ENVIRONMENTAL ASSESSMENT REGISTRATION
BELLEDUNE RAIL TERMINAL
AND TRANSFER SYSTEM

CHALEUR TERMINALS INC. (CTI)

Our File No.: 22-14-C

March 2014

Prepared for:
Chaleur Terminals Inc.
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March 11, 2014

Mr. David Maguire,
Manager, Environmental Assessment Section
Department of Environment and Local Government
20 McGloin Street, 3rd Floor
P.O. Box 6000
Fredericton, NB E3B 5H1

Our Ref. No.: 22-14-C

Dear Sir:

Subject: Environmental Registration
Belledune Rail Terminal and Transfer System
Chaleur Terminals Inc.

Please find enclosed the environmental registration document for Chaleur Terminal Inc.'s proposed petroleum products Rail Terminal and Transfer System project. Roy Consultants is submitting this document on behalf of the Chaleur Terminals Inc. (CTI), who is the proponent.

Contact us at your convenience, should you have questions or concerns.

Regards,

JB/

Jonathan Burtt, B.Sc.F.
ENVIRONMENTAL Specialist
ENVIRONMENT Department

Enc.

c.c.: - John Levson, B.Comm. (Proponent)
- Alain Landry, Roy Consultants
- Sylvain Comeau, Roy Consultants

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ACRONYMS

AADT – Average Annual Daily Traffic
AADTT – Average Annual Daily Truck Traffic
ACCDC – Atlantic Canada Conservation Data Centre
AFFF – Aqueous Film Forming Foam
ASTM – American Society for Testing Materials
ASU – Archeological Services Unit
BBL – Barrels
BPA – Belledune Port Authority
CCME – Canadian Council of Ministers of the Environment
CCTV – Closed Circuit Television
CEAA – Canadian Environmental Assessment Agency
CEAA 2012 – Canadian Environmental Assessment Act (2012)
COPC – Chemicals of Potential Concern
CoA – Certificate of Approval
CoD – Certificate of Determination
COSEWIC – Committee on the Status of Endangered Wildlife in Canada
CRHP – Canadian Register of Historic Places
CSA – Canadian Standards Association
CTI – Chaleur Terminals Inc.
DELG – NB Department of Environment and Local Government
DPS – NB Department of Public Safety
DTI – NB Department of Transportation and Infrastructure
DFO – Department of Fisheries and Oceans Canada
EIA – Environmental Impact Assessment
ESA – Environmentally Significant Area
EMP – Environmental Management Plan
EMT – Electrical Metallic Tubing
EUB – NB Energy and Utilities Board
GPS – Global Positioning System
HDPE – High Density Polyethylene
IBA – Important Bird Areas
IESNA – Illuminating Electrical Society of America
IR – Infrared
LAT – Latitude
LED – Light-Emitting Diode
LONG – Longitude
MBCA – Migratory Birds Convention Act
NBSES – New Brunswick Utility Service Entrance Standards
NEB – National Energy Board
NWPA – Navigable Waters Protection Act
O/H – Overhead
OWLS – Online Well Log System
PCB – Polychlorinated Biphenyl
PID – Real Property Parcel Identification Number
PLC – Programmable Logic Controller
PTA – Product Transfer Area

Acronyms cont’d.

PVC – Polyvinyl Chloride
ROW – Right-Of-Way
RSA – Railway Safety Act Canada
SAR – Species at Risk
SARA – Species at Risk Act
SCADA – Supervisory Control and Data Acquisition
TC – Transport Canada
TRC – Technical Review Committee
USGS – United States Coast Guard
VBS – Vapour Balancing System
VCS – Vapour Control System
VCU – Vapour Combustion Unit
VDU – Vapour Destruction Unit
VEC – Valued Environmental Component
VOC – Volatile Organic Compounds
VRU – Vapour Recovery Units

EXECUTIVE SUMMARY

"Environmental Impact Assessment (EIA) is a process through which the environmental impacts potentially resulting from a proposed project are identified and assessed early in the planning process. EIA identifies steps that can be taken to avoid negative environmental impacts or reduce them to acceptable levels before they occur.

"The completion of the EIA review process is a regulated requirement for projects or undertakings that are listed in Schedule A of the *Environmental Impact Assessment Regulation*. The Regulation also identifies the Category and applicable fee for the projects or undertakings listed under Schedule A.

"All registered projects undergo a Determination Review. It is an interactive process…to determine whether or not a Comprehensive Review is warranted. Where necessary to address Technical Review Committee concerns and questions, the proponent may be asked to provide supplementary studies and information." (DELG – A Guide to Environmental Assessment in New Brunswick, 2012).

Chaleur Terminals Inc. ("CTI") is proposing to construct and operate a petroleum products rail terminal and transfer system in the Belledune Industrial Park, near Belledune, New Brunswick. This registration document has been developed to meet the requirements of New Brunswick Regulation 87-83: the *Environmental Impact Assessment Regulation* – Clean Water Act. Under Schedule A, item q, of this regulation, "all ports, harbours, railroads and airports" and their significant modifications require registration.

The proposed project footprint is ideally located for an industrial development of this nature: it is located within an existing zoned industrial area, in close proximity to existing rail, highway and marine infrastructure, is 1.8 kilometres from the nearest residential receptor, and the Port of Belledune already has similar project activities ongoing at the port - a similar petroleum storage facility and pipeline has been in operation near the proposed site since 1977. Roy Consultants was contracted to assess the environmental impacts for extensions to these facilities in 2004, 2007 and 2013.

Further to initial discussion with the Department of Environment and Local Government (DELG) and based on the nature and size of the development, it is anticipated that this project will not require a Comprehensive Study.

CTI wishes to actively support the community in which it operates.

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1. THE PROPONENT

1.1 Name of Proponent

The proponent is Chaleur Terminals Inc.

1.2 Address of Proponent

1154 St. Peter Ave. Suite 200
Bathurst, NB E2A 2Z9
Phone (506) 252-9455
Fax (403) 770-8295

1.3 Chief Executive Officer

Joel Macleod – CEO and founder

1.4 Principal Contact Persons for the Purposes of the Environmental Impact Assessment

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1.5 Property Ownership

The subject property for the proposed rail terminal and transfer system is currently owned by the Belledune Port Authority (BPA). CTI is in the process of purchasing this property, and has signed a purchase- and sale agreement between CTI and the Belledune Port Authority. The transfer of ownership of this property will take place before the project is initiated.

The proposed project, including the pipeline right-of-way (ROW), will be constructed on seven different property parcels, as well as crossing a New Brunswick Department of Transportation and Infrastructure (DTI) right-of-way, and national railway rail spur ROW. The pipeline will terminate at the Belledune Port Authority's Terminal #2. Please see Appendix A for a complete list of PID numbers and property owners of directly affected parcels.

2. THE UNDERTAKING

2.1 Name of the Undertaking

The name of the Undertaking is the *Belledune Rail Terminal and Transfer System.*

2.2 Project Overview

Chaleur Terminals Inc. is proposing to construct a Rail to Ship Petroleum Products Transloading Facility in Belledune, N.B. The proposed project will consist of the buildings and infrastructure required to receive petroleum products by rail, store it on site, and load it on marine vessels for shipment to foreign consumers and end users.

The unit trains will arrive at the site and will be positioned on the unloading tracks where the product will be drained by gravity into the collection piping system and then pumped to a 1.2 million bbl storage facility. From the storage tanks the product will then be transferred to marine vessels ranging in capacity from 250,000 to 650,000 bbl, via pipeline from the facility to the Port of Belledune's terminal #2.

The storage tank system will also be designed to allow blending of the various types of petroleum products to meet customer demands for specific qualities. The facility will have the capacity to receive, blend and ship different petroleum products, including refined products.

The Port of Belledune is a deep-water port with existing infrastructure and access to the Chaleur Bay. Furthermore, there is existing rail and highway access, as well as available property well-suited for project development and with minimal potential environmental constraints. A variety of products are imported and exported through the port, namely mineral concentrates, (e.g. lead, zinc, and copper), metallurgical coke, coke fines, coal, petroleum coke, sulphuric acid, liquid bulk petroleum products, gypsum, perlite, forest products (e.g. wood pulp, wood chips, wood pellets, and logs), and other dry bulk cargoes along with break bulk and project cargoes. Annual cargo tonnage throughput for the past three years was on average 1.9 million tonnes per year, with an average of 93 vessels calling on the port each year.

For the purposes of this document, the project has been divided into 3 separate sections: A) the tank farm and rail offloading facility, B) the pipeline Right-of-Way, and C) the port modifications and offloading facilities.

A second phase of the project may also include the capacity to receive petroleum products by ship or barge, transfer it to the storage tank system and load it onto railcars for shipment back to production facilities in Canada, in addition to an expansion of the tank farm.

2.3 Purpose/Rationale/Need for the Undertaking

CTI is a petroleum products logistics company founded in 2014. CTI is a Canadian company based out of Bathurst, NB with an affiliate in Calgary, Alberta. CTI's business model is to assist producers and buyers of petroleum products in the shipping, sale and delivery of such products. In order to assist producers and buyers, CTI is looking to export and import products beyond that of Canada and the United

States (US), into international markets. As such, CTI is seeking access to a deep water port to load and offload its products to meet the goals of its clients.

Alternatives include the "do nothing" (null alternative) alternative or choosing an East coast alternative in the US site, both of which were examined during the preparation of this document. The "do-nothing" option is not considered feasible as it would not permit CTI to fulfill its desired business model, which is to export Canadian petroleum products to foreign markets via the Chaleur Bay. The "do nothing" option or an East coast US terminal would not contribute to the economic benefit of the region and Canada.

Other sites were considered, namely Dalhousie and other ports in the Eastern US and the Atlantic Provinces, but the Port of Belledune is considered the best option due to its access to the Chaleur Bay, an existing port, existing rail infrastructure, lack of land use conflicts, access to available and suitable property, it is 1.8 km from the nearest residential community, a lack of potential environmental constraints and an available highly skilled workforce.

2.4 Project Location

The proposed project will be located on Route 134 in Belledune, within Gloucester County and the Beresford Parish, property ID number 20277901 (Figure 1.0). The pipeline will run alongside an existing pipeline and additional parcels, as shown on figure 2.0.

The site is located south of the Port of Belledune within the existing Belledune Industrial Park and is zoned 'industrial'[2]. All adjacent properties consist of existing industrial facilities (such as an electrical generating station, gravel pits, a smelter and quarries), or unused wooded lots, and the nearest residence is located approximately 1.8 km to the northwest of the proposed project's property. For a list of adjacent properties and owners, refer to Appendix B.

The center of the proposed rail terminal and transfer system property is LAT 47 deg, 53 min, 29.07 sec., LONG 65 deg, 51 min, 39.83 sec.

The proposed pipeline will follow close to an existing pipeline (where possible) and proceed approximately 1,380 metres from the project's property northward, aboveground and adjacent to the existing rail spur line, until it intersects with the spur line and Shannon Drive. It will cross Shannon Drive on an elevated pipe trestle then immediately turn west over the CN spur line. It will then turn north again on BPA property along the port access road. When it reaches the wharf it will run alongside the wharf to the end of Terminal #2, at LAT 47 deg, 54 min, 46.49 sec and LONG 65 deg, 50 min, 33.67 sec. A corridor will be cleared and a construction road built to facilitate pipeline installation which will also serve as maintenance access after construction.

No.	date	revisions	by/par

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project/projet CRUDE OIL RAIL TO SHIP FACILITY – BELLEDUNE, N.B.

title/titre FIGURE 1
SITE LOCATION PLAN

design by/design par	check by/verifie par	drawn by/dessine par
	J. BURTT	C. DAY

scale/echelle	date	No.:	rev.
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project/projet CRUDE OIL RAIL TO SHIP FACILITY – BELLEDUNE, N.B.

title/titre FIGURE 2
SITE LOCATION PLAN

design by/design par	check by/verifie par
	J. BURTT

scale/echelle	date	drawn by/dessine par	No.:	rev.
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2.5 Siting Considerations

The project site was chosen for a variety of favourable elements:

a. Minimal potential for environmental constraints – the subject property contains no watercourses or wetlands and is not located within a designated drinking water supply (source: the GeoNB map viewer). Furthermore, DELG confirms that no Environmentally Significant Areas (ESAs) are located in proximity to the proposed project footprint;
b. Lack of potential cultural/archaeological resources – Archaeological Services Mapping shows a low potential for encountering archaeological or heritage resources;
c. Proximity to rail infrastructure – the property is bordered by an existing rail spur line;
d. Proximity to a deep-water, functioning port – the property is set back and inland approximately three km from the Port of Belledune;
e. Accessibility – the property is bordered on two sides by provincial Route 134 and near Hwy. 11;
f. Lack of land use conflicts (zoned 'industrial') – the property is located within the existing BPA Industrial Park, and neighbouring parcels are either vacant or industrial in nature. Nearby land uses include rock and gravel quarries, NB Power transmission corridors, a soil recycling facility, the Glencore slag disposal site, the Glencore Smelter, the NB Power electricity generating station, and the Port of Belledune;
g. There is an existing petroleum tank farm with a pipeline to the port facilities is currently operating and has been so for over 35 years, located on the coast line adjacent to the NB Power generating station;
h. Lack of nearby residential receptors – the nearest occupied residence is approximately 1.8 km from the subject property, and
i. Property availability – the subject property, being unoccupied, was available for purchase from the Belledune Port Authority (BPA).

2.6 Physical Components and Dimensions of the Undertaking

Refer to Figures 3, 4 and 5 for overviews of the proposed project components.

See Appendix G-1 and G-2 for process flow diagrams of the undertaking.

The following details are based on the conceptual engineering design. Some details may be missing that are required for the EIA review. Detailed engineering designs will be submitted to the regulatory authorities for review and approval upon completion and prior to initiation of the project.

The subject property is approximately 99 hectares (251 acres) in size. The western property perimeter is 990 m in length, the north perimeter is 999 m in length, the eastern perimeter is 1083 m, and finally the southern property perimeter is 927 m in length. The portion of the subject property located south of Route 134 is not included in this project and is therefore not considered further in this assessment.

The total area of the project's property to be directly impacted by the proposed rail terminal and transfer system, ancillary buildings and access roads is 600,000 m^2, or 60 hectares.

The portion of the pipeline ROW from the project property to the breakwater will be approximately 20 m wide, by approximately 3.4 km long, and will cross land owned by CTI, BPA and Glencore.

The seaward portion of the pipeline will require dredging an area approximately 2.1 hectares in size, in addition to the placement of 140,000m ^{3} of core and armour stone, to accommodate the widening of the breakwater. This breakwater is an existing industrial structure with a hard-packed gravel road and NB Power conveyor system, and will not be impacted by this project. Therefore, the seaward portion of the pipeline will potentially impact an area of 3 hectares (figure 5.0).

The project can be divided into the following activities:

- Site preparation;
- Construction of the rail yard;
- Construction of the rail car unloading/loading area;
- Installation of storage tanks;
- Sampling, transfer and blending of products;
- Vapour management system;
- Secondary containment systems;
- Construction of pipeline;
- Ship loading system;
- Steam production;
- Administration and support services, and
- Fire protection

2.7 Construction, Operation and Maintenance Details

2.7.1 Site Preparation

Prior to construction, the site must be prepared to accommodate the development. This will, among others, consist of the following:

- Removal of all vegetation within the limits of the main construction area;
- Stripping of all unconsolidated and/or organic materials within the limits of the main construction area;
- Sampling and appropriate remediation of top soil layer, as necessary;
- Excavation and backfilling to achieve required grades and elevations;
- Bedrock cutting and excavation where required;
- Importing borrow material to achieve proper elevations where required;
- Preparation of the stripped subgrade, consisting of levelling, proof-roll compaction, and additional granular fill placement, as necessary;
- Incorporation of underground drainage control (drain pipe, ditches, French drain, etc.) for construction purposes, and
- Construction of traffic areas and access roads.

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project/projet CRUDE OIL RAIL TO SHIP FACILITY – BELLEDUNE, N.B.

title/titre FIGURE 3
PROPOSED TANK FARM LAYOUT

design by/design par	check by/verifie par

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title/titre FIGURE 4 – PROPOSED PIPELINE FROM TANK FARM TO PORT LAYOUT

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title/titre FIGURE 5
PORT MODIFICATIONS

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Geotechnical on-site investigation will be performed to assess the suitability of the site for the development of the proposed facilities as well as to identify all distinctive features that may need to be addressed/considered during the detailed design. For example, surface drainage observations, subsurface stratigraphic conditions and soil characteristics are described in this study.

The conceptual design was prepared based partly on topography available in the form of contour lines available from the New Brunswick Geographical Information System. Although sufficient to provide a general overview of the subject property's elevations, this information is not sufficiently accurate to perform a detailed design the proposed facility. A detailed topographical survey of the property will be performed as soon as ground conditions permit.

Where necessary, and based on the results of the above topographical survey, standard erosion and sediment control measures will be employed during the site preparation and construction activities. These could include but not be limited to:

- Erosion control fencing;
- Check dams;
- Use of hay bales/mulch on cleared/exposed soils;
- Temporary retention ponds;
- Employing a construction sequence to minimize soil exposure;
- Retaining vegetation whenever possible, and
- Inspecting and maintaining the above-mentioned control measures.

2.7.1.1 Access Roads and Controls

The site is immediately bordered by New Brunswick highway 134 on two sides, east and south, by the electrical transmission line and Glencore process water supply pipeline on the north and by the national railway spur line servicing Glencore`s Brunswick Smelter and bulk handling facilities.

Access to the site will be constructed from highway 134 on the south and east sides. A third access, which will be the main access to the site, will run from highway 134 at the northeast corner of the property, along the north property line and enter the facility at the north west corner of the property. The final location of access roads will be confirmed at later stages of the design.

Site roads within the property are required for access to the building, parking lot and traffic areas. Final design of the site roads will be performed under the detailed design, but will generally consist of removal of topsoil, subgrade preparation, granular fill placement, and ditching / drainage control. The required thickness of granular fill will be dependent on the design vehicles and in-situ subgrade conditions. Traffic paths and parking/storage areas will not be asphalted and parking/storage spaces will not be delimited. The property will be fenced on most of its perimeter and access will be controlled through gates.

2.7.1.2 Site Drainage

Control works to promote surface water runoff and protect against ponding will be incorporated into the development layout, using surface grading and ditching to ensure proper site drainage. A topographic survey will be performed to determine existing ground and water elevations within the site for

incorporation into the final grading plan. Available contour lines show that the southern portion of the site is higher in elevation with drainage appearing to be mostly towards the north. Drainage from the undeveloped portion of the property will be redirected through new perimeter ditches.

2.7.1.3 Services

The existing Port of Belledune Industrial Park water supply is provided from the existing Glencore utilities (i.e. 750 mm dia. hyprescon water main), which are supplied by the Jacquet River and include an above ground reservoir. The subject property is located on the opposite side of the Glencore pipeline. CTI will therefore negotiate a water use agreement with Glencore's Brunswick Smelter with the intention of connecting to their pipeline for site water supply. Sizing of the new water entrance will be performed under the detailed design, but could consist of a ± 250 mm dia. PVC DR18 water service.

The subject property is not serviced by a municipal sanitary sewer system. A septic tank and drainage field will therefore need to be designed and installed which will serve the administration building and control room. The capacity of the septic system will be determined under the detailed design and will meet the NB Department of Health requirements.

2.7.2 Rail Yard

The project will include a rail yard with the capacity to receive two unit trains per day. It will consist of an inner loop, middle loop and outer loop track as well as five unloading tracks. The purpose of the inner loop is to spot the five unloading tracks. The middle and outer loops will be used for parking until the inner loop is cleared for use.

The unit trains will consist of 120 cars each, two buffer cars and four locomotives. The tracks will be designed in accordance with national railway standards with the lead track and yard turnouts using minimum #10 special. The final location of the turnouts with respect to vertical and horizontal curves will be adjusted during detailed design to conform to railway standards.

In order to respect industrial track standards of maximum grades of 2% for yard tracks, significant excavation and backfill will be required due to the sloped profile of the subject property. Preliminary estimates indicate that approximately 150,000 m^3 of excavation will be required for the three rail loops, most of which will be on the southern half of the property. A roughly equal volume of backfill will be required for the loop tracks and the unloading tracks on the northern half of the property.

The proposed track loops would connect to the existing spur line currently servicing the Brunswick Smelter and Bulk Handling Operations. A unit train would be able to arrive from the south west corner of the site and enter the facility clockwise to park on the inner track. Site personnel would then spot the cars into the 5 unloading tracks. While a train is being unloaded up to two other trains would be able to arrive and park on the outer or middle tracks until the loading tracks and inner loop has been cleared.

The existing national railway company will participate in the design of this system and once final design and engineering details have been approved, will provide CTI with an *Industrial Track Agreement* (see template Appendix C).

2.7.3 Railcar Unloading and Loading

2.7.3.1 Unloading

Once the cars have been spotted on the five unloading tracks, unloading hoses will be connected to the bottom connections of the railcars. The railcars will then be heated using steam to lower the petroleum product's viscosity.

The railcar product transfer area will consist of five parallel railroad tracks. Each of the five tracks will be able to accommodate 25 railcars for a total capacity of 125 railcars. It is proposed to unload a maximum of 250 railcars in a 24 hour period. The unloading system will consist of unloading hoses equipped with dry disconnect coupling compatible with the railcar fitting. Each unloading branch will also include check valves and a manual shut-off valve. The unloading hoses will be connected onto manifolds installed in shallow concrete trenches located between the railroad tracks. Each of the five tracks will include a total of four manifolds segments and will be connected onto headers leading to the pumping system. Three manifolds segments will serve six railcars while the fourth will serve seven cars. Parallel manifold segments will transfer product into a common header connected onto one of the two proposed pumping stations. A total of four headers will be required to serve all manifolds. All collection manifolds and headers will be heat traced and insulated to accommodate the unloading of heavy petroleum products. An access platform will be installed between tracks 1 & 2, 3 & 4 and 4 & 5. This platform will allow workers to access the top of the railcars to connect the vent lines.

2.7.3.2 Loading

It is anticipated that the facility would also eventually be capable of receiving products by ship and loading it into railcars using the same rail stations as for unloading petroleum product into the tanks. This will be considered further as part of the design for the second phase of the facility.

2.7.4 Storage Tanks

The facility will include several storage tanks to temporarily store the petroleum product until it can be transferred to the marine vessels or to an outgoing unit train. Initially the aggregate capacity or the tank farm is planned for approximately 191,000 m^3 (1.2 million bbl) with a possible addition of 286,000 m^3 (1.8 million bbl) in a second phase.

The surface of the tank will be coated to prevent degradation and insulated to maintain product temperature. The tanks will be equipped with floating roofs to control vapours emitted from products having vapour pressure between 10 kPa (1.45 psig) and 76 kPa (11psig). Tanks storing petroleum products with vapour pressure above 76 kPa (11 psig) will require a vapour control system. Refer to paragraph 2.7.7. An allowance is included to install a tank heating system to control the viscosity of heavy crude during loading and unloading operations. The tanks shall be spaced 22.9m (75 ft.) apart and meet the requirements of Part 4 of the National Fire Code of Canada and the applicable sections of the TC General Order No. O-32, C.R.C., c1148. "*Flammable Liquids bulk storage Regulations*."

Phase 1 would therefore likely include eight field erected vertical storage tanks designed and built to American Petroleum Institute standard API-150 45.7m (150') in diameter by 14.6m (48') in height. Final tank size and number; however, is still subject to optimization for operational and economic requirements. This will be done during the detailed design.

The tanks will be erected on a granular base foundation within a secondary containment system. The storage tanks will be built inside a secondary containment area with a capacity equal to the volume of the largest tank plus 10% of the aggregate capacity of the others. For the preliminary tank configuration outlined herein, this would mean a containment volume of 40,500 m^3 (255,000 bbls).

2.7.5 Sampling, Transfer and Blending

The facility will be designed to receive and store different grades of petroleum products. Sampling stations and an assay laboratory will be included for product analysis and quality control purposes.

The facility will require several pumps to perform the various product transfers required during the operation of the plant. These will principally include railcar unloading pumps, ship loading pumps, blending pumps, stripping pumps and railcar loading pumps. A pumping system may be used to perform more than one operation. This will be optimized during subsequent phases of the design. At this preliminary stage, the use of twin screw pump with variable speed drive is proposed. These types of pumps are well suited for petroleum product transfer because of their ability to handle a wide range of viscosity, provide constant flow under varying conditions and operate with low available inlet pressures.

2.7.6 Piping System

Steel piping shall meet the requirements of:

- API Spec 5L, "Specifications for Line Pipe".
- ASTM A 53-86, "Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless".
- CAN/CSA-Z245.1M90," Steel Line Pipe, or
- CAN/CSA-Z183-M90," Oil Pipeline Systems".

In addition to the loading and unloading piping system described in paragraph 2.7.3, the facility will include a transfer piping system between the railcar area and the bulk storage area, a blending piping system and a second transfer system between the bulk storage area and vessels. The piping installed between the pump station and the bulk storage will be approximately 400 mm (18 in.) in diameter. Two systems will be required. The blending piping system will be installed completely within the tank farm secondary containment and will interconnect all storage tanks, allowing the transfer of product between any tanks. This system will also consist of 400mm (18 in.) diameter pipe. Each line will be electrically heat traced and insulated to allow pumping of highly viscous fluids. It should be noted that facilities handling multiple classes of petroleum product are required to remove vapors from the system if another class of vapor is introduced in the system.

2.7.7 Vapour Management System

Petroleum product transferred from the storage tanks to the vessel or to the railcars will displace a gas volume in the receiving vessels. This gas volume will be equivalent to the product's volume being transferred and contain Volatile Organic Compounds (VOCs). The VOC will include those already

present in the receiving vessel in addition to those generated by the product being transferred. These VOCs can have effects on the environment and therefore will be to be controlled and monitored. VOC control methods include Vapour Control System (VCS) comprised of Vapour Recovery Units (VRU) and Vapour Combustion Units (VCU). Vapour Balancing Systems (VBS) can also be used in some instances to transfer vapours to other parts of the system.

Documents published by the United State Coast Guard (USCG) provide safety guidelines for the design of VCS used in marine vessel loading. Although not enforced in Canada, CTI intends to follow these guidelines.

As for the storage tanks and the railcars, the *Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks* (PN 1180) published by the Canadian Council of Ministers of the Environment CCME was consulted as it provides indications on acceptable methods for controlling VOC emissions. The following paragraphs are excerpts from this guide.

Section 4.1 Vertical Tanks (Applicable to the bulk area storage tanks)
Paragraph 4.1.3
"Vertical tanks with diameters greater than or equal to 9.0 m (29.5 ft) storing a VOL with a vapour pressure greater than or equal to 10 kPa (1.45 psig) but less than 76 kPa (11psig) shall have one of: an internal floating roof, an external floating roof, or a vapour control system."

Paragraph 4.3.1
"All tanks with capacities greater than or equal to 75 m^3 (19,813 US Gallons) storing a VOL with a vapour pressure greater than or equal to 76 kPa (11psig) shall have a vapour control system."

Paragraph 4.3.2
"In addition to any other required equipment, all tanks with capacities greater than 4 m^3 (1,057 US Gallons) storing a VOL with a vapour pressure greater than or equal to 10 kPa (1.45 psig) shall have a submerged fill pipe."

Section 4.2 Non-Vertical Tanks (Applicable to the railcars)
Paragraph 4.2.2
"Non-vertical tanks with capacities greater than or equal to 75 m^3 (19,812 US Gallons) but less than 500 m^3 (132,086 US Gallons) storing a COL with a vapour pressure greater than or equal to 10 kPa (1.45 psig) but less than 76 kPa (11 psig) shall have either a vapour control system or a vapour balancing system."

An allowance has been included for the installation of two VCS systems. One system to serve the ship loading operation and a second to manage the vapor emitted during the filling of the railcars and a tank that would store product with vapor pressures above 76 kPa (11 psig). A thorough evaluation of both VCS will need to be performed as the optimum selection is relative to many factors such as product handled, regulations, initial costs, and operating and maintenance costs.

2.7.8 Secondary Containment and Water Treatment

In accordance with applicable regulations, the storage tanks will be built inside a secondary containment area with a capacity equal to the volume of the largest tank plus 10% of the aggregate capacity of the others. For the preliminary tank configuration outlined herein, this would mean a containment volume of

40,500 m³ (255,000 bbls). This volume will more than sufficient to adequately contain a 100-year return, 24-hour storm event.

The containment area will be constructed from earth dykes with a 60mil HDPE liner. The floors will be sloped away from the tank bases at a slope of at least 1% towards a sump and pumping system. Precipitation within the dyked area will be captured in these sumps and tested for hydrocarbons before being pumped to an oil/water separator. The separator for the containment area will be sized to match the discharge flow rate of the pumps and will discharge into the common site drainage system.

