

DEC#SJ95-0114

#AOP-95-031

Operating Permit Expiration Date: September 15, 2002

State of Vermont
Agency of Natural Resources
Department of Environmental Conservation



Air Pollution Control Division
Waterbury, Vermont

AIR POLLUTION CONTROL PERMIT
TO
CONSTRUCT AND OPERATE

Date Permit Issued: September 15, 1997

Owner/Operator: Ryegate Associates, Incorporated
RR 1, Box 4, U.S. Route 5
East Ryegate, Vermont 05042

Source: Ryegate Power Station
U.S. Route 5
East Ryegate, Vermont 05042

FINDINGS OF FACT

(A) FACILITY DESCRIPTION

Ryegate Associates, Incorporated (hereinafter "Ryegate Associates" and also referred to herein as "Owner/Operator") owns and operates a twenty (20) megawatt (net) wood-fired power plant in East Ryegate, Vermont (hereinafter "Ryegate Power Station" and also referred to herein as "Facility"). Operations performed at the Ryegate Power Station are classified within the Standard Industrial Classification Code - 4911 (Electrical Services).

The Facility is fired with whole wood tree chips delivered in standard chip vans. The fuel is primarily mixed hardwood and softwood, with some lesser amounts of sawdust, mill chips, and bark. The fuel chips are stored in two (2) silos and an uncovered outside storage pile before being mechanically conveyed to the boiler. Wood fuel is fed at a rate of approximately thirty-five (35) tons per hour into a single, high-pressure, boiler designed to burn green fuel (hereinafter "Main Boiler"). The Facility is operated as a base load plant at or close to 100% capacity at all times, excluding plant outages. The boiler is fitted with a propane (LPG) auxiliary burner having a maximum rated heat input of 50 million British Thermal Units per hour ("MMBTU/hr"). This burner is used primarily for plant start-up and for supplemental fuel. The Facility is equipped with a 430 horsepower ("HP")/300 kilowatt ("kW") propane-fired engine generator set for use during electric power outages, and an auxiliary propane-fired boiler rated at five (5) MMBTU/hr. The auxiliary boiler supplies steam for space heating purposes during plant outages. Steam produced by the wood-fired boiler is passed through a condensing turbine generator set with extraction steam utilized for feedwater heating. Condenser heat is removed via a closed loop circulating water system to a cooling tower structure.

Air contaminant emissions produced by the wood-fired boiler are controlled as follows: electrostatic precipitator, flue gas reinjection, selective non-catalytic reduction system (urea injection), and combustion air control with oxygen trim and underfire/overfire air ratio.

(B) FACILITY CLASSIFICATION

The Facility is classified as a source of air contaminants pursuant to §5-401(3) of the *Vermont Air Pollution Control Regulations* (hereinafter "*Regulations*") [Electrical power generation facilities].

(C) PRIOR APPROVALS

The Agency of Natural Resources, Department of Environmental Conservation, Air Pollution Control Division (hereinafter "Agency") originally granted approval for the construction of the Facility pursuant to the requirements of §556 of Title 10 *Vermont Statutes Annotated* ("10 V.S.A.") and §§5-501 and 5-502 of the *Regulations* on January 11, 1988. Since this date the Agency has issued seven (7) amendments to this original approval. These amendments are summarized below.

Date Approval Issued	Description of Approval/Amendment
January 11, 1988	Original Agency approval for construction of the Facility.
July 11, 1990	Amendment issued to extend the deadline for construction of the Facility.
August 15, 1991	Amendment issued to address design changes in the Facility (e.g., switch auxiliary fuel from No. 2 oil to LPG, increase in stack height, etc.).
October 30, 1991	Amendment issued requiring compliance with a revised NO _x limit at start-up.
January 24, 1992	Amendment issued approving the use of urea and/or ammonia for the selective non-catalytic control device.

Date Approval Issued	Description of Approval/Amendment
April 29, 1992	Amendment issued in order to make clerical revisions to the conditions of the approval.
June 18, 1992	Amendment issued in order to revise the language of various reporting requirements.
February 23, 1993	Amendment issued in order to extend the deadline for emission testing.
February 25, 1997	Amendment issued eliminating the requirement to continuously monitor VOC emissions and the prohibition on simultaneous operation of the Main Boiler and Auxiliary Boiler.

(D) PROPOSED PROJECT AND PERMIT APPLICABILITY

As noted in Findings of Fact (B) above, the Facility is classified as a source of air contaminants under §5-401 of the *Regulations*. Additionally, allowable emissions of all air contaminants from the Facility are greater than 10 tons per year ("tpy") and allowable emissions of carbon monoxide ("CO") and oxides of nitrogen ("NO_x") are greater than 100 tpy. Therefore, pursuant to §§5-1002, 5-1003, and 5-1005 of the *Regulations*, the Facility is classified as a "Title V Subject Source" and is subject to the requirement to secure an Air Pollution Control Permit to Operate ("Permit to Operate") pursuant to the requirements of Subchapter X of the *Regulations* and Part 70 of the *Clean Air Act*. The allowable emissions from the Facility are summarized below:

Allowable Air Contaminant Emissions (tons/year)					
PM/PM ₁₀	SO ₂	NO _x	CO	VOCs	Total HAPs
22	25	197	394	39	<5*

* All individual HAPs emissions are < 10 tpy.

