



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

OPERATING PERMIT

Brown University

PERMIT NO. RI-09-06 (R1)

(Renewal date: 03/27/2006)
(Expiration date: 03/27/2011)

Pursuant to the provisions of Air Pollution Control Regulation No. 29, this operating permit is issued to:

**Brown University
164 Angell Street
Providence, RI 02912**

This permit shall be effective from the date of its issuance. All terms and conditions of the permit are enforceable by USEPA and citizens under the federal Clean Air Act, 42 U.S.C. 7401, et seq., unless specifically designated as not federally enforceable.

**Douglas L. McVay, Acting Chief
Office of Air Resources**

Date of revision: 3/31/09

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SECTION I. SOURCE SPECIFIC CONDITIONS

A. Requirements for Emissions Units B001, B002 and B003

CENTRAL HEAT PLANT

The following requirements are applicable to:

- Emission Unit B001, which is a 92.7 MMBTU/hr Erie City Water Tube Boiler, Model No. Keystone 17 M, equipped with low-NO_x burners and flue gas recirculation, capable of burning #6 fuel oil and natural gas.
- Emission Units B002 and B003, which are 111.75 MMBTU/hr Erie City Water Tube Boilers, Model No. Keystone 17 M, equipped with low-NO_x burners and flue gas Recirculation, capable of burning #6 fuel oil and natural gas.

1. Emission Limitations

a. Particulates

The permittee shall not cause or permit the emissions of particulate matter in excess of 0.1 pounds per million BTU actual heat input. [13.2.1]

b. Nitrogen Oxides (NO_x)

The permittee shall not cause or allow the emissions of NO_x in excess of 0.10 pounds per million BTU heat input when operated on natural gas. [27.4.2 (a)(1)]

c. Opacity

The permittee shall not emit into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than or equal to 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

d. Sulfur Oxides

Unless the Director declares in writing after a hearing that a shortage of low sulfur fuel exist, the permittee shall not use or store fuel with a sulfur content greater than 1.0% sulfur by weight. [8.2]

2. Operating Requirements

- a. When fired with residual fuel oil, emission units B001, B002 and B003 shall be equipped with low-NO_x burners and flue gas recirculation (with a minimum of 10% flue gas recirculation). Flue gas recirculation is not required to be in use when the boiler load is less than 30,000 pounds per hour of steam. [27.4.2(b)]

3. Monitoring Requirements

a. Opacity

Emission units B001, B002 and B003 shall be equipped with an opacity monitor with audio alarm. [6.2.2(a)] The opacity monitor shall be calibrated to sound the alarm at 20 percent opacity and shall be operated continuously during the combustion of oil. The audio alarm must be located in an area where it will be heard by the operator or other person responsible for the unit. [6.2.3]

- b. Boiler load (pounds per hour of steam) shall be monitored continuously for emission units B001, B002 and B003. [29.6.3(a), 40 CFR 64]
- c. The oxygen content of the flue gas shall be monitored continuously for emission units B001, B002 and B003. [29.6.3(a), 40 CFR 64]
- d. The windbox oxygen content for emission unit B001 shall be monitored continuously. [29.6.3(a), 40 CFR 64]
- e. The load (hertz) on the motor for the FGR fans for emission units B002 and B003 shall be monitored continuously. [29.6.3(a), 40 CFR 64]

4. Testing Requirements

a. Particulates

Compliance with the particulate emissions limitations contained in Condition I.A.1.a. of this permit, shall be determined by emission testing conducted by the permittee according to Method 5 of 40 CFR 60, Appendix A, or another method approved by the Office of Air Resources and the USEPA, shall be used. [13.3.1]

The requirements of particulate emissions testing may be waived if the Director and the USEPA:

- (1) Specifies or approves, in a specific case, the use of a reference method with minor changes in methodology; or

- (2) Approves the use of an equivalent or alternative method the results of which he has determined to be adequate for indicating whether the permittee is in compliance; or
- (3) Finds that the permittee has demonstrated by other means to the Director's and the USEPA's satisfaction that the source is in compliance with the relevant emissions standards. [13.3.3]

In the absence of data from particulate emissions testing, the Director and the USEPA may determine that an emissions unit is or is not in compliance with the emissions limitation contained in Condition I.A.1.a. of this permit based on available information including, but not limited to, type of fuel burned, design of unit, efficiency of air pollution control systems, operating and maintenance procedures, and emission test results on similar units. [13.3.2]

b. **Nitrogen Oxides (NO_x)**

Emissions testing for compliance with NO_x control requirements shall be conducted by 31 December of each year. Emission testing shall comply with the following requirements: [27.5.7(a), Letter dated October 25, 2001 from Henry Huppert of Brown University to Douglas L. McVay of RIDEM and Letter dated January 2, 2002 from Terrence Tuchon of RIDEM to Henry Huppert of Brown University]

- (1) An emissions testing protocol shall be submitted to the Office for review and approval prior to the performance of any test. The Office shall be notified at least 60 days prior to any emissions test. [27.5.7(b)]
- (2) All tests procedures used for emission testing shall be in accordance with the methods set forth in Appendix A of 40 CFR 60, or another method in Appendix A of 40 CFR 60, or another method approved by the Office and the USEPA. [27.5.7(c)]
- (3) The permittee shall install any and all test ports or platforms necessary to conduct the required emissions testing, provide safe access to any platforms and provide any necessary utilities for sampling and testing equipment. [27.5.7(d)]
- (4) All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitation. [27.5.7(e)]
- (5) All emissions testing must be observed by the Office or its authorized representative to be considered acceptable. [27.5.7(f)]

- (6) Emissions testing shall consist of 3 - one hour test runs. Compliance with the emission limitation must be demonstrated for each test run. [27.5.5]
- (7) A final report of the results of emission testing shall be submitted to the Office no later than 60 days following completion of the testing. [27.5.7(g)]

c. **Opacity**

Test for determining compliance with the opacity emissions limitations specified in Condition I.A.1.c. of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

d. **Sulfur Oxides**

Compliance with the sulfur limitations specified in Condition I.A.1.d. of this permit shall be determined by the procedures referenced in Condition II.U.2 of this permit.

5. Recordkeeping Requirements

- a. The permittee shall record the monthly fuel usage for each emission unit. [27.6.3]
- b. Boiler load (pounds per hour of steam) for emission units B001, B002 and B003 shall be recorded continuously. [29.6.3(a), 40 CFR 64]
- c. The oxygen content of the flue gas for emission units B001, B002 and B003 shall be recorded continuously. [29.6.3(a), 40 CFR 64]
- d. The permittee shall record the following information a minimum of once per day for each emission unit. The date, time and measurement shall be recorded. [29.6.3(a), 40 CFR 64]
 - (1) For emission unit B001, the boiler load (pounds per hour of steam), the oxygen content of the flue gas and the windbox oxygen content.
 - (2) For emission units B002 and B003, the boiler load (pounds per hour of steam), the oxygen content of the flue gas and the load (hertz) on the motor for the FGR fan.
- e. The permittee shall record boiler load, the oxygen content of the flue gas, oxygen content of the windbox for B001 and load (hertz) on the motor for the

FGR fans for B002 and B003 during each stack test conducted pursuant to condition I.A.4.b. [29.6.3(a), 40 CFR 64]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources whenever the oxygen content of the flue gas from B001, B002 or B003 exceeds 9.0%. and the boiler load for that emission unit equals or exceeds 30,000 pounds per hour of steam. This notification shall be provided in the semi-annual monitoring report required by condition II.AA.2. [29.6.3(a), 40 CFR 64]
- b. The permittee shall notify the Office of Air Resources whenever the windbox oxygen content is not correct for the corresponding boiler load. This notification shall be provided in the semi-annual monitoring report required by condition II.AA.2. [29.6.3(a), 40 CFR 64]
- c. The permittee shall notify the Office of Air Resources whenever the load (hertz) on the motor for the FGR fans for B002 or B003 is not the correct load for the corresponding boiler load. This notification shall be provided in the semi-annual monitoring report required by condition II.AA.2. [29.6.3(a), 40 CFR 64]

B. Requirements for Emissions Unit B004

The following requirements are applicable to:

- Emission unit B004, which is a 6.28 MMBTU/hr Cleaver Brooks Portable Fire Tube Boiler, Model No. CB-400-150, which burns #2 fuel oil.

1. Emission Limitations

a. Nitrogen Oxides (as nitrogen dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from B004 shall not exceed 0.25 lbs per million BTU heat input or 1.48 lbs/hr, whichever is more stringent. [Approval No. 1329(A)(1)]

b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from B004 shall not exceed 0.07 lbs per million BTU heat input or 0.41 lbs/hr, whichever is more stringent. [Approval No. 1329(A)(2)]

c. Sulfur Dioxide (SO₂)

- (1) All fuel burned in B004 shall contain no more than 0.3 percent sulfur

by weight. [Approval No. 1329(A)(3)(i), 8.2]

- (2) The emission rate of sulfur dioxide discharged to the atmosphere from B004 shall not exceed 3.45 lbs/hr. [Approval No. 1329(A)(3)(ii)]

d. **Particulate Matter**

The emission rate of particulate matter discharged to the atmosphere from B004 shall not exceed 0.1 lbs per million BTU heat input or 0.6 lbs/hr, whichever is more stringent. [Approval No. 1329(A)(4), 13.2.1]

e. **Total Nonmethane Hydrocarbons (NMHC)**

The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from B004 shall not exceed 0.025 lbs per million BTU heat input or 0.15 lbs/hr, whichever is more stringent. [Approval No. 1329(A)(5)]

f. **Opacity**

Visible emissions from B004 shall not exceed 10% opacity (six minute average). [Approval No. 1329(A)(6), 1.2] Where the presence of uncombined water is the only reason for failure to meet the opacity requirement of this section, such failure shall not be a violation of this permit. [1.4]

2. Operating Requirements

- a. The permittee shall tune B004 at least once each year of operation, in accordance with the procedure described in Appendix A of APC Regulation No. 27. [27.4.2(c), 29.6.3(b)]

3. Monitoring Requirements

a. **Opacity**

Continuous emission monitoring equipment shall be installed, operated and maintained for opacity when B004 is operating on fuel oil. [Approval No. 1329(B)(1), 6.2.2(b), 29.6.3(b)]

