

Facility Profile

J.D. IRVING, LIMITED
for the operation of
Scierie Grande Rivière
Saint Léonard, New Brunswick

Prepared by:
Authorizations Branch
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BACKGROUND

J.D. IRVING, LIMITED, Scierie Grande Rivière is a softwood sawmill located in St-Léonard, New Brunswick that produces approximately 350 million board feet of dimensional lumber per year. The facility was built by J.D. Irving and commenced operations in 1987.

The mill has a building area of approximately 98 489 square feet and employs 285 people. The sawmill operates on two 10-hour shifts 5 days a week, three 12-hour shifts on the weekend, and the 6 dry kilns run 24 hours a day, 7 days a week.

In 2010, a biomass-fuelled Thermal Plant was added to the mill. The biomass (bark and wood chips) generated from the sawmill process is burned in the Thermal Plant to generate heat for the dry kilns, hot pond and for space heating. Supplemental heat is provided by the three oil-fired Volcano boilers.

Irving foresters have achieved independent third-party certification of the company's forest management practices. All woodlands that supply Scierie Grande-Rivière have undergone rigorous audits and inspections by respected third party experts and have achieved environmental certification under the International Standards Organization (14001) and the Sustainable Forestry Initiative (SFI).

PROCESS DESCRIPTION

SAWMILL

Spruce, pine and fir (SPF) are harvested and brought to the sawmill in various lengths and submerged in the hot pond to facilitate the removal of bark before going through the de-barkers. The hot pond is fabricated of reinforced concrete and does not discharge effluent to the environment. The de-barked logs are transported to one of three lines, scanned, positioned for optimized board selection, chipped and cut. All boards pass through the optimized trimmer before being automatically sorted into a drop-sorter where they await transport to the kilns. The sawmill is equipped with two chip feeders, a sawdust feeder and a dust collection system.

KILNS

The facility has six high temperature dry kilns. All six operate at a maximum temperature of 116°C and have a charging capacity of 320,000 bf (board feet). Each kiln is equipped with reversible fans to circulate the warm air within the kiln. A ventilation system with fresh and exhausts air vents serves to release excess humidity. A typical charge of green lumber requires 65 hours in the kiln to be dried.

BOILER SYSTEMS

Heat for the Facility is provided by the Biomass Combustor in the Thermal Plant. The Biomass Combustor has a maximum output of 75 MM Btu/hr from the combustion of 55,000 GMT per year of

bark. The combustor has a stack of 2.00 m diameter and 24.57 m in height and is equipped with multi-cyclone collectors.

The facility is also equipped with three Volcano Boilers with the capacity to burn No. 6 fuel oil. Boilers 1 and 2 each have a capacity of 25 MM Btu/hr with stacks of 0.762 m diameter and 10.1 m in height. Boilers 3 and 4 have been removed. Boiler 5 is the largest with a capacity of 55 MM Btu/hr with a stack of 1.223 m in diameter and 10.7 m in height. The total annual consumption of No. 6 fuel oil for all three boilers in 2018 was 173,952 L per year.

PLANER MILL

Once the boards are kiln-dried, they are brought back in the mill to be planed. The planer mill is equipped with a sawdust blower and a dust collection system.

WASTE

Wood waste is generated during debarking, sawing, and planning. Most of the wood waste generated is transported offsite to various industrial operations, including: pulp and paper mills, poultry farms and composting facilities. The wood waste that is not marketable is being transported to a government approved and regulated disposal site that is continually maintained and monitored.

The ash produced from the Biomass Combustor has been certified by the Canadian Food Inspection Agency (CFIA) and is used by local farmers. The facility is required to perform regular sampling to maintain the CFIA label. If ash is not able to be received by farmers, particularly mid-winter, it will be disposed of in an approved landfill.

POTENTIAL AIR QUALITY IMPACTS

The main source of air emissions from the J. D. Irving, Limited – Scierie Grande-Rivière operation is the Biomass combustor, where particulate matter is released from the combustion of wood waste. If fired, the fuel oil boilers release sulphur dioxide, particulate matter and nitrogen oxides from the combustion of No. 6 fuel oil. The facility also produces particulate matter from the sawing and planning operations and the storage of sawdust, shavings and bark in piles located on site.

The following is a list of the potential air quality impacts associated with the operation of the facility which are the focus of the Air Quality Approval:

- Sulphur dioxide, nitrogen oxides and particulate matter emissions from the combustion of heavy fuel oil and bark;
- Particulate emissions from the sawing and planning operations;
- Particulate emissions from the bark, shavings and sawdust storage piles;
- Process gas emissions (includes organics) from the operation of the Facility; and
- Odour, noise, and fugitive particulate matter emissions from the operation of the Facility.

AIR POLLUTION CONTROL

The Biomass Combustor is equipped with an oxygen monitor to ensure proper combustion efficiency, as well as a multicyclone dust collection system. The sawmill and planer mill are equipped with cyclone dust collection systems.

As means of smoke density and particulate matter control from the combustion of fuel oil, all three of the oil-fired boiler stacks are equipped with continuous emission monitors (CEM) that measure the opacity of the exhaust gas being released to the atmosphere.

AIR QUALITY COMPLIANCE AND ENFORCEMENT

J.D. IRVING, LIMITED – Scierie Grande-Rivière is required to comply with the *Air Quality Regulation - Clean Air Act* and operate under terms and conditions established in its Approval to Operate, issued pursuant to Section 3 of the *Air Quality Regulation - Clean Air Act*. Conditions are aimed at ensuring that the facility's environmental impact during its day-to-day operations does not adversely affect air quality in surrounding areas, as well as regionally and globally. Any violation of the conditions of the Approval may be subject to compliance and enforcement measures as described in the Department's Compliance and Enforcement Policy.