(E) APPLICATION PROCESSING AND PUBLIC PARTICIPATION

On November 3, 1995, the Agency received an application from Ryegate Associates for a Permit to Operate the Facility. This application satisfied the requirements for an administratively complete application on February 5, 1996. Pursuant to §5-1007 of the *Regulations*, notice was then published in the *Caledonian Record* on February 8, 1996, of the receipt of application for a Permit to Operate. The affected state of New Hampshire was notified of the receipt of the application on February 18, 1996. On May 29, 1997, the Agency determined the application satisfied the requirements for a technically complete application.

Public notice was published in the *Caledonian Record* on May 29, 1997, of the Agency's plans to issue a draft decision approving the issuance of Permit to Operate for the Facility. This notification solicited comments on the application, the Agency's review, and draft decision for a minimum of thirty (30) days. The notice provided the public with an opportunity to request an informational meeting if requested in writing by June 25, 1997. The Agency notified the affected state of New Hampshire and the U.S. Environmental Protection Agency ("U.S. EPA") of its draft decision on May 29, 1997. No requests for an informational meeting were received by the Division, and the comment period closed on June 30, 1997.

(F) REVIEW FOR OPERATING PERMIT

(a) Applicable Requirements

The operations at the Facility are subject to the following state and federal laws and regulations, the requirements of which are embodied in the conditions of this Permit:

(i) *Vermont Air Pollution Control Regulations:*

Applicable Requirement from Vermont Air Pollution Control Regulations	Emission Unit/Source/Facility Subject to Requirement
§5-211(2) - Prohibition of Visible Air Contaminants, Installations Constructed Subsequent to April 30, 1970	Main Boiler, Auxiliary Boiler, Emergency Generator, Diesel Fire Pump, Fuel Yard Maintenance Bldg. Heater, Main Maintenance Bldg. Heater, Propane System Vaporizer
§5-221(1) - Prohibition of Potentially Polluting Materials in Fuel, Sulfur Limitation in Fuel	Facility-wide
§5-231(3) - Prohibition of Particulate Matter; Combustion Contaminants	Main Boiler, Auxiliary Boiler, Emergency Generator, Diesel Fire Pump, Fuel Yard Maintenance Bldg. Heater, Main Maintenance Bldg. Heater, Propane System Vaporizer
§5-231(4) - Prohibition of Particulate Matter; Fugitive Particulate Matter	Facility-wide
§5-241 - Prohibition of Nuisance and Odor	Facility-wide
Subchapter VIII - Registration of Air Contaminant Sources	Facility-wide
§5-1010 - Reasonably Available Control Technology (RACT)	Facility-wide

(ii) Air Pollution Control Permit to Construct

Applicable Requirement from Air Pollution Control Permit to Construct	Emission Unit/Source/Facility Subject to Requirement
Condition (1) - Construct in accordance with plans and specifications submitted to the Agency	Facility-wide
Condition (2) - Limitations on wood fuel	Main Boiler
Condition (3) - Limitations on propane fuel	Facility-wide
Condition (4) - Air pollution control equipment requirements	Main Boiler
Condition (5) - Particulate matter emissions limitations	Main Boiler
Condition (6) - Visible air contaminant emissions limitations	Facility-wide
Condition (7) - NO _x emissions limitations	Main Boiler
Condition (8) - Limitations on other air contaminant emissions	Main Boiler
Condition (9) - Continuous emissions monitoring requirements for visible emissions, NO _x , CO, carbon dioxide ("CO ₂ "), volatile organic compounds ("VOCs") (as total gaseous hydrocarbons), and ammonia ("NH ₃ ")	Main Boiler
Condition (10) - Compliance testing and determination of continuing compliance.	Main Boiler
Condition (11) - Limitations on Auxiliary Boiler and Emergency Generator	Auxiliary Boiler and Emergency Boiler
Condition (12) - Requirements for the control of fugitive particulate matter	Facility-wide
Condition (13) - Requirements for the control of odors	Facility-wide

Applicable Requirement from Air Pollution Control Permit to Construct	Emission Unit/Source/Facility Subject to Requirement
Condition (14) - Requirements for start-up, shutdown, and upset conditions	Facility-wide
Condition (15) - Requirements for operation, inspection, and maintenance	Facility-wide
Condition (16) - Notification of start-up	Facility-wide
Condition (17) - Record keeping and reporting requirements	Facility-wide
Conditions (18) to (23) - Standard conditions	Facility-wide

(iii) New Source Performance Standard:

Applicable Requirement from Federal Regulations	Emission Unit/Source/Facility Subject to Requirement
40 <i>CFR</i> Part 60, Subpart A	Main Boiler
40 <i>CFR</i> Part 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Main Boiler

(iv) Equivalency Determination:

Particulate Matter Emission Standards

There are three applicable PM emission limits that apply to the Main Boiler: a federal standard of 0.10 lbs/MMBTU contained in 40 *CFR* Part 60, Subpart Db, Section 60.43b(b)(i), a state standard of 0.10 gr/dscf corrected to 12% CO₂ contained in §5-231(3)(b)(iii) of the *Regulations*, and an MSER limit of 0.007 gr/dscf corrected to 12% CO₂. The PM/PM₁₀ limit specified by MSER is the most stringent, since it is equivalent to approximately 0.02 lbs/MMBTU of heat input. Ryegate Associates will be required to comply with the MSER emission limit. Compliance with the MSER emission limit shall be determined consistent with the procedures identified within 40 *CFR* Part 60 Subpart Db for determining compliance with the federal emission standard. §5-231(3)(b)(iii) of the *Regulations*, and 40 *CFR* Part 60 Section 60.43b(b)(i) are subsumed by MSER as set forth in this subsection.