4. Testing Requirements

a. **Particulates**

Compliance with the particulate emissions limitations contained in Condition I.B.1.d. of this permit, shall be determined by emission testing conducted by the permittee according to Method 5 of 40 CFR 60, Appendix A, or another

method approved by the Office of Air Resources and USEPA, shall be used. [13.3.1]

The requirements of particulate emissions testing may be waived if the Director and the USEPA:

- (1) Specifies or approves, in a specific case, the use of a reference method with minor changes in methodology; or
- (2) Approves the use of an equivalent or alternative method the results of which he has determined to be adequate for indicating whether the permittee is in compliance; or
- (3) Finds that the permittee has demonstrated by other means to the Director's and the USEPA's satisfaction that the source is in compliance with the relevant emissions standards. [13.3.3]

In the absence of data from emissions testing, the Director and the USEPA may determine that an emissions unit is or is not in compliance with the emissions limitations of Condition I.B.1.d. of this permit based on available information including, but not limited to, type of fuel burned, design of unit, efficiency of air pollution control systems, operating and maintenance procedures, and emissions test results on similar units. [13.3.2]

b. Opacity

Test for determining compliance with the opacity limitations specified in Condition I.B.1.f. of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

c. Sulfur Dioxide (SO₂)

Compliance with fuel oil sulfur limits may be determined based on a certification from the fuel supplier. [Approval No. 1329(C)(1)] Fuel supplier certification shall include the following information: [Approval No. 1329(C)(2), 29.6.3(b)]

- (1) For distillate oil: [Approval No. 1329(C)(2)(a)(i-iv)]
 - a. The name of the supplier; and
 - b. A statement from the oil suppliers that the oil complies with the specification for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78 "Standard Specification for Fuel Oils."

- c. The sulfur content of the oil from which the shipment came (or of the shipment itself); and
 - d. The method used to determine the sulfur content of the oil.
- (2) As an alternative to fuel supplier certification, the permittee may elect to sample the fuel prior to combustion. Sampling and analysis shall be conducted for the oil in the initial tank of the oil to be fired in B004, and after each new shipment of oil received. Samples shall be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted. [Approval No. 1329(C)(3)]
- (3) Each fuel supplier certification or each fuel oil analysis must demonstrate that the oil contains 0.3 percent sulfur by weight or less. [Approval No. 1329(C)(4)]

5. Recordkeeping Requirements

- a. The permittee shall record and maintain records of the amount of number 2 fuel oil burned for each location. [Approval No. 1329(D)(2), 27.6.3]
- b. The permittee shall maintain records verifying that a tune-up has been performed in accordance with Condition I.B.2.a. of this permit. These records shall include the following information:
 - (1) The date the tune-up was performed,
 - (2) The name of the person who performed the tune-up,
 - (3) The final excess oxygen setting, and
 - (4) The O₂/smoke curve that has been developed as part of the tune-up procedure. [27.6.8(a-d), 29.6.3(b)]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources, in writing, each time B004 is used no later than five days after such date. Notification shall include the following: [Approval No. 1329(D)(1)]
 - (1) The specific location of B004. [Approval No. 1329(D)(1)(a)]
 - (2) The expected duration of usage at this location. [Approval No. 1329(D)(1)(b)]

- b. The permittee shall notify the Office of Air Resources, in writing, within 5 days, that B004 has been removed from the temporary location. [Approval No. 1329(D)(3)]
- c. The permittee shall submit copies of all fuel supplier certifications or fuel oil analysis to the Office of Air Resources for each time B004 is used. The submittal shall include a certified statement, signed by the permittee, that the records of fuel supplier certifications or fuel analysis submitted represent all of the fuel combusted at the specific location. Each report shall be postmarked by the 30th day following the removal of B004 from the temporary location. [Approval No. 1329(D)(4)]
- d. The permittee shall notify the Office of Air Resources of any anticipated noncompliance with the terms of Section I.B. of this permit or any other applicable air pollution control rules and regulations. [Approval No. 1329(D)(6)]

7. Other Permit Conditions

- a. To the extent consistent with the requirements of Section I.B of this permit and applicable federal and state laws, B004 shall be operated in accordance with the representation of the equipment in the preconstruction permit application. [Approval No. 1329(E)(1)]

C. Requirements for Emissions Units B036, B071, B073, B113, B114, B115,

The following requirements are applicable to:

- Emission Unit B036, which is a 1.703 MMBTU/hr Weil-McLain Water Tube Boiler, Model No. 688, capable of burning #2 fuel oil and natural gas.
- Emission Unit B071, which is a 1.154 MMBTU/hr H.B. Smith Water Tube Boiler, Model No. 28A-4, capable of burning #2 fuel oil and natural gas.
- Emission Unit B073, which is a 1.08 MMBTU/hr Weil-McLain Water Tube Boiler, Model No. 878 Series #1, which burns #2 fuel oil.
- Emission Unit B113, which is a 1.446 MMBTU/hr Burnham America Fire Tube Boiler, Model No. D-F 509, which burns #2 fuel oil.
- Emission Unit B114, which is a 1.014 MMBTU/hr H.B. Smith Water Tube Boiler, Model No. 25A-5, which burns #2 fuel oil.
- Emission Unit B115, which is a 1.014 MMBTU/hr H.B. Smith Water Tube Boiler, Model No. 28A-5, which burns #2 fuel oil.

1. Emission Limitations

a. Particulates

The permittee shall not cause or permit the emissions of particulate matter in excess of 0.1 pounds per million BTU actual heat input. [13.2.1]

b. Opacity

The permittee shall not emit into the atmosphere any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

c. Sulfur Oxides

Unless the Director declares in writing after a hearing that a shortage of low sulfur fuel exist, the permittee shall not use or store fuel oil with a sulfur content greater than 1.0% sulfur by weight. [8.2]

2. Operating Requirements

- a. The permittee shall tune B036, B071, B073, B113, B114 and B115 at least once per year of operation, in accordance with the procedure described in Appendix A of APC Regulation No. 27. [27.4.2(c), 29.6.3(b)]

3. Testing Requirements

a. Particulates

Compliance with the particulate emissions limitations contained in Condition I.C.1.a of this permit, shall be determined by emission testing conducted by the permittee according to Method 5 of 40 CFR 60, Appendix A, or another method approved by the Office of Air Resources and the USEPA, shall be used. [13.3.1]

The requirements of particulate emissions testing may be waived if the Director and the USEPA:

- (1) Specifies or approves, in a specific case, the use of a reference method with minor changes in methodology; or
- (2) Approves the use of an equivalent or alternative method the results of which he has determined to be adequate for indicating whether the

permittee is in compliance; or

- (3) Finds that the permittee has demonstrated by other means to the Director's and the USEPA's satisfaction that the source is in compliance with the relevant emissions standards. [13.3.3]

In the absence of data from particulate emissions testing, the Director and the USEPA may determine that an emissions unit is or is not in compliance with the emissions limitations of Condition I.C.1.a of this permit based on available information including, but not limited to, type of fuel burned, design of unit, efficiency of air pollution control systems, operating and maintenance procedures, and emission test on similar units. [13.3.2]

b. **Opacity**

Test for determining compliance with the opacity limitations specified in Condition I.C.1.b of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

c. **Sulfur Oxides**

Compliance with the sulfur limitations contained in Condition I.C.1.c of this permit shall be determined by the procedures referenced in Condition II.U.2 of this permit. [29.6.3(b)]

4. Recordkeeping Requirements

- a. The permittee shall record the monthly fuel usage for Emission Units B036, B071, B073, B113, B114 and B115. [27.6.3]
- b. The permittee shall maintain records verifying that a tune-up has been performed in accordance with Condition I.C.2.a of this permit. These records shall include the following information:
 - (1) The date the tune-up was performed,
 - (2) The name of the person who performed the tune-up
 - (3) The final excess oxygen setting, and
 - (4) The O₂/smoke curve that has been developed as part of the tune-up procedure. [27.6.8, 29.6.3(b)]

D. Requirements for Emissions Units B005, B015, B016, B032, B050, B051, B055, B056, B060, B061, B062, B063, B072, B078, B087, B092, B093, B094, B095, B096, B097, B098, B201, B203, B204, B205, B245, B246, B247, B248 B249, B281, B282 B315, B316, B317, B320, B321, B322, B327, B329, B330 and B346

The following requirements are applicable to:

- Emission Units B015 and B016, which are 3.2 MMBTU/hr Bryan Water Tube Boilers, Model No. L-48-25812, which burn natural gas.
- Emission Unit B032, which is a 1.0 MMBTU/hr Thermal Solutions Boiler, Model No. EVH1000BN1-UAF, which burns natural gas.
- Emission Unit B055, which is a 1.198 MMBTU/hr Burnham Boiler, Model No. 1907A, which burns natural gas.
- Emission Units B050, B051 and B093 are 1.2 MMBTU/hr Bryan Water Tube Boilers, Model No. CL-120S-150-G1, which burn natural gas.
- Emission Units B005, B056, B060, B061 B078, B094, B095, B096, B245, B246 and B247 are 1.2 MMBTU/hr Bryan Water Tube Boilers, Model No. CL-120S-150-G1, which burn natural gas.
- Emission Units B062 and B063, which are 1.2 MMBTU/hr Weil-McLain Fire Tube Boilers, Model No. BGL-88-W-S, which burn natural gas.
- Emission Unit B072, which is a 1.155 MMBTU/hr Hydro-Therm Water Tube Boiler, Model No. MOP-1153, which burns natural gas.
- Emission Unit B087, which is a 1.611 MMBTU/hr H.B. Smith Water Tube Boiler, Model No. Series #28-9, which burns natural gas.
- Emission Unit B092, which is a 1.3 MMBTU/hr Utica Package Boiler, Model No. J1300B1, which burns natural gas.
- Emission Units B097 and B098, which are 1.083 MMBTU/hr Ray-Pak Water Tube Boilers, Model No. E-824-TB, which burn natural gas.
- Emission Unit B201, which is a 1.2 MMBTU/hr Bryan Boiler, Model No. CL-120W-FDG, which burns natural gas.
- Emission Units B203 and B204, which are 1.1 MMBTU/hr Ray-Pak Water Tube Boilers, Model No. E-1125WT, which burn natural gas.
- Emission Unit B205, which is a 1.5 MMBTU/hr Bryant Flex Tube Fire Tube Boiler,

Model No. CL-150W-G1, which burns natural gas.

