

FACILITY PROFILE

ARAUCO CANADA LIMITED

WOOD COMPOSITE PRODUCTS MANUFACTURING MILL

Prepared by:

Authorizations Branch

Department of Environment and Local Government

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BACKGROUND

Arauco Canada Limited operates a wood composite products manufacturing mill complex located in St. Stephen, New Brunswick. Operations began in 1960 with one stationary particleboard press. In 1969, a finishing line was installed that included the first melamine surfacing operation in Canada. Particleboard capabilities were expanded in 1972 with the addition of a continuous Mende thin board line and a continuous Hydy thick board line in 1985. In 1976 and 1989, respectively Arauco expanded its finishing operation by installing a paint line and melamine press on a continuous line. Arauco first produced medium density fiberboard (MDF) in 1991. The last expansion in 1999 saw the addition of another MDF line and Raw Material Storage building. Today, the plant manufactures MDF from hardwood chips, softwood shavings, and other sources of residual wood fibre.

The raw materials are stored indoors in the raw material storage building. The raw materials are screened, dried, and mixed with resin in the Refining Area prior to being transferred to a MDF production line. Various thicknesses and sizes of MDF are upgraded at the Finishing Lines, where sanding and/or painting are carried out. Currently, the mill has the capacity to produce approximately 360 tonnes/day of MDF.

As required under the *Air Quality Regulation - Clean Air Act*, the mill complex operated by Arauco Canada Limited, is considered a source and therefore, must apply for and obtain an Air Quality Approval to Operate from the Department. The facility is required to conduct its operations according to conditions outlined in the issued Air Quality Approval aimed at preventing unfavourable air quality conditions. The conditions are generally wide-ranging and may include such requirements as:

- limitations on operational parameters;
- requirements for testing and monitoring emissions from specific unit operations;
- requirements for testing and monitoring the ambient air quality surrounding the facility;
- requirements to operate air pollution control equipment;
- limits on emissions that are approved to be released to the atmosphere;
- provisions for equipment upgrade and/or maintenance;
- requirements for environmental emergency and/or compliance reporting; and
- other conditions aimed at minimizing the facility's impact on the environment.

The Regulation provides for approvals to be issued by the Minister of Environment and Climate Change for a specified period, not to exceed five years.

The current Approval to Operate the Arauco Canada Limited mill complex in St. Stephen, New Brunswick (identified as I-10403) issued under the *Air Quality Regulation* expires on June 30, 2022.

This document is intended to provide background information on the Arauco Canada Limited mill complex, a list of potential air quality impacts associated with the facility, and a review of the facility's compliance with its current Air Quality Approval to Operate.

PROCESS DESCRIPTION

The mill complex consists of a number of processes that include:

- Woodchip Storage
- Refining
- Production Lines

- Finishing Lines
- Heat Energy System
- Urea Formaldehyde Resin Plant

WOODCHIP STORAGE

The woodchips are received and stored in a large raw materials storage building at the facility prior to being directed to the woodchip refining processes. Depending on the woodchip market as well as the space available in the raw materials storage building, woodchips are also stored outside until space is available in the raw materials storage building.

REFINING

From storage, the woodchips are mechanically transferred to the refining processes that clean, screen, refine, dry and mix the processed woodchips (also known as fibre) with a urea formaldehyde resin/catalyst mixture that glues the fibres together. The major equipment within the Refining processes that are sources of air contaminants to the atmosphere is an industrial dryer used on the Production Lines.

PRODUCTION LINES

The Production Lines consist of equipment used to form and press the fibre/resin mixture into wood composite board products. There is a board Production Line as follow:

- Fibrex II - a medium density fibreboard line with a production rate of 360 tonnes/day.

FINISHING LINES

The wood composite products from the Production Lines are directed to the Finishing Lines, where the wood composite products are upgraded into finished products. The Finishing Lines consist of the following:

- Sander Line - sands the board and edges to provide a smooth surface; and
- Paint Line - applies paint to the surface of the wood composite board products.

After the Finishing Lines, the upgraded wood composite boards are transferred to the shipping area of the mill complex for shipment to market.