The area under the unloading tracks (Product Transfer Area) will also be protected by a 60mil HDPE liner to capture any small release of petroleum products that might occur during the loading or unloading process. The liner will be sloped towards a central point and the collected drainage will be directed to a containment vessel capable of holding the capacity of at least one full rail car. From there it will be pumped to an oil/water separator before being discharged into the common site drainage system. The oil /water separator for the Product Transfer Area will be sized for a minimum hydraulic flow rate of a 10-year return, one hour storm event, with the one hour rainfall intensity data for the Belledune area.

Surface drainage from outside the storage and process areas will be redirected via a perimeter ditch to prevent this runoff from potentially becoming contaminated. Surface drainage from within the perimeter diversion ditch will be directed towards a retention pond with a single discharge point. Discharge from the retention pond will be measured and regularly tested in accordance with environmental approval requirements.

2.7.9 Pipeline

The petroleum products will be pumped to the marine vessel via an appropriately sized pipeline. At this preliminary stage, it is anticipated this pipeline will have a 760mm (30 in.) to 915mm (36 in.) diameter and extend on a distance of 3.4 km (2.1 miles). This line will be used to convey product from the storage tanks to the ship. An additional line, smaller in diameter, will be used to return product to the storage tank should an interruption in the loading operation occur. The line will be equipped to relieve pressure buildup during sudden valve closure. The pipeline will also be used to unload ships. To facilitate the pumping of viscous fluids, the line will also be electrically heat traced and insulated. The pipeline route will be approximately 20 metres (60 feet) wide and will include a raised, above-ground pipeline and gated access/maintenance road.

2.7.10 Ship Loading and Unloading

Ship loading operations will take place at the Port of Belledune's Terminal #2. CTI will have third berthing rights following New Brunswick Power for their coal unloading operations and the owner of another, existing tank farm who currently loads and unloads petroleum products from their pipeline.

The proposed port side infrastructure will include a header and valve system to allow splitting the flow of product into four to six flexible hoses. The hoses will be equipped with failsafe breakaway connections which will interrupt the flow in the event the ship moves outside the reach of the hoses. After being connected to each branch of the distribution header, the ship end of the hoses will be lifted to the ship's deck and connection to the ship's system will be made.

The header will be housed within a building on the terminal's deck where the hoses and other ancillary equipment will also be stored. This building will also include a small pump which will be used to empty the hoses after the ship has been loaded as well as a pig launch station. Additional details of this aspect of the operation will be provided upon completion of the engineering designs.

2.7.11 Steam Production

Unloading the petroleum products from railcars will require steam heating to lower the viscosity of the product and facilitate pumping and transfer through piping. The facility will include a steam generating plant for this and other heating needs. At this stage of the design, it is expected the steam plant will be located in a separate building approximately 24.38 m (80 ft) wide x 30.48 m (100 ft) long. It will include three boilers totalling 3900 BHP with a fourth boiler serving as back-up. Other components of the steam production system will include a de-aerator vessel, condensate tank, condensate pumps, chemical water conditioning system, and control room.

A six day fuel oil reserve for the boilers represents a total volume of approximately 341,000 L (90,000 us gallons). A decision on the types and number of tanks required to store the fuel oil will be made based on economic and operational factors during the detailed engineering stage. The two options to be considered are one large vertical storage tank inside the tank farm or several double wall tanks located immediately outside the boiler room. In either case, provisions will be made for containment of potential spills and overfills in the product transfer area during fuel delivery. It is also expected this fuel will be delivered by truck since the product to be received by rail will not be suitable for immediate combustion in commercial or small industrial boilers.

Applicable components of the steam plant will be designed and constructed in accordance with regulation 84-175 of the New Brunswick Boiler and Pressure Vessel Act.

2.7.12 Administrative and Support Services

2.7.12.1 Office Building

The proposed project will include an office building. For the purposes of this conceptual phase, it is assumed the new building will be ± 9.14 m wide x 21.34 m long two-story construction (30' x 70') on the same property of the proposed facility. In brief, the new building will house office space necessary for the administration of CTI operations as well as a reception area, meeting room, lunchroom/locker rooms, washrooms and services rooms (i.e. access controlled rooms for mech./elec./communication equipment).

The construction will be of combustible material and its framework will consist of pre-fabricated trusses supported by a combination of wood and steel support elements (i.e.: beams, columns and/or walls). Exterior walls will be framed with wood studs and plywood sheathing will be used to provide lateral stability to the building.

The mechanical work will consist of the installation of plumbing, ventilation and heating/air conditioning systems (ex.: thermo pump).

The electrical work will consist of the following services: electrical services, electrical power distribution, grounding and bonding, wiring methods, devices, lighting (including emergency lighting and exit signs), connections to mechanical equipment, controls, electrical backup heating, vapour and air monitoring systems, fire detection/alarm systems and data systems.

2.7.12.2 Maintenance Garage and Pump Houses

The following constructions have also been included in this conceptual design:

- Maintenance Garage and storage: ± 12.19 m wide x 18.29 m long x 6.10 m high clear building (40’ x 60’ x 20’);
- Two Unloading Pump Houses: 15.24 m x 15.24 m x 3.66 m high clear building (50’ x 50’ x 12’);
- Shipping Pump House: 15.24 m x 15.24 m x 3.66 m high clear building (50’ x 50’ x 12’);
- Blending Pump House : 10.67 m wide x 15.24 m long x 3.66 m high clear building (35’ x 50’ x 12’);
- Electrical Services and Control Room Building: ± 15.24m wide x 30.48m long x 6.10m high clear building (50’ x 100’ x 20’);
- Assay Lab: ± 12.19 m wide x 18.29 m long x 3.66 m high clear building (40’ x 60’ x 12’), and
- Fire Protection Pump and Equipment Building: ± 10.67 m wide x 15.24 m long x 6.10 m high clear building (35’ x 50’ x 20’).

The new industrial buildings will house equipment (such as pumps, foam reservoir, etc.) or access controlled space for the maintenance and storage of specific tools/equipment.

The electrical work will consist of the following services: electrical services, electrical power distribution, grounding and bonding, wiring methods, devices, lighting (including emergency lighting and exit signs), and electrical services to mechanical equipment, electrical heating, intrusion alarm systems, and data systems.

One O/H monorail will be installed in each Pump House, including runway rails, supports and hoists to facilitate the handling of heavy components for installation, maintenance and/or repair purposes. Capacity of the special equipment will be determined under the detailed design.

2.7.12.3 Fire Protection Equipment

At this stage of the design it is believed the fire pump will be diesel driven. Should this turn out to be impractical, the fire protection equipment could also be supplied by a second electrical entrance. This electrical entrance would come from a pole-mounted transformer located at the utilities’ overhead line demarcation point and be underground concrete encased to the fire pump located in the Fire Protection Building. Coordination with NB Power will be performed so that proper identification is made at the utility pole.

2.7.12.4 Grounding and Bonding Protection

All equipment and piping systems shall be bonded to ground. Unloading facility shall be equipped with static discharge monitors to make sure the cars are properly bonded before unloading.

Lightning protection will be installed on tanks that require protection (this will depend on the type of tank installed).

2.7.12.5 Lighting Systems

Site lighting shall meet the requirements of the IESNA Recommended Practice Manual: Lighting for Exterior Environments. Generally, site lighting will be accomplished with pole mounted LED luminaires and flood lights under canopy. Exterior lighting controls shall be accomplished with the use of a photocell, programmable time clock and lighting contactor c/w manual override.

2.7.12.6 Mechanical Equipment

Electrical infrastructure will be provided for all services to heating, ventilation, air conditioning and mechanical systems. All motor starters shall be magnetically operated, control transformer fused at 24V, electronic type overloads and LED type red and green pilot lights. Soft-start devices or Variable Frequency Drives will be used as per NB Power guidelines and as per mechanical requirements.

2.7.12.7 Closed Circuit Tele-Vision (CCTV) Surveillance System

A Closed Circuit Television (CCTV) surveillance system shall provide adequate surveillance of public entrance doors and working areas.

An exterior camera system shall incorporate a camera and lens package into a small unobtrusive, security enclosure. The cameras will be wall-mounted with high resolution, complete with appropriate lenses and auto-gain control. All cameras will be PoE IP based and will be connected via a PoE data switch on a main data rack in the Communication Room.

2.7.12.8 Programmable Logic Controller (PLC) and Supervisory Control and Data Acquisition (SCADA)

The complete process up to the unloading of the railcars is semi-automatic. The connecting points are monitored by sensors; the valves and the frequency-controlled pump are controlled and monitored based on the filling level in the tanks, using a PLC.

The SCADA system will permit visualization and operation of process specification and parameters and will also permit visualization of alarms. Measured data can be recorded via tank level measuring devices or via meters installed in the product line. In this way it is possible to measure and display the product flow.

Unloading systems of railcars and the associated automation equipment shall be designed in accordance with the respective local conditions and the customer’s requirements.

2.7.13 Fire Protection

The facility will be protected by a fire detection and protection system designed and built in accordance with the National Fire Code. At this stage of the conceptual design, it is believed that the systems described herein would be required but this will be re-evaluated and adjusted as required throughout the progression of the detailed design.

2.7.14 Water Supply

Fire protection water to the site will be supplied from the process water pipeline belonging to Glencore's Brunswick Smelter and distributed where required on site via an underground piping network. The water supply will be supplemented by an on-site water retention pond sized to provide fire protection for a minimum of two hours.

In order to boost the water supply for the site, a diesel powered vertical turbine fire pump will be installed. This will include a fire pump controller, test header and jockey pump.

2.7.15 Bulk Tank Supply

Based on the physical size and layout of the bulk storage tanks along with consideration for the risk associated with a fire involving one of these elements, the recommended approach will involve the provision of fixed foam suppression systems for each of the tanks. These systems are to be designed in accordance with NFPA 11 and include the provision for supplementary hose stream protection. Hose connections will also be provided within the diked area for manual protection of the tanks. Mobile hose reels will be provided so personnel or the fire department responding to an event and will supplement the fixed foam makers with the manual AFFF foam hose stations.

AFFF foam will be stored in aboveground storage tanks. The foam will be pumped from the tanks via foam pumping units to proportioners that will mix the foam/water solution.

The fire pump and foam system will be housed within a dedicated fire protection building of non-combustible construction. This building will be protected by an automatic sprinkler system.

2.7.16 Fuel Load Rack Protection

Train loading racks that handle flammable liquids are generally not suited for protection by fixed water spray systems. Based on the size of the loading racks for this facility, it is recommended that manual protection for the loading racks and tank cars be facilitated by providing fire hydrants on each side of the rack and at least two wheeled dry chemical fire extinguishers.

The intent of this design is to protect the canopy, pumps, meters, miscellaneous equipment, and any vehicles associated with the fuel load rack area in the event of a hydrocarbon spill fire. The proposed approach involves manual fire protection only and would need to be reviewed and approved by the responding fire department.

2.7.17 Fire Alarm and Detection System

Internal floating roof tanks are enclosed cylindrical storage tanks with a floating roof on top of the stored liquid. In order to provide detection within the tanks, CTI plans to include flame detectors between the top of the tank and the maximum height of the floating roof. The detectors will not activate fire suppression systems but will provide early detection within the tanks.

The flame detectors will be monitored by a fire alarm control panel which will be located in the fire pump house. The system will also allow for monitoring of the sprinkler, foam and fire pump devices as well as some fire alarm system detection and notification devices in the occupied buildings.

2.8 Future Modifications, Extensions or Abandonments

At this time, no future abandonment is planned for the project but will be considered in the detailed design.

A future expansion of the tank farm (known at present as Belledune Tank Farm – Phase 2) is planned, but the exact timing of this development will depend on market conditions and availability of petroleum products from Canada and other sources. Phase 2 will likely include a secondary tank farm (adding 2 million bbl), adjacent to the proposed eight-tank farm and the importation of petroleum products. The details of any unforeseen modifications or Phase 2 will be submitted to DELG for review and approval prior to initiation.

2.9 Project-Related Documents

A complete list of, and copies of all, relevant documents is included in Appendix D.

3 DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Physical and Natural Features

3.1.1 General

For the purpose of this registration document, the project consists of three elements: the rail terminal and transfer system, the pipeline, and the modifications to the Port of Belledune breakwater and Terminal 2.

The project property is currently an unoccupied woodlot within the Belledune Industrial Park. A search of historical land use records, and aerial photographs dating back to 1966 shows this property has been unoccupied and primarily forest (with an agricultural component – photos show that two agricultural fields were actively farmed before 1966 and up until the 1970's). Remnants of these fields are still visible in current satellite imagery and on the ground, although they are now partially re-vegetated with native tree species.

The proposed pipeline ROW will cross forested parcels and run adjacent to the existing spur line ROW, until it crosses the spur line and Shannon Street. Once it crosses Shannon Street, it will enter the Belledune Port Authority property which is a developed industrial port, and then proceed along the existing breakwater to Terminal #2. Clearing for the pipeline ROW will only be required from the tank farm to the intersection with the spur line.

The proposed pipeline will enter the breakwater where it abuts the coast, at approximately LAT 47 deg. 54 min. 31.67 sec. North, LONG 65 deg. 51 min. 30.50 sec. W. The pipeline will then follow the breakwater in an easterly direction until it reaches pumping facilities at Terminal #2 (See Figure 5).

The existing breakwater is a man-made structure consisting primarily of core stone, armour stone, sheet piling and concrete foundations approximately 1,670 metres long. The top of the breakwater is approximately 30 metres wide, and is too narrow for the construction of a 36-inch pipeline in addition to the existing NB Power conveyor, a petroleum pipeline, and access road.

3.1.2 Geology

Based on the Geological Survey of Canada's surficial geology map of New Brunswick (Rampton, 1984), the surficial geology of the subject area generally consists of Late Wisconsinan and/or Early Holocene-aged marine sediments deposited in shallow marine water, locally deep, as blanket and plain deposits. The sediments consist mainly of sand, silt, some gravel and clay; generally 0.5 to 3.0 meters thick.

Based on the Bedrock Geology of the Pointe-Verte Area (NTS 21 P/13) Map (Langton, 2007), the bedrock geology of the northern portion of the site is identified as Silurian-Devonian rocks of the Simpsons Field Formation consisting of red to greenish grey, pebble to boulder conglomerate, sandstone and minor lithic and micaceous sandstone. The southern portion of the site is comprised of Silurian-Devonian aged rocks of the La Vieille Formation consisting of grey to black nodular to massive limestone, calcareous sandstone and siltstone.

3.1.3 Soils

Studies of the soils in the Belledune area have shown that soil contamination is common in the Belledune Industrial Park, and therefore it is assumed that the subject property is impacted by the long-term deposition of heavy metals. Lead, thallium and cadmium have been shown to be the primary contaminants of concern (*Belledune Area Health Study*, 2005 and *NB Air Quality Monitoring Results*, 2012).

3.1.4 Topography

Surface topography slopes south to north towards Chaleur Bay. Surface runoff is anticipated to infiltrate the overburden materials and flow towards the bay. Groundwater flow is assumed to follow the topography and flow in a northerly direction.

3.1.5 Surface Water

According to the GeoNB online wetland map, there are no watercourses or regulated wetlands present within or near the proposed project footprint; however, according to aerial photography a portion of the ROW may intersect an unregulated wetland and an unmapped watercourse, which will be confirmed by field surveys and if necessary, mitigation proposed to maintain functions of this element of the existing environment.

3.1.6 Vegetation

Vegetation on the tank farm property consists of mixed tree species typical, including balsam fir and spruce softwoods, and a variety of tolerant and intolerant hardwood species, primarily white and yellow birch, red maple and trembling aspen.

The pipeline ROW consists similarly of mixed tolerant and intolerant tree species, but also includes early successional tree and shrub species such as alder, pin cherry and grey birch.

3.1.7 Environmentally Significant Areas

A review of the Environmentally Significant Area database (M. Leblanc, DELG) found five ESAs within a 5.0 km radius of the tank farm property and pipeline ROW. Refer to Figure 6 for the locations of these ESAs in relation to the project and Appendix E for details on each ESA.

3.1.8 Archaeological and Heritage Resources

A review of the Archaeological Resources Inventory (B. Suttie – NB Department of Tourism, Heritage and Culture‘s Archaeological Services Unit) shows that the project is within an area deemed *Low Probability* for potential archaeological or heritage resources, and therefore a field survey is not necessary. Should any archaeological or heritage resource be uncovered during project construction, excavation shall cease and the ASU will be contacted immediately as per Appendix D of the *Guide to Heritage Resource Impact Assessment in New Brunswick*: “Protocol for Accidental Discovery of Archaeological Resources”.

According to the 2008 Belledune Rural Plan and the Canadian Register of Historic Places, there are no cultural features, such as provincial or federal recreational areas, historic structures or buildings, etc. within the Belledune Industrial Park or in proximity to the proposed project footprints.

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project/projet CRUDE OIL RAIL TO SHIP FACILITY – BELLEDUNE, N.B.

title/titre FIGURE 6
ESA LOCATIONS

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3.1.9 Land Use

The project is proposed on land currently zoned for industrial use.

A search of the DELG Fee-for-Information records shows that no contaminated sites are known to be within the proposed project footprint. No record of Ministerial Orders, Remediation Orders, petroleum storage tanks registered with the DELG, PCB storage sites or former landfill and/or dumpsites exist.

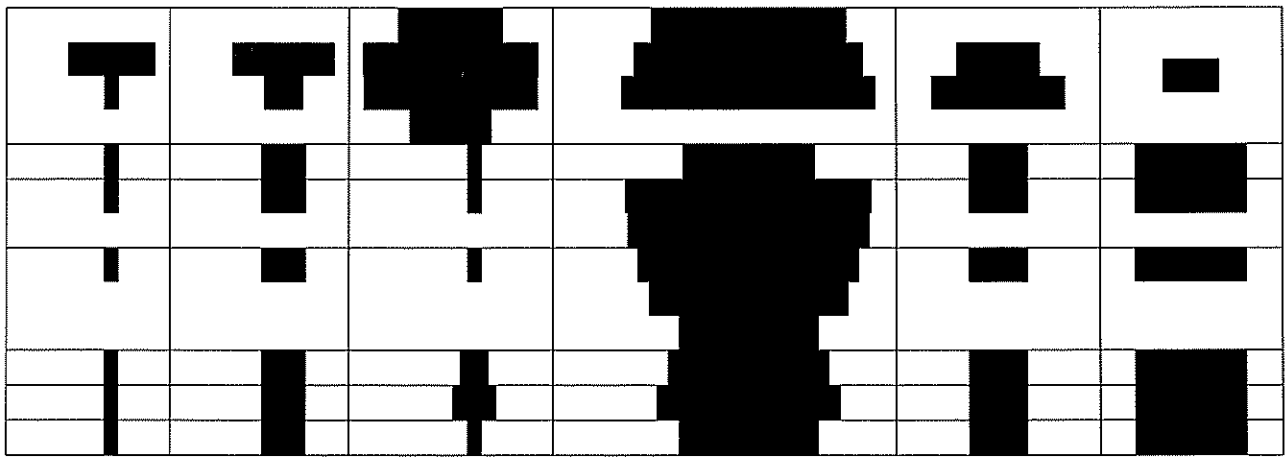
For a full list of adjoining property ownership and uses, please refer to Appendix B.

3.1.10 Groundwater

A search of the Department of Environment and Local Government's Online Well Log System (OWLS) was completed to provide a general overview of the groundwater quality in the area. [redacted]

All wells are supplied with groundwater from a bedrock aquifer. Water-bearing fractures for most wells are located at depth. Refer to Table 1 for well log information.

[redacted]



[redacted]

3.1.11 Wildlife

Based on a general reconnaissance of the site and the results of the ACCDC data review, the ROW is not considered suitable habitat for any rare species of fauna. However, the bird and mammal survey will include the pipeline ROW, and the results will be submitted to the DELG for review and approval once completed.

A general reconnaissance of the project's property took place on February 26th, 2014. During this reconnaissance, the only signs of wildlife field staff identified were varying hare (*Lepus americanus*) – identified from tracks in the snow – the common crow (Corvus brachyrhynchos) was sighted, and

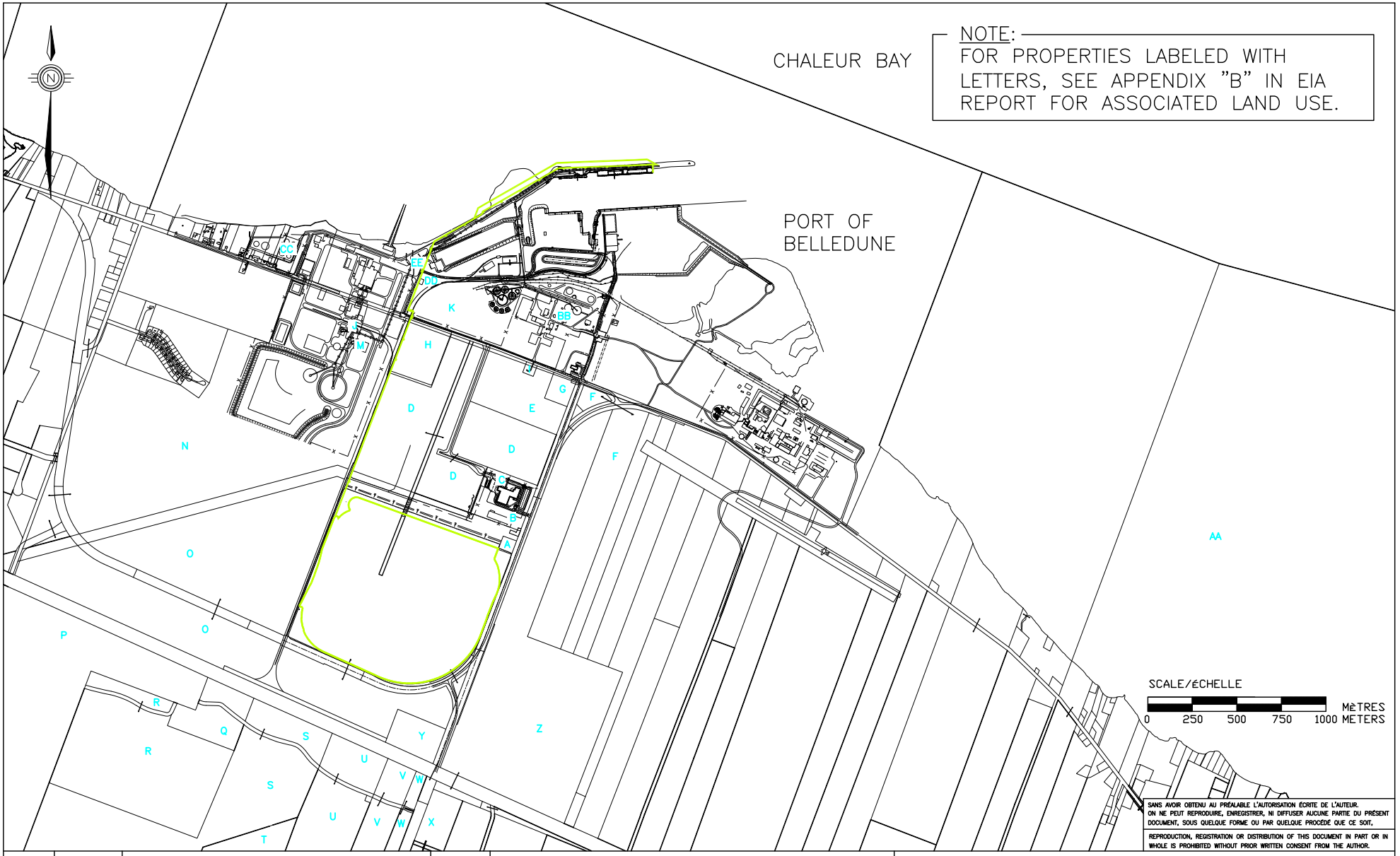


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FIGURE 7
ADJACENT PROPERTY LAND USE

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evidence of previous occupation of the site by moose (*Alces alces*) as evidenced by broken or "hooked" immature hardwood trees.

The area proposed for marine dredging and the breakwater expansion is an area previously impacted by the deposition of gypsum from the nearby (now closed) fertilizer plant. In the 1990's, gypsum was deposited on the floor of the Bay outside of the breakwater as a method of disposal. According to aerial photos and discussions with Port of Belledune and Glencore staff, it appears that the gypsum pile may have dissipated with wave and ice action in the ensuing years. The remaining floor of the Bay is not likely to be considered suitable fish habitat due to this impact, however this will be confirmed with a fish habitat survey (refer to section 5.3.1).

3.1.12 Atmospheric

Air quality in the vicinity of the Port of Belledune has been regularly monitored due to air approvals issued to the Glencore (formerly Xstrata) smelter and the NB Power coal-fired electrical generation plant. Prevailing winds are out of the east, from the Chaleur Bay inland, generally in the direction of the tank farm subject property.

A variety of air quality parameters are sampled regularly by the DELG (*NB Air Quality Report* – DELG 2010) at stations near the Port of Belledune as part of the New Brunswick Air Quality Monitoring Network. The report primarily focuses on Sulphur Dioxide (SO_2), Total Suspended Particulate (TSP), Fine Particulate Matter ($PM_{2.5}$) and Nitrogen Dioxide (NO_2). Results of the air quality monitoring network show that, from a human health standpoint, the air quality in the area is acceptable due to the low number of exceedences of air quality limits.

Ambient noise levels are consistent with an industrial park where users are separated by treed buffers. Noise levels are considered acceptable for activities associated with industrial land uses and an industrial harbour.

4 POTENTIAL ENVIRONMENTAL IMPACTS

Based on the project description and the existing environment of the tank farm and pipeline ROW properties, and the modifications to the breakwater, the following potential environmental impacts were identified and scoped into the EIA:

a) Migratory birds and bird species at risk;
b) Plant species at risk;
c) Mammal species at risk;
d) Mammals and mammal habitat;
e) Marine Fish Habitat;
f) Groundwater quality;
g) Atmospheric quality;
h) Transportation;
i) Public Safety; and
j) Labour and economy.

The following sections outline the potential impacts to each VEC from the construction and operation of the proposed project. Proposed mitigation is outlined in Section 5.

4.1 Migratory Birds

Environment Canada is responsible for implementing the *Migratory Birds Convention Act (MBCA)*, which provides for the protection of migratory birds through the *Migratory Birds Regulations*. These regulations provide for the protection of migratory birds, their eggs and their nests.

The following project activities may impact migratory birds.

The construction of the tank farm, secondary containment, rail offloading system and ancillary features (access roads, parking areas, and service buildings) will require permanent clearing of forested land, up to a total approximate area of 60 hectares. This will result in the potential displacement of migratory birds that would typically inhabit the subject property.

The construction of the pipeline will take place adjacent to an existing, active railway ROW. The pipeline will be installed using standard heavy equipment, including backhoes and bulldozers. Tree clearing and excavation will be required, resulting in loss of potential migratory bird habitat.

The construction of the pipeline on, and modifications to, the existing breakwater is not anticipated to temporarily or permanently destroy migratory bird habitat. However, shorebirds which congregate on the breakwater may be temporarily displaced or disturbed by the use of heavy equipment for the duration of construction.

The operation of the tank farm may include a flare for the management of hydrocarbon vapours. The proposed flare may attract and harm migrating birds.

The tank farm will include security lighting which may attract or confuse migrating birds.

Refer to Section 5.1 for proposed mitigation to potential impacts to migratory birds.

4.2 Species at Risk

Canada's Species At Risk Act (SARA) is one of three major components in the Government of Canada Strategy for the Protection of Species at Risk. It is designed as a key tool for the conservation and protection of Canada's biological diversity and fulfils an important commitment under the United Nations Convention on Biological Diversity. New Brunswick also has a Species At Risk Act which complements the federal Act.

The purpose of SARA is to:

A. Prevent wildlife species from becoming extinct or extirpated (lost from the wild in Canada);
B. Help in the recovery of extirpated, endangered or threatened species; and
C. Ensure that species of special concern do not become endangered or threatened.

The construction and operation of the project has the potential to impact birds, mammals and plants found within the subject properties. To identify which, if any, Species at Risk may be impacted, the following review of the available data was undertaken. For details on proposed mitigation measures, refer to Section 5.

A review of the Atlantic Canada Conservation Data Centre (ACCDC) data was undertaken for a 5-km radius surrounding the project subject properties. The results of the ACCDC scan were cross-referenced with the 2012 DNR Vascular Plants List and NB Species at Risk Act species list. Any species which have the potential to be impacted by the construction and operation of the project are listed below.

In summary, the ACCDC 5.0 --km buffer around the study area contains 65 records of 33 taxa. Forty-four records of 19 vascular plants and twenty-one records of 14 vertebrates were observed. No records of nonvascular flora or invertebrate fauna were observed.