- Emission Units B248 and B249, which are 1.328 MMBTU/hr H.B. Smith Boilers, which burn natural gas.
- Emission Units B281 and B282, which are 1.5MMBTU/hr RBI Futera III Modulation Boilers, Model No. MW-1500, which burn natural gas.
- Emission Units B315 and B316, which are 1.198 MMBTU/hr Burnham Boilers, Model No. V907-A, which burn natural gas.
- Emission Unit B317, which is a 1.137 MMBTU/hr H.B.Smith Water Tube Boiler, Model No. 19A, which burns natural gas.
- Emission Unit B320, which is a 2.713MMBTU/hr Weil McLain Boiler, Model No. BG988, which burns natural gas.
- Emission Units B321 and B322, which are 1.2 MMBTU/hr HydroTherm Corporation Boilers, Model No. MR-1200B-PV, which burns natural gas.
- Emission Unit B327, which is a 1.169 MMBTU/hr Burnham Boiler, Model number PF 506, which burns natural gas.
- Emission Unit B329, which is a 1.2 MMBTU/hr Bryan Water Tube Boiler, Model No. CLM120-S-150-GI, which burns natural gas.
- Emission Unit B330, which is a 2.1875 MMBTU/hr Temprite Boiler, Model No. GTDM175-CEHW-S, which burns natural gas.
- Emission Unit B346, which is a 1.2 MMBTU/hr Trane rooftop duct furnace, Model No. GRAA12PFJN7G302AO, which burns natural gas.

1. Emission Limitations

a. Particulates

The permittee shall not cause or permit the emissions of particulate matter in excess of 0.1 pounds per million BTU actual heat input. [13.2.1]

b. Opacity

The permittee shall not emit into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement,

such failure shall not be a violation of this permit. [1.4]

2. Operating Requirements

- a. The permittee shall tune B055, B062, B063, B072, B087, B092, B201, B248, B249, B315, B316, B317, B320 and B327 at least once per year of operation, in accordance with the procedure described in Appendix A of APC Regulation No. 27. This procedure does not apply to B005, B015, B016, B032, B050-B051, B056, B060-B061, B078, B093, B094-B098, B203, B204, B205, B245, B246, B247, B281, B282, B321, B322, B329, B330 and B346. [27.4.2(c), 29.6.3(b)]
- b. The permittee shall tune B005, B015, B016, B032, B050-B051, B056, , B060-B061, B078, B093, B094-B098, B203, B204, B205, B245, B246, B247, B281, B282, B321, B322, B329, B330 and B346 annually in accordance with the manufacturer recommendations. [Letter from Terrence Tuchon of RIDEM to Henry Huppert of Brown University dated January 2, 2002, Letter dated January 23, 2002 from Henry Huppert of Brown University to Terrence Tuchon of RIDEM, Letters dated May 6, 2002 and February 6, 2004 from Henry Huppert of Brown University to Barbara Cesaro of RIDEM, 29.6.3(b)]

3. Testing Requirements

a. **Particulates**

Compliance with the particulate emissions limitations contained in Condition I.D.1.a of this permit, shall be determined by emission testing conducted by the permittee according to Method 5 of 40 CFR 60, Appendix A, or another method approved by the Office of Air Resources and the USEPA shall be used. [13.3.1]

The requirements of particulate emissions testing may be waived if the Director and the USEPA:

- (1) Specifies or approves, in a specific case, the use of a reference method with minor changes in methodology; or
- (2) Approves the use of an equivalent or alternative method the results of which he has determined to be adequate for indicating whether the permittee is in compliance; or
- (3) Finds that the permittee has demonstrated by other means to the Director's and the USEPA's satisfaction that the source is in compliance with the relevant emissions standards. [13.3.3]

In the absence of data from particulate emissions testing, the Director and the USEPA may determine that an emissions unit is or is not in compliance with the emissions limitation of Condition I.D.1.a of this permit based on available information including, but not limited to, type of fuel burned, design of unit, efficiency of air pollution control systems, operating and maintenance procedures, and emission test results on similar units. [13.3.2]

b. **Opacity**

Test for determining compliance with the opacity emissions limitations specified in Condition I.D.1.b of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

4. Recordkeeping Requirements

- a. The permittee shall record the monthly fuel usage for B055, B056, B078, B205, B281, B282 and B327. [27.6.3]
- b. The permittee shall maintain records verifying that a tune-up has been performed in accordance with Condition I.D.2.a of this permit. These records shall include the following information:
- (1) The date the tune-up was performed,
 - (2) The name of the person who performed the tune-up
 - (3) The final excess oxygen setting, and
 - (4) The O₂/smoke curve that has been developed as part of the tune-up procedure. [27.6.8, 29.6.3(b),]

This requirement does not apply to B005, B050-B051, B056, , B060-B061, B078, B093, B094-B098, B203, B204, B205, B245, B246, B247, B321, B322, B329, B330 and B346.

- c. The permittee shall maintain records for B005, B050-B051, B056, , B060-B061, B078, B093, B094-B098, B203, B204, B205, B245, B246 B247, B321, B322, B329, B330 and B346 verifying that a tune-up has been performed in accordance with manufacturer recommendations. These records must include the date the tune-up was performed, the name of the person who performed the tune-up, and the results of the tune-up. [Letter from Terrence Tuchon of RIDEM to Henry Huppert of Brown University dated January 2, 2002, 29.6.3(b)]

E. Requirements for Emissions Units G141, G144, G145, G146, G150, G152, G163, G172, G174, G319, G324, G325 and G326

The following requirements are applicable to:

- Emission Unit G141, which is a 298 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 3208 and burns diesel fuel. G141 is an emergency/standby unit.
- Emission Unit G144, which is a 519 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 34063-DI and burns diesel fuel. G144 is an emergency/standby unit.
- Emission Unit G145, which is a 305 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 3306B-DI and burns diesel fuel. G145 is an emergency/standby unit.
- Emission Unit G146, which is a 596 HP Cummings Lean Burn Internal Combustion Engine, Model No. YT-12700-GS and burns diesel fuel. G146 is an emergency/standby unit.
- Emission Unit G150, which is a 519 HP Cummings Lean Burn Internal Combustion Engine, Model No. KTA-1150-G and burns diesel fuel. G150 is an emergency/standby unit.
- Emission Unit G152, which is a 749 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 3412-DI and burns diesel fuel. G152 is an emergency/standby unit.
- Emission Unit G163, which is a 150 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 3116 and burns diesel fuel. G163 is an emergency/standby unit.
- Emission Unit G172, which is a 355 HP Onan Internal Combustion Engine, Model No. NT855GZ and burns diesel fuel. G172 is an emergency/standby generator.
- Emission Unit G174, which is a 261 HP Caterpillar Lean Burn Internal Combustion Engine, Model No. 3208 and burns diesel fuel. G174 is an emergency/standby unit.
- Emission Unit G319, which is a 268 HP Superior Lean Burn Internal Combustion engine, Model No. 200R131 and burns diesel fuel. G319 is an emergency /standby unit.
- Emission Unit G324, which is a 400 HP Volvo Lean Burn Internal Combustion Engine, Model No. TAD941GE and burns diesel fuel. G324 is a portable emergency/standby unit.
- Emission Unit G325, which is a 218 HP Lean Burn John Deere Internal Combustion Engine, Model No. 6068HF150 and burns diesel fuel. G325 is a portable emergency/standby unit.

- Emission Unit G326, which is a 325 HP Lean Burn Perkins Model No. D150P6 and burns diesel fuel. G326 is a portable emergency/standby unit.

1. Emission Limitations

a. Opacity

The permittee shall not emit into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than or equal to 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

b. Sulfur Oxides

Unless the Director declares in writing after a hearing that a shortage of low sulfur fuel exist, the permittee shall not use or store fuel with a sulfur content greater than 1.0% sulfur by weight. [8.2]

2. Operating Requirements

- a. All emergency engines listed under Section I.E. of this permit shall be operated only as a mechanical or electrical power source when the primary power source has been rendered inoperable. [27.1.4]
- b. All emergency engines listed in Section I.E. of this permit shall be operated less than 500 hours each during any consecutive 12 month period. If the hours of operation for any emergency engine exceeds 500 hours in any 12 month period, the unit shall immediately be in compliance with RACT as specified in APC Regulation No. 27. [27.2.3]
- c. The permittee shall inspect G141, G144, G145, G146, G150, G152, G163, G172, G174, G319, G324, G325 and G326 monthly and tune the thirteen generators annually in accordance with manufacturer's recommendations. [Letter from Terrence Tuchon of RIDEM to Henry Huppert of Brown University dated 2 January 2002, 29.6.3(b)]
- d. Emission units G141, G144, G145, G146, G150, G152, G163, G172, G174, G319, G324, G325 and G326 shall be used only during emergencies or for maintenance or testing purposes. Emergency means an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, or natural disaster. Emergency shall also mean periods during which ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions,

voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [43.4.4][**Not Federally Enforceable**]

3. Monitoring Requirements

- a. The permittee shall maintain a non-resettable elapsed time meter on each emergency engine listed in Section I.E of this permit, to indicate, in cumulative hours, the elapsed engine operating time. [27.6.10(b)]

4. Testing Requirements

a. Opacity

Test for determining compliance with the opacity emissions limitations specified in Condition I.E.1.a of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

b. Sulfur Oxides

Compliance with the sulfur limitations contained in Condition I.E.1.b of this permit shall be determined by the procedures referenced in Condition II.U.2 of this permit. [29.6.3(b)]

5. Recordkeeping Requirements

- a. On a monthly basis, no later than 5 days after the first of the month, the permittee shall determine and record the hours of operation for each engine for the previous 12 month period. [27.6.10(c)]
- b. The permittee shall maintain records verifying that a tune-up has been performed in accordance with the manufacturer recommendations. These records must include the date the tune-up was performed, the name of the person who performed the tune-up and the results of the tune-up. [Letter from Terrence Tuchon of RIDEM to Henry Huppert of Brown University dated 2 January 2002, 29.6.3(b)]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources, in writing, whenever the hours of operation in any (12) month period exceeds 500 hours for any emergency generator listed in Section I.E. of this permit. [27.6.10(d)]

F. Requirements for Emissions Units G148, G151, G165 and G314

The following requirements are applicable to:

- Emission Unit G148 and G165, which are 150 HP Waukesha Lean Burn Internal Combustion Engines, Model No. 145-GZU, which burn natural gas. G148 and G165 are emergency/standby units.
- Emission Unit G151, which is a 150 HP Waukesha Lean Burn Internal Combustion Engine, Model No. F8176V, which burns natural gas. G151 is an emergency/standby unit.
- Emission Unit G314, which is a 300 HP Onan-Cummins Internal Combustion Engine, Model No. C/O 185GTA-12, which burns natural gas. G314 is an emergency/standby unit.

