



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Bucksport Mill LLC
Hancock County
Bucksport, Maine
A-22-77-18-A**

**Departmental
Findings of Fact and Order
New Source Review
NSR #15**

FINDINGS OF FACT

After review of the air emission license amendment application, staff investigation reports and other documents in the applicant’s file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), Section 344 and Section 590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Facility	Bucksport Mill LLC (Bucksport Mill)
License Amendment Type	06-096 CMR 115 Minor Modification
NAICS Code	221112, Fossil Fuel Electric Power Generation
Nature of Business	Electric Services
Facility Location	2 River Road, Bucksport, Maine

The Bucksport Mill LLC (Bucksport Mill) operates electric power generation equipment and is licensed as a major source through its Part 70 License (A-22-70-A-I, December 30, 2004) with various Part 70 amendments and New Source Review amendments.

The Bucksport Mill submitted a New Source Review (NSR) minor modification application to address an alternative operating scenario for the Gas Turbine.

B. Amendment Application Description

The Bucksport Mill application requested a clarification in the license to allow the Gas Turbine to operate as a simple cycle unit, as well as maintaining the ability to operate as a combined cycle unit.

C. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type
Gas Turbine	1963	1,963,000 scf/hr	natural gas
	2082	14,871 gal/hr	distillate fuel

D. Application Classification

The application for the Bucksport Mill to add an alternative operating scenario for the Gas Turbine does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping.

The submitted Gas Turbine application does not include proposed licensed emission limit changes or any expected increases in actual emissions. Therefore, this amendment is determined to be a minor modification to the facility under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended).

The changes being made are not addressed or prohibited in the Part 70 air emission license. An application to incorporate the requirements of this New Source Review (NSR) license into the Part 70 air emission license shall be submitted no later than 12 months from commencement of the requested operation.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096

CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Gas Turbine Simple Cycle Operating Scenario

The Gas Turbine is a GE Frame 7 combined cycle gas turbine that fires primarily natural gas, with distillate fuel oil as a secondary fuel, to produce a nominal 175 MW. The turbine was first fired in October 2000 and brought on-line in January 2001, the Gas Turbine includes a non-fired heat recovery steam generator (HRSG) system. The Gas Turbine utilizes dry low NO_x burners and water injection for the control of NO_x emissions. Previously, the Gas Turbine and the power boilers at the facility were utilized to supply steam and electrical power to the papermaking portion of the mill, but with the shutdown of the papermaking operations, the units are now considered a stand-alone power plant.

Combustion in the Gas Turbine operates generator G4, and the steam from the HRSG supplies steam turbines G3 and G5. Currently operated as a combined cycle unit, the Gas Turbine is bid into the ISO New England Day Ahead Market and if selected to operate, steam turbines G3 and G5 are started along in conjunction with G4. The operation of these generators is required because there is no other place to utilize the steam generated by the HRSG and venting would be too costly.

Due to a combination of constraints in the Maine energy market, including electric transmission limitation issues and the unavailability of low cost pipeline shale gas to the area, the combined cycle unit is less than competitive such that it seldom operates. The cost associated with operating in combined cycle mode includes keeping the system heated and ready to start within a 2 hour period. In order to support this ready mode in the winter period, the steam cycle, turbines, buildings, and boilers all need to be operated.

In the proposed simple cycle operating scenario, the HRSG and associated steam turbines would not be run, and the Gas Turbine would be able to be operated as needed without the stand-by heating required to maintain the steam system of the combined cycle mode of operation. Therefore, Boiler 5 would not be on-line as often as currently required for the stand-by support.

The operation of the Gas Turbine in the alternative simple cycle scenario does not constitute a modification to the unit based on the following federal and state definitions:

Modification is defined in 40 CFR Part 60, Subpart A – General Provisions as:
“*Modification* means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air

pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.”