The records' ranks ranged between S1 and S5. Table 2 provides definitions of rarity ranks as applicable.

The subject properties contained potential suitable habitat for 14 of the species at risk identified by the ACCDC 5.0 km radius study area, and were therefore considered in this analysis for potential impacts.

4.2.1 Flora

Vascular plants identified within the 5km ACCDC radius and which may be found within the project footprint, including the project's property, the pipeline ROW and the breakwater modifications are:

Auricled Twayblade (*Listera auriculata*) – requires moist soils, partially shaded meadow/field (less than 25%) covers and riparian edges. Typically found in cool, mossy coniferous woods along small streams. Categorized as "sensitive" in the DNR vascular plants list, the ACCDC report shows an incidence of this plant near the project property. Portions of the property may contain suitable microsites for this species.

Small Round-leaved Orchid (*Amerorchis rotundifolia)* – typically found under cedar-dominant forest in wet or dry slopes and along fen borders. Categorized as "May be at Risk" under the DNR vascular plants list, the ACCDC report shows an incidence of this plant near the project property. Portions of the property may contain suitable microsites for this species.

Table 2: Rarity Ranking Definitions

Atlantic Canada Conservation Data Centre (ACCDC)	
S1	Extremely rare throughout its range in the province (typically 5 or fewer occurrences or very few remaining individuals). May be especially vulnerable to extirpation.
S2	Rare throughout its range in the province (6 to 20 occurrences or few remaining individuals). May be vulnerable to extirpation due to rarity or other factors.
S3	Uncommon throughout its range in the province, or found only in a restricted range, even if abundant in some locations (21 to 100 occurrences).
S4	Usually widespread, fairly common throughout its range in the province, and apparently secure with many occurrences, but the element is of long-term concern (e.g. watch list - 100+ occurrences).
S5	Demonstrably widespread, abundant, and secure throughout its range in the province, and essentially ineradicable under present conditions.
S#S#	Numeric range rank: A range between two consecutive numeric ranks. Denotes range of uncertainty about the exact rarity of the Element (e.g., S1S2).
N	Non-breeding: Basic rank refers to the non-breeding (usually wintering) population of the element of the province.
B	Breeding: Basic rank refers to the breeding population of the element in the province.
Species at Risk Act (SARA) (Canada)	
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC)	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Not At Risk (NAR)	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)	A wildlife species considered by COSEWIC and placed in the data deficient category because of insufficient scientific information at the time of assessment.
NBDNR General Status of Wildlife	
At risk	Species for which a formal assessment has been completed, and determined to be at risk of extirpation or extinction. To be described by this category, a species must be either listed as endangered or threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), or the New Brunswick equivalent.
May be at risk	Species or populations that may be at risk of extirpation or extinction, and are therefore candidates for a detailed risk assessment by COSEWIC or the New Brunswick equivalent.
Sensitive	Species which are not believed to be at risk of extirpation or extinction, but which may require special attention or protection to prevent them from becoming at risk.
Secure	Species that are not believed to be at risk, may be at risk, or sensitive. These are generally species that are widespread and/or abundant. Although some secure species may be declining, their level of decline is not felt to be a threat to their status in the province.

New Brunswick Species at Risk Act (NB SARA)

Table 3: Rare and/or Endangered Taxa within the ACCDC Buffer Area (5 km)

*	Scientific Name	Common Name	Prov. Rarity	Prov. Status (NBDNR/ NBSARA)	SARA/ COSEWIC Status	No. Obs.	Dist. (km)
	FLORA:						
p	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain	S2	Sensitive		2	4.04 ±5
p	*Corallorhiza maculata*	Spotted Coralroot	S3S4	Sensitive		1	4.14 ± 0.01
p	*Corallorhiza maculata var. maculata*	Spotted Coralroot	S2S3	Sensitive		1	2.19 ± 10
p	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's Slipper	S2	May be at risk		1	3.47 ±2
p	*Geocaulon lividum*	Northern Comandra	S3	Secure		1	3.8± 0.01
p	*Carex vaginata*	Sheathed Sedge	S3	Sensitive		2	2.99 ±5
p	*Carex gynocrates*	Northern Bog Sedge	S2	Sensitive		2	3.05 ±5
p	*Listera auriculata*	Auricled Twayblade	S2S3	Sensitive		1	1.25 ±5
p	*Amerorchis rotundifolia*	Small Round-leaved Orchis	S2	May be at Risk		3	1.32 ±5
p	*Sagina nodosa*	Knotted Pearlwort	S2	Sensitive		2	1.08 ± 0.2
p	*Draba glabella*	Rock Whitlow-Grass	S1	May be at Risk		7	1.59 ± 0.5
p	*Salix myricoides*	Bayberry Willow	S2?	Sensitive		1	1.58 ± 0.35
p	*Zigadenus elegans ssp. glaucus*	Mountain Death Camas	S1	May be at Risk		7	1.58 ± 0.5
p	*Artemisia campestris ssp. caudata*	Field Wormwood	S3	Secure		1	1.17 ± 0.5
p	*Stellaria longipes*	Long-stalked Starwort	S1	May be at Risk		5	1.59 ±

							0.1
p	*Polygonum raii*	Sharp-fruited Knotweed	SH	Status Undetermined		3	1.61 ±1
p	*Blysmus rufus*	Red Bulrush	S2	Sensitive		2	1.73 ±1
p	*Galium obtusum*	Blunt-leaved Bedstraw	S2?	Secure		1	3.97 ±1
p	*Viola adunca*	Hooked Violet	S3	Secure		1	4±0. 35
	FAUNA:						
a	*Tyrannus tyrannus*	Eastern Kingbird	S3S4B	Sensitive		1	4.7± 5
a	*Riparia riparia*	Bank Swallow	S3B	Sensitive	T	1	4.7± 5
a	*Coccothraustes vespertinus*	Evening Grosbeak	S3S4B S4S5N	Secure		1	4.7± 5
a	*Hirundo rustica*	Barn Swallow	S3B	Sensitive	T	1	4.7± 5
a	*Hylocichla mustelina*	Wood Thrush	S1S2B	May be at risk	T	2	4.7± 5
a	*Wilsonia canadensis*	Canada Warbler	S3S4B	At risk	T	1	4.7± 5
a	*Dolichonyx oryzivorus*	Bobolink	S3S4B	Sensitive	T	1	4.7± 5
a	*Molothrus ater*	Brown-headed Cowbird	S3B	May be at risk		1	4.7± 5
a	*Sterna hirundo*	Common Tern	S3B	Sensitive	NAR	2	1.86 ± 0.5
a	*Cepphus grylle*	Black Guillemot	S3	Secure		1	3.03 ±1
a	*Mimus polyglottos*	Northern Mockingbird	S3B	Sensitive		2	3.09 ±5
a	*Larus delawarensis*	Ring-billed Gull	S3B	Secure		5	4.7± 5
a	*Charadrius vociferus*	Killdeer	S3B	Secure		1	4.7± 5
a	*Puma concolor pop.1*	Cougar – Eastern pop.	SU, SH	Endangered	DD	1	2.27 ±1

* p = vascular plant, n = nonvascular plant, a = vertebrate animal, i = invertebrate animal, c = community

Table 4 summarizes the results of the scan from the ACCDC database for the legally protected taxa by predictive range maps based upon expert estimates of distribution.

Ranges of rank as follows: 1 indicates possible occurrence, 2 and 3 less probable occurrence.

Table 4: Legally Protected Taxa within the Buffer Area (5 km)

*	Scientific Name	Common Name	Provincial Status (NBDNR/NBSARA)	SARA/ COSEWIC Status	Range Rank
a	*Glyptemys insculpta*	Wood Turtle	At risk	Threatened	1
a	*Histrionicus histrionicus*	Harlequin Duck – Eastern pop.	At risk/Endangered[1]	Special Concern	1
p	*Listera australis*	Southern Twayblade	At risk/Endangered[1]		1
a	*Buteo lineatus*	Red-shouldered Hawk	May be at risk	Not at Risk	2
p	*Symphyotrichum laurentianum*	Gulf of St. Lawrence Aster	Endangered[1]	Threatened	1
p	*Symphyotrichum subulatum (Bathurst pop.)*	Bathurst Saltmarsh Aster	Endangered[1]	Special Concern	1
p	*Isoetes prototypus*	Prototype Quillwort	Endangered[1]	Special Concern	1
a	*Bucephala islandica*	Barrow's Goldeneye (Eastern pop.)	Special Concern[1]	Special Concern	2
p	*Lechea maritima var. subcylindrica*	Beach Pinweed	Special Concern[1]	Special Concern	2
p	*Pterospora andromedea*	Giant Pinedrops	Endangered[1]		2
p	*Eriocaulon parkeri*	Parker's Pipewort	Endangered[1]	Not at Risk	2
a	*Buteo lineatus*	Red-shouldered Hawk	May be at risk	Not at Risk	2

* p = vascular plant, n = nonvascular plant, a = vertebrate animal, i = invertebrate animal, c = community
1 – listed under Schedule A of the New Brunswick Species at Risk Act

Small Yellow Lady's Slipper (*Cypripedium parviflorum var. makasin*) – typically found in gypsum rock faces and talus slopes, or in cedar stands, this plant is listed as "May be at Risk" by NB DNR. May be found in wet or dry, on slopes or in fen borders. Portions of the project footprint property may contain suitable habitat for this species.

Spotted Coralroot (*Corallorhiza maculate var. maculate*) – Typically found in mature forest sites of tolerant hardwoods or rich deciduous forest stands. Portions of the project footprint property may contain suitable habitat for this species.

Sheathed sedge (*Carex vaginata*) and Northern Bog Sedge (Carex gynocrates) – both typically found in cedar stands in wet or dry soils, slopes or fen borders. Portions of the project footprint property may contain suitable habitat for this species.

Plantain (*Goodyera oblongifolia*) – typically found under cedar-dominant forest in wet or dry slopes and along fen borders. Categorized as "Sensitive" under the DNR vascular plants list, portions of the property may contain suitable habitat for this species.

Blunt-Leaved Bedstraw (*Gallum obtusum*) – Typically occurs in moist, woodland floodplain areas, wetlands, fens and seeps. These plants may be found in low-lying areas along railroads, or grassy areas. Listed as "secure" by DNR, the proposed project footprint may contain habitat suitable for this species.

Refer to Section 5.2 for proposed mitigation to potential impacts to Species at Risk.

4.2.2 Fauna

In addition to the ACCDC data, IBACanada.ca was consulted to determine which, if any, Important Bird Areas (IBA) were located near the proposed project. The nearest IBA is Heron Island, located approximately 21 kilometres northwest of Belledune, and therefore will not be impacted by the project. The Maritime Breeding Bird Atlas data was consulted and cross-referenced with the ACCDC data as a predictive tool to determine the potential for occurrence of certain species of birds, particularly SAR, in the vicinity of the project site.

Species at Risk (fauna) within the 5.0 km radius ACCDC scan, species which are listed in the NB Species at Risk Act which may occur in the vicinity of the project, and for which , are listed below.

The proposed project footprint contained potential suitable habitat for 7 of the species at risk (fauna) identified by the ACCDC 5.0 km radius study area, and one species listed in the NB SARA. These 15 species were considered in this analysis for potential impacts.

Birds:

Bank Swallow – Listed as "Threatened" by COSEWIC, this bird is typically found along the banks of rivers, creeks, lakes and seashores. Bank Swallows originally nested only in steep, sandy riverbanks, but, like other swallows, they have adapted to humans and now nest in the sides of man-made excavations. While there is no suitable habitat within the project footprint, excavated stockpiles of soil may be inhabited by bank swallows during construction activities, if not properly managed.

Wood Thrush (*Hylocichla mustelina*) – Listed as "Threatened" by COSEWIC and NB's Species at Risk Act, this bird prefers moist, deciduous woodlands with a thick understory and also well-planted parks and gardens. Nests are a cup of grass and twigs, reinforced with mud and lined with fine grass and rootlets, placed in a bush or sapling. The project property may contain habitat suitable for this species.

Canada Warbler (*Wilsonia Canadensis*) – Listed as "Threatened by COSEWIC and NB Species at Risk Act, this bird prefers cool, moist woodlands that are nearly mature and have much undergrowth. It ordinarily ranges at low levels, usually from the ground to 6 feet (nearly 2 meters) up. Its nest is made of dried leaves and grass, on or near the ground at the base of a stump or in a fern clump. The project property may contain habitat suitable for this species.

Common Nighthawk (*Chordeiles minor*) – Considered "Threatened" under the NB Species at Risk Act, the nighthawk inhabits open woodlands, clearings, or fields, but also often towns with roosting trees or fence posts. Nests are typically on the ground or a graveled roof. The project property may contain habitat suitable for this species.

Common Tern (*Sterna hirundo*) – Listed as "Not At Risk" by COSEWIC, this bird typically inhabits lakes, ponds, rivers, coastal beaches, and islands. Sensitive to disturbance during the breeding season, whole colonies often fail to breed successfully because of disruption by humans; as a result, their numbers are slowly declining. Nests are typically in a depression in sand or in a shallow cup of dead grass, located on sandy or pebbly beaches or open rocky places, most often in colonies and on islands or isolated peninsulas. The proposed project footprint may contain suitable habitat for this species.

Eastern Kingbird (*Tyrannus tyrannus*) – The Eastern Kingbird has a provincial rarity rating of S3S4B and typically inhabits savannas, rangelands, forest edges, riverside groves, and even city parks and roadsides. The Eastern Kingbird perches on treetops, fences, and utility poles, but nests are bulky heaps of twigs, straw, and twine lined with hair and rootlets; built on horizontal limb of a tree, often near water. The proposed project footprint may contain suitable habitat for this species.

Black Guillemot (*Cepphus grylle*) – Ranked as S3, the guillemot inhabits rocky coasts, even in winter. Nests are located under rocks either on a bare surface or on loose pebbles. The breakwater may contain suitable habitat for this species.

Refer to Section 5.1 for proposed mitigation to potential impacts to bird species at risk.

4.3 Marine Fish Habitat

An area approximately 3 hectares in size will be altered by the proposed dredging and expansion of the existing breakwater. This area on the seaward (north) side of the breakwater was previously impacted by the disposal of gypsum from the now-closed fertilizer plant near the port. Gypsum was deposited with the intent of it dissolving and dissipating into the bay. However, the gypsum "deposit" remained on site for decades (deposition began prior to the 1980's) according to aerial photos. Recently, the deposit appears to have dissipated and the previously impacted area may have reverted to marine fish habitat. A fish habitat study was commissioned recently by a neighbouring industry, and CTI is attempting to obtain a copy prior to dredging the area.

4.4 Mammals and Mammal Habitat

Mammal species identified within the 5.0 km ACCDC radius and which may be found within the project footprint, including the project property, the pipeline ROW and the breakwater modifications are:

Eastern Cougar (*Puma concolor*) – all indications are that wild breeding populations of cougars are extremely unlikely in the Maritimes. Cougars have extensive ranges and are highly elusive and can be found in a variety of habitats including tidal marshes, mountainous terrain and deciduous and coniferous forests. However, they tend to occupy large forests where human disturbance is minimal. Males can occupy regions from 200 to 1800 km^2. As such, construction and operation of the project is not anticipated to significantly impact the cougar.

Although not identified in the ACCDC report, the following mammal species was considered due to historical distribution/ranges:

Canada Lynx (*Lynx Canadensis*) – Listed by NB Species at Risk Act as "Endangered", the lynx typically inhabits heavily wooded, mature/over mature conifer and mixed deciduous hardwood stands – boreal forest is their preferred habitat type. Due to its proximity to the coast, the industrial land uses adjacent to

the project site, the lynx's shy nature and the lack of mature/over mature habitat, it is unlikely that the proposed project footprint contains suitable lynx habitat. However, the bird and mammal survey will record any signs of lynx and species-specific mitigation may be developed in consultation with NB DNR if necessary.

Refer to Section 5.3 for proposed mitigation to potential impacts to mammals and mammal species at risk.

4.5 Groundwater Quality

Construction of the rail terminal and transfer system will require clearing, grubbing, excavation and stockpiling of soil, hauling of materials onto and off the subject property and installation/construction of the railway system, tank farm, secondary containment and buildings on the subject site. Construction is expected to continue up to 12 months. During this time, accidents and malfunctions may occur which would result in petroleum products being released into the environment.

Refer to Section 5.4 for proposed mitigation to potential impacts to groundwater.

4.6 Atmospheric Quality

The construction of the rail terminal and transfer system, ancillary buildings/services, pipeline and the port modifications will be done using general construction techniques, which will include the use of heavy equipment. The use of heavy equipment such as tractor trailers, bulldozers, loaders, and dump trucks will temporarily increase in the area during the construction schedule. This will result in an increase in diesel emissions and a temporary reduction in air quality in the vicinity of the construction sites.

Operation of the rail terminal and transfer system and pipeline requires the transportation and loading/unloading of petroleum products, primarily heavy petroleum products. Any part of these processes requiring heating of the petroleum products to load or unload it, valves, moving parts, etc. could result in fugitive hydrocarbon air emissions, resulting in impacts to air quality on the subject property and in the general area.

Heating of the petroleum products for transference will require the installation of a steam plant, with between 3 and 4 boilers totalling 3900 BHP or more. Refer to section 2.7.11 for more detail. There will be an exhaust associated with this project component.

The export of petroleum products by ship will increase the amount of vessel traffic at the Port of Belledune by a frequency of between 36 and 84 ships per year (3 – 7 per month). These vessels are primarily diesel powered, with exhausts associated with the burning of diesel fuel. An increase in ship traffic will result in increased diesel exhaust emissions in the vicinity of the port.

Refer to Section 5.5 for proposed mitigation to potential impacts to atmospheric quality.

4.7 Transportation

The construction of the project including the tank farm, pipeline and port modifications will require an increase in local and provincial vehicle traffic for the duration of construction. Equipment, machinery, specialized components, construction materials, pumps, steel rails, aggregate and workers will be transported to the site daily. This will result in an increase in average traffic along Route 11 (a provincial arterial highway), Route 134 (a provincial connector road) and Turgeon Road (an access road connecting Route 134 to Route 11).

Data obtained from DTI's Maintenance and Traffic Division shows four sites upstream and downstream of the proposed project, two on Route 134 and two on Highway 11. Table 5 shows the Average Annual Daily Traffic (AADT) data for these sites for 2012.

Table 5: AADT Data for Locations Closest to Project Site

SITE DESCRIPTION	AADT DATA (ESTIMATED)
Route 11 West of Belledune	3320
Route 11 East of Belledune	3490
Route 134 East of project site (at BPA)	1320
Route 134 immediately West of project site	1780

The nearest permanent counting site is located south of the project site on Route 11 near Madran. The data for this location is actual (not estimated) and is broken down into *total* (AADT) and *truck* (AADTT) usage. This data is shown in Table 6.

Table 6: AADT and AADTT for Permanent Counter Location at Madran, Route 11.

AADT (ACTUAL)	AADTT DATA (ACTUAL)
3840	570

This data is considered typical of northern collector and arterial highway usage for a rural area (George D. Thompson, DTI – personal communication). Truck traffic constituted almost 15% of total traffic on Route 11 at the Madran permanent traffic counter.

The operation of the project will require the transport of petroleum products via the existing railway system. Trains will transport up to 125 rail cars of petroleum product, which will result in rail traffic through residential areas, railway road crossings resulting in traffic stoppages, and the potential blockage of Route 134 for extended periods of time at the proposed project site. This may require local users of Route 134 to adjust their commuting time or take alternate routes.

4.7.1 Increased Traffic on Roads

The project during the construction phase will create increased truck traffic on provincial highways and roads. This increase in traffic may increase the probability of single – and multiple-vehicle accidents on these roads. This increase in traffic may also increase the rate of road degradation.

4.7.2 Blockage of Route 134

Trains carrying petroleum products will adhere to speed limits regulated by Transport Canada and the RSA. However, once trains reach the switch for the spur line, they will be required to slow their speeds considerably to enter the project property. This will result in the train crossing Route 134 and a

temporary closure of Route 134 at this site. During this time, users of Route 134 will have to wait or take an alternate route around the project property.

Refer to Section 5.5 for proposed mitigation to potential transportation impacts.

4.8 Public Safety

The safety of the general public and employees of CTI may be impacted by the construction and operation of the project, through accidents or unplanned events during the transportation of the petroleum products by rail, during project construction, and during operation of the project including moving rail cars, and loading and offloading of product both at the tank farm and at Terminal #2.

4.8.1 Rail Transportation of Dangerous Goods

The project will increase the frequency of transportation of petroleum products along the railway main line, and as such the probability of potential derailments and associated fires or explosions may also increase.

4.8.2 Vehicle/Rail Interactions

The increase in transportation of petroleum products by rail will result in an increase in train crossings, requiring vehicular traffic to stop and yield to the trains. This could result in an increase in rail/vehicle collisions at these railway crossings.

4.8.3 Workplace Safety

As with any industrial construction site, the construction of the project will require heavy equipment and skilled labourers working in proximity to each other. Work site accidents may occur which could cause minor, moderate or serious injuries, or death.

Refer to Section 5.6 for proposed mitigation to potential public safety impacts.

4.9 Labour and Economy

The operation of the tank farm project will create between 250 and 300 temporary construction jobs. The operation of the project will require up to 30 full-time employees, ranging from office administration to skilled labourers and professionals. This project is anticipated to have a positive direct and indirect net economic impact.

CTI wishes to actively support the community in which it operates.

5 MITIGATION OF ENVIRONMENTAL IMPACTS

The International Association of Impact Assessors Principles of EIA Best Practice states that one of the objectives of EIA is to anticipate and avoid, minimize, or offset the adverse significant biophysical, social, and other relevant effects of development proposals. Furthermore, the EIA process should provide for mitigation and impact management – to establish the measures that are necessary to avoid, minimize, or offset anticipated adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.
Mitigation is a key component and one of the aims of EIA and other impact assessment tools, and typically involves:

- Avoiding impacts altogether;
- Minimizing impacts by limiting the degree or magnitude of an action;
- Rectifying the impact by repairing, rehabilitating or restoring the affected environment;
- Compensating for the impact by replacing or providing substitute resources or environmental components,
- Enhancement of positive impacts is also considered a potential mitigation method.

Mitigation should also incorporate local knowledge and considerations of sustainability in planning the development, and in assessing and choosing alternatives and mitigation in the design (IAIA Fastip "Mitigation in Impact Assessment).

The following mitigation is recommended for the Belledune Rail Terminal and Collection System.

5.1 Migratory Birds and Bird Species at Risk

The proponent understands and commits to complying with the provisions of the MBCA and associated regulations during the construction and operation of the project, and commits to the following mitigation measures to avoid impacts to migratory birds and their nests.

5.1.1 Field Bird Survey

To understand the potential impacts to early-nesting migratory birds from the construction and operation of the project, the proponent has commissioned a bird field study by a qualified biologist. The field study will take place during the April early-nesting season, and later in June and July during which the biologist will observe individual species and their habitat through point counts, atlas-type surveys, stationary watches and song playbacks. Species-specific mitigation will be developed based on the results of this survey, if required.

5.1.2 Clearing Outside the Bird Breeding Season

Where possible, initial clearing, grubbing, excavation and general earthworks will take place outside of the bird breeding season to avoid disrupting or destroying breeding birds, their nests or their young.

5.1.3 Bird Nests will be Flagged and Avoided

Despite the construction taking place primarily outside the normal bird breeding season and commissioning of a bird survey, active nests may still be encountered during early clearing and

construction activities. A 20m buffer will be established around these nests, clearly identified (flagged) and avoided until the eggs have hatched and the hatchlings vacate the area.

5.1.4 Biologist Supervision of Clearing and Construction

Due to timing restrictions and availability of specialized equipment, some construction activities may be unavoidable during the May 1st to August 31st bird nesting season. During this time, CTI will commission the services of an ornithologist (or qualified biologist) to supervise these activities. The ornithologist will be responsible for preceding heavy equipment immediately prior to clearing/excavation, and identifying any birds and their nests, and act immediately to avoid impacting these birds/nests. This will be done by establishing and flagging a 20m buffer area around each nest discovered, and informing equipment operators to vacate the area and leave it undisturbed. Only when the birds have vacated the nest will the ornithologist permit clearing and grubbing of these areas to proceed.

5.1.5 Environmental Management Plan – Employee Education

The site-specific Environmental Management Plan will include a chapter on migratory birds, the provisions of the MBCA and protocols to follow in the event an active nest is observed during construction. A copy of the Environmental Management Plan will be kept on site for consultation by workers, and all workers will be provided training on this protocol prior to initiation of construction activities.

5.1.6 Operation of Flare

The operation of the Vapour Destruction System (VDU) will include the use of a flare. To minimize the potential for attracting birds and insects and potentially causing bird injuries or mortalities, the flare proposed for this development is an enclosed flare. An enclosed flare is more efficient than a stack/candle flare, is lower to the ground and does not contain a bright flame.

5.1.7 Facility Lighting

The tank farm and unloading facility will be operated 24-hours a day, on two 12-hour shifts. For safety and operational feasibility, lighting of the rail system, tank farm and offloading area will be required. Lighting will be kept to minimal standard requirements and will not be installed at heights where migratory birds may be attracted or confused (aviation safety is not a concern here, based on the requirements of the *Canadian Aviation Regulations*. Lighting of the unloading area will be concentrated on the ground and under cars for operational reasons. Lighting for the port facility is anticipated to minimal, in addition to the existing port lighting systems.

5.1.8 Minimal Footprint

To minimize potential long-term impacts to migratory birds and their habitat, the footprint of the project has been designed to be kept to the minimum area possible. This includes maintaining as much woodland as possible on the project property and keeping the pipeline ROW as narrow as possible. Additionally, construction crews will use designated access roads and entry points during clearing and construction.

5.1.9 Breakwater Modifications – BPA Nuisance Bird Management

The existing breakwater at the port consists of armour stone which is often used by shorebirds for perching and socializing and in some cases, nesting. These birds will be temporarily displaced by the

construction activities required for this portion of the project. The Port of Belledune continues to implement an annual Canadian Wildlife Service permit for nuisance bird removal (including nests and eggs) which includes the areas to be affected by construction activities, as an additional level of mitigation.

5.1.10 Breakwater Bird Survey

The breakwater will be included in the bird survey to rule out the potential of the breakwater as potential nesting habitat for the black guillemot and other migratory birds. If potential habitat or old nests are discovered, additional mitigation will be proposed, in addition to the current Port`s nuisance bird program.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on migratory birds.

5.2 Species at Risk

The proponent understands and commits to complying with the provisions of the Canada Species at Risk Act, the New Brunswick Species at Risk Act, and all associated legislation during the construction and operation of the project, and commits to the following mitigation measures to avoid impacting Species at Risk:

5.2.1 Flora - Survey

CTI has commissioned a rare plant study for the project properties to determine if any species at risk (flora) may be impacted by the proposed project. The study will be carried out by a qualified biologist in July and species-specific mitigation may be required, depending on the results of the survey. This could include re-locating portions of the project (such as re-aligning the pipeline ROW) to avoid impacting these species. The survey will be submitted to the DELG for review and approval once complete.

5.2.2 Minimal Footprint

To minimize potential long-term impacts to rare plants and potential rare plant habitat, the footprint of the project has been designed to be kept to the minimal area possible. This includes maintaining as much woodland as possible on the tank farm property and keeping the pipeline ROW as narrow as possible.

5.2.3 Environmental Management Plan – Employee Education

The site-specific Environmental Management Plan (EMP) will include a chapter on rare plants, the provisions of Species at Risk legislation and protocols to follow in the event construction or operation of the project may potentially interact with these plants. A copy of the EMP will be kept on site for consultation by workers, and all workers will be provided training on this protocol prior to initiation of construction and operation activities.

5.2.4 Rare Plant Re-Location

Although considered unlikely based on the topography and vegetation of the project footprint (and further to the results of the rare plant survey), should any species of rare plant be encountered during the construction or operation phases of the project, DNR and EC will be consulted to determine the best approach for protecting the species, and mitigation (or compensation, if necessary) will be developed in coordination with these regulatory agencies.

5.2.5 Rare Plant Location Confidentiality

Where appropriate and subject to the recommendation of a qualified biologist or the federal and/or provincial authorities, the discovery and specific location of a rare plant will be kept confidential. This will add an additional level of protection from members of the public entering the project area to observe these plants and accidentally harming or destroying them, in addition to maintaining restricted site access (security fence and gates).

5.2.6 Fauna – Lynx

During a site visit on February 26th, field staff did not discover any potential lynx tracks. Based on the topography of the project footprint and vegetation cover, the site is not anticipated to be suitable habitat for the lynx. However, during the bird and mammal study, any signs of Canada Lynx will be identified and geo-referenced within the project footprint by a qualified biologist and photographed for confirmation with DNR. Species-specific mitigation will be developed based on the results of this survey, if required.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on Species at Risk (flora, fauna).