1. Emission Limitations

a. Opacity

The permittee shall not emit into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than or equal to 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

2. Operating Requirements

- a. All emergency engines listed in Section I.F. of this permit shall be operated only as a mechanical or electrical power source when the primary power source has been rendered inoperable. [27.1.4]
- b. All emergency engines listed in Section I.F. of this permit shall be operated less than 500 hours each during any consecutive 12 month period. If the hours of operation for any emergency engine exceeds 500 hours in any 12 month period, the unit shall immediately be in compliance with RACT as specified in APC Regulation No. 27. [27.2.3]
- c. The permittee shall not operate G148, G151, G165 and G314 in conjunction with any voluntary demand-reduction program or any other interruptible power supply arrangement with a utility, other market participant or system operator unless such program is implemented at the same time as ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for

voltage reductions, voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [43.4.4]
[Not Federally Enforceable]

3. Monitoring Requirements

- a. The permittee shall maintain a non-resettable elapsed time meter on each emergency engine listed in Section I.F. of this permit, to indicate, in cumulative hours, the elapsed engine operating time. [27.6.10(b)]

4. Testing Requirements

a. **Opacity**

Test for determining compliance with the opacity emissions limitations specified in Condition I.F.1.a. of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

5. Recordkeeping Requirements

- a. On a monthly basis, no later than 5 days after the first of the month, the permittee shall determine and record the hours of operation for each engine for the previous 12 month period. [27.6.10(c)]
- b. The permittee shall maintain records to certify that the ignition timing of each engine has been inspected and adjusted at least once every 3 years. [27.6.10(e)]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources, in writing, whenever the hours of operation in any (12) month period exceeds 500 hours for any emergency generator listed in Section I.F of this permit. [27.6.10(d)]

G. Requirements for Emissions Unit P175

The following requirements are applicable to:

- Emission Unit P175, which is an Anderson Products Ethylene Oxide Sterilizer, Model No. AnPro AN 310. Emission Unit P175 is associated with air pollution control device C175, which is an Anderson Dry Bed Reactor, Model No. AAT Model AS-12.

1. Emission Limitations

- a. Emissions of ethylene oxide discharged during the sterilization and purge exhaust cycle of emission unit P175 shall be reduced by 99.0% or greater before discharge to the atmosphere. [Approval No. 1398 & 1399(A)(1)]
- b. Emissions of ethylene oxide discharged to the atmosphere during the sterilization and purge exhaust cycle, including fugitives, shall not exceed 0.032 lbs. per month. [Approval No. 1398 & 1399(A)(2)]

2. Operating Requirements

- a. Maximum monthly usage of ethylene oxide at the Animal Care Department shall not exceed 2.87 lbs. [Approval No. 1398 & 1399(B)(1)]
- b. Each sterilization/aeration cycle in emission unit P175 shall be conducted for a minimum of 16 hours. [Approval No. 1398 & 1399(B)(2)]
- c. Following completion of the sterilization/ aeration cycle each diffusion bag shall be opened inside P175 prior to removal. [Approval No. 1398 & 1399(B)(3)]
- d. The reactant bed in C175 shall be replaced when the quantity of EtO used in P175, since the reactant bed was last changed, exceeds 40 pounds. [Approval No. 1398 & 1399(B)(4)]
- e. C175 shall be operated according to its design specifications whenever P175 is in operation or is emitting air contaminants. [16.1]
- f. In the case of a malfunction of C175, 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 C175 is expected or may reasonably be expected to continue for longer than 24 hours, and if the permittee wishes to operate P175 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: [16.2]
 - (1) Identification of the specific air pollution control system (i.e. C175) and source on which it is installed (i.e. P175), [16.2(a)]
 - (2) The expected period of time that C175 will be malfunctioning or out of service, [16.2(b)]
 - (3) The nature and quantity of air contaminants likely to be emitted during said period , [16.2(c)]

- (4) Measures that will be taken to minimize the length of said period , and [16.2(d)]
- (5) The reasons that it would be impossible or impractical to cease the source operation during said period . [16.2(e)]

3. Recordkeeping Requirements

- a. The permittee shall maintain the following records:
 - (1) The quantity of ethylene oxide, in grams, used in P175 each day and each month. [Approval No. 1398 & 1399(D)(1)(a), 29.6.3(b)]
 - (2) The quantity of ethylene oxide, in grams, used in P175 since the reactant bed was last replaced. [Approval No. 1398 & 1399(D)(1)(b), 29.6.3(b)]
 - (3) The date and amount of reactant added or replenished in the dry bed scrubber. [Approval No. 1398 & 1399(D)(1)(c), 29.6.3(b)]

4. Reporting Requirements

- a. The Office of Air Resources shall be notified, in writing, if the quantity of EtO processed through the sterilizer exceeds any of the following:
 - (1) 31.7 grams per sterilization batch. [Approval No. 1398 & 1399(D)(5)(a)]
 - (2) 40 pounds since the reactant bed was last replaced. [Approval No. 1398 & 1399(D)(5)(b)]
- b. The permittee shall notify the Office of Air Resources of any non-compliance with the terms in Section I.G. of this permit, in writing, within 48 hours of the occurrence. [Approval No. 1398 & 1399(D)(3)]

5. Other Permit Conditions

- a. There shall be no bypassing of C175 during times when ethylene oxide is being discharged to the device. [Approval No. 1398 & 1399(E)(1)]
- b. Sterilization with EtO at the Animal Care Department shall only be conducted in emission unit P175 and in compliance with the terms and conditions in Section I.G. of this permit. [Approval No. 1398 & 1399(E)(4)]
- c. To the extent consistent with the requirements of Section I.G. of this permit

and applicable federal and state laws, the equipment shall be designed, constructed and operated in accordance with the representation of the equipment in the preconstruction permit application. [Approval No. 1398 & 1399(E)(2)]

H. Requirements for Emission Unit I176

The following requirements are applicable to:

- Emission Unit I176, which is a Lambert-Sawyer Pathological Waste Incinerator, Model No. P-250. I176 burns natural gas. Emission Unit I176 is associated with air pollution control device C176, which is a Jarvis-Cutter Wet Scrubber equipped with baffles. C176 uses water as a scrubbing liquid.

1. Emission Limitations

a. Particulates

Emissions of particulate matter discharged to the atmosphere from emission unit I176 shall not exceed 0.08 grains/dscf (0.18 grams/dscm) of particulate matter corrected to 12 percent CO₂, maximum two-hour average. [12.3.2]

b. Opacity

The permittee shall not emit into the atmosphere, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than or equal to 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

2. Operating Requirements

- a. C176 shall be operated and maintained according to its design specifications whenever I176 is in operation or is emitting air contaminants. [16.1]

- b. In the case of a malfunction of C176, 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 C176 is expected or may reasonably be expected to continue for longer than 24 hours, and if the permittee wishes to operate I176 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: [16.2]

- (1) Identification of the specific air pollution control system (i.e. C176)

and source on which it is installed (i.e. I176), [16.2(a)]

- (2) The expected period of time that C176 will be malfunctioning or out of service, [16.2(b)]
- (3) The nature and quantity of air contaminants likely to be emitted during said period , [16.2(c)]
- (4) Measures that will be taken to minimize the length of said period , and [16.2(d)]
- (5) The reasons that it would be impossible or impractical to cease the source operation during said period. [16.2(e)]

- c. The permittee will not be subject to certain sections of Air Pollution Control Regulation No. 39, Hospital/Medical/Infectious Waste Incinerators, specifically sections 39.3 through 39.10 if it is burning only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste, provided that the permittee has received a written determination from the Office of Air Resources and that records are maintained in accordance with section I.H.5.a. of this permit [39.2.2]

3. Monitoring Requirements

- a. The permittee shall monitor the primary and secondary chamber temperature of Emission Unit P176 continuously whenever the unit is operating. [29.6.3(b)]
- b. The permittee shall observe the discharge to the atmosphere from Emission Unit I176 at least once each month during a burn cycle to determine if visible emissions are present. [29.6.3(b)]

4. Testing Requirements

a. Particulates

Compliance with Condition I.H.1.a. shall be determined by one of the following procedures:

- (1) Emission testing conducted by the permittee according to 40 CFR 60 Method 5 of Appendix A, or by another method that has the prior approval of or is required by the Director and the USEPA. [12.5(a)]
- (2) Technical evaluation based on such factors which may include type(s) of refuse burned; design of incinerator, design efficiency of air pollution control systems, and emissions test results on similar

incinerators; [12.5(b)]

- (3) Any other emission testing method as required and approved by the Director and the USEPA. [12.5(c)]

b. Opacity

Tests for determining compliance with the opacity limitations specified in Condition I.H.1.b. of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

5. Recordkeeping Requirements

- a. The permittee shall maintain records continuously and summarize on a quarterly basis, of the periods of time when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste is burned in emission unit I176. [39.2.2(b)]
- b. The permittee shall record the primary and secondary chamber temperature of emission unit P176 continuously whenever the unit is operating. [29.6.3(b)]
- c. The permittee shall record the date and time of each observation of the discharge to the atmosphere from Emission Unit I176 and record if visible emissions were or were not observed. If visible emissions were observed, the permittee shall record the corrective actions taken to eliminate the visible emissions. [29.6.3(b)]
- d. The permittee shall maintain records of any scheduled and unscheduled maintenance to emission unit I176. [29.6.3(b)]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources, in writing, that it is burning only pathological, low-level radioactive, and/or chemotherapeutic waste. [39.2.2(a)]

I. Requirements for Emission Units P312 and P313

The following requirements are applicable to:

- Emission Units P312 and P313, which are Build-all Corporation Cycle Solve remote reservoir cold cleaning degreasing tanks, Model No. 100.