Modification or modified source is defined in 06-096 CMR 100 as: "*Modification or modified source* means any physical change in or change in the method of operation of a source that would result in the emission increase of any regulated pollutant, except that:

- A. Routine maintenance, repair, and replacement shall not be considered a physical change;
- B. The following shall not be considered a change in the method of operation:
 - (1) An increase in the production rate at an existing source, unless such change is prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51 Subpart I or 40 CFR 51.166, and if such increase does not exceed the operating design capacity of the source;
 - (2) An increase in the hours of operation, unless such change is prohibited under any federally enforceable permit condition which was established after January 6, 1975 pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51 Subpart I or 40 CFR 51.166; or
 - (3) Use of an alternative fuel or raw material if prior to January 6, 1975, the source is designed to accommodate and is licensed to use such alternative fuel; and
- C. Replacement of pollution control apparatus at steam electrical utility generating units or other source determined by the Department to be equally or more effective than the apparatus being replaced shall not be considered a physical change or change in the method of operation for the purposes of this definition, but shall be governed consistent with the CAA and federal regulations.

The burners and combustion process in the Gas Turbine will not be changing. The only operating difference is that the exhaust will pass through the heat recovery steam system without utilizing the system to produce steam. The exhaust will vent out the existing stack as it does currently. Because the heat will not be recovered, the stack gas temperature will be high and a cooling system will need to be installed to protect the HRSG system from damage since it will remain in place. The Bucksport Mill is investigating the use of either a water spray system or an air cooled system to serve this purpose.

In the simple cycle operating scenario, there are no proposed licensed emission limit changes and no increases in actual emissions. The combustion process and

emission control technology for the Gas Turbine will remain unchanged. The stack temperature and stack velocity is expected to increase even with a cooling system, creating increased dispersion and lower ambient air quality impacts.

Based on the information above, the Department approves the alternative simple cycle operating scenario for the Gas Turbine. The Bucksport Mill shall keep operating records of whether the unit is used in simple cycle or combined cycle operating mode. The Bucksport Mill shall continue to meet all licensed requirements for the Gas Turbine as BACT, whether operating under the simple cycle scenario or the combined cycle scenario.

C. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review license shall apply to the facility upon license issuance. Per *Part 70 Air Emission License Regulations*, 06-096 CMR 140 (as amended), Section 1(C)(8), for a modification that has undergone NSR requirements or been processed through 06-096 CMR 115, the source must then apply for an amendment to the Part 70 license within one year of commencing the proposed operations as provided in 40 CFR Part 70.5.

D. Annual Emissions

The total annual licensed emissions from the Bucksport Mill are not changing with this NSR license.

III. AMBIENT AIR QUALITY ANALYSIS

The Bucksport Mill previously submitted an ambient air quality analysis for the biomass upgrade project for Boiler 8 (A-22-77-4-A, November 29, 2010) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards.

At base load conditions, the alternative Gas Turbine simple cycle operating scenario is expected to increase the stack temperature from 373°F to approximately 675°F and the velocity from 21,613 feet per second to approximately 35,388 feet per second. This will increase dispersion and reduce ambient air quality impacts further from the results of the previous ambient air quality analysis. Therefore, no additional ambient air quality analysis is required for this NSR license.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-22-77-18-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

(1) Gas Turbine Alternative Operating Scenario

- A. The Bucksport Mill may operate the Gas Turbine as a simple cycle unit with the HRSG system inactive.
- B. The Bucksport Mill shall maintain records of whether the Gas Turbine is in simple cycle or combined cycle mode when the unit is operated.
- C. The Bucksport Mill shall remain in compliance with all applicable Gas Turbine licensing requirements while operating in simple cycle mode.

[06-096 CMR 115, BACT]

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- (2) The Bucksport Mill shall submit an application to incorporate the requirements of this NSR license into the Part 70 air emission license no later than 12 months from commencement of the requested operation. [06-096 CMR 140, Section 1(C)(8)]

DONE AND DATED IN AUGUSTA, MAINE THIS 13 DAY OF January, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Marc Allen Robert Cone* *for*
AVERY T. DAY, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 2, 2015

Date of application acceptance: November 5, 2015

Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