Visible Air Contaminants

There are two limits which regulate visible air contaminant emissions for the Main Boiler. The state limit is contained in §5-211(2) of the *Regulations* prohibits visible emissions of 20% opacity for a period or period(s) aggregating to six (6) minutes or more in any hour and at no time may visible emissions exceed 60% opacity. There is an exception in §5-211(3) of the *Regulations* which allows visible emissions to exceed the 20% and 60% limits during for periods of start-up and soot blowing for the wood-fired boiler. However, at no time may visible emissions during periods of startup and soot blowing exceed 80% opacity. The federal limit in 40 *CFR* Part 60, Subpart Db, Section 60.43b(e) limits visible emissions to 20% opacity or less, except for one 6-minute period in any hour where emissions may not exceed 27% opacity. The federal opacity limits do not apply during periods of startup, shutdown, or malfunction. Compliance with the state and federal limit are measured differently. The federal standard is based

upon the use of Reference Method 9 (40 *CFR* Part 60 Appendix A), while the state limit is assessed using proposed Reference Method F-1 (51 *Federal Register*, page 31076, August 29, 1986).

The Agency considers the state limit as more stringent than it subsumes the federal limit. Therefore, Ryegate Associates will be required to comply with the state opacity limit. This determination is based upon the following: (1) all periods of source operation are covered by the state opacity limits, and (2) the six-minute averaging technique in federal Reference Method 9 results in underenforcement of an opacity regulation (see Page 31076 of the proposed Method F-1).

(b) Non-Applicable Requirements

Ryegate Associates has not requested a "permit shield" pursuant to §5-1015(a)(11) of the *Regulations*.

(c) Enforceability

Condition (14) of this Permit and the emission limits for ammonia and benzo(a)pyrene in Condition (9)(a) of this Permit derive solely from state law and are only state enforceable, and therefore, are not federally enforceable. All other conditions of this Permit are enforceable by both state and federal authorities.

(d) Compliance Certification

Condition (25) of this Permit requires Ryegate Associates to certify compliance as part of its annual registration with the Agency pursuant to the requirements Subchapter VIII of the *Regulations*. Additionally, Condition (17)(c) requires the submittal of quarterly reports of the results of continuous emission monitoring and Condition (20) the submittal of quarterly summaries of records required to be maintained by the Permit.

Based on the above findings of fact and the Agency's review of the Facility, the Agency concludes that the Facility, subject to the following Permit conditions, will meet all applicable state and federal air pollution control laws and regulations or is subject to an acceptable schedule of compliance. Therefore, pursuant to 10 V.S.A., §556 and §556a, as amended, the Agency hereby issues a Permit approving the modification and operation of the Facility, as described in the above findings of fact, subject to the following:

PERMIT CONDITIONS

- Construction and Equipment Specifications -

- (1) The Facility shall be constructed and operated in accordance with the plans and specifications submitted to the Agency by Ryegate Associates and dated February 4, March 27, June 23, and August 11, 1987; August 25 and September 12, 1989; January 9, February 22, April 10, 11, and 30, 1990; April 23, 1991, and February 12, 1997, and the terms and conditions of this Permit. [10 V.S.A. §556(c)]
- (2) Wood Fuel

Ryegate Associates shall utilize as solid fuel for the Main Boiler only wood fuel uncontaminated by glues, preservatives, oils, or similar foreign substances. Furthermore, Ryegate Associates shall notify the Agency of all proposed sources of wood fuel other than whole tree chips, and of the nature of said fuels, prior to the securing of any purchase/utilization agreements for said fuels. Whole tree chips means chips made from virgin wood and includes stumps, branches, bark, and sawdust incidental to chipping operations. [10 V.S.A. §556(c)]
- (3) Propane

The heat input to the Main Boiler provided by propane shall not exceed fifty (50) million British Thermal Units per hour ("MMBTU/hr"). [10 V.S.A. §556(c)]
- (4) Air Pollution Control Equipment

The Main Boiler shall be equipped with a particulate matter control system consisting of mechanical collectors in series with a five (5) field electrostatic precipitator, each of the specifications indicated by Ryegate Associates in its application. In addition, the Main Boiler shall be equipped with a non-catalytic nitrogen oxides reduction system consisting of either ammonia or urea injection into the boiler flue gas at appropriate points within the furnace. Ryegate Associates shall maintain temperatures within the injection zones in a range between 1600 degrees Fahrenheit ("°F") and 1900°F. Furthermore, all elements of the particulate matter control system shall be maintained in good working order and shall be operating whenever the Main Boiler is running. All elements of the non-catalytic reduction system shall be maintained in good working order and shall be operating whenever the Main Boiler is running after initial start-up. [10 V.S.A. §556(c)]
- (5) Auxiliary Boiler and Emergency Generator
 - (a) Ryegate Associates shall install and operate the Auxiliary Boiler in accordance with the plans and specifications submitted to the Agency on April 23, 1991, and the terms and conditions of this Permit.
 - (b) The Auxiliary Boiler shall have a maximum rated heat input of five (5) MMBTU/hr or less and shall operate on propane fuel.