1. Operating Requirements

- a. Equipment covers and the dipping/rotating baskets shall be constructed of nonporous or nonabsorbent material. Covers must form a tight seal with the sides of P312 and P313 and have no gaps or holes. [36.4.1]
- b. When the cover for P312 and/or P313 is open, drafts at the same elevation as the tank lip must not be greater than 40 meters/minute (130 ft./min.) when measured 1 to 2 meters (3 to 7 feet) upwind. [36.4.2]
- c. Leaks must be repaired immediately or P312 and/or P313 shall be shut down. [36.4.3]
- d. Equipment used in P312 and P313 must display a conspicuous summary of proper operating procedures consistent with minimizing emissions of organic solvents. [36.4.4]
- e. Any solvent spray must be a solid, fluid stream which is delivered at a pressure no greater than 10 pounds per square inch (psi) and which does not cause excessive splashing. [36.4.5]
- f. Spills shall be wiped up immediately. The wipe rags shall be stored in covered containers meeting the specifications in Condition I.I.1.1 of this permit. [36.4.6]
- g. No porous or absorbent material, such as sponges, fabric, wood or paper products, shall be cleaned in P312 and P313. [36.4.7]
- h. Parts baskets or parts shall be drained under the cover and shall not be removed from P312 and P313 for at least 15 seconds or until dripping ceases and the pieces are visually dry, whichever is longer. [36.4.8]
- i. Parts with cavities or blind holes shall be tipped or rotated while draining before removed from the vapor zone. [36.4.9]
- j. Parts shall be oriented for best drainage. [36.4.10]
- k. When solvent is added or drained from P312 and P313, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent pump shall be located beneath the liquid solvent surface. [36.4.11]
- l. Solvent, waste solvent, still bottoms and sump bottoms shall be stored in covered containers and waste solvent transferral or disposal must allow less than 20 percent of the waste solvent (by weight) to evaporate into the atmosphere. [36.4.12]

- m. P312 and P313 shall be maintained as recommended by the manufacturer of the equipment. [36.4.13]
- n. Operators must receive training in proper solvent cleaning procedures and, if requested by representatives of the Office of Air Resources or the USEPA during an inspection, must complete and pass the applicable sections of the test on those procedures described in Appendix A of APC Regulation No. 36. [36.4.14]
- o. P312 and P313 shall be equipped with an attached cover that can be operated easily with one hand. Covers must be closed at all times except during parts entry and removal. [36.5.1]
- p. The solvent sump of P312 and P313 must be equipped with a tight fitting cover that is kept closed at all times except during the cleaning of parts. [36.5.2]
- q. A freeboard ratio greater than or equal to 0.75 shall be used to control solvent emissions from P312 and P313. [36.5.3(a)]
- r. If a flexible hose or flushing device is used, flushing shall be performed only within the freeboard zone of P312 and P313. [36.5.4]

2. Recordkeeping Requirements

- a. The permittee shall maintain the following records:
 - (1) Training provided to operators of P312 and P313 for the lifetime of the unit,
 - (2) The amount and type of solvent used in P312 and P313 for each year, and
 - (3) The date and type of each equipment malfunction or leak and the date the malfunction or leak is repaired. [36.10.4, 36.10.4(a), 36.10.4(b), 29.6.3(b)]

J. Requirements for Emission Unit P314

The following requirements are applicable to:

- Emission Unit P314, which is a Niro Mobile Minor™ Spray Dryer .

1. Emission Limitations

- a. The total quantity of methylene chloride discharged to the atmosphere from

P314 shall not exceed 15 lb/day. [Approval No. 1556(A)(1)]

- b. The total quantity of methylene chloride discharged to the atmosphere from P314 shall not exceed 83 lb/month in any consecutive 12 month period. [Approval No. 1556(A)(2)]

2. Recordkeeping Requirements

- a. The permittee shall maintain the following records for the operation of P314: [Approval No. 1556(B)(1)(a-c), 29.6.3(b)]
 - (1) The quantity of methylene chloride used per batch
 - (2) The duration of the batch operation in hours
 - (3) The number of batches per day and per month
- b. The permittee shall, on a daily basis, determine the total quantity of methylene chloride discharged to the atmosphere from P314 for that day. [Approval No. 1556(B)(2), 29.6.3(b)]
- c. The permittee shall, on a monthly basis, determine the total quantity of methylene chloride discharged to the atmosphere from P314 for the previous 12 months. [Approval No. 1556(B)(4), 29.6.3(b)]

3. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources in writing within 30 days, whenever the quantity of methylene chloride discharged to the atmosphere from P314 exceeds 15 lbs/day. [Approval No. 1556(B)(3)]
- b. The permittee shall notify the Office of Air Resources in writing within 30 days, whenever the quantity of methylene chloride discharged to the atmosphere from P314 for any 12 month period exceeds 996 pounds. [Approval No. 1556(B)(5)]
- c. The permittee shall notify the Office of Air Resources of any anticipated noncompliance with the terms in Section I.J of this permit or any other applicable air pollution control rules and regulations. [Approval No. 1556(B)(7)]

4. Other Permit Conditions

- a. To the extent consistent with the requirements in Section I.J of this permit and applicable federal and state laws, the equipment shall be designed, constructed and operated in accordance with the representation of the equipment in the preconstruction permit application. [Approval No.

1556(C)(2)]

K. Requirements for Emission Unit G323

The following requirements are applicable to:

- Emission Unit G323, which is a 2155 HP Caterpillar Lean Burn Internal Combustion Engine/Generator Set, Model No. 3512B TA which burns diesel fuel. G323 is an emergency/standby unit.

1. Emission Limitations

a. Opacity

Visible emissions from emission unit G323 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 ten minutes of firing following the initiation of firing. [Approval No. 1860 (A)(2), 1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]

b. Sulfur Dioxide

All diesel fuel burned in emission unit G323 shall contain no more than 0.3 percent sulfur by weight. [Approval No. 1860 (A)(1), 8.2]

2. Operating Requirements

- a. The maximum firing rate for emission unit G323 shall not exceed 110.6 gallons per hour. [Approval No. 1860 (B)(1)]
- b. Emission unit G323 shall not operate more than 500 hours in any consecutive 12-month period. [Approval No. 1860 (B)(2), 27.2.3]
- c. The permittee shall not operate G323 in conjunction with any voluntary demand-reduction program or any other interruptible power supply arrangement with a utility, other market participant or system operator unless such program is implemented at the same time as ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions, voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [43.4.4] **[Not Federally Enforceable]**

- d. Emission unit G323 shall be operated only to provide emergency electrical power in the event of a power outage or for maintenance purposes to assure that G323 is in working order. [Approval No. 1860 (B)(3), 27.1.8]

3. Monitoring Requirements

- a. Emission unit G323 shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time. [Approval No. 1860 (C)(1), 27.6.10(b)]

4. Testing Requirements

a. Opacity

Test for determining compliance with the opacity emissions limitations specified in Condition I.K.1.a of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

b. Sulfur Dioxide

(1) 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: [Approval No. 1860 (D)(1), 29.6.3(b)]

- (a) The name of the fuel supplier; [Approval No. 1860 (D)(1)(a)]
- (b) The sulfur content of the fuel from which the shipment came or the shipment itself; [Approval No. 1860 (D)(1)(b)]
- (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 Brown University or whether the sample was drawn from fuel in storage at the fuel supplier's facility or another location; [Approval No. 1860 (D)(1)(c)]
- (d) The method used to determine the sulfur content of the fuel. [Approval No. 1860 (D)(1)(d)]

- (2) As an alternative to fuel supplier certification, the permittee 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 Emission Unit G323 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. [Approval No. 1860 (D)(2), 29.6.3(b)]

5. Recordkeeping Requirements

- a. The permittee shall, on a monthly basis, no later than 5 days after the first of the month, determine and record the hours of operation and fuel use for emission unit G323 for the previous 12-month period. [Approval No 1860 (E)(1), 27.6.10(c)]
- b. The permittee shall maintain records of any scheduled and unscheduled maintenance to emission unit G323.[29.6.3(b)]

6. Reporting Requirements

- a. The permittee shall notify the Office of Air Resources, in writing, whenever the hours of operation in any 12-month period exceed 500 hours for emission unit G323. [Approval No. 1860 (E)(2), 27.6.10(d)]
- b. The permittee shall notify the Office of Air Resources of any anticipated noncompliance with the terms of Section I.K of this permit or any other applicable air pollution control rules and regulations. [Approval No. 1860 (E)(3)]

7. Other Permit Conditions

- a. To the extent consistent with the requirements of Section I.K of this permit and applicable Federal and State laws, Emission Unit G323 shall be designed, constructed and operated in accordance with the representation of the equipment in the permit application dated 7 February 2005. [Approval No. 1860 (F)(1)]
- b. At all times, including periods of startup, shutdown and malfunction, the permittee 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. [Approval No. 1860 (F)(3)]

L. Requirements for Emission Unit G361

The following requirements are applicable to:

- Emission Unit G361, which is a 210 HP Caterpillar/Olympian Internal Combustion Engine, Model No. G125G1, which burns natural gas. G361 is an emergency/standby unit.

