



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

**Verso Bucksport LLC
Hancock County
Bucksport, Maine
A-22-70-C-A**

**Departmental
Findings of Fact and Order
Part 70 Air Emission License
Amendment #1**

After review of the Initial Part 70 License amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A, Section §344 and Section §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Facility	Verso Bucksport LLC (Verso)
License Number	A-22-70-C-A
License Type	Part 70 502(b)(10) Change
NAICS Code	322121 (pulp mill that produces paper)
Nature of Business	Groundwood and Thermomechanical pulp, paper making
Facility Location	Main Street, Bucksport
Date of Initial License Issuance	December 30, 2004
Date of Amendment Issuance	March 26, 2009
License Expiration Date	December 30, 2009

B. Emission Equipment

The following emission unit is addressed in this Part 70 License amendment: Combined Cycle Gas Turbine (maximum design heat input capacity of approximately 1963 MMBtu/hr on gas and 2082 MMBtu/hr on fuel oil).

C. Application Classification

The application for Verso does not include the licensing of increased emissions or the installation of new or modified equipment. The proposed clarifications to the gas turbine definitions of start-up, shut-down, and fuel transfer are considered a Part 70 Section 502(b)(10) change and have been processed under *Part 70 Air Emission License Regulations* 06-096 CMR 140 (last amended on December 24, 2005).

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312 CANCO ROAD
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1235 CENTRAL DRIVE, SKYWAY PARK
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II. PART 70 SECTION 502(b)(10) DESCRIPTION

A. Combined Cycle Gas Turbine

The 175 MW combined cycle gas turbine is licensed to fire natural gas and fuel oil, and has specific licensed definitions for startup, shutdown, and fuel transfers. Verso Bucksport has requested a clarification of the definitions to include aborted startups, shutdowns, or transfers.

The gas turbine is subject to 40 CFR Part 60, Subparts GG and A, and 40 CFR Parts 72 and 75.

Air emission license A-22-70-A-I Condition (16)(M) requires Verso Bucksport to minimize emissions from the gas turbine to the maximum extent practicable during startup and shutdown, during fuel transfer, and under maintenance or adjustment conditions. The condition includes startup, shutdown, and fuel transfer limits for NO_x and CO and the following definitions:

Turbine startup shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. When firing gas, steady state operation shall be reached when the combustion turbine reaches “6Q” defined as when the turbine reaches its ninth operational mode with all six gas nozzles and the Q burners firing. When firing liquid fuel, steady state operation shall be reached when the combustion turbine water injection rate reaches steady sustainable load (defined as 20 gpm).

This period shall not exceed 90 minutes for a hot start, 180 minutes for a warm start, or 240 minutes for a cold start. A hot start shall be defined as startup when the generating unit has been down for 2 hours or less. A warm start shall be defined as startup when the generating unit has been down for more than 2 hours and less than or equal to 48 hours. A cold start shall be defined as startup when the generating unit has been down for more than 48 hours.

Shutdown shall be defined as that period of time from steady state operation to cessation of combustion turbine firing, or when the turbine goes into a fired shutdown. This period shall not exceed 60 minutes.

A *fuel transfer* mode shall be defined as the period of time during which the fuel fired in the turbine is switched from fuel oil to gas or gas to fuel oil. This period shall not exceed 120 minutes.

Verso Bucksport has proposed additional clarifying language to address startups, shutdowns, and fuel transfers that are aborted. These aborted situations do not technically meet the start-up/shutdown/fuel transfer definitions, as written; although they are non-normal operations. With an aborted start-up, a steady load operation would not have been reached. With an aborted shutdown, a cessation of combustion turbine firing would not have occurred. With an aborted fuel transfer, the turbine would be shut down or the turbine would be brought back up on the same fuel without a transfer being made.

An aborted start-up/shutdown/fuel transfer rarely happens, in fact there has been only one shutdown aborted in eight years of operation, but potential scenarios could cause these situations. For start-ups: a loss of fuel, computer detected abnormalities that cause the turbine to trip, or unsafe firing conditions could result in a sudden cessation of start-up. For shutdowns: a request from ISO-NE not to shut down or issues with other boilers on site during the turbine shutdown requiring the turbine to stay on-line could result in an aborted shutdown. For fuel transfers: operational issues with the fuel being transferred to could cause an aborted fuel transfer (ie – fuel leaks or the fuel system doesn't fire).