- (c) Ryegate Associates shall install and operate the Emergency Generator in accordance with the plans and specifications submitted to the Agency on April 23, 1991, and the terms and conditions of this Permit.
- (d) The Emergency Generator shall have a maximum rating of 300 kilowatts and 430 break-horsepower and shall operate on propane fuel.
- (e) The Emergency Generator shall be equipped with a non-resettable elapsed time meter designed to measure and record its total hours of operation.
[10 V.S.A. §556(c)]

- Emission Limits -

(6) Particulate Matter

- (a) In the event that emission testing demonstrates that particulate matter emissions exceed 0.00070 grains per dry standard cubic foot corrected to twelve percent carbon dioxide ("gr/DSCF corrected to 12% CO₂") or 0.50 pounds per hour ("lbs/hour") when wood fuel is contributing more than thirty (30) percent ("%") of the British Thermal Unit ("BTU") input to the Main Boiler, but are less than 0.0070 gr/DSCF corrected to 12% CO₂ and 5.0 lbs/hour, Ryegate Associates shall take all reasonable measures to reduce and maintain its emissions of particulate matter to the greatest extent practicable below 0.0070 gr/DSCF corrected to 12% CO₂ and 5.0 lbs/hour. Ryegate Associates shall report to the Secretary those measures implemented and the degree of improvement derived from them. [10 V.S.A. §556(c) and §5-502(3)(a)(i) of the *Regulations*]
- (b) In the event that emission testing demonstrates that particulate matter emissions exceed 0.0070 gr/DSCF corrected to 12% CO₂ or 5.0 lbs/hour, when wood fuel is contributing more than thirty (30) % of the BTU input to the Main Boiler, the Main Boiler shall cease operation. Operation shall be discontinued within thirty (30) days after Ryegate Associates or the Agency receives the results of said testing. The Main Boiler will be permitted to restart only after Ryegate Associates has demonstrated to the satisfaction of the Secretary that all necessary corrective actions have been taken to ensure that the Main Boiler will operate in compliance with this Permit. Within sixty (60) days after restarting operation under these circumstances, compliance with the particulate emission standard specified in condition (6)(a) above shall be demonstrated by emission testing to the satisfaction of the Secretary. [10 V.S.A. §556(c)]
- (c) Compliance with the above particulate matter emission standards shall be determined by using Federal Reference Method 5 [Title 40, *Code of Federal Regulations* ("40 CFR") Part 60, Appendix A]. The sampling time for each test run shall be at least 120 minutes and the minimum sampling volume shall be sixty (60) dry standard cubic feet. [10 V.S.A. §556(c) and 40 *CFR* Part 60 Subpart Db §60.46b]

(7) Visible Air Contaminants

- (a) Ryegate Associates shall not allow the emission of any visible air contaminant from the Facility, for more than a period or periods aggregating six (6) minutes in any hour, which has a shade, or density, greater than twenty (20) % opacity. At no time, except as specified in condition (7)(b) below, shall such emissions have a shade, density, or appearance greater than sixty (60) % opacity. [10 V.S.A. §556(c) and §5-211(2) of the *Regulations*]
- (b) During normal start-up operations, emissions of visible air contaminants in excess of the limits specified in condition (7)(a) above, but not in excess of eighty (80) % opacity, may

be allowed for a period not to exceed one (1) hour. [10 V.S.A. §556(c) and §5-211(3) of the *Regulations*]

- (c) Compliance with the above visible air contaminant emission standards shall be determined by means of continuous emission monitoring, as required in condition (17) of this Permit. At the Secretary's discretion, compliance shall, in the alternative, be determined by observations by a trained observer in accordance with the proposed Federal Reference Method F-1 (51 Federal Register, page 31076, August 29, 1986). [10 V.S.A. §556(c)]

(8) Nitrogen oxides

Nitrogen oxides ("NO_x") emissions from the Main Boiler shall not exceed the emission standard below when wood is contributing more than thirty (30) % of the BTU input to the Main Boiler:

0.15 pounds per million BTU ("lb/MMBTU") of heat input and 45 lbs/hour (8-hour rolling average) [10 V.S.A. §556(c) and §5-502(3)(a)(i) of the *Regulations*]

(9) Other Air Contaminants

- (a) The emissions from the Main Boiler shall also not exceed the emission standards listed below when wood fuel is contributing more than thirty (30) % of the BTU input to the Main Boiler.

<u>Contaminant</u>	<u>Allowable Emission Rate</u>
Carbon Monoxide	0.30 lbs/MMBTU and 90 lbs/hour
Volatile Organic Compounds ("VOCs")	0.03 lbs/MMBTU and 9.0 lbs/hour*
Benzo(a)pyrene	0.012 lbs/hour
Ammonia	40 ppmv ¹

* VOCs as total gaseous nonmethane organics as carbon.

¹ parts per million on a volume basis ("ppmv") corrected to 12% CO₂; 1 hour average.