1. Emission Limitations

a. Sulfur Dioxide

The sulfur content of any gaseous fuel burned in emission unit G361 shall not exceed 10 grains total sulfur per 100 dry standard cubic feet. [GPEG-7(A)(1)]

b. Carbon Dioxide

The emission rate of carbon dioxide discharged to the atmosphere from emission unit G361 shall not exceed 1900 lbs/MWh. [GPEG-7(A)(2)]

c. Opacity

Visible emissions from emission unit G361 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 emergency generator. Startup shall be defined as the first ten minutes of firing following the initiation of firing. [GPEG-7(A)(3)]

2. Operating Requirements

a. The maximum firing rate for emission unit G361 shall not exceed 1508 cubic feet per hour. [GPEG-7(B)(1)]

b. Emission unit G361 shall not operate more than 500 hours in any 12-month period. [GPEG-7(B)(2)]

c. Emission unit G361 shall be used only during emergencies or for maintenance or testing purposes. Emergency means an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, or natural disaster. Emergency shall also mean periods during which ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions, voluntary load curtailments by customers or automatic or manual load

shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [GPEG-7(B)(3)]

- d. Emission unit G361 shall not be operated in conjunction with any voluntary demand-reduction program or any other interruptible power supply arrangement with a utility, other market participant or system operator unless such program is implemented at the same time as ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions, voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [GPEG-7(B)(4)]

3. Monitoring Requirements

- a. Emission unit G361 shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time for the unit.[GPEG-7(C)(1)]

4. Testing Requirements

a. Opacity

Test for determining compliance with the opacity emissions limitations specified in Condition I.L.1.c of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

5. Record Keeping Requirements

- a. The owner/operator shall, on a monthly basis, no later than 5 days after the first of each month, determine and record the hours of operation for emission unit G361 for the previous 12 month period.[GPEG-7 (D)(1)]
- b. 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. [GPEG-7(D)(3)]

6. Reporting Requirements

- a. The owner/operator shall maintain copies of all fuel supplier certifications and these copies shall be made accessible for review by the Office of Air Resources or its authorized representative and EPA. [GPEG-7(D)(4)]

- b. The owner/operator shall notify the Office of Air Resources, in writing, whenever the hours of operation in any 12 month period exceeds 500 hours for emission unit G361.[GPEG-7(D)(2)]
- c. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of emission unit G361.[GPEG-7(D)(5)]
- d. 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:[GPEG-7(D)(7a.-f)]
 - (1) The name and location of the facility;
 - (2) The subject source(s) that caused the noncompliance with the permit term;
 - (3) The time and date of first observation of the incident of noncompliance;
 - (4) The cause and expected duration of the incident of noncompliance;
 - (5) 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.
 - (6) The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

7. Other Permit Conditions

- a. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate emission unit G361 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 emission unit G361.[GPEG-7(E)(3)]

M. Requirements for Emission Unit G362

The following requirements are applicable to:

- Emission Unit G362, which is a 732 HP Volvo Lean Burn Internal Combustion Engine, Model No. TAD1641GE and burns diesel fuel. G362 is a portable emergency/standby unit.

1. Emission Limitations

a. Sulfur Dioxide

The sulfur content of any liquid fuel burned in emission unit G362 shall not exceed 15 ppm by weight. [GPEG-10(A)(1)]

b. Carbon Dioxide

The emission rate of carbon dioxide discharged to the atmosphere from emission unit G362 shall not exceed 1900 lbs/MWh. [GPEG-10(A)(2)]

c. Opacity

Visible emissions from emission unit G362 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 emergency generator. Startup shall be defined as the first ten minutes of firing following the initiation of firing. [GPEG-10(A)(3)]

2. Operating Requirements

- a. The maximum firing rate for emission unit G362 shall not exceed 36.5 gallons per hour. [GPEG-10(B)(1)]
- b. Emission unit G362 shall not operate more than 500 hours in any 12-month period. [GPEG-10(B)(2)]
- c. Emission unit G362 shall be used only during emergencies or for maintenance or testing purposes. Emergency means an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, or natural disaster. Emergency shall also mean periods during which ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions, voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [GPEG-10(B)(3)]
- d. Emission unit G362 shall not be operated in conjunction with any voluntary demand-reduction program or any other interruptible power

supply arrangement with a utility, other market participant or system operator unless such program is implemented at the same time as ISO New England, or any successor Regional Transmission Organization, directs the implementation of operating procedures for voltage reductions, voluntary load curtailments by customers or automatic or manual load shedding within Rhode Island in response to unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels or other such emergency conditions. [GPEG-10(B)(4)]

3. Monitoring Requirements

- a. Emission unit G362 shall be equipped with a non-resetable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time for the unit.[GPEG-10(C)(1)]

4. Testing Requirements

- a. Compliance with the diesel fuel sulfur limit shall be determined based on certification from the fuel supplier. Fuel supplier certifications shall include the following information:
 - (1) The name of the fuel supplier;
 - (2) The sulfur content of the fuel from which the shipment came or the shipment itself;
 - (3) 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 Brown University or whether the sample was drawn from fuel in storage at the fuel supplier's facility or another location;
 - (4) The method used to determine the sulfur content of the fuel.
[GPEG-10(D)(1a-d)]
- b. 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 engine and after each 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. [GPEG-10(D)(2)]
- c.. **Opacity**
Test for determining compliance with the opacity emissions limitations specified in Condition I.M.1.c of this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40

new

CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

5. Record Keeping Requirements

- a. The owner/operator shall, on a monthly basis, no later than 5 days after the first of each month, determine and record the hours of operation for emission unit G362 for the previous 12 month period.[GPEG-10 (E)(1)]
- b. 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.[GPEG-10(E)32)]

6. Reporting Requirements

- a. The owner/operator shall maintain copies of all fuel supplier certifications and these copies shall be made accessible for review by the Office of Air Resources or its authorized representative and EPA. [GPEG-10(E)(4)]
- b. The owner/operator shall notify the Office of Air Resources, in writing, whenever the hours of operation in any 12 month period exceeds 500 hours for emission unit G362.[GPEG-10(E)(2)]
- c. The owner/operator shall notify the Office of Air Resources, in writing, of the date of actual start-up of emission unit G362.[GPEG-10(E)(5)]
- d. 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: [GPEG-10(E)(7a.-f)]
 - (1) The name and location of the facility;
 - (2) The subject source(s) that caused the noncompliance with the permit term;
 - (3) The time and date of first observation of the incident of noncompliance;
 - (4) The cause and expected duration of the incident of noncompliance;
 - (5) 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.
 - (6) The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

7. Other Permit Conditions

- a. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate emission unit G362 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 emission unit G362.[GPEG-10(F)(3)]

N. Facility Requirements

1. Recordkeeping Requirements

- a. For all Emission Units contained in this operating permit without specific recordkeeping requirements the permittee shall record the monthly fuel use in accordance with the following: [27.6.3]
- (1) Letter dated 8 December 1999 to Stephen Morin of Brown University from Terrence Tuchon of the Office of Air Resources.
 - (2) Letter dated 23 April 1999 to Terrence Tuchon of the Office of Air Resources from Stephen Morin of Brown University.
 - (3) Letter dated 23 January 2002 to Terrence Tuchon of the Office of Air Resources from Henry Huppert of Brown University.
 - (4) Letter dated 1 July 2002 to Henry Huppert of Brown University to Terrence Tuchon of the Office of Air Resources.

SECTION II. GENERAL CONDITIONS

A. Annual Emissions Fee Payment

The permittee shall pay an annual emissions fee as established in Air Pollution Control Regulation No. 28 "Operating Permit Fees". [29.6.8(d)]

B. Permit Renewal and Expiration

This permit is issued for a fixed term of 5 years. The permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least 12 months prior to the date of permit expiration. Upon receipt of a complete and timely application for renewal, this source may continue to operate subject to final action by the Office of Air Resources on the renewal application. In such an event, the permit shield in Condition II.Y of this permit shall extend beyond the original permit term until renewal. This protection shall cease to apply if, subsequent to a completeness determination, the applicant fails to submit by the deadline specified in writing by the Office of Air Resources any additional information identified as being needed to process the application. The application for renewal shall include the current permit number, description of permit revisions and off-permit changes that occurred during the permit term, and any applicable requirements that were promulgated and not incorporated into the permit during the permit term. [29.6.8(a),29.4.2(c), 29.4.6]

C. Transfer of Ownership or Operation

This permit is nontransferable by the permittee. Future owners and operators must obtain a new operating permit from the Office of Air Resources. A change in ownership or operational control of this source is treated as an administrative permit amendment if no other change in this permit is necessary and provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Office of Air Resources. [29.10.1(a)(4)]

D. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege. [29.6.8(c)(4)]

E. Submissions

1. Reports, test data, monitoring data, notifications, and requests for renewal shall be submitted to :

RIDEM - Office Air Resources
Compliance Assurance Section
235 Promenade St. Room 230
Providence, RI 02908

2. Any records, compliance certifications and monitoring data required by the provisions of this permit to be submitted to USEPA shall be sent to:

USEPA Region I
Office of Environmental Stewardship
Director, Air Compliance Program
Attn: Air Compliance Clerk
One Congress St. Suite 1100 (SEA)
Boston, MA 02114 - 2023

3. Any document submitted shall be certified as being true, accurate, and complete by a responsible official. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. [29.6.8(e)]

F. Inspection and Entry

1. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter this facility at all reasonable times for the purpose of: [29.6.8(f)(1), Approval No. 1329(E)(2), Approval No. 1398 & 1399(E)(3)]
 - a. having access to and copying at reasonable times any records that must be kept under the conditions of this permit;
 - b. inspecting at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - c. sampling or monitoring, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or other applicable requirements.[RIGL 23-23-5(7), 29.6.8(f)(1-4),39.11.1(a-d), Approval No. 1556(C)(1), Approval No. 1860 (F)(2), GPEG-7(E)(2), GPEG-10(F)(2)]

Nothing in this condition shall limit the ability of USEPA to inspect or enter the

premises of the permittee under Section 114 or other provisions of the Clean Air Act. [39.11.2]

2. No person shall obstruct, hamper, or interfere with any such authorized representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties. [39.11.3]

G. Compliance

1. The permittee must comply with all conditions of this permit. Any noncompliance with a federally enforceable permit condition constitutes a violation of the Clean Air Act and is grounds for enforcement action, for permit termination, revocation and reissuance or modification, or for denial of a permit renewal application. Any noncompliance with a permit condition designated as state only enforceable constitutes a violation of state rules only and is grounds for enforcement action, for permit termination, revocation and reissuance or modification, or for denial of a permit renewal application. [29.6.8(c)(1)]
2. For each unit at the facility for which an applicable requirement becomes effective during the permit term, the permittee shall meet such requirements on a timely basis unless a more detailed schedule is expressly required by the applicable requirement.[29.6.5(a)]
3. 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. [29.6.8(c)(2)]

H. 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 this source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes this source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions 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. [29.6.11(b)]

Technology-based emission limits are those established on the basis of emission reductions achievable with various control measures or process changes (e.g., a new source performance standard) rather than those established to attain a health based air quality standard.