COMPLIANCE HISTORY

The main terms and conditions of the current Air Quality Approval to Operate I-8615, I-10291 (July 31, 2014 to July 30, 2019, amended November 28, 2018) and compliance history over the life of the Approval are summarized in the paragraphs that follow:

- **Limit the total emissions of sulphur dioxide produced from boiler operations to 251 tonnes per calendar year.**

The Facility has reported the following sulphur dioxide releases to atmosphere in their Annual Environmental Report, which are in full compliance:

Year	Sulphur Dioxide (SO₂) Annual Release (tonnes/yr)
2018	8
2017	7.4
2016	9.9
2015	11
2014	13
2013	10

- **Limit the total emissions of particulate matter produced from boiler operations to 175 tonnes per calendar year.**

The Facility has reported the following particulate matter releases to atmosphere in their Annual Environmental Report, which are in full compliance:

Year	Particulate Matter (PM) Annual Release (tonnes/yr)
2018	69
2017	72.2
2016	95.9
2015	93.8
2014	88.0
2013	84.8

- **Limit the total emissions of nitrogen oxides produced from boiler operations to 153 tonnes per calendar year.**

The Facility has reported the following nitrogen oxides releases to atmosphere in their Annual Environmental Report, which are in full compliance:

Year	Nitrogen Oxides (NOx) Annual Release (tonnes/yr)
2018	44
2017	46
2016	61
2015	60
2014	57
2013	54

- **Ensure that cleaning and other maintenance of the stack, breaching and associated ductwork is carried out as necessary to prevent the buildup of soot and to reduce its resulting fallout to a degree where environmental impact is acceptable.**

The Facility has been in compliance with this condition over the life of the current Air Quality Approval to Operate.

- **Ensure that all wood waste generated at the Facility is transported to another facility for use, or disposed of in an approved landfill.**

The Facility has been in full compliance with this condition over the life of the current Air Quality Approval to Operate. The facility currently operates a solid waste disposal facility under Approval I-9411.

- **Ensure that the continuous opacity monitors are operated at all times during boiler operation. The Approval Holder shall ensure that the continuous opacity monitors are equipped to provide a hard copy record and that these records are kept for a period of one year for easy access by the Inspector.**

Except for times when replacement parts were required, the Facility has been in full compliance with this condition over the life of the current Air Quality Approval to Operate.

- **Conduct performance tests, by October 31 of every year, to characterize the contaminants and gases being emitted from the exhaust stack of the Biomass Thermal Plant and all operating boiler stacks to the ambient environment. The testing quantifies the emissions of particulate matter (PM), carbon monoxide (CO), nitrogen oxides (NO_x), sulphur dioxide (SO₂), carbon dioxide (CO₂) and oxygen (O₂).**
- **Complete a Particle Size Distribution Study to determine the concentration in milligrams per cubic meter and an emission rate in grams per second of Total Particulate Matter, PM₁₀ and PM_{2.5} being released from the source.**

The Facility completed the performance testing as well as the Particle Size Distribution testing. The following table summarizes the results of these tests:

Contaminant	2015 Emission Results	2016 Emission Results
Particulate Matter, PM (mg/D_Sm³)	216	298
Total Particulate Matter, PM₁₀ (mg/D_Sm³)	145	212
Total Particulate Matter, PM_{2.5} (mg/D_Sm³)	94	137
Carbon Monoxide, CO (g/s)	0.0715	0.849
Nitrogen Oxides, NO_x (g/s)	2.97	3.86
Sulphur dioxide, SO₂ (g/s)	0	0

- **Provide a report of all data obtained during the performance testing to the Minister for review.**
- **Provide an Annual Report that provides: i) the type of fuel oil and the fuel oil supplier, ii) the annual consumption of fuel oil, expressed in litres, iii) the average sulphur content of the fuel oil, expressed in weight percent, and iv) a summary of all incidents of an environmental nature that occur during the past calendar year in accordance with the *Air Quality Regulation 97-133* and this approval.**

The Facility has been in full compliance with *these reporting conditions* over the life of the current Air Quality Approval to Operate.

ENFORCEMENT ACTION

Enforcement options used by the Department of Environment and Local Government are outlined in the Department's *Compliance and Enforcement Policy*. These may include but are not limited to: schedules of compliance, verbal and written warnings, orders, and prosecutions. Although not specifically outlined in the Policy, it is also possible to amend approvals with more stringent conditions, both during its valid period or at the time of renewal, to address specific compliance issues or to improve the environmental impact of the facility. Most recently, a new Regulation under the Clean Air Act allows for the issuance of "administrative penalties" for minor violations as an alternative to traditionally used enforcement options.

During the life of the current Approval, no schedule of compliances, warnings or orders were issued to this facility, nor have there been any prosecutions initiated by this agency during this period, related to air quality.

PUBLIC OUTREACH

Scierie Grande-Rivière has demonstrated their involvement with the local community and the organizations in St-Léonard by funding various community associations including the Scouting Association of Canada. The company also provides opportunities for the public to tour the facility throughout the year.

CONTACT INFORMATION

For information on the operation of J.D. IRVING, LIMITED, Scierie Grande Rivière, please contact:

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