5.3 Marine Fish Habitat

5.3.1 Fish Habitat Assessment

CTI will obtain a copy of the recently commissioned fish habitat study for the dredging and breakwater expansion area, to determine how much, if any, of the area is fish habitat and if the proposed activities will impact it. If the study is not available, CTI will commission a fish habitat study when weather conditions permit, and prior to dredging. Based on the results of the fish habitat assessment, CTI will provide fish habitat compensation as necessary.

5.3.2 Minimal Footprint

In addition to the fish habitat assessment, dredging and breakwater expansion will be designed to as minimal a footprint as possible.

5.3.3 Wharf Secondary Containment

In addition to existing loading and unloading protocols at the Port, a secondary containment berm will be constructed for the area of Terminal 2 proposed for this project. Improved containment is typically required for persistent petroleum products and will present an additional level of spill prevention/mitigation at the Port. This secondary containment will be designed subject to federal and provincial legislative requirements.

Summary

Based on the mitigation and if necessary, compensation measures proposed above, the project is not anticipated to have permanent significant impacts on fish and fish habitat.

5.4 Mammals and Mammal Habitat

5.4.1 Survey

To identify individual mammal species found within the project footprint, the proponent has commissioned a field study by a qualified biologist. The field study will identify any sign of mammals on site by observing scat, tracks, trails, etc. The construction and operation of the project is anticipated to displace common mammals from the site due to clearing/loss of habitat. However, this is not anticipated to impact the local populations of these mammals, as they will relocate to adjacent wooded properties, or remain on the wooded portions of the project property.

5.4.2 Footprint Minimized

To minimize potential long-term impacts to mammals, the footprint of the project has been designed to be kept to a minimal area possible. This includes maintaining as much woodland as possible on the project's property and keeping the pipeline ROW as narrow as possible.

5.4.3 Security Fencing

In addition to the above mitigation, the site will be secured by a security perimeter fence, which will also deter large mammals from entering the project property.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on mammals and mammal habitat.

5.5 Groundwater Quality

5.5.1 Groundwater Monitoring Program

A groundwater monitoring program, including the installation of monitoring wells, will be required by the DELG Approval to Operate. The final design, parameters for analysis and frequency of sampling will be

finalized upon completion of the final engineering design of the project. However, based on similar projects in the area, monitoring wells will be required up-gradient of the site for baseline data, within the tank farm secondary containment area to detect leaks, and down-gradient of the site to detect and delineate groundwater impacts if a leak at the facility occurs.

5.5.2 Impacted Soil Remediation

The Belledune area soils are known to be contaminated *(Phase II Environmental Site Assessment – Renviro Park, Technisol Report 2008*) due to years of cumulative deposition from nearby industrial effluents. It is assumed, and to be confirmed by geotechnical investigations, that the project property will show similar contamination in the topsoil. As noted in the Technisol report, these soils will be analysed and managed in accordance with the most recent version of the New Brunswick *Guideline for the Management of Contaminated Sites* (July 2012).

5.5.3 Spill Prevention Protocols

The tank farm, pipeline, and Terminal 2, when connected to a loading or offloading marine vessel, are considered an OHF (oil handling facility) under the Canada Shipping Act 2001 and its regulations which are largely based upon IMO (International Maritime Organization) conventions. Under this legislation, OHFs are required to meet criteria for oil spill preparedness and response. This is in addition to requirements under the Clean Environment Act and other provincial legislation, and federal requirements under the Railway Safety Act as regulated by Transport Canada. Additionally, an OIL POLLUTION EMERGENCY PLAN (OPEP) is usually required under CSA 2001 for the OHF.

Additional codes and standards include but are not limited to the ISGOTT (International Safety Guide on Tankers & Terminals), the ISM Code (IMO-mandated International Safety Management (ISM) Code for marine vessels), and ISPS Code (International Ship and Port Facility Security Code).

As part of the Emergency Management Plan for this project, CTI will develop Spill Prevention, Response and Reporting Protocols. These will be based on, and meet or exceed the standards noted above.

All spills during the construction and operation of the project shall be immediately reported to the Department of Environment and Local Government. Updated emergency contact lists and spill response equipment shall be maintained on site in good working order, and staff shall be trained in the use of such equipment.

All employees involved in these activities will receive specialized training in, and shall be responsible for knowing, company spill prevention and response protocols.

5.5.4 Secondary Containment

The proposed tank farm and rail unloading areas shall be underlain with secondary containment designed to prohibit the downward migration of any petroleum products from the tanks, rail cars or any other piece of equipment area through accidents or spills. Secondary containment will be engineered to meet the requirements of the *National Fire Code* and the Department of Environment and Local Government`s *Certificate of Approval to Construct.* Refer to Section 2.7.8 for more detailed description of the secondary containment system.

5.5.5 Rail Movement Protocols

The proposed rail offloading system will involve the movement of multiple trains and could involve up to 250 cars within the project's property at a time. As such, CTI has developed protocols for the movement of rail cars and vehicles within the project property intended to minimize the chances of a collision and therefore spills of petroleum products. Cars will travel at speeds of less than 10 km/hour and shall adhere to all signals within the project's property. The Rail Movement Safety Procedure will be included in the EMP.

5.5.6 Construction Standards

All components of the project shall be designed and built to the highest possible standards, and shall adhere to all applicable federal and provincial regulatory requirements. All valves, hoses, tanks, etc. shall meet CSA or higher certification standards.

5.5.7 Automated Alarm Systems

All components of the project shall be equipped with an automated alarm system for the detection of petroleum leaks. This will include automatic shut-off valves and flow meters, and shall be designed and installed as per all applicable federal and provincial regulatory requirements. Final alarm system design and specifications will be included in the detailed engineering project design.

5.5.8 Flow Meters

To detect leaks specifically within the pipeline, flow meters shall be installed at each end of the proposed pipeline and connected to automatic shut-off valves, to monitor pipeline pressures and in the event of a leak, immediately shut down the transfer of product and isolate the leak. Final flow meter system design and specifications will be included in the detailed engineering project design.

5.5.9 Visual Inspections Schedule

As part of operations, all components of the project shall undergo daily visual inspections by qualified employees, and all leaks or spills shall be immediately reported. A log book of daily inspections shall be kept on site at all times and available to the regulators upon request. For a sample copy of an inspection sheet, please see Appendix H.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have any temporary or permanent impacts on groundwater.

5.6 Atmospheric Quality

5.6.1 Location of Project in Relation to Receptors

The project site was chosen due to its relative distance from residential receptors. Temporary air quality impacts may occur during construction of the project and during peak railcar movement times; however

these are expected to be localized within the project's property. Neighbouring properties contain industrial uses which also require heavy equipment, and are separate by treed buffers.

The nearest residential receptor is located approximately 1.7 kilometres to the northwest of the proposed project site, and is adjacent/upwind of the site, therefore air emissions are not anticipated to significantly impact this residential area. No residential receptors are located immediately downwind of the proposed project site.

Adjacent landowners and the nearest residential receptors will be made aware of the project and the potential temporary impacts, through the stakeholder engagement process.

5.6.2 Ongoing Air Quality Monitoring

Due to the historical industrial use of the Belledune area, the Department of Environment and Local Government regularly monitors ambient air quality in the vicinity of the project, including one monitoring station in close proximity to the nearest residential receptor. This monitoring will continue to detect air parameters associated with the operation of industrial facilities in the Belledune area. Should air quality monitoring identify impacts to air quality from the proposed project's, additional mitigation may be required in consultation with regulators.

5.6.3 Automated Air Quality Monitors

At present, NB DELG monitors general atmospheric (air quality) parameters at the nearest residential area, and reports on any exceedences in their annual NB Air Quality Report. Monitoring in recent years (2002-2010) has detected very few 1-hour objective exceedences (7 occurences) and 24-hour objective exceedences (2 occurrences) at nearby receptors.

In the unlikely event that air quality exceedences at these monitoring sites increase significantly, CTI will install air quality monitoring devices at its project site to determine the sources of these exceedences, and additional mitigation will be proposed at that time ("significant" increases to be determined in discussion with DELG Industrial Approvals Section).

5.6.4 Vapour Destruction System (Flare)

The proposed project will involve the transportation and movement of petroleum products, primarily heavy petroleum products, which will require heating of the product by steam, particularly in the winter months. Future phases of the project may also involve lighter petroleum products. Hydrocarbon vapours and VOC's may become airborne, and as such CTI will construct and operate a vapour management system, including a flare, to avoid and/or minimize this impact. This system will be designed and implemented as per all federal and provincial regulatory requirements.

5.6.5 Air Emissions from Rail Traffic

The proposed project will increase rail traffic along the main railway line, as well as the Belledune spur line at the project site. The engines required to move these trains are diesel-powered, and as such, diesel exhausts will increase when trains enter and depart the project site. Diesel exhaust levels will be included in fugitive emissions calculations for the facility (see 5.6.7), subject to the requirements of the DELG Approval to Operate, upon completion of the detailed engineering design.

5.6.6 Vessel Vapour Systems

The detailed design of the vessel vapour management system will be submitted upon completion. In general, there will be a requirement for a vapour management system to be located at Terminal #2 to manage fugitive petroleum air emissions generated as a result of loading and offloading product to and from vessels. Options include, but are not limited to, a destruction unit (enclosed flare) or a recovery unit, and will be included in the detailed engineering project design.

5.6.7 Fugitive Emissions Dispersion Modelling

The DELG Approval to Operate will require a fugitive emissions estimate and in some cases will also require an air dispersion model. As the detailed engineering design has not been completed for this project, it is not available at this time. However, air emissions estimates will be submitted for review and approval upon completion of the detailed design, as per DELG requirements.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on air quality.

5.7 Transportation

5.7.1 Increased Vehicle Traffic - Haul Route Planning

During the construction of the project, all vehicle traffic, particularly truck traffic travelling to and from the construction site, shall follow pre-planned haul routes to avoid impacting local traffic flow, particularly on connector and rural roads. Employees and contractors shall be informed of the haul route plan and advised to adhere to it at all times. Haul Route planning will also ensure that 'wear and tear' on connector and rural roads is avoided if possible and minimized where necessary.

All truck and heavy equipment travelling to and from the site during construction shall adhere to all applicable provincial transportation legislation (maximum speeds, weight restrictions, etc.).

The haul route plan will be included in the EMP.

5.7.2 DTI Permits

The Department of Transportation and Infrastructure reviews and issues authorizations for a variety of uses of provincial highways such as special transportation permits and highway access permits. This process, typically done as part of the EIA review, ensures that highway safety standards for transportation of goods and construction of project access roads are met. CTI has designed the site access to meet or exceed DTI's requirements, and will adhere to all DTI legislative standards and obtain the appropriate DTI approvals.

5.7.3 Blockage of Route 134

Operation of the project will result in increased rail traffic to the site, which may result in the temporary blockage of Route 134 at spur line crossing. This delay is estimated to last no longer than between 10 and 20 minutes per crossing. At peak operating levels, this will occur twice daily, once during the evening and once during the daytime.

The project site is located within the Belledune Industrial Park, at a location where local commuters can easily avoid delays on Route 134 by detouring to Route 11 via Turgeon Road to the east of the project, or by Jacquet River Drive to the west of the project site. Users of Route 134 will be made aware of this issue through the EIA stakeholder engagement process and will therefore be able to adapt to this change in traffic pattern.

It should also be noted that at present, sulphuric acid and petroleum products continue to be moved by rail on the spur line, and the project rail traffic is not anticipated to significantly increase use of this railway crossing above levels when the Xstrata (now Glencore) smelter accepted ore shipments from the mine.

5.7.4 Transport Canada and CN Permits

Transport Canada is responsible for regulating the safe operation of railways under the Railway Safety Act (RSA), and for regulating the transportation of dangerous goods under the Transportation of Dangerous Goods Act (TDGA) and Regulations. CTI commits to adhering to all requirements of this legislation and obtain all necessary permits or authorizations required under this legislation for the safe transport of petroleum products by rail.

In addition to the requirements of the Railway Safety Act, the national railway has reviewed and approved the technical aspects of the rail offloading portion of the project, to ensure that all safety and technical requirements are adhered to. Once final approval is granted, this national railway will provide CTI with the applicable Industrial Track Agreements - CTI has designed the rail system with this in mind and will meet all applicable requirements.

5.7.5 Existing Port Infrastructure

The Port of Belledune is an existing deep water port with shipping, berthing and navigation protocols in place, as per legislative requirements, including the Canada Marine Act and its *Port Authorities Operations Regulations*. These will ensure that all ships, including those proposed to load and offload petroleum as part of this project, meet all applicable environmental and safety requirements via "…a vigorous port state control regime…to investigate foreign-flagged vessels to ensure compliance and reduce substandard ships" (*The Effect of Port State Control on Substandard Shipping*, D. Anderson, 2002).

BPA has experience regarding the construction and operation of a petroleum storage facility and pipeline,

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on the transportation sector in New Brunswick.

5.8 Public Safety

5.8.1 Rail Transportation of Dangerous Goods

CTI recognizes that safe rail transportation of petroleum is not only important for their business model to be successful, but is also a concern to general public after recent events, notably train derailments and fires in Lac Mégantic, Quebec and Wapske, New Brunswick.

The Transportation Safety Board of Canada (TSBC) made three recommendations in the wake of the Lac Mégantic incident, which are:

1. The Department of Transport and the Pipeline and Hazardous Materials Safety Administration require that all Class 111 tank cars used to transport flammable liquids meet enhanced protection standards that significantly reduce the risk of product loss when these cars are involved in accidents (R14-01).
2. The Department of Transport set stringent criteria for the operation of trains carrying dangerous goods, and require railway companies to conduct route planning and analysis as well as perform periodic risk assessments to ensure that risk control measures work (R14-02).
3. The Department of Transport require emergency response assistance plans for the transportation of large volumes of liquid hydrocarbons (R14-03).

CTI commits to following the three recommendations of the TSBC. Please see Appendix I-1 and I-2 for the *Route Planning Risk Assessment* and *Emergency Response Assistance Plans*.

In addition to the 3 recommendations above, the Minister of Transport Canada, under his authority in Section 33 of the Railway Safety Act (RSA), issued an emergency directive and an Order under section 19 of the RSA, requiring some railway companies to adhere to the following:

1. Ensure that all unattended controlling locomotives on main track and sidings are protected from unauthorized entry into the cab of the locomotives;
2. Ensure that reversers are removed from any unattended locomotive on main track or sidings. During sub-zero temperatures, this item does not apply to locomotives that do not have a high idle feature;
3. Ensure that their company's special instructions on hand brakes referred to in Rule 112 of the *Canadian Rail Operating Rules* are applied when any locomotive coupled with one or more cars is left unattended for more than one hour on main track or sidings;
4. Ensure, when any locomotive coupled with one or more cars is left unattended for one hour or less on main track or sidings, that in addition to complying with their company's special instructions on hand brakes referred to in item 3 above, the locomotives have the automatic brake set in full service position and have the independent brake fully applied;
5. Ensure that no locomotive coupled with one or more loaded tank cars transporting "dangerous goods" as this expression is defined in section 2 of the *Transportation of Dangerous Goods Act* (TDGA) is left unattended on main track; and
6. Ensure that no locomotive coupled with one or more loaded tank cars transporting "dangerous goods" as this expression is defined in section 2 of the TDGA is operated on main track or sidings with fewer than two persons qualified under their company's requirements for operating employees.

CTI has committed to adhering to the above criteria, in addition to Rule 112 and all other rules of the *Canadian Rail Operating Rules* (refer to Appendix N for Rule 112).

Furthermore, CTI adheres to the Canadian Rail Operating Rules – Railways Association of Canada (http://www.railcan.ca/assets/images/regulations/rules/CANADIAN_RAIL_OPERATING_RULES_ENGLISH__TC_O_0-167.pdf).

5.8.2 Rail Line Maintenance and Design

The existing CN railway line within New Brunswick consists of the CN mainline, which crosses into NB from Matapedia, PQ and proceeds east and south along the south shore of the Restigouche River. Upon meeting the spur line at Belledune, trains will turn north and enter the project's property for offloading. CN undertakes regular inspection and maintenance of their rail lines and ROW's as per the requirements of Transport Canada legislation. Additionally, the rail use proposed for this project, namely the transport of petroleum product trains up to 125 cars in length, is an approved use for the CN main line design.

Finally, CN will ensure that all new rail infrastructure proposed for this project will meet all applicable engineering and safety standards.

5.8.3 Vehicle/Train Interaction at Route 134

The existing CN spur line crossing of Route 134, adjacent to the subject property, meets all DTI and TSBC signage and safety requirements (refer to photos, Appendix K).

5.8.4 Workplace Safety

CTI shall develop a workplace safety manual specific to this project, and shall ensure that all workers on site are familiar with the protocols in the manual (refer to the Environmental Management Plan) and that a copy of the manual is kept on site for quick reference. The manual shall include, but not be limited to, the following safety protocols:

- Public access to the site shall be restricted at all times to prevent unforeseen accidents. A security fence shall be installed around the perimeter of the tank farm property, and security gates will be installed at the tank farm property and at the pipeline road, to prevent the general public from entering the work site. Signage will be erected notifying all visitors and workers to the site of the requirement to have the proper safety equipment on site and in use at all times.

- All contractors working on site shall ensure that equipment is maintained and in good working order, and that employees are aware of and using appropriate safety equipment.

- All required health and safety equipment will be kept on site and in good working order, including a First Aid Station and any other necessary health and safety equipment.

- All workers on site shall be properly trained and insured as per the requirements of WorkSafe NB and the Occupational Health and Safety Act (OHSA).

- All accidents shall be reported to WorkSafe NB and where necessary, protocols developed to avoid future, similar occurrences.

- Only employees properly skilled and trained shall be employed in the construction, operation and maintenance of the project. All appropriate employee certification shall be maintained in good standing.

- Only a qualified and insured dredging contractor shall be contracted to complete the dredging work at the port.

5.8.5 Ship and Port Safety and Security

The Belledune Port Authority, being a duly constituted Canada Port Authority pursuant to the Canada Marine Act under letters patent as issued on March 20th, 2000 by then federal Minister of Transport, the Honourable David Collenette, legislatively administers the Port of Belledune operationally through its *'Port Authorities Operations Regulations'*. These regulations along with Port of Belledune's 'Code of Practices and Procedures', both as amended from time to time, are meant to ensure that all vessels and persons entering port waters and properties of the Port of Belledune meet all applicable international, federal, and provincial maritime safety and security requirements and rules and obey and adhere to such legislation while within. The Belledune Port Authority will continue to carry out its role of administration and oversight pursuant to the above regulations, codes, and practices and procedures for vessels, terminal operators, and others when same are present and loading, unloading, or transporting their cargoes in, at, on, under, or within its marine terminal facilities, waterlots, and properties including petroleum products and other goods or commodities associated with the project itself.

Summary

Based on the mitigation measures proposed above, the project is not anticipated to have permanent significant impacts on public safety.

5.9 Labour and Economy

The project is expected to have a positive net impact to the local and provincial economy. It is anticipated that between 250 and 300 temporary construction jobs will be created for the duration of the construction of the project, and 30 permanent, full-time jobs will be created for the operation and maintenance of the project. This will also create a positive economic spin-off for the area, particularly during the construction but also throughout the life of the project.

Operation of this project will require the long-term use of the CN mainline, and will thereby help to ensure that it remains a transportation corridor for northern New Brunswick.

As stated before, CTI wishes to actively support the community in which it operates.

MITIGATION SUMMARY

No significant residual adverse environmental impacts are anticipated for the Belledune Rail Terminal and Transfer System. This is based on the available information of the existing conditions at the project site and surrounding area, the conceptual design of the project, CTI's commitment to meeting any and all federal, provincial and municipal legislative requirements, and the mitigation measures that are proposed to be implemented as part of the project. The recommended mitigation is based on the conceptual engineering project design, without the benefit

of field studies and investigations of the site. As the detailed engineering design and field work is completed, the environmental setting, project layout, and the potential impacts (and recommended mitigation) may be adapted to reflect this new information.

Any modifications to the recommended mitigation will be forwarded to the DELG for review and approval, as necessary.

6 PUBLIC INVOLVEMENT

The public involvement activities proposed for this project registration are being conducted as per the requirements of Appendix C of the Guide to Environmental Impact Assessment in New Brunswick (2012). The public involvement strategy will be submitted separately to the DELG Project Manager for approval, and a summary report outlining the strategy and its results will be submitted for review within 60 days of the date of registration.

7 APPROVAL OF THE UNDERTAKING

The following permits, approvals and authorizations are anticipated for the project to include but not be limited to:

7.1 Provincial

a) Building Permit – Regional Service Commission 2
b) Approvals to Construct and Operate – DELG
c) Petroleum Storage System Approvals – DELG
d) Domestic Septic System approval – Department of Health (DH)
e) Pipeline Act Authorization – NB Energy and Utilities Board (EUB)
f) Quarriable Substances Permit – Department of Energy and Mines (DEM)
g) Highway Usage Permit – DTI
h) Highway Access Permit – DTI
i) Certificate of Determination – DELG
j) New Brunswick Regulation 2006-2 under the Pipeline Act, 2005
k) New Brunswick Regulation 87-97 under the Clean Environment Act (O.C. 87-646).

7.2 Federal

a) Federal Fisheries Act – DFO
b) License to Transport Dangerous Goods – Transport Canada
c) License to Export Petroleum products – National Energy Board (NEB)
d) there may also be requirement for potential Oil Pollution Emergency Plan (OPEP) for the OHF as mentioned earlier, also there will be likelihood of Marine Facility Security Plan prepared and approved by Transport Canada for times when there is a ship/terminal interface whereby the vessel is subject to the *'Marine Transportation Security Regulations'* as would be Terminal 2 the marine facility, again both these are under Transport Canada through regs found under Canada Shipping Act 2001 and Marine Transportation Security ACT both as amended from time-to-time.

The following approvals may be required:

a) Provincial License of Occupation – Department of Natural Resources (DNR)
b) Approval to Dispose At Sea – Environment Canada
c) Navigable Waters Act Permit – Transport Canada

8 FUNDING

The Belledune Rail Terminal and Transfer System is a privately funded project.

APPENDIX A

Project Properties

PROPERTY IDENTIFICATION #	OWNER	PROJECT COMPONENT
20277901	CTI upon completion of sale	Tank farm and rail offloading system
20759313	Belledune Port Authority	Pipeline right-of-way
20616330	Canadian Port Corporation	Pipeline right-of-way
20444840	Glencore Canada Corp.	Pipeline right-of-way
20278339	Glencore Canada Corp.	Pipeline and port modifications
20616785	Canadian Port Corp.	Pipeline
20746368	Canadian Port Corp. and NB Power Corp.	Breakwater/pipeline/Terminal 2 Modifications
00000003	NB Transportation and Infrastructure	Shannon Street pipeline crossing
20445714	Canadian National Railway Inc.	CN spur line right-of-way crossing

APPENDIX B

Adjacent Property Ownership, Land Use

PROPERTY	PID #	OWNER	CURRENT LAND USE
A	20626958	NB Power Corp.	Electrical substation
B	20846325	Belledune Port Authority	Proposed site of Bennett soil treatment
C	20846317	Belledune Port Authority	Proposed site of Bennett soil treatment
D	20753919	Belledune Port Authority	Proposed Renviro Industrial Park
E	20784781	Belledune Port Authority	Proposed Renviro Industrial Park
F	20443149	Glencore Canada Corp.	Woodlot/slag pile
G	20627774	Belledune Port Authority	Parking lot
H	20616330	Canada Ports Corp.	Sand / gravel pit
I	20251864	[redacted]	Vacant lot
J	20252326	NB Power Corp.	Generating station
K	20444840	Glencore Canada Corp.	Feed stock storage area
M	20778973	Separation Technologies Canada Ltd.	Generating station
N	20616322	NB Power Corp.	Generating station
O	20616306	NB Power Corp.	Vacant/transmission lines
P	50228923	NB Power Corp.	Vacant land
Q	20693404	NB DNR/Envirem Organics Inc.	Soil Remediation facility
R	20756532	NB DNR/Northern Minerals Inc.	Quarry
S	20445078	NB DNR	Vacant land
T	20756540	NB DNR/Roy's Trucking and Landscaping Ltd.	Woodlot
U	20442851	Belledune Port Authority	Quarry
V	20445037	Belledune Port Authority	Quarry
W	20445870	Belledune Port Authority	Quarry
X	20445011	Glencore Canada Corp.	Quarry
Y	20251757	Belledune Port Authority	Vacant land
Z	20832465	Belledune Port Authority	Vacant land
AA	20252680	Glencore Canada Corp.	Smelter
BB	20278339	Glencore Canada Corp.	Port/Smelter
CC	20252144	Canada Ports Corp.	Oil tank farm

APPENDIX C

Canadian National Rail Inc. Industrial Track Agreement Template

APPENDIX D

Project-Related Documents

National Energy Board

Office national de l'énergie

Dear Applicant:

The National Energy Board has approved your application and has attached a copy of the authorization for your records.

In accordance with the *National Energy Board Export and Import Reporting Regulations*, for each month that the authorization is valid, authorization holders shall furnish to the Board a monthly filing in the Commodity Tracking System (CTS). Please note that nil returns must also be submitted.

Yours truly,

Sheri Young
Secretary of the Board

Attachment

Madame, Monsieur,

L'Office national de l'énergie a approuvé votre demande et vous trouverez, ci-joint, une copie de l'autorisation pour vos dossiers.

Aux termes du *Règlement de l'Office national de l'énergie sur les rapports relatifs aux exportations et aux importations*, tant que cette autorisation est en vigueur, ses détenteurs doivent déposer auprès de l'Office des rapports mensuels en utilisant le système de suivi des produits de base (SSP). Des rapports doivent être présentés même en l'absence d'exportations ou d'importations.

Veuillez agréer, Madame, Monsieur, mes salutations distinguées.

La secrétaire de l'Office,

Sheri Young

Pièce jointe

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Port of Belledune Authority

PHASE II ENVIRONMENTAL SITE ASSESSMENT

Renviro Park, Belledune, NB
PID 20753919, NBDELG File No.: 6515-1-0530

O/Ref: PO062079-931 November 8, 2006

TECHNISOL NB
23 BOOM LANE, UNIT B
ATHOLVILLE (NB) E3N 4E8
PHONE. : (506) 759-9678

Distribution: 3 copies, Mr. Wynford Goodman – Belledune Port Authority

2 copies, Technisol NB

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1.0 INTRODUCTION

Technisol NB, acting at the request of Mr. Wynford Goodman of the Port of Belledune Authority, has conducted a Phase II Environmental Site Assessment (ESA) at the Renviro Park (property identification number 20753919) located in Belledune, New Brunswick.

The Phase II ESA fieldwork was completed on October 17 and 27, 2006. A total of twenty-five (25) manual surface soil samples were collected. All soil samples were submitted for trace metals analysis including mercury. Three (3) soil samples were submitted for Polycyclic Aromatic Hydrocarbons (PAH) analysis. Two (2) additional Metal soil samples were collected for quality control and assurance (field duplicates).

The following report outlines the environmental fieldwork completed during the Phase II ESA. This report also includes a general site description and a summary of the selected soil analytical results. Finally, the report outlines our comments relative to the environmental conditions pertaining to the on-site soil quality and their possible effects on the surrounding properties.

1.1 Objectives

The objective of the Phase II ESA was to assess the potential of contamination resulting from past and/or current activities in the area.

The environmental site assessment performed in the course of this mandate included the following key elements:

- The collection of twenty-five (25) soil samples and two (2) field duplicated;
- The sample submissions for laboratory analysis for soils samples;
- The interpretation of analytical data;
- The completion of a technical report outlining the work performed on the site, the laboratory analysis results and our assessment of the environmental conditions of the site.

Please note that this report is subject to the guidelines detailed in the "Scope and Limitation" document included in Annex I.

1.2 Previous Studies

The following documents are part of the background information for the studied site:

- Phase II Environmental Site Assessment, Shannon Drive, (February 1, 2005), Technisol NB;
- NBELG documents for File No. 2671, 2672 and 6214, (Obtained through the Rights to Information Act);
- Geotechnical Study, New Administration Building, Ferry Road (June 20, 2002), Technisol NB;
- Overview of Environmental Management System (February, 2002), Noranda Brunswick Smelter;
- Environmental Screening and Site Assessment, New Access Road Construction Project (January 30, 2002), Technisol NB
- Environmental Surveillance of Clean-Up Operations, Former Belledune School (October 19, 2001), Technisol NB;
- Phase 2 Environmental Site Assessment, Former Belledune School and Community Hall (July 27, 2001), Technisol NB;
- Environmental Screening Pursuant to the Canada Port Authority Environmental Assessment Regulations – Installation of a Cathodic Protection System, Port of Belledune Authority, NB (2000), Jacques Whitford Environment Ltd;
- Environmental Impact Assessment, Construction of a General Cargo Terminal (1995), Canada Ports Corporation;
- Environmental Impact Assessment, Construction of a Coal Receiving Wharf (1989), Canada Ports Corporation.