The permittee may seek to establish that noncompliance with a technology-based emission

limitation under this permit was due to an emergency. To do so, the permittee shall demonstrate the affirmative defense of emergency through properly signed, contemporaneous operating logs, or other relevant evidence that: [29.6.11(a) & 29.6.11(c)]

1. an emergency occurred and that the permittee can identify the cause(s) of the emergency; [29.6.11(c)(1)]
2. the permitted facility was at the time being properly operated; [29.6.11(c)(2)]
3. during the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards, or other requirements in this permit; and [29.6.11(c)(3)]
4. the permittee submitted notice of the emergency to the Office of Air Resources within 2 working days of the time when emission limitations 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. This notice fulfills the requirements of Condition II.AA.3 of this permit. [29.6.11(c)(4)]

The permittee shall have the burden of proof in seeking to establish the occurrence of an emergency. [29.6.11(d)]

I. Duty to Provide Information

The permittee shall furnish to the Office of Air Resources, within a reasonable time, any pertinent information that the Office of Air Resources 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 Office of Air Resources copies of records that the permittee is required to keep by this permit, or for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. [29.6.8(c)(5)]

J. Duty to Supplement

The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the Office of Air Resources. The permittee shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete renewal application was submitted but prior to release of a draft permit. [29.5.4]

K. Reopening for Cause

The Office of Air Resources will reopen and revise this permit as necessary to remedy deficiencies in the following circumstances:

1. Additional requirements under the Clean Air Act become applicable to a major source 3 or more years prior to the expiration date of this permit. Such a 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 expiration date of this permit, unless this permit or any of its terms and conditions has been extended. [29.6.13(a)]
2. The Office of Air Resources or the Administrator determines that this permit contains a material mistake or inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit. [29.6.13(c)]
3. The Office of Air Resources or the Administrator determines that the permit must be revised or revoked to assure compliance with the applicable requirements. [29.6.13(d)]

Reopenings shall not be initiated before a notice of intent to reopen is provided to the permittee by the Office of Air Resources at least 30 days in advance of the date that this permit is to be reopened, except that the Office of Air Resources may provide a shorter time period (but not less than 5 days) in the case of an emergency. [29.9.5(b)]

Proceedings to reopen and issue this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening shall be made as expeditiously as practicable. [29.9.5(a)]

All permit conditions remain in effect until such time as the Office of Air Resources takes final action. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [§70.6(a)(6)(iii)]

L. Severability Clause

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. [29.6.8(b)]

M. Off-Permit Changes

1. The permittee is allowed to make certain changes that are not addressed or prohibited by this permit without a permit revision, provided that the following conditions are met: [29.11.2(a)]
 - a. Each such change shall not violate any term or condition of this permit. [29.11.2(b)]
 - b. Each change shall comply with all applicable requirements. [29.11.2(b)]

- c. Changes under this provision may not include changes or activities subject to any requirement under Title IV or modifications under any provision of Title I of the Clean Air Act. [29.11.2(a)]
 - d. Before the permit change is made, the permittee must provide contemporaneous written notice to the Office of Air Resources and the USEPA Region I, except for changes that qualify as insignificant activities in Appendix A of APC Regulation No. 29. This notice shall describe each change, including the date, and change in emissions, pollutants emitted, and any applicable requirement that would apply as a result of the change. [29.11.2(c)]
 - e. The permit shield does not apply to changes made under this provision. [29.11.2(d)]
 - f. The permittee shall keep a record describing changes made at the stationary source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes, including any other data necessary to show compliance with applicable ambient air quality standards. The record shall reside at the permittee's facility. [29.11.2(e)]
2. Changes made pursuant to this provision shall not be exempt from the requirement to obtain a minor source permit pursuant to the requirements of Air Pollution Control Regulation No. 9, if applicable. [29.11.2(a)]
 3. Changes made pursuant to this provision shall be incorporated into this permit at the time of renewal. [29.11.2(f)]

N. Section 502(b)(10) Changes

1. The permittee is allowed to make changes within this permitted facility that contravene the specific terms of this permit without applying for a permit revision, provided the changes do not exceed the emissions allowable under this permit, whether expressed therein as a rate of emissions or in terms of total emissions and are not Title I modifications. This class of changes does not include:
 - a. changes that would violate applicable requirements; or
 - b. changes to federally-enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements. [29.11.1(a), 29.1.36]
2. The permittee shall provide written notice to the Office of Air Resources and the

USEPA Region I of any change made under this provision. The notice must be received by the Office of Air Resources no later than fourteen (14) days in advance of the proposed changes. The notice shall include information describing the nature of the change, the effect of the change on the emission of any air contaminant, the scheduled completion date of the planned change and identify any permit terms or conditions that are no longer applicable as a result of the change. The permittee shall attach each notice to its copy of this permit. [29.11.1(a)(1), 29.11.1(a)(2)]

3. The permittee shall be allowed to make such change proposed in its notice the day following the last day of the advance notice described in paragraph 2 if the Office of Air Resources has not responded nor objected to the proposed change on or before that day. [29.11.1(b)]
4. Any permit shield provided in this permit does not apply to changes made under this provision. If subsequent changes cause the permittee's operations and emissions to revert to those anticipated in this permit, the permittee resumes compliance with the terms and conditions of the permit, and has provided the Office of Air Resources and USEPA with a minimum of fourteen (14) days advance notice of such changes in accordance with the provisions of paragraph 2, the permit shield shall be reinstated in accordance with terms and conditions stated in this permit. [29.11.1(c)]
5. Changes made pursuant to this provision shall be incorporated into the operating permit at the time of renewal. [29.11.1(d)]

O. Emissions Trading

No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit. [29.6.6(a)]

P. Emission of Air Contaminants Detrimental to Person or Property

The permittee shall not emit any air contaminant which either alone or in connection with other emissions, by reason of their concentration or duration, may be injurious to human, plant or animal life, or cause damage to property or which unreasonably interferes with the enjoyment of life or property. [7.1]

Q. Odors

1. The permittee shall not emit or cause to be emitted into the atmosphere any air contaminant or combination of air contaminants which creates an objectionable odor beyond the property line of this facility. [17.1]
2. A staff member of the Office of Air Resources shall determine by personal

observation if an odor is objectionable, taking into account its nature, concentration, location, duration and source. [17.2]

R. Visible Emissions

1. Except as may be specified in other provisions of this permit, the permittee shall not emit into the atmosphere, from any emission unit, any air contaminant, for a period or periods aggregating more than three minutes in any one hour, which is greater than or equal to 20 percent opacity. [1.2] Where the presence of uncombined water is the only reason for failure to meet this requirement, such failure shall not be a violation of this permit. [1.4]
2. Tests for determining compliance with the opacity limitations specified in this permit shall be performed per 40 CFR 60, Appendix A, Method 9. Additionally, all observers must qualify as per 40 CFR 60, Appendix A, Method 9. [1.3.1, 1.3.2]

S. Open Fires

It shall be unlawful for the permittee to burn any material in an open fire, except as provided in APC Regulation No. 4, Section 4.3. [4.2]

T. Construction Permits

It shall be unlawful for the permittee to construct, install, modify or cause the construction, installation or modification of any stationary source subject to the provisions of APC Regulation No. 9 without obtaining either a minor source permit or a major source permit from the Director. [9.2.1, 40 CFR 60.15]

U. Sulfur in Fuel

1. Except as may be specified in other provisions of this permit, unless the Director declares in writing after a hearing that a shortage of low sulfur fuel exists, the permittee shall not use or store fuel oil with a sulfur content greater than 1.0%, by weight, except for use with marine vessels or motor vehicles. [8.2, 8.3.6]
2. Compliance with the sulfur in fuel limitations contained in this section shall be determined by the procedures listed below or by another method deemed equivalent by the Director and USEPA: [29.6.3(b)]
 - a. For each shipment of fuel oil, the permittee shall obtain a certification from the fuel supplier which contains:
 - (1) For distillate fuel oil:
 - (a) the name of the supplier

- (b) a statement that the oil complies with the specification for fuel oil number 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78 "Standard Specification for Fuel Oils." [27.6.4(a)-(b)]
- (2) For residual fuel oil:
 - (a) The name of the supplier,
 - (b) The nitrogen and sulfur content of the oil and the ASTM method used to determine the nitrogen and sulfur content of the oil,
 - (c) The location of the oil when the sample was drawn for analysis to determine the nitrogen and sulfur content of the oil, specifically including whether the oil was sampled as delivered to the permittee or whether the sample was drawn from oil in storage at the oil suppliers/refiners facility or another location. [27.6.5 (a)-(d)]
- (3) For diesel fuel oil:
 - (a) the name of the supplier
 - (b) a statement that the oil complies with the specification for diesel fuel oil grade 1-D or 2-D, as defined by the American Society for Testing and Materials in ASTM D975-03 "Standard Specification for Fuel Oils." [29.6.3]
- b. As an alternative to fuel oil certification, the permittee may elect to sample the fuel oil prior to combustion. Sampling and analysis shall be conducted after each new shipment of fuel oil is received. Samples shall be collected from the fuel tank immediately after the fuel tank is filled and before any fuel oil is combusted. [8.4.1(b), 27.6.6]
- c. All fuel oil must be sampled and analyzed according to ASTM methods which have the prior approval of or are required by the Office of Air Resources . [8.4.1(b), 27.6.6]
- d. Copies of the fuel oil analysis sheets shall be maintained at the facility and be made accessible for review by the Office of Air Resources or designated personnel of the Office of Air Resources and USEPA. These records shall include a certified statement, signed by a responsible official, that the records represent all of the fuel combusted during each quarter. [Approval No. 1860 (E)(4), 27.6.7, 29.6.4(a)(1)]

- e. The Director may require, under his supervision, the collection of fossil fuel samples for the purpose of determining compliance with the sulfur limitations in this permit. Sampling and analysis of fossil fuels under Condition II.U.2 of this permit shall not limit the collection of samples under this condition. [8.4.3]

V. Air Pollution Episodes

Conditions justifying the proclamation of an air pollution alert, air pollution warning or air pollution emergency shall be deemed to exist whenever the Director determines that the accumulation of air pollutants in any place is attaining or has attained levels which could, if such levels are sustained or exceeded, lead to a substantial threat to the health of persons. If the governor declares an air pollution alert, air pollution warning or air pollution emergency, the permittee shall comply with the applicable requirements contained in APC Regulation No. 10. [10.1]

W. Fugitive Dust

The permittee shall not cause or permit any materials, including but not limited to sand, gravel, soil, aggregate and any other organic or inorganic solid matter capable of releasing dust, to be handled, transported, mined, quarried, stored or otherwise utilized in any way so as to cause airborne particulate matter to travel beyond the property line of the facility without taking adequate precautions to prevent particulate matter from becoming airborne. Such precaution shall be in accordance with good industrial practice as determined by the Director and/or shall be other reasonable fugitive dust prevention measures as determined by the Director. [5.2]