HEAT ENERGY SYSTEM

The Heat Energy System burns natural gas or wood waste to produce heat for steam production, drying, and space heating. The major components of the Heat Energy System include the following:

Fibrex II Boiler - burns natural gas to produce steam that is supplied to a digester. The digester is used to cook the woodchips that are used for the MDF Fibrex II Production Line.

Fibrex II Konus Boiler – burns natural gas to provide heat to thermal oil that is used to supply heat to the Fibrex II Production Line press.

Line III Konus Boiler - burns natural gas to utilize as alternative radiant heat source in winter.

Fibrex II Sifter Konus - burns natural gas to provide heat to thermal oil that is used to preheat material prior to entering Fibrex II press.

Fibrex II Dryer - burns natural gas or wood waste to produce heat to dry the wood chips to be used in the Fibrex II Production Line.

In order to ensure that the emissions from the boilers and dryers are within acceptable limits outlined in the Approval, the facility conducts source testing and air dispersion modeling studies.

UREA FORMALDEHYDE RESIN PLANT

Arauco Canada Limited also operates the former Woodchem Urea Formadehyde Resin Plant. The resin plant is designed to produce 37,500 tonnes per year of urea formaldehyde resin, which includes but is not limited to the following:

- a methanol vaporizer/ reaction gas aftercooler;
- a reactor to convert methanol to formaldehyde;
- a post adiabatic converter;
- an absorber;
- a catalytic converter;
- a 4.4×10^6 kilojoule per hour propane fueled boiler for supplemental heating; and
- a formaldehyde scrubbing system on the resin reactors and product tank farm.

POTENTIAL AIR QUALITY IMPACTS

There exist potential environmental impacts to the atmosphere from the operation of the facility. The following list of air contaminant emissions have been identified as having potential impacts and are the focus of present and future air quality compliance.

- Particulate Matter (PM), Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x), and Carbon Monoxide (CO) from the Heat Energy System;
- Formaldehyde (HCHO) from the Refining and Finishing Lines;
- Volatile Organic Compounds (VOCs) from the Finishing Lines;
- Fugitive Particulate Matter from the raw material storage and handling activities;
- Odours from the various vents and stacks; and
- Noise from the operation of the Facility.

AIR QUALITY COMPLIANCE AND ENFORCEMENT

Arauco Canada Limited 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 5 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*.

Current Air Quality Approval to Operate Terms and Conditions and Compliance History

The main Terms and Conditions of the current Air Quality Approval to Operate I-10403 and the company's associated compliance history to date are summarized below:

Emergency Response

The Approval requires that in the event there are upset conditions at the facility or violations of the Approval, the Approval Holder is to immediately notify the Saint John Regional office and provide verbal and written reports to the Department to describe the upset or violation, the associate impacts, what was done to prevent the impact, and what steps have been implemented to prevent it from occurring again.

The Approval Holder has been in full compliance with these requirements during the period of the Approval.

Emission Limits

- **Operate the Facility such that the annual emissions of Formaldehyde (HCHO) released from the facility does not exceed 115 tonnes;**

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

Year	Formaldehyde (HCHO) Annual Release (tonnes/year)
2020	64.49
2019	84.28
2018	77.60
2017	67.59
2016	67.55

- **Operate the Facility such that the annual emissions of Sulphur Dioxide (SO₂) released from the facility does not exceed 50 tonnes;**

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

Year	Sulphur Dioxide (SO ₂) Annual Release (tonnes/year)
2020	13.5
2019	15.30
2018	15.78
2017	31.14
2016	32.55

- **Operate the Facility such that the annual emissions of Particulate Matter (PM) released from the facility does not exceed 450 tonnes;**

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

Year	Particulate Matter (PM) Annual Release (tonnes/year)
2020	71.51
2019	253.36
2018	339.5
2017	337.6
2016	317.11

- **Operate the Facility such that the annual emissions of Nitrogen Oxides (NO_x) released from the facility does not exceed 480 tonnes.**

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

Year	Nitrogen Oxides (NO _x) Annual Release (tonnes/year)
2020	99.26
2019	284.22
2018	333.49
2017	330.54
2016	349.42

- **All dryer exhaust gas being released to the atmosphere does not contain more than 200 mg/m³ of particulate matter corrected to standard conditions 25°C and 101.3 kPa.**

The Approval Holder has been in full compliance with these requirements during the period of the Approval.