2.0 SITE DESCRIPTION

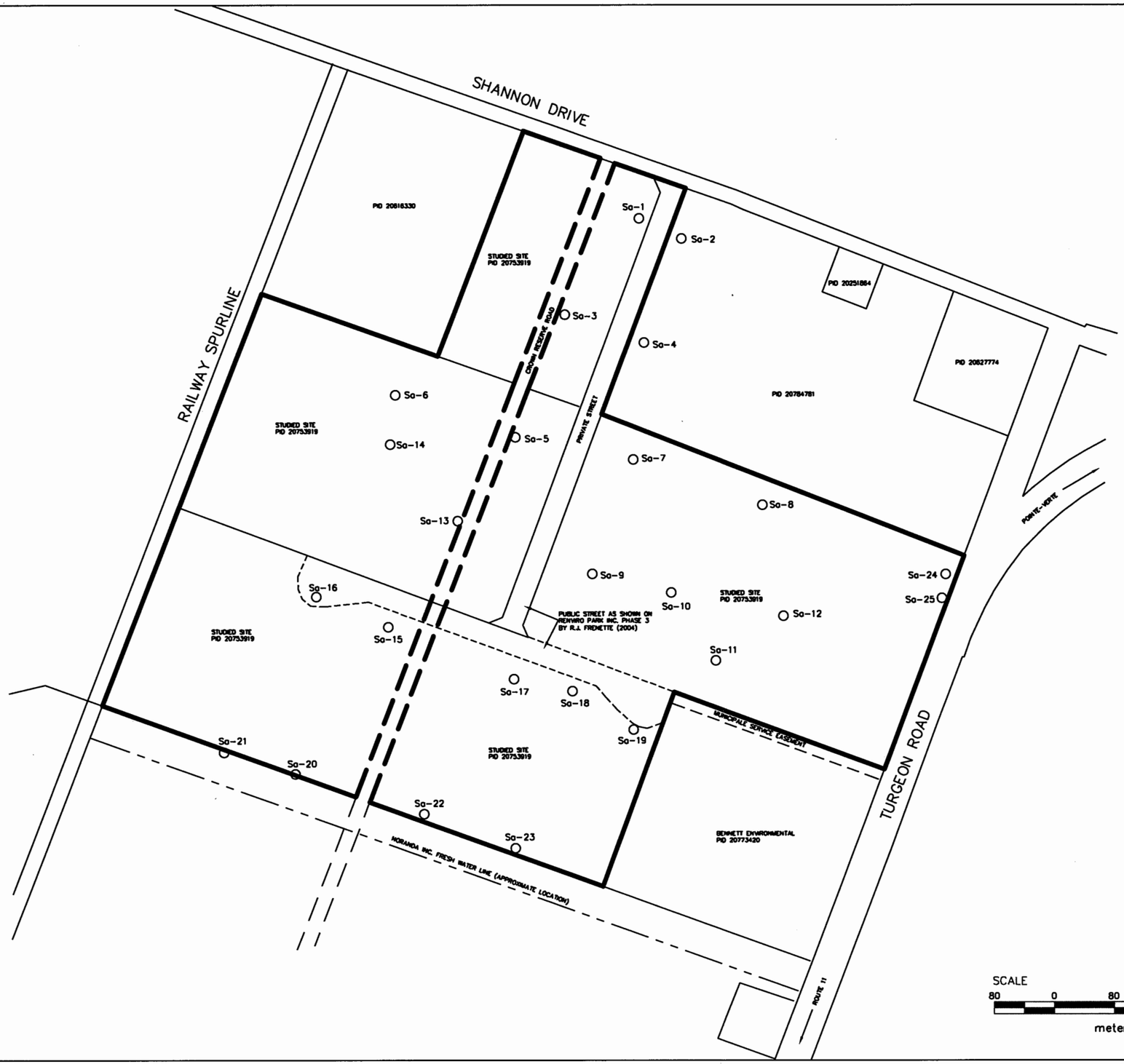
As per the Service New Brunswick Parcel Information sheet the total area of the PID 20753919 is approximately 56.21 hectares.

The studied site is located in an industrial sector surrounded by the NB Power thermal Plant to the west, the Port of Belledune to the north, the Noranda Bulk Handling and Smelting Operation to the northeast and Bennett Environmental to the south-east. Woodlands, wetlands and vegetated fields mainly cover the site. Route 134 borders the site to the east, Shannon Drive to the north and a railway to the west. Woodlands, wetlands and vegetated fields, borders the southern part of the studied site. Roadway and railway ditches border the site to the north, east and west.

The site's general surficial topography has a slight northern slope toward the Chaleur Bay. The water supply in this area is serviced by Noranda waterline and there are currently no municipal sewer services. Two domestic water wells are located to the north and north-east of the studied lot. These properties are identified as PID 20616330 (north) and 20251864 (north-east) and are currently vacant.

A title search was performed by the New Brunswick Department of the Environment and Local Government (NBELG) for PID 20753919 (Studied site) and 20773420 (Bennett Environmental) on September 27, 2006. The response indicated that there is no Ministerial Orders related to these PID's. PID 20773420 (Bennett Environmental) has two petroleum storage tanks registered with the Department under the Petroleum Product Storage and Handling Regulation for the property. These tanks were installed in 2004 and consist of two above ground double wall steel tanks with a capacity of 1130 L each for the storage of diesel. The NBDELG records indicate that there has been contamination found at Renviro Park Inc. (PID 20753919). The contamination consist of heavy metals. NBELG communication documents can be reviewed in Annex VII.

A Location Plan can be consulted in Figure 1.



CONFIDENTIAL DOCUMENT

TECHNISOL NB

325, DE L'ESPINAY, QUEBEC, QC, J4J — TEL. 647-1402
825, BOUL. GUIMOND, LONGUEUIL, J4G 1M1 — TEL. 646-2535
261, LAUSANNE, RIMOUSKI, QC, G5L 4A7 — TEL. 723-1144
23 BOOM, UNIT 5, ATHOLVILLE, E3B 4E8 — TEL. 756-9678

No.	REFERENCES	No.

No.	REVISIONS	Init.	Date

LEGEND

——— Approximate limits of lots

○ Sample location

REFERENCE: SUBDIVISION PLAN
SHOWING RENVIRO PARK INC.
SUBDIVISION (2006)
EAST COAST SURVEYS LTD.
FILE NO: 3573

CLIENT:

PORT OF BELLEDUNE AUTORITY

PROJECT:

PHASE II ESA

RENVIRO PARK (PID 20753919)
BELLEDUNE, NB

TITLE:

FIGURE 1

LOCATION PLAN

DRAWN BY:	DATE:	SEAL:
S. FRENETTE	2006-11-3	
VERIFIED BY: S. COMEAU	SCALE:	
APPROVED BY: S. COMEAU		

FILE:	SUB-PROJECT:	MOD.:	DRAW No.:	REV.:
NB06207 9	931	000	01	00

3.0 FIELDWORK

A Technisol NB representative completed the fieldwork on October 17 and 27, 2006. A total of twenty-five (25) surface soil samples (Sa-1 to Sa-25) were collected manually throughout the site. Duplicate samples were collected at locations Sa-1 (Sa-Duplicate-1) and Sa-5 (Sa-Duplicate-2) for quality control and assurance.

GPS coordinates for each sample locations were recorded during the fieldwork. Figure 1, Location Plan, illustrates the sample locations.

3.1 Sampling and laboratory analysis

Soil samples were collected in compliance with industry standard procedures. The sampling, transportation and preservation procedures followed during the sampling program are outlined in Annex IV. Soil samples were sent to the RPC Laboratory in Fredericton, New Brunswick for analysis.

3.1.1 Soils sampling procedures and analysis

A total of twenty-five (25) surface soil samples were collected during the fieldwork. Surface soil samples were collected from surface grade to approximately 0.15 meter bellow grade.

There were no visual petroleum product contamination for all collected soil samples. All soil samples (including field duplicates) were submitted for trace metals analysis including mercury. Three (3) soil samples (Sa-6, Sa-14 and Sa-24) were submitted for Polycyclic Aromatic Hydrocarbons (PAH) analysis.

3.1.2 Quality Assurance

A quality assurance program was followed by Technisol NB in order to verify the quality of the data presented by the laboratory. The quality assurance program included the analysis of two field duplicate samples identified Sa-Duplicate-1 and Sa-Duplicate-2 and correspond to the original soil samples Sa-1 and Sa-5 respectively. These samples were submitted for trace metals analysis including mercury. The results of the quality assurance program are presented in section 5.2

4.0 GEOLOGY AND HYDROLOGY

4.1 Geology

The nature and certain properties of the in situ soils were determined based on the field observations. The sample locations are generally composed of a layer of organic soils. Bedrock outcrops were noted near the location of Sa-8.

According to Ferguson (1985), the bedrock in this area generally consists of sandstone, siltstone, shale, minor conglomerate and limestone. According to Rampton (1984), the surficial geology in this area consists of blankets and plains of sand, silt, some gravel and clay; generally 0.5 to 3 m thick.

4.2 Hydrology and Hydrogeology

The surficial terrain of the studied site is mainly covered with organic soils and vegetation. Precipitation will tend to infiltrate through the site to the water table. Surface runoff due to precipitation and/or melting snow will generally follow the local topography, which is toward drainage ditches to the north, west and east of the site.

Based on the regional topography, the local groundwater table flows towards the northeast.

5.0 CHEMICAL ANALYSIS RESULTS

5.1 Soil quality

The trace metals and PAH analytical results for the submitted surface soil samples are outlined in Table 1 and Table 2 respectively with the corresponding applicable CCME guidelines (1999, revised 2006) for commercial and/or industrial property. Boxed values indicate non-conformities with CCME guidelines.

The analytical program for trace metals indicates that CCME guidelines for commercial and/or industrial land use were not met for the following parameters:

- Arsenic (Sa-1, Sa-2, Sa-4, Sa-6, Sa-10, Sa-12, Sa-14, Sa-16, Sa-18, Sa-21, Sa-22, Sa-24, Sa-25 and Sa-Duplicate-1);
- Cadmium (Sa-12 and Sa-25);
- Copper (Sa-12);
- Lead (Sa-1, Sa-2, Sa-3, Sa-4, Sa-10, Sa-12, Sa-18, Sa-21, Sa-22, Sa-24, Sa-25 and Sa-Duplicate-1);
- Selenium (Sa-12);
- Thallium (Sa-1, Sa-2, SA-3, Sa-4, Sa-5, Sa-6, Sa-7, Sa-8, Sa-9, Sa-10, Sa-11, Sa-12, Sa-14, Sa-18, Sa-19, Sa-20, Sa-21, Sa-22, Sa-24, Sa-25, Sa-Duplicate-1 and Sa-Duplicate-2);
- Zinc (Sa-1, Sa-3, Sa-12, Sa-15, Sa-18, Sa-21, Sa-25 and Sa-Duplicate-1).

The analytical program indicates that all PAH results for samples Sa-6, Sa-14 and Sa-24 meet the applicable guidelines for commercial and/or industrial land use.

The laboratory certificates are presented in Annex V.

5.2 Quality Assurance

As previously mentioned, the quality assurance program included the analysis for trace metals of two duplicate samples, Sa-Duplicate-1 and Sa-Duplicate-2 which correspond to the original soil samples Sa-1 and Sa-5 respectively. After examining the results of the chemical analysis, the concentrations obtained for the field duplicates are similar and fall within the same range of criteria. The results are presented in Tables 1 and 2 and a copy of the laboratory certificates is presented in Annex V.

5.3 Discussion

Renviro Park Inc currently owns the studied site. The Belledune Port Authority plans to acquire the studied site for industrial and/or commercial development.

Background information in the CCME guidelines indicates the following information for the parameters of concern:

- Arsenic occurs as a minor constituent in complex ores that are mined primarily for the copper, lead, zinc, silver and gold content;
- Cadmium is seldom found as a pure metal and is recovered from the fumes produced during the roasting of zinc ores and concentrates and from the precipitates obtained during the purification of zinc sulfate;
- Copper occurs in a wide range of mineral deposit types and copper concentrations in soil vary considerably with soil type. In general, copper concentrations in Canadian soil ranges from 2 to 100 mg/kg;
- Lead production from ore is often associated with zinc production as lead and zinc are frequently found together in nature. Ecosystems often becomes contaminated in areas where ore smelters are located;
- Selenium usually occurs in nature as selenides of heavy metals, in hydrothermal sulphides, and in uranium ores in sandstone-type deposits. Examples of major sources of selenium in the environment include copper refining operations, glass manufacturing, pigments, metallurgical activities, burning of coal and oil and agricultural applications;
- Thallium is recovered commercially as a by-product from sulphuric acid plants, cadmium refineries, and copper, zinc and lead smelters;
- Zinc sources in the environment include electroplaters, smelting and ore processors, mine drainage, domestic and industrial sewage, combustion of solid wastes and fossil fuels, road surface runoff, corrosion of zinc alloy and galvanized surfaces, and erosion of agricultural soils.

The most common parameters found during the sampling program are arsenic, lead, thallium and zinc. The most probable source of the contamination is the Noranda Smelter operations and the studied site is a third party receptor.

According to CCME, the soil quality guideline (SQG$_E$) for off-site migration in soils is 140 mg/kg for arsenic, 132 mg/kg for cadmium, 610 mg/kg for copper, 2272 mg/kg for lead,

11 mg/kg for selenium, 140 mg/kg for thallium and 1000 mg/kg for zinc. In general, concentrations noted in this report are lower than this guideline, except for concentrations of lead (2320 mg/kg) and zinc (1060 mg/kg) in sample Sa-12. Therefore the risk associated with migration of arsenic, cadmium, copper, lead, selenium, thallium and zinc from excavated soil is low.

In the sectors of the studied site that will be exploited for industrial and/or commercial use, we recommend to excavate the top layer materials (depth 0-150 mm). These materials are to be stored and managed in a designated area, and the New Brunswick Department of the Environment and Local Government should be advised. After excavation, further soil sampling will be required to confirm all soils exceeding requirements for heavy metals have be removed.

In order to prevent contact of excavated soils with ecological receptors (including wildlife and/or humans), we recommend that the designated storage area be at least 125 meters from any watercourse and to limit access to this area by way of a fence or other means.

6.0 CONCLUSION

Technisol NB, acting at the request of Mr. Wynford Goodman of the Port of Belledune Authority, has conducted a Phase II Environmental Site Assessment (ESA) at the Renviro Park (property identification number 20753919) located in Belledune, New Brunswick.

The objective of the Phase II ESA was to assess the potential of contamination resulting from past and/or current activities in the area.

The Phase II ESA fieldwork was completed on October 27, 2006. A total of twenty-five (25) manual surface soil samples were collected. All soil samples were submitted for trace metals analysis including mercury. Three (3) soil samples were submitted for Polycyclic Aromatic Hydrocarbons (PAH) analysis. Two (2) additional Metal soil samples were collected for quality control and assurance (field duplicates).

The most common parameters found during the sampling program that did not meet CCME guidelines are arsenic, lead, thallium and zinc. The most probable source of the contamination is the Noranda Smelter operations and the studied site is a third party receptor.

The analytical program indicates that all PAH results for samples Sa-6, Sa-14 and Sa-24 meet the applicable guidelines for commercial and/or industrial land use.

In the sectors of the studied site that will be exploited for industrial and/or commercial use, we recommend to excavate the top layer materials (depth 0-150 mm). These materials are to be stored and managed in a designated area, and the New Brunswick Department of the Environment and Local Government should be advised. After excavation, further soil sampling will be required to confirm all soils exceeding requirements for heavy metals have be removed.

In order to prevent contact of excavated soils with ecological receptors (including wildlife and/or humans), we recommend that the designated storage area be at least 125 meters from any watercourse and to limit access to this area by way of a fence or other means.

We would like to underline that this report reflects the specific conditions of the soil and groundwater that existed at the time of the field works at the investigated site.

TECHNISOL NB

Serge Frenette, MIT

Sylvain Comeau, M. A. Sc., P. Eng.
Manager

SF/sc/dl

TECHNISOL NB	23 Boom Road, Unit B Atholville NB, E3N 4E8	**Table 1: Trace Metals in Surface Soils [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**			
	Guidelines [1]		Sample ID		
	Land Use		Sa-1	Sa-2	Sa-3	Sa-4
Parameters (Units)	Commercial	Industrial	Oct-17-06	Oct-17-06	Oct-17-06	Oct-17-06
Aluminium (mg/kg)			10500	20000	2180	21500
Antimony (mg/kg)	40	40	8.9	3.9	4.9	1.2
Arsenic (mg/kg)	12	12	28	35	8	19
Barium (mg/kg)	2000	2000	51	57	184	125
Beryllium (mg/kg)	8	8	0.3	0.6	0.1	0.7
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			6	5	18	6
Cadmium (mg/kg)	22	22	16.2	9.1	16.5	10.4
Calcium (mg/kg)			6220	4060	47800	5700
Chromium (mg/kg)	87	87	28	36	4	36
Cobalt (mg/kg)	300	300	3.9	8.1	1.4	8.5
Copper (mg/kg)	91	91	90	75	27	26
Iron (mg/kg)			20800	27100	4650	26600
Lead (mg/kg)	260	600	2060.0	1620.0	384.0	400.0
Lithium (mg/kg)			9.9	20.0	0.7	27.4
Magnesium (mg/kg)			3280	6600	590	7060
Manganese (mg/kg)			148	415	217	443
Mercury (mg/kg)	24	50	0.45	0.28	0.17	0.11
Molybdenum (mg/kg)	40	40	1.3	1.0	0.9	0.4
Nickel (mg/kg)	50	50	13	26	4	25
Potassium (mg/kg)			1170	1390	180	1660
Rubidium (mg/kg)			14.2	20.8	1.0	24.6
Selenium (mg/kg)	3.9	3.9	1	< 1	1	< 1
Silver (mg/kg)	40	40	2.8	2.4	0.6	0.8
Sodium (mg/kg)			80	80	130	90
Strontium (mg/kg)			14	13	61	13
Tellurium (mg/kg)			0.7	0.6	0.3	0.3
Thallium (mg/kg)	1	1	9.3	5.2	3.6	2.9
Tin (mg/kg)	300	300	8	4	< 1	1
Uranium (mg/kg)			1.9	1.8	1.5	0.7
Vanadium (mg/kg)	130	130	63	64	12	64
Zinc (mg/kg)	360	360	407	322	616	207

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB	23 Boom Road, Unit B Atholville NB, E3N 4E8	**Table 1: Trace Metals in Surface Soils [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**			
	Guidelines [1]		Sample ID			
	Land Use		Sa-5	Sa-6	Sa-7	Sa-8
Parameters (Units)	Commercial	Industrial	Oct-17-06	Oct-17-06	Oct-17-06	Oct-17-06
Aluminium (mg/kg)			22500	22300	19500	3130
Antimony (mg/kg)	40	40	0.6	0.8	0.7	0.8
Arsenic (mg/kg)	12	12	12	18	12	8
Barium (mg/kg)	2000	2000	56	96	64	18
Beryllium (mg/kg)	8	8	0.7	1.1	0.6	< 0.1
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			5	7	6	6
Cadmium (mg/kg)	22	22	2.6	4.0	4.0	2.1
Calcium (mg/kg)			2600	16100	3140	1200
Chromium (mg/kg)	87	87	35	51	31	19
Cobalt (mg/kg)	300	300	10.0	16.0	8.2	0.8
Copper (mg/kg)	91	91	21	38	19	12
Iron (mg/kg)			30200	32400	29200	19100
Lead (mg/kg)	260	600	168.0	232.0	228.0	214.0
Lithium (mg/kg)			26.0	28.2	21.7	0.6
Magnesium (mg/kg)			7380	13200	5850	290
Manganese (mg/kg)			483	1300	484	47
Mercury (mg/kg)	24	50	0.07	0.12	0.07	0.06
Molybdenum (mg/kg)	40	40	0.5	0.7	0.6	0.3
Nickel (mg/kg)	50	50	27	43	22	2
Potassium (mg/kg)			1640	2140	1690	300
Rubidium (mg/kg)			21.6	15.5	23.6	2.8
Selenium (mg/kg)	3.9	3.9	< 1	< 1	< 1	< 1
Silver (mg/kg)	40	40	0.4	0.6	0.4	0.5
Sodium (mg/kg)			50	130	80	130
Strontium (mg/kg)			8	24	9	14
Tellurium (mg/kg)			0.1	0.3	0.2	0.1
Thallium (mg/kg)	1	1	1.1	1.1	1.3	2.1
Tin (mg/kg)	300	300	< 1	< 1	< 1	< 1
Uranium (mg/kg)			0.9	0.8	0.9	1.1
Vanadium (mg/kg)	130	130	65	84	63	52
Zinc (mg/kg)	360	360	126	175	139	41

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB	23 Boom Road, Unit B Atholville NB, E3N 4E8		**Table 1: Trace Metals in Surface Soils [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**			
	Guidelines [1]		Sample ID			
	Land Use		Sa-9	Sa-10	Sa-11	Sa-12
Parameters (Units)	Commercial	Industrial	Oct-27-06	Oct-17-06	Oct-17-06	Oct-17-06
Aluminium (mg/kg)			18600	19700	22300	10200
Antimony (mg/kg)	40	40	0.7	1.1	0.7	8.1
Arsenic (mg/kg)	12	12	12	14	11	54
Barium (mg/kg)	2000	2000	51	61	55	1180
Beryllium (mg/kg)	8	8	0.5	0.6	0.6	1.1
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			4	5	6	12
Cadmium (mg/kg)	22	22	4.7	5.8	2.5	50.5
Calcium (mg/kg)			1560	1960	2050	33300
Chromium (mg/kg)	87	87	33	35	42	19
Cobalt (mg/kg)	300	300	7.7	9.6	10.2	6.8
Copper (mg/kg)	91	91	18	25	18	92
Iron (mg/kg)			27000	28300	32400	32700
Lead (mg/kg)	260	600	210	365.0	127.0	2320.0
Lithium (mg/kg)			19.6	21.4	25.8	8.4
Magnesium (mg/kg)			5240	6760	7920	2610
Manganese (mg/kg)			564	942	361	13100
Mercury (mg/kg)	24	50	0.07	0.11	0.05	0.40
Molybdenum (mg/kg)	40	40	0.8	0.6	0.6	2.4
Nickel (mg/kg)	50	50	18	22	27	14
Potassium (mg/kg)			840	1390	1540	680
Rubidium (mg/kg)			19.0	22.8	23.0	7.8
Selenium (mg/kg)	3.9	3.9	1	< 1	< 1	5
Silver (mg/kg)	40	40	0.3	0.6	0.3	3.6
Sodium (mg/kg)			50	70	70	260
Strontium (mg/kg)			5	6	7	61
Tellurium (mg/kg)			0.2	0.2	< 0.1	1.0
Thallium (mg/kg)	1	1	1.6	2.6	1.1	7.7
Tin (mg/kg)	300	300	1	< 1	< 1	3
Uranium (mg/kg)			0.7	0.6	0.7	2.7
Vanadium (mg/kg)	130	130	60	64	76	68
Zinc (mg/kg)	360	360	116	148	93	1060

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB	23 Boom Road, Unit B Atholville NB, E3N 4E8		**Table 1: Trace Metals in Surface Soils [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**			
	Guidelines [1]		Sample ID			
	Land Use		Sa-13	Sa-14	Sa-15	Sa-16
Parameters (Units)	Commercial	Industrial	Oct-27-06	Oct-27-06	Oct-27-06	Oct-27-06
Aluminium (mg/kg)			35900	26800	11500	22400
Antimony (mg/kg)	40	40	0.6	0.7	0.7	0.6
Arsenic (mg/kg)	12	12	12	22	8	19
Barium (mg/kg)	2000	2000	50	60	42	67
Beryllium (mg/kg)	8	8	1.0	0.9	0.4	0.9
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			4	4	4	5
Cadmium (mg/kg)	22	22	2.4	4.2	2.4	1.6
Calcium (mg/kg)			3080	3140	1800	3900
Chromium (mg/kg)	87	87	48	54	22	45
Cobalt (mg/kg)	300	300	12.6	15.5	5.4	14.7
Copper (mg/kg)	91	91	36	30	29	30
Iron (mg/kg)			39100	33900	20700	33700
Lead (mg/kg)	260	600	139	178	197	172
Lithium (mg/kg)			47.4	31.1	10.5	30.6
Magnesium (mg/kg)			8330	14100	3500	10300
Manganese (mg/kg)			565	928	229	836
Mercury (mg/kg)	24	50	0.09	0.07	0.04	0.05
Molybdenum (mg/kg)	40	40	0.8	0.5	0.5	0.7
Nickel (mg/kg)	50	50	34	42	12	40
Potassium (mg/kg)			1220	1640	820	1810
Rubidium (mg/kg)			18.7	16.1	12.7	19.3
Selenium (mg/kg)	3.9	3.9	1	< 1	< 1	< 1
Silver (mg/kg)	40	40	0.5	0.3	0.4	0.3
Sodium (mg/kg)			< 50	< 50	< 50	< 50
Strontium (mg/kg)			7	10	6	10
Tellurium (mg/kg)			< 0.1	0.1	< 0.1	0.1
Thallium (mg/kg)	1	1	0.7	1.5	0.6	0.7
Tin (mg/kg)	300	300	2	1	2	2
Uranium (mg/kg)			0.8	0.9	0.5	0.9
Vanadium (mg/kg)	130	130	84	89	43	73
Zinc (mg/kg)	360	360	340	140	424	340

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB

23 Boom Road, Unit B
Atholville NB, E3N 4E8

Table 1: Trace Metals in Surface Soils [2]
Project: Port of Belledune Authority
Project No.: PO062079-931

Parameters (Units)	Guidelines [1] Land Use Commercial	Industrial	Sample ID Sa-17 Oct-27-06	Sa-18 Oct-27-06	Sa-19 Oct-27-06	Sa-20 Oct-27-06
Aluminium (mg/kg)			15600	4090	20000	23500
Antimony (mg/kg)	40	40	0.4	5.1	0.8	0.8
Arsenic (mg/kg)	12	12	8	46	11	12
Barium (mg/kg)	2000	2000	109	292	49	56
Beryllium (mg/kg)	8	8	1.2	0.5	0.5	0.6
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			6	9	5	5
Cadmium (mg/kg)	22	22	2.3	14.5	4.2	3.1
Calcium (mg/kg)			20300	30200	1450	2140
Chromium (mg/kg)	87	87	31	8	34	34
Cobalt (mg/kg)	300	300	10.3	4.8	6.7	9.7
Copper (mg/kg)	91	91	18	33	17	17
Iron (mg/kg)			21600	23400	31000	34300
Lead (mg/kg)	260	600	76.9	664	259	232
Lithium (mg/kg)			18.3	1.8	21.8	29.2
Magnesium (mg/kg)			7680	900	5740	6600
Manganese (mg/kg)			469	3830	315	275
Mercury (mg/kg)	24	50	0.11	0.24	0.08	0.07
Molybdenum (mg/kg)	40	40	0.5	2.3	0.6	0.6
Nickel (mg/kg)	50	50	30	8	17	26
Potassium (mg/kg)			1440	250	1140	1410
Rubidium (mg/kg)			10.0	2.0	22.6	20.5
Selenium (mg/kg)	3.9	3.9	1	2	< 1	< 1
Silver (mg/kg)	40	40	0.2	1.2	0.7	0.5
Sodium (mg/kg)			110	140	< 50	< 50
Strontium (mg/kg)			30	53	4	7
Tellurium (mg/kg)			0.1	0.5	0.2	0.2
Thallium (mg/kg)	1	1	0.6	4.9	1.6	1.3
Tin (mg/kg)	300	300	< 0.1	1	1	1
Uranium (mg/kg)			2.8	4.3	0.5	0.6
Vanadium (mg/kg)	130	130	59	49	69	69
Zinc (mg/kg)	360	360	116	413	90	140

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB

23 Boom Road, Unit B
Atholville NB, E3N 4E8

Table 1: Trace Metals in Surface Soils [2]
Project: Port of Belledune Authority
Project No.: PO062079-931

Parameters (Units)	Guidelines [1] Land Use Commercial	Industrial	Sample ID Sa-21 Oct-27-06	Sa-22 Oct-27-06	Sa-23 Oct-27-06	Sa-24 Oct-27-06
Aluminium (mg/kg)			19100	17100	25900	16800
Antimony (mg/kg)	40	40	1.1	1.7	0.3	1.4
Arsenic (mg/kg)	12	12	21	28	12	22
Barium (mg/kg)	2000	2000	100	125	60	178
Beryllium (mg/kg)	8	8	1.2	0.6	1.0	1.0
Bismuth (mg/kg)			< 50	< 50	< 50	< 50
Boron (mg/kg)			6	5	4	7
Cadmium (mg/kg)	22	22	6.4	5.8	1.7	11.7
Calcium (mg/kg)			5660	2770	2350	15700
Chromium (mg/kg)	87	87	41	26	43	36
Cobalt (mg/kg)	300	300	14.2	8.0	13.0	10.9
Copper (mg/kg)	91	91	55	34	20	37
Iron (mg/kg)			31100	24700	34000	26400
Lead (mg/kg)	260	600	444	697	91.6	547
Lithium (mg/kg)			26.2	18.5	30.4	20.2
Magnesium (mg/kg)			10600	4940	10000	9240
Manganese (mg/kg)			697	1070	714	776
Mercury (mg/kg)	24	50	0.09	0.43	0.06	0.19
Molybdenum (mg/kg)	40	40	0.6	0.7	0.5	0.6
Nickel (mg/kg)	50	50	42	21	37	31
Potassium (mg/kg)			2080	1350	1600	1590
Rubidium (mg/kg)			14.2	21.9	20.2	14.1
Selenium (mg/kg)	3.9	3.9	< 1	< 1	< 1	2
Silver (mg/kg)	40	40	0.7	1.0	0.2	0.9
Sodium (mg/kg)			100	110	< 50	100
Strontium (mg/kg)			12	8	10	25
Tellurium (mg/kg)			0.3	0.5	< 0.1	0.6
Thallium (mg/kg)	1	1	1.6	6.6	0.6	3.5
Tin (mg/kg)	300	300	3	2	< 0.1	2
Uranium (mg/kg)			0.6	0.6	0.7	1.4
Vanadium (mg/kg)	130	130	60	53	68	62
Zinc (mg/kg)	360	360	451	178	100	285

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB 23 Boom Road, Unit B Atholville NB, E3N 4E8			**Table 1: Trace Metals in Surface Soils [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**		
	Guidelines [1]		Sample ID		
	Land Use		Sa-25	Sa-Duplicate-1	Sa-Duplicate-2
Parameters (Units)	Commercial	Industrial	Oct-27-06	Oct-27-06	Oct-27-06
Aluminium (mg/kg)			2130	11600	22100
Antimony (mg/kg)	40	40	11.6	7.7	0.6
Arsenic (mg/kg)	12	12	65	28	12
Barium (mg/kg)	2000	2000	374	50	55
Beryllium (mg/kg)	8	8	0.4	0.3	0.7
Bismuth (mg/kg)			< 50	< 50	< 50
Boron (mg/kg)			12	6	5
Cadmium (mg/kg)	22	22	22.1	14.0	2.7
Calcium (mg/kg)			31500	5760	2520
Chromium (mg/kg)	87	87	6	29	37
Cobalt (mg/kg)	300	300	2.7	4.2	9.8
Copper (mg/kg)	91	91	78	80	23
Iron (mg/kg)			13400	21700	29800
Lead (mg/kg)	260	600	1840	1720.0	182.0
Lithium (mg/kg)			1.5	11.4	24.9
Magnesium (mg/kg)			920	3910	7180
Manganese (mg/kg)			3680	164	492
Mercury (mg/kg)	24	50	0.61	0.36	0.11
Molybdenum (mg/kg)	40	40	1.4	1.4	0.6
Nickel (mg/kg)	50	50	6	14	26
Potassium (mg/kg)			380	1210	1560
Rubidium (mg/kg)			2.7	14.0	21.4
Selenium (mg/kg)	3.9	3.9	3	< 1	< 1
Silver (mg/kg)	40	40	3.6	3.0	0.5
Sodium (mg/kg)			160	< 50	60
Strontium (mg/kg)			57	13	8
Tellurium (mg/kg)			1.6	0.7	0.1
Thallium (mg/kg)	1	1	7.7	8.0	1.2
Tin (mg/kg)	300	300	5	5	< 1
Uranium (mg/kg)			1.6	1.8	0.9
Vanadium (mg/kg)	130	130	23	61	63
Zinc (mg/kg)	360	360	504	368	130

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)

Note 2: See Analytical Reports for details on test procedure.