[10 V.S.A. §556(c) and §§5-502(3)(a)(i) and 5-261(3) of the *Regulations*]

- (b) Ryegate Associates shall provide to the Secretary, within ninety (90) days after first conducting relative accuracy testing per condition (17) of this Permit, an analysis which displays the quantitative relationship among stack emissions of carbon monoxide, nitrogen oxides, and volatile organic compounds along with other relevant Main Boiler parameters. Based on this data, Ryegate Associates shall identify the optimum mode(s) of operation of the Main Boiler to minimize these emissions. Ryegate Associates shall operate the Main Boiler in such a manner as to achieve this optimum performance. [10 V.S.A. §556(c)]

- (c) Compliance with the emission standards specified in conditions (8) and (9) of this Permit, except ammonia and benzo(a)pyrene, shall be determined by using the following Federal Reference Methods ("Methods") (40 *CFR* Part 60, Appendix A). Compliance with the benzo(a)pyrene emission standard shall be determined by using the federal Modified Method 5 ["Test Methods for Evaluating Solid Waste" (SW 846), 3rd edition, 1986]. Compliance with the ammonia emission standard shall be determined by using NIOSH Method S347.

<u>Contaminant</u>	<u>Test Method</u>
Nitrogen Oxides (as NO ₂)	Method 7E
Carbon Monoxide	Method 10
Volatile Organic Compounds ("VOCs")*	Method 25, Method 25A combined with Method 18
Benzo(a)pyrene	Modified Method 5
Ammonia	NIOSH Method S347

* VOCs as total gaseous nonmethane organics as carbon.

Variations from the requirements of the above test methods shall be allowed only if required, or previously approved, by the Air Pollution Control Officer. [10 V.S.A. §556(c)]

- Operating Conditions and Limitations -

- (10) Ryegate Associates shall operate the Ryegate Power Station in accordance with the plans and specifications submitted to the Agency on November 3, 1995, and January 29, 1996 and in accordance with the conditions set forth herein. [10 V.S.A. §556a(d)]
- (11) Propane
- (a) The quantity of propane combusted by the Main Boiler at the Facility shall not exceed 20.0 million cubic feet per year, based on any rolling twelve (12) consecutive calendar month period.
- (b) The sulfur content of propane combusted by the Facility shall at no time exceed 10 grains per 100 cubic feet.
- [10 V.S.A. §556(c)]
- (12) Auxiliary Boiler and Emergency Generator
- (a) The Auxiliary Boiler shall not operate more than 720 hours during any rolling twelve (12) consecutive calendar month period.
- (b) The Emergency Generator shall not operate more than 720 hours during any rolling twelve (12) consecutive calendar month period and shall not operate simultaneously with the Main Boiler, except for periods of regularly scheduled Emergency Generator operation necessary for maintenance and performance testing of the emergency system.
- [10 V.S.A. §556(c)]

(13) Fugitive Particulate Matter Control

Ryegate Associates shall take reasonable precautions at all times to prevent emissions of fugitive particulate matter, including the following measures:

- (a) Techniques such as, but not limited to, enclosing or spraying with water or surfactants shall be employed by Ryegate Associates to prevent particulate matter from becoming airborne from the handling and transportation of ash.
- (b) Ryegate Associates shall include in its contract(s) with those receiving ash from the Facility the following clause:

The ash recipient shall take reasonable precautions at all times to prevent fugitive particulate matter from becoming airborne from the handling and disposing of ash.
- (c) All roads, traffic areas, and storage piles on the premises shall be maintained and treated as necessary to control fugitive dust, and all trucks and railroad cars which may be sources of fugitive dust shall be covered or treated as necessary.
- (d) Reasonable measures shall be taken to control fugitive dust resulting from any wood chipping operations conducted at the Facility.

[10 V.S.A. §556(c) and §5-231(4) of the *Regulations*]

(14) Odor Control

Ryegate Associates shall operate the Facility in accordance with its plan for the management of any outdoor woodchip storage, as approved in writing by the Agency. Said plan shall detail the storage and handling methods to be utilized by Ryegate Associates to prevent the decomposition of the woodchips and the emissions of objectionable odors beyond the property lines of the premises. [10 V.S.A. §556(c) and §5-241(2) of the *Regulations*]

(15) Startup, Shutdown, and Upset Condition Procedures

Ryegate Associates shall operate the Facility in accordance with its plan for the management of startup, shutdown, and upset conditions, as approved in writing by the Agency. Said plan shall detail the practices and procedures to be followed during periods of startup, shutdown, and upset conditions in order to prevent emissions in excess of the standards specified in this Permit. [10 V.S.A. §556(c)]

(16) Operation, Inspection, and Maintenance Procedures

- (a) All operators of the Facility shall be trained in the operation and maintenance of both the fuel burning and air pollution control equipment by qualified personnel.

- (b) Ryegate Associates shall operate and maintain the Facility in accordance with its inspection and maintenance plan for the fuel burning and air pollution control equipment, as approved in writing by the Agency. Said plan shall detail the inspection and maintenance procedures to be followed to ensure proper operation of the Facility and continuing compliance with the emission standards specified in this Permit. Said plan shall include, but not be limited to, consideration of preventive maintenance schedules, spare parts inventories, procedures and protocols for unscheduled outages, and provisions for equipment replacement and measures to be taken to protect air pollution control equipment in the event of any control equipment failure or shutdown.

[10 V.S.A. §556(c)]

- Testing, Monitoring, Record keeping and Reporting -

(17) Continuous Emission Monitoring ("CEM")

Visible emissions (opacity), nitrogen oxides, carbon monoxide, carbon dioxide, and ammonia ("NH₃") continuous emission monitoring systems ("CEMS") shall be installed on the Main Boiler's stack or breeching according to the manufacturer's specifications and shall be operational at the time the boiler operation commences and at all times thereafter when the boiler is running.