In order to address these non-normal operational modes, a clarifying sentence shall be added to the end of each definition to include aborted start-up, shutdown, and fuel transfers.

B. Facility Emissions

Emissions from Verso Bucksport shall be limited to the following (as calculated in the previous license):

Total Licensed Annual Emission for the Facility
Tons/year
(used to calculate the annual license fee)

<u>Equipment</u>	<u>PM</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC*</u>
Boilers 5, 6, 7, 8, and the gas turbine	351	341	2800	1410	628	205
Off Machine Coater				29		
TMP Process Vents						28.5
Groundwood Process Vents						144.5
Diesel Emergency Generators (Onan 1, 2, and 3 total)	2.3	2.3	0.3	17.4	1.7	0.6
TOTALS	353.3	353.3	2800.3	1456.4	629.7	378.6

- * Paper machine VOC are noted, but not included since they are highly variable and unquantified at this time. TMP and Groundwood VOC calculations are based on maximum capacity and the factors included in the finding of fact of fact in air emission license A-22-70-A-I, Section II (K).

III. AIR QUALITY ANALYSIS

The facility previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. The most recent air quality analysis was performed for air emission license amendment A-22-71-P-M. An additional ambient air quality analysis is not required for this Part 70 Section 502(b)(10) change.

ORDER

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

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

The Department hereby grants the Part 70 License A-22-70-C-A pursuant to 06-096 CMR 140 and the pre-construction permitting requirements of 06-096 CMR 115; and subject air emission license A-22-70-A-I, A-22-70-B-T, and the conditions below.

Federally enforceable conditions in this Part 70 license must be changed pursuant to the applicable requirements in 06-096 CMR 115 for making such changes and pursuant to the applicable requirements in 06-096 CMR 140.

For each standard and special condition that is state enforceable only, state-only enforceability is designated with the following statement: **Enforceable by State-only.**

The following shall replace condition 16 (M) in air emission license A-22-70-A-I:

(16) Combined Cycle Gas Turbine

M. Turbine Startup/Shutdown, Fuel Transfer, and Re-Tuning

Verso Bucksport shall minimize emissions from the gas turbine to the maximum extent practicable during startup and shutdown, during fuel transfer, and under maintenance or adjustment conditions, by following proper operating procedures to minimize the emissions of air contaminants to the maximum extent practical. Gas turbine startup and shutdown and fuel transfer limits for NO_x and CO shall not exceed the following:

Pollutant	Fuel	ppmdv
NO _x	Gas or liquid fuel	200 @15% O ₂
CO	Gas or liquid fuel	2250 @15% O ₂

Turbine startup shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. When firing gas, steady state operation shall be reached when the combustion turbine reaches "6Q" defined as when the turbine reaches its ninth operational mode with all six gas nozzles and the Q burners firing. When firing liquid fuel, steady state operation shall be reached when the combustion turbine water injection rate reaches steady sustainable load (defined as 20 gpm). Aborted start-ups shall be included in this definition.

This period shall not exceed 90 minutes for a hot start, 180 minutes for a warm start, or 240 minutes for a cold start. A hot start shall be defined as startup when the generating unit has been down for 2 hours or less. A warm start shall be defined as startup when the generating unit has been down for more than 2 hours and less than or equal to 48 hours. A cold start shall be defined as startup when the generating unit has been down for more than 48 hours.

Shutdown shall be defined as that period of time from steady state operation to cessation of combustion turbine firing, or when the turbine goes into a fired shutdown. Aborted shutdowns shall be included in this definition. This period shall not exceed 60 minutes.

A *fuel transfer* mode shall be defined as the period of time during which the fuel fired in the turbine is switched from fuel oil to gas or gas to fuel

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oil. Aborted fuel transfer shall be included in this definition. This period shall not exceed 120 minutes.

Turbine re-tuning shall be defined as that period of time from initiation of combustion turbine firing until two hours after the computer has signaled the turbine reaching base load. This period shall not exceed 48 hours for each fuel.

[06-096 CMR 140, BPT]

DONE AND DATED IN AUGUSTA, MAINE THIS *26th* DAY OF *March*, 2009.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *James P. Little*

DAVID P. LITTELL, COMMISSIONER

The term of this license shall be concurrent with the term of air emission license A-22-70-A-I.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 26, 2009

Date of application acceptance: March 3, 2009

Date filed with the Board of Environmental Protection _____

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