TECHNISOL NB	23 Boom Road, Unit B Atholville NB, E3N 4E8	**Table 2: PAH Analysis Results [2]** **Project: Port of Belledune Authority** **Project No.: PO062079-931**		
	Guidelines [1]		Sample ID		
	Land Use		Sa-6	Sa-14	Sa-24
Parameters (Units)	Commercial	Industrial	Oct-17-06	Oct-27-06	Oct-27-06
Naphtalene (mg/kg)	22	22	<0.01	<0.01	<.01
Acenaphthylene (mg/kg)			<0.01	<0.01	<0.01
Acenaphtene (mg/kg)			<0.01	<0.01	<0.01
Fluorene (mg/kg)			<0.01	<0.01	<0.01
Phenanthrene (mg/kg)	50	50	<0.01	0.01	<0.01
Anthracene (mg/kg)			<0.01	<0.01	<0.01
Fluoranthene (mg/kg)			<0.01	0.03	<0.01
Pyrene (mg/kg)	100	100	<0.01	0.03	<0.01
Benzo (a) anthracene (mg/kg)	10	10	<0.01	0.01	<0.01
Chrysene/Triphenylene (mg/kg)			<0.01	<0.01	<0.01
Benzo (b) fluoranthene (mg/kg)	10	10	<0.01	0.01	<0.01
Benzo (k) fluoranthene (mg/kg)	10	10	<0.01	0.01	<0.01
Benzo (e) pyrene (mg/kg)			<0.01	<0.01	<0.01
Benzo (a) pyrene (mg/kg)	0.7	0.7	<0.01	<0.01	<0.01
Indenopyrene (mg/kg)	10	10	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene (mg/kg)			<0.01	<0.01	<0.01
Dibenzo (a,h) anthracene (mg/kg)	10	10	<0.01	<0.01	<0.01

Note 1: CCME Canadian Environmental Quality Guidelines (1999, revised 2006)
Note 2: See Analytical Reports for details on test procedure.

ANNEX I

SCOPE AND LIMITATIONS

SCOPE AND LIMITATION OF AN ENVIRONMENTAL AUDIT

1.0 SOIL AND ROCK DESCRIPTION

The soil and rock descriptions presented in our reports are intended to provide general information about the subsurface conditions on the site under investigation. This information should in no way be considered as geotechnical data for design and/or construction purposes, unless such applications have been specified in the text of our reports.

Soil and rock characteristics are described using date collected from boreholes and/or test pits executed over a given period. Due to the natural variability of the subsurface, contacts between the different soil and rock formations indicated in our reports are often approximations and should thus be considered as transitional zones between formations rather than as fixed boundaries. The accuracy with which these contacts can be described depends on the type and number of exploratory boreholes and/or test pits executed, the frequency and method of sampling used and the uniformity of the subsurface at the site being investigated.

Overall descriptions of the contacts and characteristics of the different soil and/or rock strata encountered on the site are derived from the interpretation and correlation between test pits and/or boreholes, which can vary from point to point and between points tested.

2.0 GROUNDWATER CONDITIONS

The groundwater conditions described in our report apply only to the site under investigation. The accuracy and representatively of the condition described must be interpreted in considering the type instrumentation installed, the period of observation and the duration and number of measurements taken. Several factors can influence observed conditions, including period of precipitation, seasonal and, where applicable, tidal variations. Measurements can also be affected by construction or other activities carried out on or adjacent to the site being investigated.

3.0 DEGREE OF CONTAMINATION

The contaminant concentrations presented in our reports are determined from the results of the chemical analysis of selected parameters, and refer to the conditions on the date and at the location of the points sampled. The degree to which the site is contaminated is established by comparing the concentrations obtained with the MEF indicative criteria. The nature and degree of contamination which are presented can, however, vary between the points sampled. Variations can also arise due to seasonal changes of following activity on or adjacent, to the site being investigated.

4.0 CHANGES IN SITE CONDITIONS

If the on-site conditions differ considerably from those described in our reports, the client must inform TECHNISOL NB. of these conditions in order that we may, if necessary, revise the contents of our report.

5.0 USE OF REPORTS

All of the information, data, results, interpretation and recommendations presented in each of our reports refer solely to the specific project described in that report and are in no way to be applied to other projects or sites, even those adjacent to the site under investigation.

Further more, all information, data, results, interpretations and recommendations presented in our report are mainly based on field observations and on the data collected in the consulted documents at the time of the research.

Unless otherwise indicated, the data interpretation, comments, recommendations and conclusions contained in our reports are based, to the best of our knowledge, on the policies, regulations and environmental criteria in force and specifically applicable to the project. If these policies, regulations or criteria are modified or differ from those applied in our reports, TECHNISOL NB should be consulted in order to revise, if necessary, the content of the report or reports concerned.

Where no policies, regulations or criteria are applicable to the data collected, the interpretation, comments, recommendations and conclusions presented in our reports are based, to the best of our knowledge, on accepted environmental and professional practices.

ANNEX II

SNB PARCEL INFORMATION

Service New Brunswick

Parcel Information

Services Nouveau-Brunswick

PID:	20753919	**County:**	Gloucester
Status:	Active	**Active Date/Time:**	2002-05-27 11:53:53
Land Related Description:	Land	**Management Unit:**	NB0428
Area:	56.21	**Area Unit:**	Hectares
Date Last Updated:	2005-06-15 09:19:12	**Harmonization Status:**	Harmonized
Land Titles Status:	Land Titles	**Land Titles Date/Time:**	2003-01-03 13:47:26
Date of Last CRO:	2006-03-30 14:28:17	**Manner of Tenure:**	Not Applicable
Land Gazette Information:	YES		
Description of Tenure:			
Public Comments:			

Parcel Interest Holders

Owner	Qualifier	Interest Type
Renviro Park Inc.		Owner

Assessment Reference

PAN	PAN Type	Taxing Authority Code	Taxing Authority
5649778		910	Village of/Village de Belledune

Parcel Locations

Civic Number	Street Name	Street Type	Street Direction	Place Name
	134	Route		Belledune

County Parish

County	Parish
Gloucester	Beresford

Documents

Number	Registration Date	Book	Page	Code	Description
19694661	2004-12-31			5100	Mortgage
16054182	2003-04-07			1100	Deed/Transfer
15638100	2003-01-03			3800	Land Titles First Notice
15638092	2003-01-03			3720	Land Titles First Order
15637946	2003-01-03			3900	Land Titles First Application
276061	1996-02-12	1898	406	118	Change of Name

Plans

Number	Suffix	Registation Date	Code	Description	Lot Information	Orientation
20365236		2005-06-03	9050	Subdivision & Amalgamations		Provincial Grid
17946113		2004-02-25	9050	Subdivision & Amalgamations		Provincial Grid
14239173		2002-05-27	9050	Subdivision & Amalgamations	Lot 2002-1	Provincial Grid

Parcel Relations

Related PID	Type Of Relation	Lot Information
20277901	Parent	
20277919	Parent	
20773420	Infant	Lot 2003-2
20784781	Infant	Lot 2005-1

Non-Registered Instruments

No Records Returned

Map Scale / Échelle cartographique 1 : 15000

While this map may not be free from error or omission, care has been taken to ensure the best possible quality. This map is a graphical representation of property boundaries which approximates the size, configuration and location of properties. It is not a survey and is not intended to be used for legal descriptions or to calculate exact dimensions or area.

Même si cette carte n'est peut-être pas libre de toute erreur ou omission, toutes les précautions ont été prises pour en assurer la meilleure qualité possible. Cette carte est une représentation graphique approximative des terrains (limites, dimensions, configuration et emplacement). Elle n'a aucun caractère officiel et ne doit donc pas servir à la rédaction de la description officielle d'un terrain ni au calcul de ses dimensions exactes ou de sa superficie.

ANNEX III

NBDELG DOCUMENTS

September 27, 2006
File No.: 205-02-R1

New Nouveau Brunswick
CANADA

Technisol NB
23 Boom Rd.
Atholville, NB
E3N 4E8
Attention: Sylvain Comeau
Your file ref#: 9920-931-244

FAXED 2006/09/27

RE: **Owner:** **Renviro Park Inc.**
Location: **Route 134, Belldune**
PID #s: **20753919**

In response to your request for information regarding the above noted properties, please be advised that a search of departmental electronic databases has been conducted *with the information provided*, and the following information was found.

There is no record of Ministerial Orders or Remediation Orders related to this PID number.

Our records indicate that there are no petroleum storage tanks registered with the Department, under the Petroleum Product Storage and Handling Regulation, for these PID numbers.

Our records indicate that there has been contamination found at **Route 134, Belldune, Renviro Park Inc. (PID#20753919)**. See attached information report.

This PID number is not registered with the Department as PCB Storage sites.

We have no records of landfill sites located near these PID numbers.

The absence of departmental records in this search does not necessarily indicate that the sites have not been subject to environmental incidents. The information is accurate in that it provides a factual reflection of what is contained in departmental databases. The files themselves may or may not be complete. As an example, in the case of underground petroleum storage tanks, the files accurately reflect all those that were registered with the program; there may be underground storage tanks that were not registered and of which the Department has no knowledge. Likewise, there may be incidents of spills of which the Department was not informed or which pre-date Departmental records. The "Remediation Site Management System" was recently established and does not contain a complete history of past spills or remediation efforts. Furthermore, if the properties have been recently subdivided, the PID #s provided may not correspond with those contained in departmental files and thus on the databases.

Any persons intending to purchase or occupy the property should make their own independent determination of the environmental condition of the property and the extent of responsibility and liability, if any, that may arise from taking ownership or occupancy.

Remediation Branch- Environmental Management Division

Enclosures: 1

/ta

ENV Remediation Sites Management System Information Report

File #:	6515-1-0530
Parcel Identifier (PID)	20753919
Site Name	Renviro Park Inc.
Civic Address	Route 134, Belledune
Site Management File Opened	June 09, 2004
Contamination Type	Heavy Metals
Site Management File Status	Open
	Remedial Action Pending
Party Responsible for Remediation	Unknown
Consultant	Jacques Whitford Environment Ltd

Order(s) Specific to Remediation Issued No **Issued:** **Rescinded:**

A translated version of this report is available on request. Please contact:	***Une version traduite de ce rapport est disponible sur demande. S'il vous plaît contacter:***
Tracey Arsenault *20 McGloin St.* *Fredericton, NB* *E3C 5T8* *Phone: (506) 462-5936* *Fax: (506) 457-7333* *E-mail: Tracey.Arsenault@gnb.ca*	*Tracey Arsenault* *20, rue McGloin* *Fredericton, NB* *E3C 5T8* *Téléphone: (506) 462-5936* *Télécopieur: (506) 457-7333* *Courriel: Tracey.Arsenault@gnb.ca*

Environment and Local Government
Environnement et Gouvernements locaux

September 27, 2006
File No.: 205-02-R1

New Nouveau Brunswick
CANADA

Technisol NB
23 Boom Rd.
Atholville, NB
E3N 4E8
Attention: Sylvain Comeau
Your file ref#: 9920-931-244

FAXED 20061027

RE: **Owner:** **Renviro Park Inc.**
Location: **Route 134, Belldune**
PID #s: **20773420**

In response to your request for information regarding the above noted properties, please be advised that a search of departmental electronic databases has been conducted *with the information provided*, and the following information was found.

There is no record of Ministerial Orders or Remediation Orders related to this PID number.

Petroleum storage tank information related to **PID # 20773420** is attached. These tanks have been registered with the Department, under the Petroleum Product Storage and Handling Regulation.

Our records indicate that there has been 3rd party contamination found at **Main St., Belldune, Renviro Park Inc. (PID#20773420)**. See attached information report.

This PID number is not registered with the Department as PCB Storage sites.

We have no records of landfill sites located near these PID numbers.

The absence of departmental records in this search does not necessarily indicate that the sites have not been subject to environmental incidents. The information is accurate in that it provides a factual reflection of what is contained in departmental databases. The files themselves may or may not be complete. As an example, in the case of underground petroleum storage tanks, the files accurately reflect all those that were registered with the program; there may be underground storage tanks that were not registered and of which the Department has no knowledge. Likewise, there may be incidents of spills of which the Department was not informed or which pre-date Departmental records. The "Remediation Site Management System" was recently established and does not contain a complete history of past spills or remediation efforts. Furthermore, if the properties have been recently subdivided, the PID #s provided may not correspond with those contained in departmental files and thus on the databases.

Any persons intending to purchase or occupy the property should make their own independent determination of the environmental condition of the property and the extent of responsibility and liability, if any, that may arise from taking ownership or occupancy.

Remediation Branch- Environmental Management Division

Enclosures: 2

/ta

P.O. Box 6000
Fredericton
New Brunswick
Canada E3B 5H1

Case postale 6000
Fredericton
Nouveau-Brunswick
Canada E3B 5H1

PETROLEUM STORAGE TANK INFORMATION

PID # 20773420 **SITE #: 7651** **ADDRESS: Bennett Environmental NB Inc.**
20 Green Ln. Renviro Park
Belldune, NB

Tank Information:

CURRENT STATUS:	Active	**CURRENT STATUS:**	Active
DATE OUT OF SERVICE:	N/A	**DATE OUT OF SERVICE:**	N/A
INSTALLATION DATE:	2004	**INSTALLATION DATE:**	2004
TANK SIZE:	1130 L	**TANK SIZE:**	1130 L
SUBSTANCE STORED:	Diesel	**SUBSTANCE STORED:**	Diesel
LOCATION:	Above Ground	**LOCATION:**	Above Ground
CONSTRUCTED OF:	Double Wall Steel	**CONSTRUCTED OF:**	Double Wall Steel

ENV Remediation Sites Management System Information Report

Property Identification Number (PID #) 20773420

Site Name Renviro Park Inc.

Civic Address Main St., Belledune

The above-noted property has been registered as a third party property in association with the release of a contaminant on an adjacent property. Information relevant to the remediation of contamination caused by the release and the status of the ENV Site Management File is as follows:

INFORMATION REPORT

File #:	6515-1-0530
Parcel Identifier (PID)	20753919
Site Name	Renviro Park Inc.
Civic Address	Route 134, Belledune
Site Management File Opened	June 09, 2004
Contamination Type	Heavy Metals
Site Management File Status	Open Remedial Action Pending
Party Responsible for Remediation	Unknown
Consultant	Jacques Whitford Environment Ltd

Order(s) Specific to Remediation Issued No **Issued:** **Rescinded:**

A translated version of this report is available on request. Please contact:	***Une version traduite de ce rapport est disponible sur demande. S'il vous plaît contacter:***
Tracey Arsenault *20 McGloin St.* *Fredericton, NB* *E3C 5T8* *Phone: (506) 462-5936* *Fax: (506) 457-7333* *E-mail: Tracey.Arsenault@gnb.ca*	*Tracey Arsenault* *20, rue McGloin* *Fredericton, NB* *E3C 5T8* *Téléphone: (506) 462-5936* *Télécopieur: (506) 457-7333* *Courriel: Tracey.Arsenault@gnb.ca*

ANNEX IV

SAMPLING, TRANSPORTATION AND PRESERVATION PROCEDURES

TECHNISOL NB

SAMPLING, TRANSPORTATION AND PRESERVATION PROCEDURES FOR SAMPLES

All sampling, transportation and preservation procedures for soil and water samples collected by Groupe Conseil TS inc. are subjected to a rigorous control policy. These procedures comply with norms recommended, among others, by the *ministère de l'Environnement et de la Faune du Québec* and are briefly presented below.

1.0 SAMPLING PROCEDURES

1.1 Soils

Soil samples are collected using the appropriate sampling instruments (shovels, trowels, split spoon, augers, etc.) which are cleaned between each sampling according to the procedure indicated in section 2.0.

Each sample is placed in a glass jar with a capacity varying between 50 and 500 ml, depending on the parameters of analyses. The glass jars are filled to full capacity (with no head space) and are equipped with a cover made of an aluminium or Teflon sheet.

When quantities of available soils allow it, and when the substances to be found are hydrocarbons, duplicate soil samples are taken, using the methodology described in section 3.0, to measure the hydrocarbon vapour concentrations.

1.2 Water

When collecting water samples from an observation well, the well is drained before taking the sample in order to ensure that the sample is representative of groundwater. In cases when the groundwater is in a permeable layer, the draining method consists in purging at least three times the volume of standing water in the observation well and sand filter (considering its porosity.) If the groundwater is located in a low permeable layer, which does not allow for such a volume of water to be extracted, the well is then drained of at least one time its volume of standing water. When possible, the quantity of water extracted from the well should be sufficient to allow the stabilisation of physico-chemical parameters in the water (such as pH level, electrical conductivity and temperature.)

Water samples are collected using either a bailer or Waterra-type manual pumps. If a reusable valve sampler is used, it is cleaned between each sampling according to the procedure indicated in section 2.0.

Appropriate containers are used for each of the samples collected, depending on the analytical parameters. Water samples are placed in a container with a capacity of 1,000 ml if the analytical parameters are petroleum hydrocarbons C_{10}-C_{50}. If the identified parameters are volatile aromatic hydrocarbons or any other type of analysis by GS/MS, the samples are placed in a 40 ml vial.

If free phase hydrocarbons are detected at the surface of the groundwater, the samples will not be collected. In this case, the thickness of the hydrocarbon free phase is measured using an however, interface probe or a bailer with an adapter.

1.3 Free phase products

Free phase products can be sampled, if required and if there is a sufficient quantity at the surface of the well, using a dedicated bailer or an appropriate pump. The freephase sample collected is then placed in a glass jar.

2.0 CLEANING PROCEDURES FOR SAMPLING INSTRUMENTS

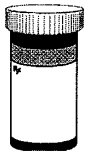
When they are not assigned to any particular sampling station, all sampling instruments are cleansed and rinsed according to the rigorous procedure dictated by the *ministère de l'Environnement et de la Faune du Québec (MEF)* in the Guide d'échantillonage à des fins d'analyses environnementales (cahier 1) 1994, Envirodoq env 9440112.

2.1 First step

The first step in decontamination of instruments consists in: rinsing in warm water to remove most of the residues, scrubbing surfaces with warm water and a phosphate-free detergent, three rinsing in warm tap water to remove all traces of detergent, two rinsing in purified water.

2.2 Second step

For the analysis of parameters in traces, a second cleansing procedure may be required. This procedure must be rigorously followed and is specific to the parameters being analysed. Procedure « A » is suited for all types of analyses; procedure « B » is used only in organic chemical analyses and procedure « C » for inorganic chemical analyses. In all three cases, the rinsing sequence must be respected.



A. <u>All types of analyses</u>

A first rinsing in 10% nitric acid (HNO_3), three rinsing in purified water, one rinsing in acetone, two rinsing in hexane, another rinsing in acetone, then a final and abundant rinsing in purified water in order to remove all traces of acetone. The instrument is then dripped dry.

B. <u>Organic chemical analyses only</u>

A first rinsing in acetone, two rinsing in hexane, another acetone rinsing, then a final and abundant rinsing in purified water in order to remove all traces of acetone. The instrument is then dripped dry.

C. <u>Inorganic chemical analyses only</u>

A first rinsing in nitric acid (HNO_3) then an abundant rinsing in purified water in order to remove all traces of nitric acid. The instrument is then dripped dry.

3.0 MEASURING HYDROCARBON VAPOURS CONCENTRATIONS FROM SOIL SAMPLES

Hydrocarbon vapours emanating from soil samples are measured with a calibrated and portable multi-gas detector hydrocarbon vapour analyser (EAGLE model) or a similar instrument presenting a 10 ppm detection limit. Hydrocarbon vapour concentrations exceeding 500 ppm are expressed in percentage of the lower explosiveness limit (LEL).

The sample to be submitted for hydrocarbon reading is placed in a 250 ml or 500 ml container in order to ensure that half the container is filled with non-packed soil. The container is then covered with a sheet of aluminium or Teflon before the lid is screwed on. Whenever possible, the sample is kept in a warm place for 15 minutes before the vapour concentrations accumulated in the head space are measured. In other cases, the containers are kept warm and the hydrocarbon vapour readings are taken at the end of the day of sampling.

Values obtained from the hydrocarbon vapour readings are combined to visual observations made on the site and are used to help guiding our selection of samples to be sent to the laboratory for chemical analyses. In some cases, these readings are observations that can be helpful to determinate the vertical extent of the contamination and the location of soundings.

4.0 QUALITY CONTROL OF SAMPLING PROCEDURES

In compliance with recommendations stipulated in Book 1 of the above-mentioned *Guide d'échantillonage du MEF*, at least 10 % of samples must have systematic duplicates.

Furthermore, field blank and transport samples must be prepared and analysed when appropriate. Preparation of these samples must comply with the procedure detailed in section 3.2 (Book 1) of the *Guide d'échantillonage*.

5.0 IDENTIFICATION, TRANSPORTATION AND PRESERVATION OF SAMPLES

All soil and water samples collected on the site are dully identified, stored in appropriate coolers and maintained at a temperature of approximately 4 °C from the time they are collected to the time they are delivered at the laboratory. Whenever possible, the samples are delivered to the laboratory, along with a dully completed delivery slip less than 24 hours after the completion of field work.

The soil and water samples that are not used for chemical analyses or hydrocarbon vapour readings are stored in the laboratory for at least one month after the date of collection. After that time, they are eliminated unless specific instructions are received from an authorized representative of the client to proceed otherwise.

ANNEX V

LABORATORY ANALYSIS AND CERTIFICATES

rpc
The Technical Solutions Centre
Le centre de solutions techniques

Fax Transmission

ANALYTICAL REPORT COVER SHEET

To:	Tina Arsenault	Fax #:	506.753.4188
Company:	Technisol NB Inc	Date:	November 3, 2006
From:	Bruce Phillips (Phone: 506.452.0584)	Pages:	2 , including this cover sheet.
Subject:	Report for 64769		

ISO 9001:2000
Certificate No. 011525
Research and Productivity Council
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Report ID: 64769-OAS
Report Date: 03-Nov-06
Date Received: 30-Oct-06

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Attention: Tina Arsenault
Fax #: 506.753.4188

Project #: PO 062079-931

PAH Analysis in Soil

RPC Sample ID:			64769-3	64769-13	Method Blank	Spike Rec. (%)
Client Sample ID:			Sa-14	Sa-24		
Date Sampled:			27-Oct-06	27-Oct-06		
Matrix:			Soil	Soil	Soil	Soil
Analytes	Units	RL				
Naphthalene	mg/kg	0.01	<0.01	<0.01	<0.01	103
Acenaphthylene	mg/kg	0.01	<0.01	<0.01	<0.01	93
Acenaphthene	mg/kg	0.01	<0.01	<0.01	<0.01	92
Fluorene	mg/kg	0.01	<0.01	<0.01	<0.01	94
Phenanthrene	mg/kg	0.01	0.01	<0.01	<0.01	106
Anthracene	mg/kg	0.01	<0.01	<0.01	<0.01	110
Fluoranthene	mg/kg	0.01	0.03	<0.01	<0.01	117
Pyrene	mg/kg	0.01	0.03	<0.01	<0.01	123
Bz(a)anthracene	mg/kg	0.01	0.01	<0.01	<0.01	92
Chrysene/Triphenylene	mg/kg	0.01	<0.01	<0.01	<0.01	100
Bz(b)fluoranthene	mg/kg	0.01	0.01	<0.01	<0.01	113
Bz(k)fluoranthene	mg/kg	0.01	0.01	<0.01	<0.01	113
Bz(e)pyrene	mg/kg	0.01	<0.01	<0.01	<0.01	106
Bz(a)pyrene	mg/kg	0.01	<0.01	<0.01	<0.01	106
Indenopyrene	mg/kg	0.01	<0.01	<0.01	<0.01	96
Bz(g,h,i)perylene	mg/kg	0.01	<0.01	<0.01	<0.01	97
Dibz(a,h)anthracene	mg/kg	0.01	<0.01	<0.01	<0.01	96
Moisture Content	%	-	13	27	-	-
Surrogate Recoveries						
2-fluorobiphenyl	%	-	92	87	87	82
p-terphenyl-d14	%	-	67	76	91	51

This report relates only to the sample(s) and information provided to the laboratory.
Method: Solvent extraction followed by GC-MS analysis; based on USEPA 3540C/8270C.
RL = Reporting Limit
Soil results are expressed on a dry weight basis.

