

**North Atlantic Lumber Proposed Composting Facility
in Glenwood, Newfoundland**

Registration Pursuant to Section 49, Part X (Environmental Assessment) of the
Environmental Protection Act (2002)

Prepared by:
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For:
Department of Environment and Conservation
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REGISTRATION OF UNDERTAKING

NAME OF UNDERTAKING

North Atlantic Lumber Inc. Composting Facility

PROPONENT

- (i) **Name of Corporate Body** North Atlantic Lumber Inc.
- (ii) **Address** P.O. Box 220
Glenwood, NL, A0G 2K0
- (iii) **Chief Executive Officer** Mr. Andrew Woolfrey
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THE UNDERTAKING

(i) Nature of the Undertaking

The nature of the undertaking is to develop an open windrow composting facility to compost existing bark and sawdust waste through the regional importation and addition of fish/seafood offal and/or manures.

(ii) Purpose/Rationale/Need for the Undertaking

North Atlantic Lumber (NAL) has been operating at its Glenwood sawmill site since 1989. An estimated 510,000 m³ of bark and wood waste has accumulated on an estimated 5.5ha (13.8 acres), on the northern most portion of the property. The wood waste has accumulated to 9m high. NAL ceased depositing wood

wastes at this site in 2003. Table 1 describes the types of activities that take place at the NAL site.

Table 1. Activities and Waste Generation at the NAL Site

Activity	Wastes
Debarking	<ul style="list-style-type: none">• Bark• Sawdust
Planing	<ul style="list-style-type: none">• Kiln dried wood chips• Sawdust

The proponent will use these wood waste materials to make a number of products, including compost.

The **purpose** of this undertaking is to assist in the elimination of the bark and sawdust pile through the production of compost.

The wood wastes have a relatively high carbon to nitrogen ratio – C:N (i.e. a measure that approximates the compostability of wastes). A copy of an analysis undertaken of a representative sample of wood waste is attached (Appendix 2). Compostability can be enhanced by adding a waste with a lower C:N ratio. The addition of fish/seafood offal and/or manures adds critical nutrients (i.e. nitrogen) and facilitates a more rapid composting process (i.e. < 1 year).

NAL has potential access to fish/seafood offal and manures within the region. It is proposing to regionally import these wastes, in a controlled fashion, and blend them with wood wastes. These wastes would be delivered to the NAL site by truck. These wastes would be blended with wood wastes on the day of receipt.

The **rationale** of this undertaking is that nitrogenous wastes such as fish/seafood offal and/or manures are crucial to facilitate the production of high quality compost in a timely fashion. It is therefore necessary to import these types of wastes to the site to facilitate the composting process.

The high quality composts that will be produced from these feedstocks can be used in many sectors including landscaping use (residential and commercial) and agricultural use. Composts function as soil conditioners. They will contain various levels of nutrients

The **needs** for this undertaking include:

- The proponent will value add wood waste and prevent the wood waste pile from growing
- There is a general need to look at alternatives to ocean disposal of fish waste
- There is a market in the Province for high quality soil amendments

We also see the composting facility as having the additional benefit of providing fish plant operators with a means of dealing with fish waste that would otherwise be dumped. As Schedule 6 of the Canadian Environmental Protection Act states:

“A permit to dispose of waste or other matter shall be refused if opportunities exist to re-use, recycle or treat the waste or other matter without undue risks to human health or the environment or disproportionate costs. The practical availability of other means of disposal shall be considered in the light of a comparative risk assessment involving both disposal and the alternatives.”

We see the compost facility as providing this alternative while producing an environmentally friendly value added waste product and process.

DESCRIPTION OF THE UNDERTAKING

(i) Geographic Location

The proposed composting facility as outlined in the attached maps (1:50,000; 1:12,500) (Appendix 1) will be located on the North Atlantic Lumber Inc. property, approximately 2 km west of Glenwood and approximately 1 km from the TCH. It is proposed that composting take place on the bark and sawdust pile western section of the property.

The property is ideal for composting because it is presently used for industrial purposes. Furthermore, it is isolated and well buffered.

The site is not inside any municipal boundaries (located outside the Town of Glenwood planning area boundary) and the closest house is approximately 2 km to the east of the site.

The Gander River is approximately 3 km to the east of the property. There is a small stream about 500 m to the west of the property. (There are a few small ditches where water collect along the northwestern and eastern perimeter of the sawdust and bark waste. These are not connected to other water bodies. The composting operations will be a minimum of 50 m away from these areas. There are some boggy areas on the north and west side of the bark pile.)

(ii) Physical Features

The composting surface will be situated on the northwestern section of the existing 5.5 ha (i.e. 13.8 acre) bark and sawdust waste. No buildings or additional infrastructure will be required.

Trucks transporting waste (e.g. fish offal and/or manures) and removing finished compost will use the existing mill road.

(iii) Construction

As no buildings or other infrastructure are required there are no construction requirements. There are internal site roads leading to the sawdust and bark waste and specifically to the area where it is proposed that composting take place.