All systems, except the NH₃ CEMS, shall be installed, calibrated, maintained and operated in such a manner as to meet the requirements of 40 *CFR*, Part 60, Appendix B, Performance Specifications 1, 2, 3, 4 and 6, 40 *CFR*, Part 60, Appendix F, Quality Assurance Procedures, and the "Continuous Emission Monitoring Requirements" of the Vermont Air Pollution Control Division, Technical Services Section ("TSS"). The NH₃ CEMS shall meet the TSS CEM Requirements. Ryegate Associates shall operate and maintain the systems in good working condition in accordance with the following requirements:

- (a) The CEMS must be operated continuously recording valid data except for periods of quality assurance/quality control ("QA/QC") identified in the Quality Assurance Plan, routine maintenance or uncontrolled malfunction. Nevertheless, Ryegate Associates must obtain valid CEMS data for all parameters for a minimum of 90% of the Main Boiler's operating hours, based on the calendar quarter.
- (b) A Quality Assurance Plan ("QA Plan") shall be developed by Ryegate Associates for the above CEMS. Said plan shall specify acceptable instrumentation, monitoring procedures, calibration procedures, QA/QC procedures, data acquisition and reporting procedures as required to demonstrate compliance with this Permit. The QA Plan shall also include any emission testing procedures required to determine CEMS relative accuracy. Ryegate Associates shall review the QA Plan at least once each year. Ryegate Associates shall revise and update the QA Plan as necessary, based on the results of this review, or at the request of the Secretary of the Agency of Natural Resources or at any other appropriate time to accurately document CEMS operations. Ryegate Associates shall notify the TSS in writing of the results of the annual QA Plan review. All QA Plan modifications are subject to TSS review and shall not be implemented until Ryegate Associates has received written approval from the TSS.

- (c) Ryegate Associates shall submit a summary report for each calendar quarter, within thirty (30) days after the close of the quarter, which meets the applicable TSS CEM Requirements and is in a format acceptable to the TSS. The report shall include at a minimum all visible, nitrogen oxides, carbon monoxide, and ammonia emissions in excess of the emissions standards specified in conditions (7), (8) and (9) of this Permit, a frequency distribution that summarizes all the data collected, a summary of valid data capture and periods of CEMS downtime and invalid data.
- (d) CEMS data for nitrogen oxides and carbon monoxide shall be reported in units of lbs/MMBTU and lbs/hour both in terms of eight-hour rolling averages. Ammonia emissions shall be reported in units of ppmv, corrected to 12% CO₂.
- (e) Ryegate Associates shall maintain a file of all information reported in the quarterly summaries and all other data collected by the monitoring systems for at least five (5) years from the date of collection of such data or submission of such summaries. All data records for the monitoring systems shall be marked to show the times of both start-up and shutdown of the Main Boiler.
- (f) If, on the basis of the continuous emission monitoring required by this condition, it is determined that the visible, nitrogen oxides, carbon monoxide, or ammonia emissions exceed the standards specified in this Permit, Ryegate Associates shall, through the application of good engineering practices, immediately review the major operating systems in the Facility in an effort to determine whether any such system has malfunctioned and will undertake its best efforts to rectify the malfunctions, if any.

[10 V.S.A. §556(c)]

(18) Compliance Testing and Monitoring

- (a) Continuing compliance with the particulate matter emission standards specified in condition (6) of this Permit and the VOC emission standard specified in condition (9)(a) of this Permit shall be determined by biennial emissions testing, to be conducted beginning in 1995 and every other year thereafter. Ryegate Associates shall conduct such testing and furnish the Agency with a written report of the results of such testing within ninety (90) days after the 7th of September for those years when re-testing is required. At least thirty (30) days prior to the re-testing, Ryegate Associates shall submit a pre-test report prepared in accordance with the Agency's "Source Emission Testing Guidelines".
- (b) Continuing compliance with the visible air contaminant emission standards specified in condition (7) of this Permit shall be determined by means of continuous emission monitoring, as required in condition (17) of this Permit. At the Secretary's discretion, compliance shall, in the alternative, be determined by observations by a trained observer in accordance with the proposed Federal Reference Method F-1 (51 Federal Register, page 31076, August 29, 1986).
- (c) Continuing compliance with the nitrogen oxides and carbon monoxide emission standards specified in conditions (8) and (9) of this Permit shall be determined by means of continuous emission monitoring, as required in condition (17) of this Permit.
- (d) Continuing compliance with the ammonia emission standard specified in condition (9) of this Permit shall be determined by continuous emission monitoring, as required in condition (17) of this Permit.

[10 V.S.A. §556(c)]

(19) Records of all required compliance testing shall include the following:

- (a) the date, place, and time of sampling or measurements;
- (b) the date analyses were performed;
- (c) the company or entity that performed the analyses;
- (d) the analytical techniques or methods used;
- (e) the results of all such analyses; and
- (f) the operating conditions existing at the time of sampling or measurement.