X. Compliance Certifications

1. The permittee shall submit a certification of compliance with permit terms and conditions annually. [29.6.5(c)(1)]
2. The certification shall describe the following:
 - a. the permit term or condition that is the basis of the certification; [29.6.5(c)(3)a]
 - b. the current compliance status; [29.6.5(c)(3)b]
 - c. whether compliance was continuous or intermittent; and [29.6.5(c)(3)c]
 - d. the methods used for determining compliance, currently and over the reporting period. [29.6.5(c)(3)d]

3. All compliance certifications shall be submitted to the Office of Air Resources and to the USEPA Region I. They shall be submitted within 60 days following the end of the reporting period which is the calendar year unless otherwise specified. [29.6.5(c)(4)]
4. All compliance certifications shall be certified as being true, accurate, and complete by a responsible corporate official. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. [29.6.8(e)]

Y. Permit Shield

1. Compliance with the terms and conditions of this permit shall be deemed compliance with all requirements applicable to the source in the following: Approval Nos. 1398 & 1399, 1329, 1556, 1860, GPEG-7, GPEG-10, RI APC Regulation Nos. 1, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 22, 23, 27, 28, 29, 36, 39, 43 and 40 CFR 64 [29.6.12(a)(1)]
2. The Office of Air Resources has determined that Emission Units B001, B002, B003, B004, B005, B036, B055, B071, B073, B113, B114, B115, B015, B016, B032, B050, B051, B056, B060, B061, B062, B063, B072, B078, B087, B092, B093, B094, B095, B096, B097, B098, B201, B203, B204, B205, B245, B246, B247, B248, B249, B281, B282, B315, B316, B317, B320, B321, B322, B327, G141, G144, G145, G146, G150, G152, G174, G148, G163, G165, G151, G172, G314, G319, G324, G325, G326, G361, G362, P175, I176, P312, P313, P314, and G323 are not subject to the following: RI APC Regulation Nos. 2, 3, 11, 15, 19, 20, 21, 24, 25, 26, 30, 31, 32, 33, 35, 38, 41 and 40 CFR 63, Subpart O. [29.6.12(a)(2)]
3. Nothing in this permit shall alter or affect the following:
 - a. the provisions of Section 303 of the Clean Air Act, including the authority of the USEPA under that Section. [29.6.12(c)(1)]
 - b. the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance. [29.6.12(c)(2)]
 - c. the applicable requirements of the acid rain program consistent with Section 408 of the Clean Air Act. [29.6.12(c)(3)]
 - d. the ability of the USEPA to obtain information under Section 114 of the Act. [29.6.12(c)(4)]
4. If it is determined that this operating permit was issued based on inaccurate or incomplete information provided by the permittee, this permit shield shall be void as

to the portions of this permit which are affected, directly or indirectly, by the inaccurate or incomplete information. [29.6.12(d)]

Z. Recordkeeping

1. The permittee shall, at the request of the Director, maintain a record of and provide data on operational processes, fuel usage, raw materials, stack dimensions, exhaust gas flow rates and temperatures, emissions of air contaminants, steam or hot water generator capacities, types of equipment producing air contaminants and air pollution control systems or other data that may be necessary to determine if the facility is in compliance with air pollution control regulations. [14.2.1]
2. All records and supporting information required by this permit for Units B001, B002, B003, B004 and G146 shall be maintained at the permittee's 235 Lloyd Avenue facility. All records and supporting information required by this permit for Units P175 and I176 shall be maintained at the permittee's 85 Brown Street facility. All other records and supporting information required by this permit shall be maintained at the permittee's 164 Angell Street facility for a period of at least 5 years from the date of sample monitoring, measurement, report or application, and shall be made available to representatives of the Office of Air Resources and USEPA upon request. Supporting information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. [14.2.1, 29.6.4(a)(2), 27.6.11, 36.10.4, Approval No. 1556(B)(8), Approval No. 1860 (E)(7), Approval No. 1329(D)(7), Approval Nos. 1398 & 1399 (D)(6), GPEG-7 (D)(8), GPEG-10(D)(8)]
3. The permittee shall keep records of required monitoring information that include the following:
 - a. The date, place, and time of sampling or measurements; [29.6.4(a)(1)a]
 - b. The date(s) analyses were performed; [29.6.4(a)(1)b]
 - c. The company or entity that performed the analyses; [29.6.4(a)(1)c]
 - d. The analytical techniques or methods used; [29.6.4(a)(1)d]
 - e. The results of such analyses; and [29.6.4(a)(1)e]
 - f. The operating conditions as existing at the time of sampling or measurement. [29.6.4(a)(1)f]

AA. Reporting

1. The information recorded by the permittee pursuant to Condition II.Z.1 of this Section shall be summarized and reported at least annually to the Director. It shall be submitted by April 15th unless otherwise specified. [14.2.2] Information submitted pursuant to this condition will be correlated with applicable emissions limitations and other applicable emissions information and will be available for public inspection. [14.2.3]
2. The permittee shall submit reports of any required monitoring for each semi-annual period ending 30 June and 31 December of every calendar year. These reports shall be due to the Office of Air Resources no later than forty-five (45) days after the end of the reporting period. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with Condition II.X.4 of this permit. [29.6.4(b)(1)]
3. 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. A copy of any such report shall be sent to the USEPA Region I. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken. Each report must be certified by a responsible official consistent with Condition II.X.4 of this permit. [Approval No. 1860 (E)(6), 29.6.4(b)(2)]
4. The Office of Air Resources shall be notified in writing of any planned physical change or operational change to the emissions units and control devices identified in this permit. Such notification shall include information describing the nature of the change, information describing the effect of the change on the emissions of air contaminants and the scheduled completion date of the planned change. Any change which may result in an increased emission rate of any air contaminant shall be subject to approval of the Office of Air Resources. [Approval No. 1329(D)(5), Approval No. 1398 & 1399(D)(4), Approval No. 1556(B)(6), Approval No. 1860 (E)(5), 40 CFR 60.7(a)(4), GPEG-7(D)(6), GPEG-10(E)(6)]

BB. Credible Evidence

For the purpose of submitting compliance certifications or establishing whether or not the permittee has violated or is in violation of any provision of this permit, the methods used in this permit shall be used, as applicable. However, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether the permittee would have been in compliance with applicable requirements if the appropriate performance or compliance test procedures or methods had been performed. [40 CFR 51.212c, 52.12c, 52.33a]

CC. Emission Statements

1. The permittee shall submit annually an emission statement which includes information for both VOC and NO_x if facility wide actual emissions are 25 tons per year of either pollutant. Emission statements shall be submitted to the Director on April 15th of each year unless otherwise specified. The permittee may apply to the Office of Air Resources to be allowed to discontinue submitting annual emission statements if actual emissions at the facility decrease to below 10 tons per year as a result of a permanent process change. [14.3.1]

The permittee shall submit an emission statement in a format approved by the Office of Air Resources. The emission statement shall contain the following information:
[14.3.2]

- a. A certification that the information contained in the emission statement is accurate and complete to the best knowledge of the certifying individual.
- b. The full name, title, signature, date of signature, and telephone number of the certifying individual.
- c. Facility identification information, including the full name, physical location, mailing address, latitude, longitude, and four digit SIC code(s).
- d. Process data pertaining to each process emitting VOC and/or NO_x, including:
 - (1) Annual and typical ozone season daily fuel use,
 - (2) Annual and typical ozone season daily process rate(s), and
 - (3) Process throughput while air pollution control equipment was not in operation.
- e. Operating data pertaining to each process emitting VOC and/or NO_x during the reporting year, including:
 - (1) Percentage annual throughput,
 - (2) Average hours of operation per day during the reporting year and on a typical ozone season day,
 - (3) Average number of days of operation per week during the reporting year and during a typical ozone season week, and
 - (4) Weeks of operation during the reporting year and during the peak ozone season.
- f. Control equipment information, including:
 - (1) Specific primary and secondary control equipment for each process emitting VOC and/or NO_x,
 - (2) Current overall control efficiency for each piece of control equipment

- (indicated by percent capture and percent destruction or removal),
and
- (3) Control equipment downtime during the reporting year and during the peak ozone season.
- g. Emissions information, including:
- (1) Actual annual and typical ozone season daily emissions of VOC and NO_x for each process. Emissions should be reported in tons per year and in pounds per day.
 - (2) A description of the emission calculation method and, if applicable, emission factor(s) used, and
 - (3) The calendar year for which emissions are reported.
- h. Any additional information required by the Director to document the facility's emission statements.

DD. Miscellaneous Conditions

1. This permit may be modified, revoked, reopened, reissued or terminated for cause. The filing of a request, by the permittee, for a permit modification, revocation and reissuance or termination or of a notification of planned changes or anticipated noncompliance does not release the permittee from the conditions of this permit. [29.6.8(c)(3)]
2. Any application for a permit revision need only submit information related to the proposed change. [29.4.3(c)]
3. Terms not otherwise defined in this permit shall have the meaning given to such terms in the referenced regulation.
4. Where more than one condition in this permit applies to an emission unit and/or the entire facility, the most stringent condition shall apply.

SECTION III. SPECIAL CONDITIONS

These sections contain air pollution control requirements that are applicable to this facility and the United States Environmental Protection Agency enforces these requirements.

A. Ozone-depleting Substances

1. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVAC) in Subpart B:
 - a. Persons opening appliances for maintenance, service, repair or disposal must comply with the required practices of 40 CFR 82.156.
 - b. Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment of 40 CFR 82.158.
 - c. Persons performing maintenance, service, repair or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.
 - d. Persons disposing of small appliances, MVACs and MVAC-like appliances (as defined in 40 CFR 82.152) must comply with recordkeeping requirements of 40 CFR 82.166.
 - e. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair equipment requirements of 40 CFR 82.156.
 - f. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166.
2. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, "Significant New Alternatives Policy Program".

B. Prevention of Accidental Release

Brown University is subject to the requirements of the General Duty Clause under Section 112(r)(1) of the Clean Air Act Amendments of 1990. This clause specifies that owners or operators of stationary sources producing, processing, handling or storing a chemical in any quantity listed in 40 CFR Part 68 or any other extremely hazardous substance have a general duty to identify hazards associated with these substances, and to design, operate and maintain a safe facility, in order to prevent releases and to minimize the consequences of accidental releases which may occur.