(iv) Operation

Annual Tonnage and Phasing

It is proposed that this permanent compost facility be developed in three phases. Table 2 depicts the phasing of the composting facility.

Table 2. Phasing of NAL Composting Facility

Phase	Year	Space (ha)	Imported Wastes (t/yr)	Wood Wastes (estimated) (t/yr)	Compost Produced (estimated) (t/yr)
1 (Pilot)	2004-2005	0.5	1,000	1,000	1,000
2	2006	1.0	2,000	2,000	2,000
3	2007	2.0	5,000	5,000	5,000

Phase 1 will function as a Pilot phase. Waste collection, receipt, mixing and composting will be refined. The Proponent would like to start this in September 2004. Phase 1 would continue in 2005.

Phase 2 and 3 represent expansions to the composting facility. Composting operations would expand outwards from the footprint used in the Pilot phase. The Proponent is mindful that additional permitting may be required for these phases.

The final composting area of 2 ha (4.5 acres) will provide a sufficient amount of working area. The windrows will be producing compost on a rotating basis to ensure product in manageable intervals.

Waste Collection and Receipt

The proponent has contacted a number of generators of fish/seafood and manure wastes within the region (i.e. within a 90 minute drive). Upon the release of the undertaking the Proponent will develop more concrete arrangements with waste generators.

Fish/seafood and/or manure wastes will be collected and delivered to the site by the Proponent. The Proponent's vehicles will be in good working order as well as appropriately licensed and permitted.

Wastes will be taken to the composting facility on the NAL property and will be mixed with existing on-site wood wastes.

Compost Facility Working Area

The proposed Compost Facility work area will consist of wood waste. The wood waste is as high as 9 metres. Photo 1 depicts the nature and the height of the wood waste. Photo 2 depicts the flat working surface available on top of the waste.



Photo 1. Height of Wood Waste



Photo 2. Flat Working Surface on Wood Waste

The use of wood waste as a working surface has been adopted previously at Genesis Organic near Corner Brook.

A total of 3 (three) trial pits (4-5m) were dug at the site, using an excavator on 18 July 2004. The wood wastes were in various states of decomposition, but tending towards undecomposed. The wood wastes did not appear saturated with water and in many cases appeared quite dry. Photo 3 depicts wood wastes in a trial pit.



Photo 3. Wood Waste in a Trial Pit

The wetter imported wastes would be mixed with dryer wood-wastes and absorb any excess moisture. The target moisture content of windrows will be 55-60%. In general wood wastes adjacent to the composting area will be used to mix with imported wastes.

To prevent the wood waste from becoming saturated with runoff from composting operations it is proposed that approximately 1m of the working surface be removed annually for composting and replaced by dryer wood waste materials.

The wood waste is underlain by native soil.

Mixing of Wastes and Windrow Formation

Prior to the receipt of any imported wastes to the site appropriate composting recipes will be developed. Recipe development (i.e. developing appropriate mix of wood waste and imported wastes) will follow established procedures. Parameters of note include C:N, moisture, pH, porosity and windrow size. Recipes will be refined during the Pilot phase. The composting of fish/seafood offal and manures is well established in other jurisdictions.

These wastes would be composted using an open windrow composting system. The windrows (ranging in length from 75m to 175m, approximately 5-7m wide and approximately 3-4m high) would be built directly on the wood waste. The wood waste gives an acceptable and absorbent working surface as well as providing a ready supply of carbonaceous wastes.

The imported wastes will be tipped on a partially constructed windrow (i.e. layer of wood waste). Additional wood wastes will be added. These wastes will be mixed using an excavator and formed into a windrow. An additional layer of wood wastes (minimum 0.5m) will be added to the surface of the windrow to prevent exposure of the imported wastes. All mixing of wastes and windrow formation will occur on the day of imported waste receipt. Figure 2 depicts the receipt of imported waste, mixing and windrow formation.

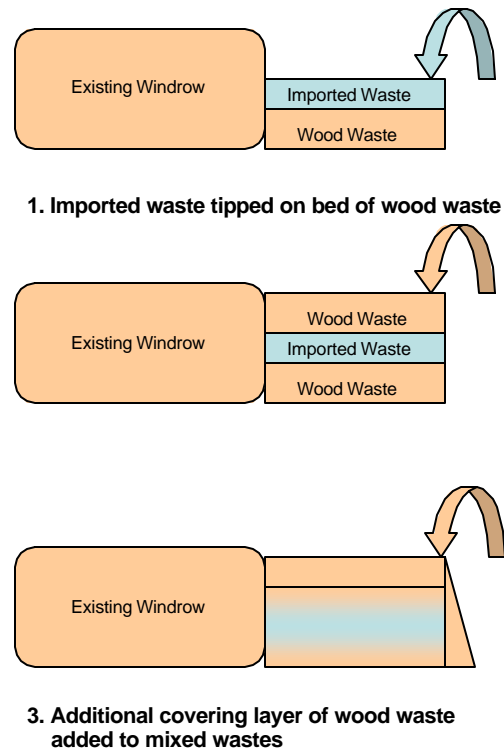


Figure 2. Mixing of Imported Wastes with Wood Wastes and Windrow Formation

Composting

The windrows would initially be turned at least 1-2 times per week with a permanently onsite excavator or loader. NAL will ensure that high pathogen reducing temperatures (i.e. > 55°C) are maintained for a sufficient amount of time. During curing (i.e. after high rate composting) windrows will be turned 1-2 times per month.