Testing and Monitoring

The Approval Holder is required to conduct the following testing and monitoring activities:

- **Conduct source testing on the Line III Dryer (Stack 1), Line III Dryer (Stack 2), Fibrex I Dryer, Fibrex II Dryer and the Hydy Dryer to measure the concentration and emission rate of particulate matter, sulphur dioxide, nitrogen oxides, carbon monoxide, and formaldehyde.**
- **Conduct source testing on the Catalytic Converter Vent located at the Urea Formaldehyde Resin Plant in order to measure the concentration and emission rate of formaldehyde, methanol and dimethyl ether.**
- **Conduct source testing on the Formaldehyde Scrubbing System that services the Resin Reactors and the Product Tank Farm at the Urea Formaldehyde Resin Plant in order to measure the concentration and emission rate of formaldehyde.**
- **Conduct an air quality dispersion modeling study, following any source test, to determine maximum 1 hour, 24 hour, and annual ground level concentrations for the parameters specified in the source testing activities for that year.**

The Approval Holder has been in full compliance with these requirements during the period of the Approval.

- **Conduct ambient air quality monitoring for particulate matter to determine the 24-hour ground level concentrations of particulate matter at a location around the facility every six days to ensure the particulate matter does not exceed 120 µg/m³.**

Arauco presently operates one high volume sampler to measure ground level concentrations of total suspended particulate matter (TSP) and one ambient monitor capable of measuring particulate matter in the size range of less than 10 microns. Reports on the monitoring results have been submitted on a monthly basis, as required. Results since 2016 have shown 0 exceedances of the air quality regulation limit of 120 µg/m³.

Reporting

The Approval Holder is required to conduct the following Reporting activities.

- **Submit Monthly Air Quality Monitoring Report that shows the results of the required particulate matter monitoring as well as any problems with the air quality monitoring equipment.**
- **Submit an Annual Air Quality Report that includes the following items:**
 1. **itemized list of all fuel fired point sources;**
 2. **amount of each type of fuel burned including used oil and percent sulphur content;**

3. annual emission in tonnes of sulphur dioxide, particulate matter, nitrogen oxides, and carbon monoxide; and
4. annual air dispersion modeling study final report.

- **Submit source testing reports.**

The Approval Holder has been in full compliance with these requirements of the Approval during the period of the Approval.

Enforcement

Enforcement options used by the Department of Environment 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, either during its valid period or at the time of renewal, to address specific compliance issues or to improve the environmental impact of the facility. As well, there is a 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, there have been no warnings or orders issued to Arauco Canada Limited related to air quality, nor have there been any prosecutions initiated by this agency during this period.

PUBLIC OUTREACH

Arauco Canada Limited indicates that its position on public outreach is to foster positive community relations by maintaining an open-door policy, whereby any member of the public or interested party wishing to obtain further information about the operation may contact Arauco Canada Limited during regular business hours. The facility may also make arrangements for tours of the facility or other community interaction.

Facility staff members are on call 24-hours a day to respond to any complaints directed from the public. The company also makes efforts to notify the public in instances where environmental events may have an impact on nearby residents.

CONTACT INFORMATION

For further information on the operation of the Arauco Canada Limited facility please contact:

Brett Hooper

Environmental Coordinator

Arauco Canada Limited

151 Church Street

St. Stephen, NB, E3L 3A6

Phone: (506) 465-2925

Fax: (506) 466-7113

E-mail: Brett.Hooper@arauco.com

For information on this document, or on environmental regulations relating to air quality, please contact:

Central Office contact:

Joyce Wang, P.Eng.

Approval Engineer, Authorizations Branch
Department of Environment and Local Government
P.O. Box 6000, Marysville Place
Fredericton, NB, E3B 5H1
Telephone: (506) 453-7945
Fax: (506) 453-2390
E-mail: Joyce.Wang@gnb.ca

Regional contact:

Patrick Stull, Regional Director

Region 4 – Saint John
Department of Environment and Local Government
8 Castle Street, P.O. Box 5001
Saint John, New Brunswick E2L 4Y9
Telephone: (506) 658-2558
Fax: (506) 658-3046
E-mail: Patrick.Stull@gnb.ca