Bruce Phillips
Dept. Head
Organic Analytical Services

Troy Smith
Chemist
Organic Analytical Services

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Fax Transmission

ANALYTICAL REPORT COVER SHEET

To:	Sylvain Comeau	Fax #:	506.753.4188
Company:	Technisol NB Inc	Date:	November 3, 2006
From:	Bruce Phillips (Phone: 506.452.0584)	Pages:	2 , including this cover sheet.
Subject:	Report for 64673		

ISO 9001:2000
Certificate No. 011525

Research and Productivity Council
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Report ID: 64673-OAS
Report Date: 03-Nov-06
Date Received: 26-Oct-06

Technisol NB Inc.
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Project #: PO 062079-931
Location: Belledune
PAH Analysis in Soil

RPC Sample ID:			64673-6	Method Blank	Spike Rec. (%)
Client Sample ID:			Sa-6		
Date Sampled:			17-Oct-06		
Matrix:			Soil	Soil	Soil
Analytes	Units	RL			
Naphthalene	mg/kg	0.01	<0.01	<0.01	103
Acenaphthylene	mg/kg	0.01	<0.01	<0.01	93
Acenaphthene	mg/kg	0.01	<0.01	<0.01	92
Fluorene	mg/kg	0.01	<0.01	<0.01	94
Phenanthrene	mg/kg	0.01	<0.01	<0.01	106
Anthracene	mg/kg	0.01	<0.01	<0.01	110
Fluoranthene	mg/kg	0.01	<0.01	<0.01	117
Pyrene	mg/kg	0.01	<0.01	<0.01	123
Bz(a)anthracene	mg/kg	0.01	<0.01	<0.01	92
Chrysene/Triphenylene	mg/kg	0.01	<0.01	<0.01	100
Bz(b)fluoranthene	mg/kg	0.01	<0.01	<0.01	113
Bz(k)fluoranthene	mg/kg	0.01	<0.01	<0.01	113
Bz(e)pyrene	mg/kg	0.01	<0.01	<0.01	106
Bz(a)pyrene	mg/kg	0.01	<0.01	<0.01	106
Indenopyrene	mg/kg	0.01	<0.01	<0.01	96
Bz(g,h,i)perylene	mg/kg	0.01	<0.01	<0.01	97
Dibz(a,h)anthracene	mg/kg	0.01	<0.01	<0.01	96
Moisture Content	%	-	15	-	-
Surrogate Recoveries					
2-fluorobiphenyl	%	-	72	87	82
p-terphenyl-d14	%	-	56[1]	91	51

This report relates only to the sample(s) and information provided to the laboratory.
Method: Solvent extraction followed by GC-MS analysis; based on USEPA 3540C/8270C.
RL = Reporting Limit
Soil results are expressed on a dry weight basis.
[1] Surrogate recovery below acceptance limit.

Bruce Phillips
Dept. Head
Organic Analytical Services

Troy Smith
Chemist
Organic Analytical Services

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Le centre de solutions techniques

Fax Transmission

ANALYTICAL REPORT COVER SHEET

To:	Sylvain Comeau	Fax #:	506.753.4188
Company:	Technisol NB Inc	Date:	November 7, 2006
From:	Ross Kean	Pages:	4, including this cover sheet.
Subject:	Report for 64673		

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RPC
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Report No.: 64673-IAS

Technisol NB Inc
23 Boom Road, Unit B
Atholville NB E3N 4E8
Attn: Sylvain Comeau
Job No.: PO 062079-931

November 07, 2006

Fax: 506.753.4188

Trace Metals Analysis

RPC ID	64673 RB	SS-2	64673-1A	64673-1B	64673-2	64673-3
Client ID	QA/QC	CRM	Sa-1 Oct. 17/06	Duplicate	Sa-2 Oct. 17/06	Sa-3 Oct. 17/06
	Concentration (mg/kg)					
Aluminum	2	15700	10500	10700	20000	2180
Antimony	< 0.1	0.8	8.9	8.6	3.9	4.9
Arsenic	< 1	78	28	28	35	8
Barium	< 1	228	51	48	57	184
Beryllium	< 0.1	1.0	0.3	0.3	0.6	0.1
Bismuth	< 50	< 50	< 50	< 50	< 50	< 50
Boron	< 1	16	6	7	5	18
Cadmium	< 0.1	2.2	16.2	15.7	9.1	16.5
Calcium	< 50	125000	6220	6400	4060	47800
Chromium	< 1	48	28	27	36	4
Cobalt	< 0.1	13.5	3.9	3.9	8.1	1.4
Copper	< 1	206	90	89	75	27
Iron	< 20	25300	20800	19900	27100	4650
Lead	< 0.1	116	2060	2060	1620	384
Lithium	< 0.1	17.9	9.9	10.4	20.0	0.7
Magnesium	< 10	13000	3280	3460	6600	590
Manganese	< 1	545	148	151	415	217
Mercury	< 0.01	0.28	0.45	0.36	0.28	0.17
Molybdenum	< 0.1	3.4	1.3	1.3	1.0	0.9
Nickel	< 1	62	13	13	26	4
Potassium	20	4680	1170	1160	1390	180
Rubidium	< 0.1	32.8	14.2	14.3	20.8	1.0
Selenium	< 1	< 1	1	< 1	< 1	1
Silver	< 0.1	0.6	2.8	3.1	2.4	0.6
Sodium	< 50	670	80	70	80	130
Strontium	< 1	247	14	14	13	61
Tellurium	< 0.1	< 0.1	0.7	0.8	0.6	0.3
Thallium	< 0.1	0.3	9.3	9.2	5.2	3.6
Tin	4	3	8	6	4	< 1
Uranium	< 0.1	1.3	1.9	1.9	1.8	1.5
Vanadium	< 1	48	63	62	64	12
Zinc	< 1	574	407	397	322	616

Samples were air dried and sieved at 1mm. Portions were digested according to EPA Method 3050. The resulting solutions were diluted to volume for trace element analysis by ICP-MS and ICP-ES. Mercury was analysed by Cold Vapour AAS.

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Department Head
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Peter Crowhurst, B.Sc., C.Chem
Analytical Chemist
Inorganic Analytical Chemistry

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Technisol NB Inc
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Job No.: PO 062079-931

November 07, 2006

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Trace Metals Analysis

RPC ID	64673-4	64673-5	64673-6	64673-7	64673-8
Client ID	Sa-4 Oct. 17/06	Sa-5 Oct. 17/06	Sa-6 Oct. 17/06	Sa-7 Oct. 17/06	Sa-8 Oct. 17/06
	Concentration (mg/kg)				
Aluminum	21500	22500	22300	19500	3130
Antimony	1.2	0.6	0.8	0.7	0.8
Arsenic	19	12	18	12	8
Barium	125	56	96	64	18
Beryllium	0.7	0.7	1.1	0.6	< 0.1
Bismuth	< 50	< 50	< 50	< 50	< 50
Boron	6	5	7	6	6
Cadmium	10.4	2.6	4.0	4.0	2.1
Calcium	5700	2600	16100	3140	1200
Chromium	36	35	51	31	19
Cobalt	8.5	10.0	16.0	8.2	0.8
Copper	26	21	38	19	12
Iron	26600	30200	32400	29200	19100
Lead	400	168	232	228	214
Lithium	27.4	26.0	28.2	21.7	0.6
Magnesium	7060	7380	13200	5850	290
Manganese	443	483	1300	484	47
Mercury	0.11	0.07	0.12	0.07	0.06
Molybdenum	0.4	0.5	0.7	0.6	0.3
Nickel	25	27	43	22	2
Potassium	1660	1640	2140	1690	300
Rubidium	24.6	21.6	15.5	23.6	2.8
Selenium	< 1	< 1	< 1	< 1	< 1
Silver	0.8	0.4	0.6	0.4	0.5
Sodium	90	50	130	80	130
Strontium	13	8	24	9	14
Tellurium	0.3	0.1	0.3	0.2	0.1
Thallium	2.9	1.1	1.1	1.3	2.1
Tin	1	< 1	< 1	< 1	< 1
Uranium	0.7	0.9	0.8	0.9	1.1
Vanadium	64	65	84	63	52
Zinc	207	126	175	139	41

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November 07, 2006

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Trace Metals Analysis

RPC ID	64673-9	64673-10	64673-11	64673-12	64673-13
Client ID	Sa-10 Oct. 17/06	Sa-11 Oct. 17/06	Sa-12 Oct. 17/06	Sa-Duplicate-1 Oct. 17/06	Sa-Duplicate-2 Oct. 17/06
	Concentration (mg/kg)				
Aluminum	19700	22300	10200	11600	22100
Antimony	1.1	0.7	8.1	7.7	0.6
Arsenic	14	11	54	28	12
Barium	61	55	1180	50	55
Beryllium	0.6	0.6	1.1	0.3	0.7
Bismuth	< 50	< 50	< 50	< 50	< 50
Boron	5	6	12	6	5
Cadmium	5.8	2.5	50.5	14.0	2.7
Calcium	1960	2050	33300	5760	2520
Chromium	35	42	19	29	37
Cobalt	9.6	10.2	6.8	4.2	9.8
Copper	25	18	92	80	23
Iron	28300	32400	32700	21700	29800
Lead	365	127	2320	1720	182
Lithium	21.4	25.8	8.4	11.4	24.9
Magnesium	6760	7920	2610	3910	7180
Manganese	942	361	13100	164	492
Mercury	0.11	0.05	0.40	0.36	0.11
Molybdenum	0.6	0.6	2.4	1.4	0.6
Nickel	22	27	14	14	26
Potassium	1390	1540	680	1210	1560
Rubidium	22.8	23.0	7.8	14.0	21.4
Selenium	< 1	< 1	5	< 1	< 1
Silver	0.6	0.3	3.6	3.0	0.5
Sodium	70	70	260	< 50	60
Strontium	6	7	61	13	8
Tellurium	0.2	< 0.1	1.0	0.7	0.1
Thallium	2.6	1.1	7.7	8.0	1.2
Tin	< 1	< 1	3	5	< 1
Uranium	0.6	0.7	2.7	1.8	0.9
Vanadium	64	76	68	61	63
Zinc	148	93	1060	368	130

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ANALYTICAL REPORT COVER SHEET

To:	Tina Arsenault	Fax #:	506.753.4188
Company:	Technisol NB Inc	Date:	November 7, 2006
From:	Ross Kean	Pages:	4, including this cover sheet.
Subject:	Report for 64769		

ISO 9001:2000
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Report No.: 64769-IAS

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Attn: Tina Arsenault
Job No.: PO 062079-931

November 07, 2006

Fax: 506.753.4188

Trace Metals Analysis

RPC ID	64769 RB	SS-2	64769-1A	64769-01B	64769-02	64769-03
Client ID	QA/QC	CRM	Sa-9 Oct. 27/06	Duplicate	Sa-13 Oct. 27/06	Sa-14 Oct. 27/06
	Concentration (mg/kg)					
Aluminum	2	14900	18600	17900	35900	26800
Antimony	< 0.1	0.7	0.7	0.7	0.6	0.7
Arsenic	< 1	85	12	11	12	22
Barium	< 1	232	51	52	50	60
Beryllium	< 0.1	0.9	0.5	0.4	1.0	0.9
Bismuth	< 50	< 50	< 50	< 50	< 50	< 50
Boron	< 1	15	4	4	4	4
Cadmium	< 0.1	2.2	4.7	5.0	2.4	4.2
Calcium	< 50	122000	1560	1410	3080	3140
Chromium	< 1	48	33	32	48	54
Cobalt	< 0.1	13.7	7.7	7.1	12.6	15.5
Copper	< 1	207	18	17	36	30
Iron	< 20	24200	27000	26400	39100	33900
Lead	< 0.1	117	210	209	139	178
Lithium	< 0.1	17.8	19.6	18.0	47.4	31.1
Magnesium	< 10	12700	5240	4980	8330	14100
Manganese	< 1	529	564	539	565	928
Mercury	< 0.01	0.28	0.07	0.08	0.09	0.07
Molybdenum	< 0.1	3.2	0.8	0.6	0.8	0.5
Nickel	< 1	62	18	16	34	42
Potassium	40	4290	840	810	1220	1640
Rubidium	< 0.1	30.1	19.0	18.1	18.7	16.1
Selenium	< 1	< 1	1	1	1	< 1
Silver	< 0.1	0.5	0.3	0.4	0.5	0.3
Sodium	< 50	630	50	60	< 50	< 50
Strontium	< 1	224	5	5	7	10
Tellurium	< 0.1	0.1	0.2	0.2	< 0.1	0.1
Thallium	< 0.1	0.3	1.6	1.7	0.7	1.5
Tin	4	3	1	1	2	1
Uranium	< 0.1	1.3	0.7	0.7	0.8	0.9
Vanadium	< 1	51	60	56	84	89
Zinc	< 1	545	116	120	340	140

Samples were air dried and sieved at 1mm. Portions were digested according to EPA Method 3050. The resulting solutions were diluted to volume for trace element analysis by ICP-MS and ICP-ES. Mercury was analysed by Cold Vapour AAS.

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Report No.: 64769-IAS

Technisol NB Inc
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Job No.: PO 062079-931

November 07, 2006

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Trace Metals Analysis

RPC ID	64769-04	64769-05	64769-06	64769-07	64769-08	64769-09
Client ID	Sa-15 Oct. 27/06	Sa-16 Oct. 27/06	Sa-17 Oct. 27/06	Sa-18 Oct. 27/06	Sa-19 Oct. 27/06	Sa-20 Oct. 27/06
	Concentration (mg/kg)					
Aluminum	11500	22400	15600	4090	20000	23500
Antimony	0.7	0.6	0.4	5.1	0.8	0.8
Arsenic	8	19	8	46	11	12
Barium	42	67	109	292	49	56
Beryllium	0.4	0.9	1.2	0.5	0.5	0.6
Bismuth	< 50	< 50	< 50	< 50	< 50	< 50
Boron	4	5	6	9	5	5
Cadmium	2.4	1.6	2.3	14.5	4.2	3.1
Calcium	1800	3900	20300	30200	1450	2140
Chromium	22	45	31	8	34	34
Cobalt	5.4	14.7	10.3	4.8	6.7	9.7
Copper	29	30	18	33	17	17
Iron	20700	33700	21600	23400	31000	34300
Lead	197	172	76.9	664	259	232
Lithium	10.5	30.6	18.3	1.8	21.8	29.2
Magnesium	3500	10300	7680	900	5740	6600
Manganese	229	836	469	3830	315	275
Mercury	0.04	0.05	0.11	0.24	0.08	0.07
Molybdenum	0.5	0.7	0.5	2.3	0.6	0.6
Nickel	12	40	30	8	17	26
Potassium	820	1810	1440	250	1140	1410
Rubidium	12.7	19.3	10.0	2.0	22.6	20.5
Selenium	< 1	< 1	1	2	< 1	< 1
Silver	0.4	0.3	0.2	1.2	0.7	0.5
Sodium	< 50	< 50	110	140	< 50	< 50
Strontium	6	10	30	53	4	7
Tellurium	< 0.1	0.1	0.1	0.5	0.2	0.2
Thallium	0.6	0.7	0.6	4.9	1.6	1.3
Tin	2	2	< 0.1	1	1	1
Uranium	0.5	0.9	2.8	4.3	0.5	0.6
Vanadium	43	73	59	49	69	69
Zinc	424	340	116	413	90	140

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Report No.: 64769-IAS

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November 07, 2006

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Trace Metals Analysis

RPC ID	64769-10	64769-11	64769-12	64769-13	64769-14
Client ID	Sa-21 Oct. 27/06	Sa-22 Oct. 27/06	Sa-23 Oct. 27/06	Sa-24 Oct. 27/06	Sa-25 Oct. 27/06
	Concentration (mg/kg)				
Aluminum	19100	17100	25900	16800	2130
Antimony	1.1	1.7	0.3	1.4	11.6
Arsenic	21	28	12	22	65
Barium	100	125	60	178	374
Beryllium	1.2	0.6	1.0	1.0	0.4
Bismuth	< 50	< 50	< 50	< 50	< 50
Boron	6	5	4	7	12
Cadmium	6.4	5.8	1.7	11.7	22.1
Calcium	5660	2770	2350	15700	31500
Chromium	41	26	43	36	6
Cobalt	14.2	8.0	13.0	10.9	2.7
Copper	55	34	20	37	78
Iron	31100	24700	34000	26400	13400
Lead	444	697	91.6	547	1840
Lithium	26.2	18.5	30.4	20.2	1.5
Magnesium	10600	4940	10000	9240	920
Manganese	697	1070	714	776	3680
Mercury	0.09	0.43	0.06	0.19	0.61
Molybdenum	0.6	0.7	0.5	0.6	1.4
Nickel	42	21	37	31	6
Potassium	2080	1350	1600	1590	380
Rubidium	14.2	21.9	20.2	14.1	2.7
Selenium	< 1	< 1	< 1	2	3
Silver	0.7	1.0	0.2	0.9	3.6
Sodium	100	110	< 50	100	160
Strontium	12	8	10	25	57
Tellurium	0.3	0.5	< 0.1	0.6	1.6
Thallium	1.6	6.6	0.6	3.5	7.7
Tin	3	2	< 0.1	2	5
Uranium	0.6	0.6	0.7	1.4	1.6
Vanadium	60	53	68	62	23
Zinc	451	178	100	285	504

ANNEX VI

REFERENCES

REFERENCES

New Brunswick Department of Environment, Guideline for the Management of Contaminated Sites Version 2, November 2003

SNB Parcel Data, Real Property Information PID 20753919.

Canadian Council of Ministers of the Environment, CCME (1999, revised 2006). Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

APPENDIX E

Environmentally Significant Areas (ESAs)

LITTLE BELLEDUNE POINT/BELLEDUNE RIVER

SITE ID : 071

PARISH :	DURHAM	**CRITERION1 :**	5	**CATEGORY1 :**	WETLAND	**IBP :**	
COUNTY :	R	**CRITERION2 :**	11	**CATEGORY2 :**	FISH	**CNA :**	
REGION :	BA	**CRITERION3 :**		**CATEGORY3 :**		**DOE :**	60
NTS :	21-P/13	**NBMAPS :**	08	**UTME :**	283300	**LAT :**	4755
ORTHO :	10 479000 65900	**FDS :**	5211	**UTMN :**	5311400	**LONG :**	6554

LOCATION : Just west of Belledune River and County Line.

DESCRIPTION: There is a poorly maintained municipal beach (rocky shoreline, cobble beach) to the right of the access road - the dune has numerous roads on it and considerable litter. To the left of the access road is a small salt marsh/barachois pond with a high gravel bar - an uncommon feature on the north shore.

The small estuary is used by Great Blue Heron and Herring Gulls as a feeding site; there are no visible nesting sites here.

The river is important for its late October run of Atlantic Salmon.

NAT_REG :	5	**FOREST ADMIN :**	1-2	**NTFIELD :**	
ECOTYPE1 :	ESTMARSH	**WATERSHED :**	10-09	**SIZE :**	0.0 h.a
ECOTYPE2 :	CSTDUNE	**ELEVATION :**	0		

RAREPLANT1:
RAREPLANT2:
RAREPLANT3:
RAREPLANT4:
RAREPLANT5:
RAREPLANT6
RAREPLANT7:
RAREPLANT8:
RAREPLANT9:
RAREPLAN10:

COSEWIC1 :
COSEWIC2 :
NBENSPACT1:
NBENSPACT2:

VULNERAB1 :
VULNERAB2 :
VULNERAB3 :

OWNER1 : MULTIPLE
ADDRESS1 :

PID1 :
OWNDATE :

SOURCES : D.O.E. "ESA'S IN BATHURST PLANNING REGION." DRAFT
AIR PHOTO ANALYSIS CONSULTANTS LTD. (1975)

CONTACTS : ROLAND CHIASSON, TABUSINTAC
GILLES GODIN, REGIONAL BIOLOGIST, DNR BATHURST
DOE. ESA'S(UNDATED):MADDEN

COMPILER : CHIASSON/CRIGHTON **DATE :** 10-May-1995

CULLIGAN STATION RAILWAY CUTS

SITE ID : 069

PARISH :	DURHAM	**CRITERION1 :**	6	**CATEGORY1 :**	FOSSIL	**IBP :**	
COUNTY :	R	**CRITERION2 :**		**CATEGORY2 :**		**CNA :**	
REGION :	BA	**CRITERION3 :**		**CATEGORY3 :**		**DOE :**	
NTS :	21-P/13	**NBMAPS :**	08	**UTME :**	280800	**LAT :**	4754
ORTHO :	10 479000 65900	**FDS :**	5211	**UTMN :**	5309600	**LONG :**	6556

LOCATION : 1.6 km by road south of Hwy 134.

DESCRIPTION: Silurian fossils occur in rocks exposed by railway-cuts on both sides of Culligan Station, and for about 450 m beginning at a point 500 m west of the station. The exposures near the station (from 90 m west to 150 m east of it) are of nodular limestone containing brachiopods, gastropods and large crinoid stems. The railway- cuts west of the station expose conglomerates, shale and limestone containing corals, stromatoporoids, gastropods and brachiopods.

NAT_REG :	5	**FOREST ADMIN :**	1-2	**NTFIELD :**	
ECOTYPE1 :		**WATERSHED :**	10-09	**SIZE :**	0.0 h.a
ECOTYPE2 :		**ELEVATION :**	40		

RAREPLANT1:
RAREPLANT2:
RAREPLANT3:
RAREPLANT4:
RAREPLANT5:
RAREPLANT6
RAREPLANT7:
RAREPLANT8:
RAREPLANT9:
RAREPLAN10:

COSEWIC1 :
COSEWIC2 :
NBENSPACT1:
NBENSPACT2:

VULNERAB1 :
VULNERAB2 :
VULNERAB3 :

OWNER1 : MULTIPLE
ADDRESS1 :

PID1 : **OWNDATE :**

SOURCES : SABINA (1992)

CONTACTS :

COMPILER : CHIASSON/CRIGHTON **DATE :** 14-Jan-1994

CHAPEL POINT SHORELINE

SITE ID : 068

PARISH :	DURHAM	**CRITERION1 :**	6	**CATEGORY1 :**	FOSSIL	**IBP :**	
COUNTY :	R	**CRITERION2 :**		**CATEGORY2 :**	GEOLOGY	**CNA :**	
REGION :	BA	**CRITERION3 :**		**CATEGORY3 :**		**DOE :**	
NTS :	21-P/13	**NBMAPS :**	08	**UTME :**	287400	**LAT :**	4754
ORTHO :	10 479000 65800	**FDS :**	5311	**UTMN :**	5309700	**LONG :**	6551

LOCATION : West of Belledune Point, adjacent to the fertilizer plant. Access is by a single lane road, 0.5 km long, from Highway 134 - unclear due to large industries.

DESCRIPTION: Silurian fossils including corals, crinoid stems, stromatoporoids, brachiopods, bryozoans, and ostracods occur in sedimentary rocks (conglomerate, shale and limestone) exposed along the shore beginning at Chapel Point and extending westward for about 2300 m. Interbedded with the sediments is a light reddish brown lava with fracture planes (about 1 cm wide) and irregular cavities (up to 3 cm across) containing vitreous fine-granular epidote with colourless to white crystalline calcite. This epidote has an attractive pistachio-green colour but it does not seem to be sufficiently compact for lapidary purposes. Pebbles, up to 7 cm across, of fine-grained epidote with quartz occur on the beach; these are suitable for polishing but generally are of a drab greyish-green colour.

NAT_REG :	5	**FOREST ADMIN :**	1-2	**NTFIELD :**	
ECOTYPE1 :		**WATERSHED :**	10-08	**SIZE :**	0.0 h.a
ECOTYPE2 :		**ELEVATION :**	0		

RAREPLANT1:
RAREPLANT2:
RAREPLANT3:
RAREPLANT4:
RAREPLANT5:
RAREPLANT6
RAREPLANT7:
RAREPLANT8:
RAREPLANT9:
RAREPLAN10:

COSEWIC1 :
COSEWIC2 :
NBENSPACT1:
NBENSPACT2:

VULNERAB1 :
VULNERAB2 :
VULNERAB3 :

OWNER1 : IRVING OIL CO. LTD.
ADDRESS1 : P.O. BOX 1421, SAINT JOHN N.B. E2L 4K1

PID1 : 20252680 **OWNDATE :** 6-Sep-1992

SOURCES : SABINA (1992)

CONTACTS :

COMPILER : CHIASSON/CRIGHTON **DATE :** 14-Jan-1994

BELLEDUNE SHORELINE/HENDRY BROOK

SITE ID : 067

PARISH :	BERESFORD	**CRITERION1 :**	6	**CATEGORY1 :**	GEOLOGY	**IBP :**	
COUNTY :	G	**CRITERION2 :**		**CATEGORY2 :**	FOSSIL	**CNA :**	
REGION :	BA	**CRITERION3 :**		**CATEGORY3 :**		**DOE :**	
NTS :	21-P/13	**NBMAPS :**	08	**UTME :**	289600	**LAT :**	4753
ORTHO :	21 P/13-V3	**FDS :**	5312	**UTMN :**	5307600	**LONG :**	6549

LOCATION : Access to the locality is via the first small dirt road just north of Hendry Brook and Saint Luke's United Church.

DESCRIPTION: Corals, stromatoporoids, bryozoans, brachiopods and crinoid stems of Silurian age occur in reddish sandy limestone beds exposed along the Chaleur Bay shore on south side of the mouth of Hendry Brook and along the Brook. The limestone is cut by veins (averaging 2 cm wide) of calcite that fluoresce a very bright pink when exposed to ultraviolet rays ("short" rays most effective). Water-worn fragments (up to 10 cm across) of deep orange-red jasper cut by tiny veinlets of colourless calcite, and colourless to greyish and reddish chalcedony occur on the beach; they are derived from the conglomerate exposed between Belledune and Green Point. Fine-granular epidote occurs with calcite and quartz in veins (about 1 cm wide) and in cavities in volcanic rocks exposed along the shore about 900 m south of the mouth of Hendry Brook.

The brook has very low flow in autumn - does not reach the Bay at low tide.

NAT_REG :	5	**FOREST ADMIN :**	1-2	**NTFIELD :**	
ECOTYPE1 :		**WATERSHED :**	10-07	**SIZE :**	0.0 h.a
ECOTYPE2 :		**ELEVATION :**	0		

RAREPLANT1:
RAREPLANT2:
RAREPLANT3:
RAREPLANT4:
RAREPLANT5:
RAREPLANT6
RAREPLANT7:
RAREPLANT8:
RAREPLANT9:
RAREPLAN10:

COSEWIC1 :
COSEWIC2 :
NBENSPACT1:
NBENSPACT2:

VULNERAB1 :
VULNERAB2 :
VULNERAB3 :

OWNER1 : MULTIPLE
ADDRESS1 :

PID1 : **OWNDATE :**

SOURCES : SABINA (1992)

CONTACTS :

COMPILER : CHIASSON/CRIGHTON **DATE :** 14-Jan-1994

BELLEDUNE POINT AREA

SITE ID : 066

PARISH :	BERESFORD	**CRITERION1 :**		**CATEGORY1 :**	PLANT	**IBP :**	
COUNTY :	G	**CRITERION2 :**		**CATEGORY2 :**	BIRD	**CNA :**	
REGION :	BA	**CRITERION3 :**		**CATEGORY3 :**	GEOLOGY	**DOE :**	42
NTS :	21-P/13	**NBMAPS :**	08	**UTME :**	288400	**LAT :**	4755
ORTHO :	10 479000 65800	**FDS :**	5311	**UTMN :**	5309700	**LONG :**	6550

LOCATION : Directly behind the Belledune Lead Smelter Plant.

DESCRIPTION: The point constitutes a "cuspate foreland" - a unique coastal land feature of the NB coast; it was selected to be developed for heavy industry (Lead smelting plant and Fertilizer plant) because contaminants are carried offshore and dispersed by currents.

The sand beach had a small colony (5 nests) of Black Guillemot in 1966. When last surveyed in 1986 it had been taken over by gulls and terns, with 214 Common Tern nest, 261 Ring-billed Gull nests, 7 Great Black-backed Gull nests and 119 Herring Gull nests.

A number of rare plants had been observed here in the past, but are now believed to have been extirpated. There is a good chance that remnants of similar habitat persist near the point, which may still harbour rare plants.

NAT_REG :	5	**FOREST ADMIN :**	1-2	**NTFIELD :**	
ECOTYPE1 :	ESTMARSH	**WATERSHED :**	10-08	**SIZE :**	0.0 h.a
ECOTYPE2 :	BOG	**ELEVATION :**	0		

RAREPLANT1:	Amerochis rotundifolia (Banks) Hulten	**COSEWIC1 :**	
RAREPLANT2:	Draba glabella Pursh	**COSEWIC2 :**	
RAREPLANT3:	Zigadenus elegans Pursch	**NBENSPACT1:**	
RAREPLANT4:		**NBENSPACT2:**	
RAREPLANT5:			
RAREPLANT6		**VULNERAB1 :**	
RAREPLANT7:		**VULNERAB2 :**	
RAREPLANT8:		**VULNERAB3 :**	
RAREPLANT9:			
RAREPLAN10:			

OWNER1 : BRUNSWICK MINING & SMELTING CORP.

