is replaced.

c. This testing schedule may be revised by the Office of Air Resources if it determines, based on the ammonia emissions testing for the Engine 24 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)	NO_X EMISSION FACTOR (LB/HP-HR) (5)	NO_X EMISSIONS MAXIMUM LOAD (LBS/HR) (6)	NO_X EMISSIONS (TONS) (PREVIOUS 12 MONTHS) (7)
19	1615	1100					0.024	38.76	
22	1971	1360					0.0016	3.10	
23	1648	1150					0.00144	2.38	
24	2374	1640					0.00142	3.37	
25	2374	1640					0.00155	3.68	
Total									

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 factor for Engine 19 is based on data in Chapter 3.4 "Large Stationary Diesel and All Stationary Dual-Fuel Engines" of AP-42.
   Emission factor for Engine No. 22 is based on manufacturer's data in Appendix B of the permit application for Engine 22 and the SCR system.
   Emission factor for Engine No. 23 is based on manufacturer's data in Appendix E of the permit application for Engine 23 and the SCR system.
   Emission factor for Engine No. 24 is based on manufacturer's data in Appendix C of the permit application for Engine 24 and the SCR system.
   Emission factor for Engine No. 25 is based on manufacturer's data in Appendix C of the permit application for Engine 25 and the SCR system.
6. NO_x Emissions Maximum Load = NO_x Emissions Factor x Engine HP Rating
7. NO_x Emissions = NO_x Emissions Maximum Load x Load Factor x Hours Operated