Table 3 describes the process monitoring NAL will undertake at the facility. This information will be documented. Records will be maintained and available at the facility.

Table 3. Monitoring at the NAL Facility

Parameter	Description
Temperature	<ul style="list-style-type: none"> • Temperature probe
PH	<ul style="list-style-type: none"> • Portable pH probe
Electrical conductivity	<ul style="list-style-type: none"> • Portable electrical conductivity (i.e. measure of salt) probe
Moisture	<ul style="list-style-type: none"> • On-site drying oven
Environmental parameters	<ul style="list-style-type: none"> • Prior to marketing products they will be tested for various Canadian Council of the Ministers of the Environment (CCME) composting parameters. This will include heavy metals, pathogens and maturity.

Additional data collection will be undertaken during the Pilot phase to establish operating tolerances and to facilitate the development of compost products. Ultimately the goal is to operate the facility in an efficient and nuisance-free manner and to facilitate the production of high quality compost.

Table 4 describes a number of possible environmental nuisances (i.e. emissions) and how NAL will mitigate these nuisances.

Table 4. Nuisance Control at the NAL Facility

Nuisance	Mitigation
Odour	<ul style="list-style-type: none"> • Develop appropriate composting recipes • Maintain windrows in aerobic state through turning
Leachate	<ul style="list-style-type: none"> • The composting facility will be built on up to 9m of wood wastes • Any leachate will be absorbed by the wood waste
Dust	<ul style="list-style-type: none"> • The windrows will be kept sufficiently moist
Noise	<ul style="list-style-type: none"> • Only standard industrial equipment such as an excavator and wheeled loader will be used. • Waste receipt and facility operation will take place during regular business hours
Vermin and Flies	<ul style="list-style-type: none"> • Develop appropriate composting recipes • Prompt incorporation of incoming wastes • Covering of mixed wastes with additional wood wastes

The composting and curing process will take up to one year. Compost will initially be marketed to the Central Newfoundland landscaping and agricultural markets. With time, wider marketing will be done.

Compost Facility Operation

A waste management consulting company, 2cg Inc. (www.2cg.ca) has been retained by NAL to assist in the development of the composting facility and the development and marketing of products. Paul van der Werf the President of 2cg Inc. has 14 years of compost-related experience including compost facility management (7 years). He has experience working in similar (i.e. from a climatic perspective) jurisdictions including Ireland and Nova Scotia.

NAL Environmental Manager, Geoff Beaton and Vice President, Andrew Woolfrey will undertake day-to-day operations of the composting facility. Mr. Beaton has an Environmental Technology Diploma, an Environmental Studies Degree and an Advanced Diploma in Water Quality. Mr. Woolfrey has ten years of experience in the lumber business. He has also studied and researched composting and has completed a course in composting methods and facility operation taught by Mr. Paul van der Werf.

(v) Occupations

Table 4 depicts Compost Facility staff.

Table 4. Compost Facility Staff

	National Occupational Classification	Responsibilities
Facility Manager	2123 Agricultural Representatives, Consultants and Specialists	<ul style="list-style-type: none"> • Facility oversight • Process and product testing/QA
Equipment Operator	7421 Heavy Equipment Operator	<ul style="list-style-type: none"> • Equipment operator for compost mixing • Waste/compost transport

The project will use existing staff and equipment for the pilot phase but would likely require additional staff during phases two and three.

APPROVAL OF THE UNDERTAKING

The site is on land owned by North Atlantic Lumber Inc. and is not inside any municipal or other planning boundary. It is anticipated that no additional approvals will be required to engage in the Pilot phase of this project. NAL will summarize the results of the pilot phase and submit them to the Departments of Environment and Conservation for review prior to the issuance of any permits or approvals and construction of Phases 2 and 3 (i.e. commercial phases).

It is anticipated that a Certificate of Approval will be required for phases 2 and 3. NAL is amenable and prepared to prepare an application for Certificate of Approval.

SCHEDULE

NAL would like to start the Pilot phase in the autumn of 2004. NAL would like to have limited product ready for the 2005 growing season.

FUNDING

No funding will be required from external agencies.

The estimated capital cost of the project is \$5,000. Operating costs will include salaries, fuel and maintenance of equipment, and transport of imported wastes from point of generation.

Date

Andrew Woolfrey, V.P.

**Appendix 1
Maps and Figure**

	Scale
National Topographic System Map	1:50,000 map
Location Map	1:12,500 map
Aerial photo	
Figure 1 Site Schematic	

Appendix 2
Analytical Results (wood waste)