[Sections 5-402(1) of the *Regulations*]

(20) Record keeping

In addition to the record keeping and reporting requirements specified in conditions (17) and (18) of this Permit, Ryegate Associates shall maintain records of the following data:

- (a) The quantity of wood fuel fired during each day and calendar month;
- (b) The quantity of wood fuel other than whole tree chips received during each calendar month;
- (c) The quantity of propane fired during each day and calendar month in each of the following:
 - (i) Main Boiler;
 - (ii) Auxiliary Boiler;
 - (iii) Auxiliary Generator;
- (d) The total hours of operation during each calendar month of the Auxiliary Generator;
- (e) The quantity of ammonia or urea injected into the Main Boiler during each calendar month;
- (f) The sulfur content of each delivery of propane fuel received at the Facility; and
- (g) Electricity supplied and used by each field of the electrostatic precipitator pursuant to the inspection and maintenance plan referenced by Condition (16)(b) of this Permit and in effect on August 24, 1995.

Summaries of such records shall be submitted to the Agency for each calendar quarter within thirty (30) days after the close of each quarter. Ryegate Associates shall maintain such records for a period of five (5) years from the date of collection of such data or the submission of such summaries. [10 V.S.A. §556(c) and 40 *CFR* Part 60 Subpart Db §60.49b]

(21) The Owner/Operator shall notify the Agency in writing of any proposed physical or operational change at the Facility which may increase the emission rate of any air contaminant to the ambient air. If the Agency determines that a permit amendment is required, a new application and the appropriate application fee shall be submitted. The permit amendment shall be obtained prior to commencing any such change. [10 V.S.A. §556(c) and §5-501 of the *Regulations*]

(22) All records, reports, and notifications that are required to be submitted to the Agency by this Permit shall be submitted to:

Air Pollution Control Division
Agency of Natural Resources
Building 3 South, 103 South Main Street
Waterbury, Vermont 05671-0402.

[§5-402(1) of the *Regulations*]

(23) The Owner/Operator shall notify the Agency in writing within ten (10) days of any violation, of which it is aware, of the requirements in this Permit. This notification shall include, at a

minimum, the cause for the deviation and corrective action or preventative maintenance taken to correct the deviation. [§5-1015(a)(12) of the *Regulations* and 40 *CFR* Part 70 §70.6(a)(3)(iii)(B)]

- Enhanced Monitoring/Compliance Assurance Monitoring -

- (24) Based upon the applicability of regulations promulgated under authority granted to the U.S. Environmental Protection Agency pursuant to Sections 504(b) and/or 114(a)(3) of the federal *Clean Air Act*, the Agency reserves the right to reopen this Permit to include any necessary requirements contained in said regulations. [§5-1015(a)(12) of the *Regulations*]

- Compliance Certifications -

- (25) Ryegate Associates shall submit an annual certification of compliance concurrent with the annual registration data submitted to the Agency as specified by Condition (32) of this Permit, which identifies the compliance status during the past year of Ryegate Associates with respect to all terms and conditions of the Permit, including emission limitations, standards, and work practices. Such compliance certification shall include the following:
- (a) Identification of each term or condition of the Permit that is the basis of the certification;
 - (b) The compliance status;
 - (c) Whether compliance was continuous or intermittent; and
 - (d) The methods used for determining the compliance status over the reporting period.

[§ 5-1015(a)(8) of the *Regulations*]

- General Permit Conditions -

- (26) These Permit conditions may be modified suspended, terminated, or revoked for cause and reissued upon the filing of a written request with the Secretary of the Agency (hereinafter "Secretary") or upon the Secretary's own motion. Any modification shall be granted only with the written approval of the Secretary. If the Secretary determines that modification is appropriate, only the conditions subject to modification shall be re-opened. The filing of a request for modification, revocation and reissuance, or termination, or notification of planned changes or anticipated non-compliance does not stay any terms or conditions of this Permit. The Secretary may provide opportunity for public comment on any proposed modification of these conditions. If public comments are solicited, the Secretary shall follow the procedures set forth in 10 *V.S.A.*, §556 and §556a, as amended. [10 *V.S.A.* §556(c); 10 *V.S.A.* §556a(d); and §§ 5-1008 and 5-1013 of the *Regulations*]
- (27) Cause for reopening, modification, termination and revocation of this Permit includes, but is not limited to:
- (a) Inclusion of additional applicable requirements pursuant to state or federal law;
 - (b) A determination that the permit contains a material mistake or that inaccurate information was used to establish emissions standards or other terms or conditions of the operating permit;
 - (c) A determination that the operating permit must be modified or revoked to ensure compliance with applicable requirements;
 - (d) A determination that the subject source has failed to comply with a permit condition;
 - (e) For Title V subject sources, a determination by U.S. EPA that cause exists to terminate, modify, revoke or reissue an operating permit;
 - (f) Those causes which are stated as grounds for refusal to issue, renew or modify an operating permit under §5-1008(a) of the *Regulations*; or
 - (g) If more than three (3) years remain in the permit term and the source becomes subject

to a new applicable requirement.

[§5-1008(e)(4) of the *Regulations*]

- (28) The Owner/Operator shall furnish to the Agency, within a reasonable time, any information that the Agency may request in writing to determine whether or cause exists for modifying, revoking, reissuing, or terminating the permit or to determine compliance with this Permit. Upon request, the Owner/Operator shall also furnish to the Agency copies of records required to be kept by this Permit. [40 *CFR* Part 70 §70.6(a)(6)(v)]
- (29) This Permit does not convey any property rights of any sort or any exclusive privilege, nor does it authorize any injury to private property or any invasion of personal rights. [10 *V.S.A.* §556a(d)]
- (30) By acceptance of this Permit, the owner and operator agree to allow representatives of the State of Vermont access to the properties covered by the Permit, at reasonable times, for the purpose of ascertaining compliance with Vermont environmental and health statutes and regulations and with this Permit. The owner and operator also agrees to give the Agency access to review and copy any records required to be maintained by this Permit, and to sample or monitor at reasonable times to ascertain compliance with this Permit. [10 *V.S.A.* §556a(d)]
- (31) All data, plans, specifications, analyses and other information submitted or caused to be submitted to the Agency as part of the application for this Permit or an amendment to this Permit shall be complete and truthful and certified by a responsible official whose designation has been approved by the Secretary. Any such submission which is false or misleading shall be sufficient grounds for denial or revocation of this Permit, and may result in a fine and/or imprisonment under the authority of Vermont statutes. [§5-1008(f) of the *Regulations*]
- (32) The Owner/Operator shall calculate the quantity of emissions of air contaminants from the Facility annually. If the Facility emits more than five (5) tons of any and all air contaminants per year, the Owner/Operator shall register the source with the Secretary, and shall renew such registration annually. Each day of operating a source which is subject to registration without a valid, current registration shall constitute a separate violation and subject the Owner/Operator to civil penalties. The registration process shall follow the procedures set forth in Subchapter VIII of the *Vermont Air Pollution Control Regulations*. Annual registration forms submitted to the Agency shall contain a compliance certification statement in accordance with Condition (25) of this Permit. [Sections 5-802, 5-803, 5-807, and 5-808 of the *Regulations*]
- (33) These Permit conditions shall be binding upon and enforceable against the current Owner/Operator and all subsequent owners and operators of the source. Subsequent owners of the source shall file an administratively complete application for an Air Pollution Control Permit to Operate within twelve (12) months of any change of the source's ownership. The terms and conditions of this Permit shall remain in full force and effect until the issuance of a new Permit to Operate. [10 *V.S.A.* §556a(d)]
- (34) The provisions of this Permit are severable. If any provision of this Permit, or its application to any person or circumstances is held invalid, illegal, or unenforceable by a court of competent jurisdiction, the invalidity shall not apply to any other portion of this Permit which can be given effect without the invalid provision or application thereof. [10 *V.S.A.* §556a(d)]
- (35) Any permit noncompliance constitutes a violation of the federal *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. [§§5-1008(a) and 5-1008(e) of the *Regulations*]
- (36) It shall not be a defense for the Owner/Operator 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. [10 V.S.A. §556a(d)]

- (37) The Owner/Operator shall submit to the Agency a complete application for renewal of the Operating Permit at least one (1) year before the expiration of the Operating Permit. [§§5-1005(c) and 5-1012(a) of the *Regulations*]
- (38) The Operating Permit shall expire five (5) years from the date of its issuance. [§§5-1011 and 5-1012(a) of the *Regulations*]
- (39) The conditions set forth above supersede all conditions contained in the Agency's Air Pollution Control Permit to Construct #AP-90-029g granted to Ryegate Associates on February 25, 1997. [§5-1012(a) of the *Regulations*]

The Agency's issuance of this Air Pollution Control Permit to Construct and Operate relies upon the data, judgement, and other information supplied by the Owner and/or Operator. The Agency makes no assurances that the air contaminant source approved herein will meet performance objectives or vendor guarantees supplied to the source Owner and/or Operator. It is the sole responsibility of the Owner and/or Operator of the source to operate the source in accordance with the conditions herein and with all applicable state and federal standards and regulations.

Dated this _____ day of _____, 1997, in the town of Waterbury, county of Washington, state of Vermont.

Agency of Natural Resources

Canute E. Dalmasse, Commissioner
Department of Environmental Conservation

By: _____
Richard A. Valentinetti, Director
Air Pollution Control Division

A2 Ryegate Power Station, East Ryegate

**Air Pollution Control Division
Bldg. 3 South, 103 South Main Street
Waterbury, Vermont 05671-0402
Tel. (802) 241-3840
Fax (802) 241-2590**

November 12, 1997

Mr. Eric Heggeseth, Vice President
Ryegate Associates, Incorporated
RR #1, Box 4
East Ryegate, VT 05042

Subject: Application #AOP-95-031 for an Air Pollution Control Permit to Construct and Operate
Ryegate Power Station, East Ryegate, Vermont

Dear Mr. Heggeseth:

On July 2, 1997, the Agency of Natural Resources, Air Pollution Control Division's ("Agency") forwarded the proposed air pollution control permit for the Ryegate Power Station to the U.S. Environmental Protection Agency ("U.S. EPA"). On September 11, 1997, the Agency received a letter from the U.S. EPA stating the permit was acceptable with one change. Condition (20)(g) has been added to address U.S. EPA's comment regarding periodic monitoring for particulate matter emissions from the Main Boiler. Enclosed please find the finalized Air Pollution Control Permit to Construct and Operate the Ryegate Power Station. As you know, this permit addresses both the requirements of Subchapter V and X of the *Vermont Air Pollution Control Regulations*, as well as Title V of the *1990 Clean Air Act Amendments* (Operating Permits).

Please feel free to call me at (802) 241-3856 with any comments or questions you may have related to this matter.

Sincerely,

John L. Perreault, P.E.
Air Pollution Control Division

Enclosure
pc: U.S. EPA Region I (w/ enclosure)

JLP:jjp
A2 Ryegate Power Station, East Ryegate (w/ enclosure)