ADDRESS1 : BELLEDUNE N.B. E0B 1G0

PID1 : 20252318 **OWNDATE :** 4-Jul-1980

SOURCES : D.O.E. "ESA'S IN BATHURST PLANNING REGION." DRAFT
HINDS (1983)
CWS. BIRD COLONIES OF THE MARITIME PROVINCES
CWS. CRITICAL MIGRATORY BIRD HABITATS (NEWBRUN.DBF)
AIR PHOTO ANALYSIS CONSULTANTS LTD. (1975)

CONTACTS : DOE. ESA'S(UNDATED):MADDEN
DIANE AMIRAULT, CWS

COMPILER : CHIASSON/CRIGHTON **DATE :** 10-May-1995

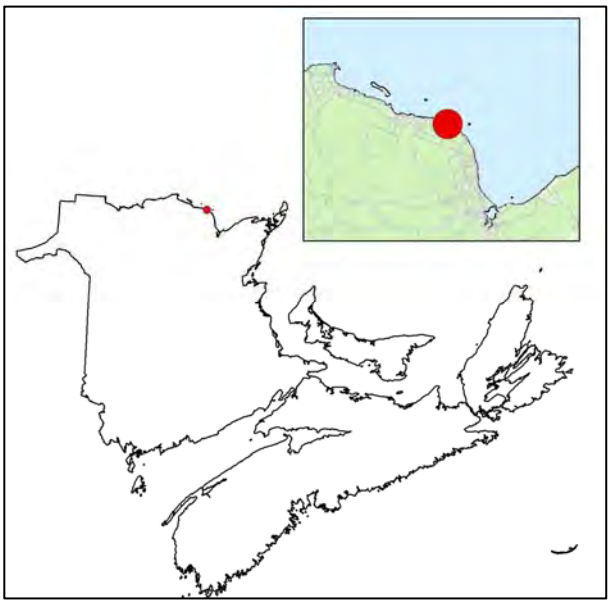
APPENDIX F

ACCDC Report

Atlantic Canada Conservation Data Centre
Centre de données sur la conservation du Canada Atlantique

DATA REPORT 5106: Belledune, NB.
Roy Consultants Job # 398-13

Prepared October 7, 2013
by M. Elliott, Data Manager



CONTENTS OF REPORT

1.0 PREFACE

The Atlantic Canada Conservation Data Centre (ACCDC) is part of a network of NatureServe data centres and heritage programs serving 50 states in the U.S.A, 10 provinces and 1 territory in Canada, plus several Central and South American countries. The NatureServe network is more than 30 years old and shares a common conservation data methodology. The ACCDC was founded in 1997, and maintains data for the jurisdictions of New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador. Although a non-governmental agency, the ACCDC is supported by 6 federal agencies, 4 provincial governments, as well as through outside grants and data processing fees. URL: www.ACCDC.com.

Upon request and for a fee, the ACCDC queries its database and produces customized reports of the rare and endangered flora and fauna known to occur in or near a specified study area. As a supplement to that data, the ACCDC includes locations of managed areas with some level of protection, and known sites of ecological interest or sensitivity.

1.1 DATA INCLUDED

Included datasets:

Filename	Contents
R5106_ob.dbf	Rare and Endangered Flora and Fauna in your study area
R5106_masa.dbf	Biologically-Significant and Managed Natural zones in your study area
R5106_xp.dbf	Expert Maps (predictive distribution) in your study area

1.2 RESTRICTIONS

The ACCDC makes a strong effort to verify the accuracy of all the data that it manages, but it shall not be held responsible for any inaccuracies in data that it provides. By accepting ACCDC data, recipients assent to the following limits of use:

a.) Data is restricted to use by trained personnel who are sensitive to landowner interests and to potential threats to rare and/or endangered flora and fauna posed by the information provided.
b.) Data is restricted to use by the specified Data User; any third party requiring data must make its own data request.
c.) The ACCDC requires Data Users to cease using and delete data 12 months after receipt, and to make a new request for updated data if necessary at that time.
d.) ACCDC data responses are restricted to the data in our Data System at the time of the data request.
e.) Locations given for rare species records may be deliberately imprecise. Each record has an estimate of locational uncertainty, which must be referenced in order to understand the record's relevance to a particular location. Please see attached Data Dictionary for details.
f.) ACCDC data responses are not to be construed as exhaustive inventories of taxa in an area.
g.) The absence of a taxon cannot be inferred by its absence in an ACCDC data response.

1.3 CONTACT INFORMATION

Please direct questions about ACCDC data to the following individuals:

Plants, Lichens, Ranking Methods
Sean Blaney
Tel: (506) 364-2658
sblaney@mta.ca

Animals (Fauna)
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dmazerolle@mta.ca

All other Inquiries
R.A. Lautenschlager
Tel: (506) 364-2661
rlautenschlager@mta.ca

Questions on Federal Species at Risk can be directed to ACCDC: (506) 364-2657, and technical data queries to: Samara Eaton, Canadian Wildlife Service (NB and PE): (506) 364-5060 or Julie McKnight, Canadian Wildlife Service (NS): (902) 426-4196.

For provincial information about rare taxa and protected areas, or information about game animals, deer yards, old growth forests, archeological sites, fish habitat etc., in New Brunswick, please contact Stewart Lusk, Natural Resources: (506) 453-7110.

2.0 RARE AND ENDANGERED TAXA

A 5 kilometer buffer was created around your area of interest, and used to detect known observations of rare and endangered flora and fauna. The complete list of those species can be found in Section 4: Flora and in the 5106_ob.dbf file.

Map 1: Known observations of rare and/or protected flora and fauna within buffered study area.

3.0 SPECIAL AREAS

3.1 MANAGED AREAS

The GIS scan identified no Managed Areas with some degree of protected status, in the vicinity of the study area (see attached *ma.dbf).

3.2 SIGNIFICANT AREAS

The GIS scan also identified no biologically significant sites in the vicinity of the study area; such sites are known for exceptional biotic richness but may or may not have legal status (see attached *sa.dbf).

Map 2: Boundaries and/or locations of known Managed and Significant Areas within 5km of study area.

4.0 TAXON LISTS

Rare and/or endangered taxa within the buffered area listed in order of concern, beginning with legally listed taxa, with the number of observations per taxon and the distance in kilometers from study area centroid to the closest observation. [P] = vascular plant, [N] = nonvascular plant, [A] = vertebrate animal, [I] = invertebrate animal, [C] = community.

4.1 FLORA

	Scientific Name	Common Name	Prov. Rarity	Prov. Status	COSEWIC	obs	Dist.km
A	*Puma concolor pop. 1*	Cougar - Eastern pop.	SU,SH	Endangered	DD	1	2.27±1
A	*Sterna hirundo*	Common Tern	S3B		NAR	2	1.86±0.5
A	*Riparia riparia*	Bank Swallow	S3B		T	1	4.7±5
A	*Hirundo rustica*	Barn Swallow	S3B		T	1	4.7±5
A	*Hylocichla mustelina*	Wood Thrush	S1S2B		T	2	4.7±5
A	*Wilsonia canadensis*	Canada Warbler	S3S4B		T	1	4.7±5
A	*Dolichonyx oryzivorus*	Bobolink	S3S4B		T	1	4.7±5
A	*Charadrius vociferus*	Killdeer	S3B			1	4.7±5
A	*Larus delawarensis*	Ring-billed Gull	S3B			5	4.7±5
A	*Tyrannus tyrannus*	Eastern Kingbird	S3S4B			1	4.7±5
A	*Molothrus ater*	Brown-headed Cowbird	S3B			1	4.7±5
A	*Coccothraustes vespertinus*	Evening Grosbeak	S3S4B,S4S5 N			1	4.7±5
A	*Mimus polyglottos*	Northern Mockingbird	S3B			2	3.09±5
A	*Cepphus grylle*	Black Guillemot	S3			1	3.03±1
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain	S2			2	4.04±5
P	*Corallorhiza maculata*	Spotted Coralroot	S3S4			1	4.14±0.01
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper	S2			1	3.47±2
P	*Geocaulon lividum*	Northern Comandra	S3			1	3.8±0.01
P	*Carex vaginata*	Sheathed Sedge	S3			2	2.99±5
P	*Carex gynocrates*	Northern Bog Sedge	S2			2	3.05±5
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot	S2S3			1	2.19±10
P	*Listera auriculata*	Auricled Twayblade	S2S3			1	1.25±5
P	*Amerorchis rotundifolia*	Small Round-leaved Orchis	S2			3	1.32±5
P	*Sagina nodosa*	Knotted Pearlwort	S2			2	1.08±0.2
P	*Draba glabella*	Rock Whitlow-Grass	S1			7	1.59±0.5
P	*Salix myricoides*	Bayberry Willow	S2?			1	1.58±0.35
P	*Zigadenus elegans ssp. glaucus*	Mountain Death Camas	S1			7	1.58±0.5
P	*Artemisia campestris ssp. caudata*	Field Wormwood	S3			1	1.17±0.5
P	*Stellaria longipes*	Long-stalked Starwort	S1			5	1.59±0.1
P	*Polygonum raii*	Sharp-fruited Knotweed	SH			3	1.61±1
P	*Blysmus rufus*	Red Bulrush	S2			2	1.73±1
P	*Galium obtusum*	Blunt-leaved Bedstraw	S2?			1	3.97±1
P	*Viola adunca*	Hooked Violet	S3			1	4±0.35

4.2 FAUNA

	Scientific Name	Common Name	Prov. Rarity	Prov. Status	COSEWIC	obs	Dist.km
A	*Puma concolor pop. 1*	Cougar - Eastern pop.	SU,SH	Endangered	DD	1	2.27±1
A	*Sterna hirundo*	Common Tern	S3B		NAR	2	1.86±0.5
A	*Riparia riparia*	Bank Swallow	S3B		T	1	4.7±5
A	*Hirundo rustica*	Barn Swallow	S3B		T	1	4.7±5
A	*Hylocichla mustelina*	Wood Thrush	S1S2B		T	2	4.7±5
A	*Wilsonia canadensis*	Canada Warbler	S3S4B		T	1	4.7±5
A	*Dolichonyx oryzivorus*	Bobolink	S3S4B		T	1	4.7±5
A	*Charadrius vociferus*	Killdeer	S3B			1	4.7±5
A	*Larus delawarensis*	Ring-billed Gull	S3B			5	4.7±5
A	*Tyrannus tyrannus*	Eastern Kingbird	S3S4B			1	4.7±5
A	*Molothrus ater*	Brown-headed Cowbird	S3B			1	4.7±5
A	*Coccothraustes vespertinus*	Evening Grosbeak	S3S4B,S4S5 N			1	4.7±5
A	*Mimus polyglottos*	Northern Mockingbird	S3B			2	3.09±5
A	*Cepphus grylle*	Black Guillemot	S3			1	3.03±1
P	*Goodyera oblongifolia*	Menzies' Rattlesnake-plantain	S2			2	4.04±5
P	*Corallorhiza maculata*	Spotted Coralroot	S3S4			1	4.14±0.01
P	*Cypripedium parviflorum var. makasin*	Small Yellow Lady's-Slipper	S2			1	3.47±2
P	*Geocaulon lividum*	Northern Comandra	S3			1	3.8±0.01
P	*Carex vaginata*	Sheathed Sedge	S3			2	2.99±5
P	*Carex gynocrates*	Northern Bog Sedge	S2			2	3.05±5
P	*Corallorhiza maculata var. maculata*	Spotted Coralroot	S2S3			1	2.19±10
P	*Listera auriculata*	Auricled Twayblade	S2S3			1	1.25±5
P	*Amerorchis rotundifolia*	Small Round-leaved Orchis	S2			3	1.32±5
P	*Sagina nodosa*	Knotted Pearlwort	S2			2	1.08±0.2
P	*Draba glabella*	Rock Whitlow-Grass	S1			7	1.59±0.5
P	*Salix myricoides*	Bayberry Willow	S2?			1	1.58±0.35
P	*Zigadenus elegans ssp. glaucus*	Mountain Death Camas	S1			7	1.58±0.5
P	*Artemisia campestris ssp. caudata*	Field Wormwood	S3			1	1.17±0.5
P	*Stellaria longipes*	Long-stalked Starwort	S1			5	1.59±0.1
P	*Polygonum raii*	Sharp-fruited Knotweed	SH			3	1.61±1
P	*Blysmus rufus*	Red Bulrush	S2			2	1.73±1

P	*Galium obtusum*	Blunt-leaved Bedstraw	S2?	1	3.97±1
P	*Viola adunca*	Hooked Violet	S3	1	4±0.35

4.3 RANGE MAPS

The legally protected taxa listed below are linked to the study area by predictive range maps based upon expert estimates of distribution. Taxa listed here but not in the observation data above are unknown within the study area but perhaps present. Ranges of rank 1 indicate possible occurrence, those of rank 2 and 3 increasingly less probable.

Scientific Name	Common Name	Prov. Rarity	Prov. Status	COSEWIC	Range
Glyptemys insculpta	Wood Turtle	S3		T	1
Histrionicus histrionicus	Harlequin Duck - Eastern pop.	S1B,S1N	Endangered	SC	1
Listera australis	Southern Twayblade	S2	Endangered		1
Symphyotrichum laurentianum	Gulf of St. Lawrence Aster	S1	Endangered	T	1
Symphyotrichum subulatum (Bathurst pop)	Bathurst Saltmarsh Aster	S2	Endangered	SC	1
Isoetes prototypus	Prototype Quillwort	S2	Endangered	SC	1
Bucephala islandica	Barrow's Goldeneye (Eastern pop.)	S2N		SC	2
Lechea maritima var. subcylindrica	Beach Pinweed	S2		SC	2
Pterospora andromedea	Giant Pinedrops	S1	Endangered		2
Eriocaulon parkeri	Parker's Pipewort	S2	Endangered	NAR	2
Buteo lineatus	Red-shouldered Hawk	S2B		NAR	2

5.0 SOURCE BIBLIOGRAPHY

The recipient of this data shall acknowledge the ACCDC and the data sources listed below in any documents, reports, publications or presentations, in which this dataset makes a significant contribution.

ob	Source
14	Erskine, A.J. 1992. Maritime Breeding Bird Atlas Database. NS Museum & Nimbus Publ., Halifax, 82,125 recs.
12	Benedict, B. Connell Herbarium Specimens. University New Brunswick, Fredericton. 2003.
10	Hinds, H.R. 1986. Notes on New Brunswick plant collections. Connell Memorial Herbarium, unpubl, 739 recs.
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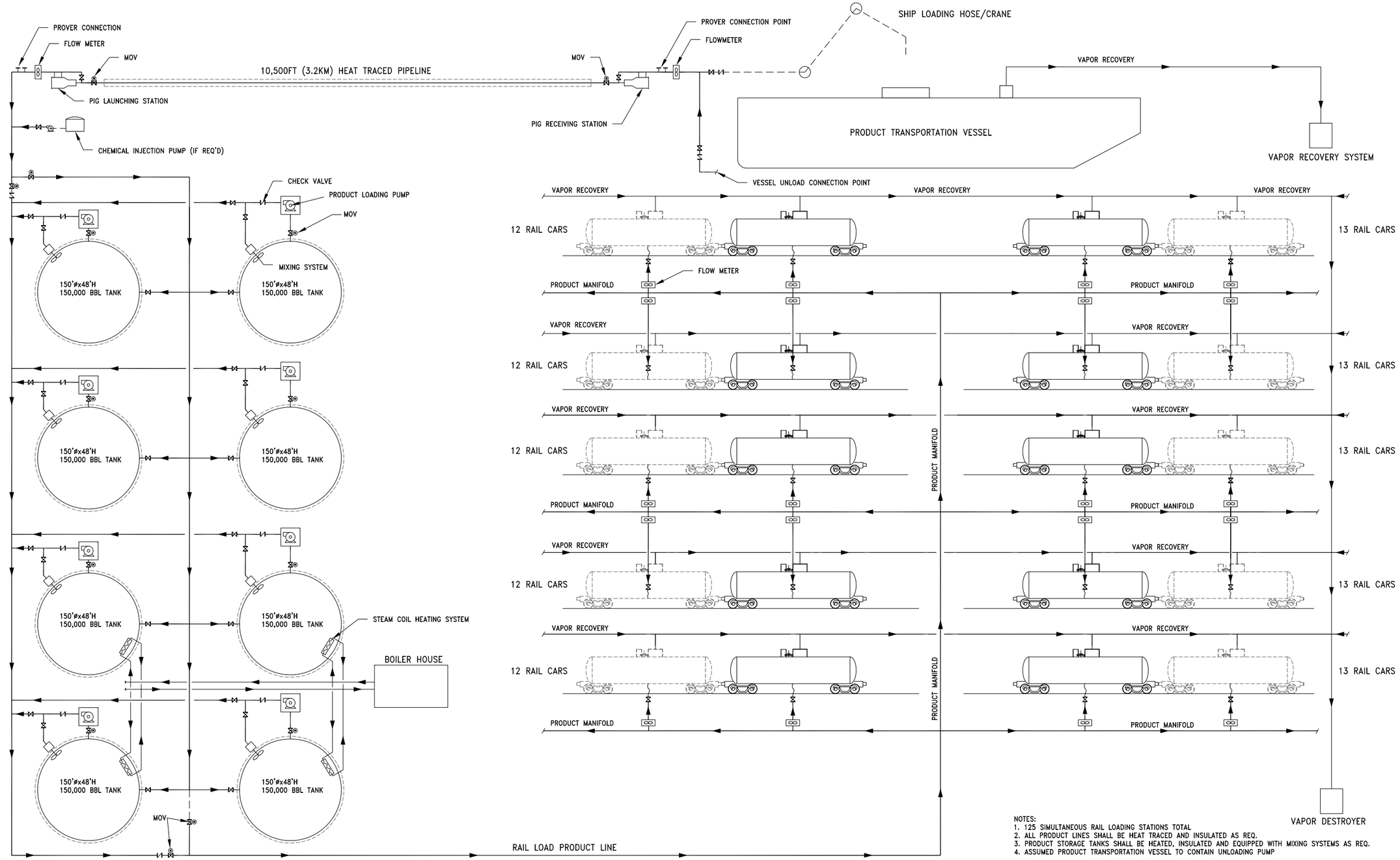
APPENDIX G

Project Technical Diagrams



NOTES:
1. 125 SIMULTANEOUS RAIL LOADING STATIONS TOTAL
2. ALL PRODUCT LINES SHALL BE HEAT TRACED AND INSULATED AS REQ.
3. PRODUCT STORAGE TANKS SHALL BE HEATED, INSULATED AND EQUIPPED WITH MIXING SYSTEMS AS REQ.
4. ASSUMED PRODUCT TRANSPORTATION VESSEL TO CONTAIN UNLOADING PUMP

REV.	DESCRIPTION	DATE	BY	CHK'D

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

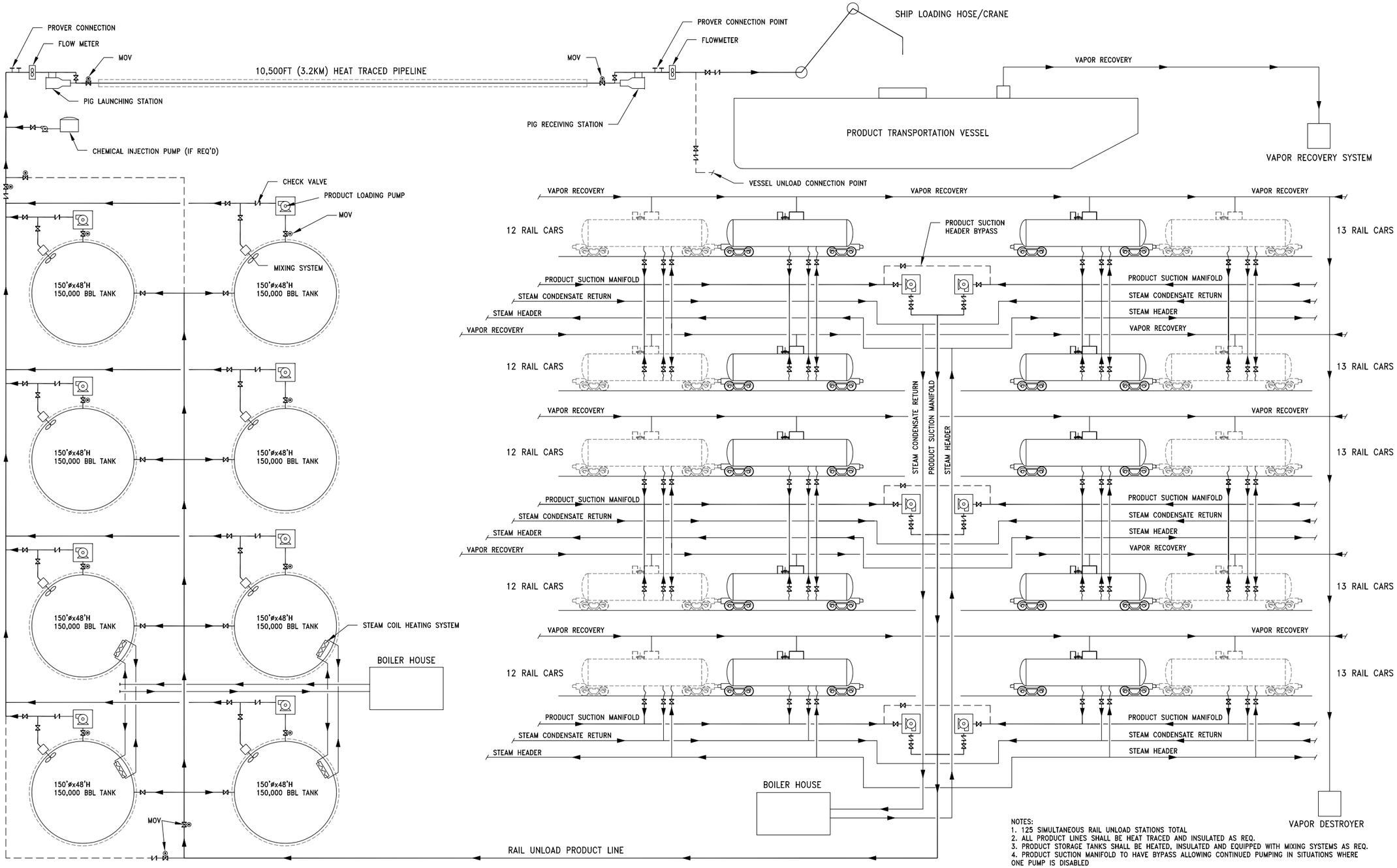
Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 302-2831
Fax (251) 433-1411

PROJECT
PREDATOR
RAIL LOAD/UNLOAD FACILITY
BELLEDUNE
NEW BRUNSWICK, CANADA

TITLE
PROCESS FLOW DIAGRAM (PFD) RAIL LOADING

SCALE	DRAWN BY	DATE	SHEET	REV.
N.T.S.	WAT	3/5/2014	2 OF 2 22x34	A
JOB NO. 2488	CHECKED BY JDG	DATE 3/5/2014	DRAWING NUMBER 2488–PFD2	



NOTES:
1. 125 SIMULTANEOUS RAIL UNLOAD STATIONS TOTAL
2. ALL PRODUCT LINES SHALL BE HEAT TRACED AND INSULATED AS REQ.
3. PRODUCT STORAGE TANKS SHALL BE HEATED, INSULATED AND EQUIPPED WITH MIXING SYSTEMS AS REQ.
4. PRODUCT SUCTION MANIFOLD TO HAVE BYPASS ALLOWING CONTINUED PUMPING IN SITUATIONS WHERE ONE PUMP IS DISABLED

REV.	DESCRIPTION	DATE	BY	CHK'D

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

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PROJECT
PREDATOR
RAIL LOAD/UNLOAD FACILITY
BELLEDUNE
NEW BRUNSWICK, CANADA

TITLE
PROCESS FLOW DIAGRAM (PFD) RAIL UNLOAD

SCALE	DRAWN BY	DATE	SHEET	REV.
NTS	WAT	3/5/2014	1 OF 2 22x34	A
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
2488	JDG	3/5/2014	2488–PFD1	

APPENDIX H

Daily Visual Inspection Form Template

Predator Midstream Ltd.

Car Number: **Car Owner:**

Rail Car Arrival and Departure inspection Log sheet

Stenciled Load Limit (kg) _____

Delivery Density(KG/M3)

equals max volume by weight (M3) _____

Divide top by bottom

Track Weight Limits

Alliance	119,000	KG
Mannville	121,500	KG
High Prairie	121,500	KG

Date: _____ Stenciled max volume (L) _____ Do not exceed stencil volume on end plate

Arrival Inspector name: _____ Departure inspector name: _____

Arrival Inspection items:	**Acceptable**	**Departure Inspection items**	**Complete**
Axle bolts, wheel condition		Bottom Valve secure	
Drawbars, springs, hoses		Valve handle secure	
Are stencils visible		Belly valve holding?	
Tank Qualification Date		Top lid(s) secure?	
Cleanliness of car		Manway bolts torqued	
Steam Coil caps removed		Leaks and drips cleaned up	
Track containment in place		Proper Placards on Car	
Bottom valve tool tight		Rail Chock(s) removed	
Cap removed from Btm Valve		Hand Brake(s) removed	
Hand brake(s) on			
Rail Chocks in place		**Seal Tag numbers**	
Ground cables Secure		Top Manway:	
Manway bolts condition		Top Lid:	
Gasket condition		Bottom Valve:	
Vent valves secure under lid		Other:	

Volume information

Ticket#	Gross Vol	Total KG	BSW%

Remaining space in Car after loads in

volume	Remaining
Load #1	
Load #2	
Load #3	
Load #4	

DEFICIENT CARS TO BE REPORTED TO SUPERVISOR WITH REASON.

APPENDIX I.1

Route Planning Risk Assessment

APPENDIX I.2

Emergency Response Assistance Plans

APPENDIX J

Canadian Railway Operating Rules - Rule 112

Canadian Rail Operating Rules (TC O 0-167)
Railway Association of Canada
Effective December 26, 2013

RULE 112. LEAVING EQUIPMENT UNATTENDED

(a) Equipment must be secured if it is left unattended. The following are acceptable methods of ensuring securement:

(i) Sufficient number of hand brakes;
(ii) A mechanical device approved for use by a professional engineer;
(iii) Equipment is left on a track designed to prevent the equipment from moving unintentionally (e.g. switching bowl or where grade does not allow) and that design is approved by a qualified employee;
(iv) Equipment is derailed or coupled to derailed equipment;
(v) A movement secured as per paragraph (c) in this rule.

(b) While switching enroute, the standing portion must be protected as per paragraph (a) unless:

(i) There are at least 15 cars;
(ii) Not on a grade in excess of 1.25 %;
(iii) The equipment will not be left in excess of 2 hours;
(iv) The air brake system is sufficiently charged to ensure proper air brake application; and
(v) The brake pipe is fully vented at a service rate or an emergency application of the air brakes has been made, and the angle cock is left fully open.

Whenever it is possible that the portion left standing cannot be secured within the applicable time limit, the standing portion must be secured as per paragraph (a).

(c) A movement may be left unattended if:

(i) Secured as per paragraph (a); or
(ii) Left at a location where a derail protects the movement from unintentionally obstructing main track and

- **the air brake system is sufficiently charged to ensure proper brake application;**
- **The locomotive controlling the air brake system maintains air pressure.;**
- **A full service or emergency air brake application is made, and**
- **Independent brake is fully applied; or**

(iii) Air brake system is sufficiently charged to ensure a proper brake application and

- **the locomotive controlling the air brake system maintains air pressure;**
- **A full service or emergency air brake application is made;**

- **Independent brake is fully applied;**
- **Hand brakes are applied on 10 percent of the equipment to a**
- **maximum of 5;**
- **It is not on a grade exceeding 1.25%; and**
- **Is not left in excess of 2 hours.**

(d) Exceptional weather situations, such as high winds or other unusual conditions, must be considered and factored into securement decisions. Special instructions may contain location specific instructions where extreme weather events are prevalent.

(e) Instructions governing testing the effectiveness of hand brakes will be carried in special instructions.

(f) Application of hand brakes must not be made while equipment is being pulled or shoved.

(g) Before leaving equipment at any location, the employee securing such equipment must confirm with another employee the manner in which the equipment has been secured.

APPENDIX K

Site Photos

Belledune Tank Farm

Project # 22-14-01

Site visit

February 26, 2014

East of old woods road (beginning). Looking West

Point A

Waypoint: N47.89033/W065.85468

Trees; Popple, Spruce, Birch

Looking West

Looking North

Looking East

Looking South

Looking West at old woods road

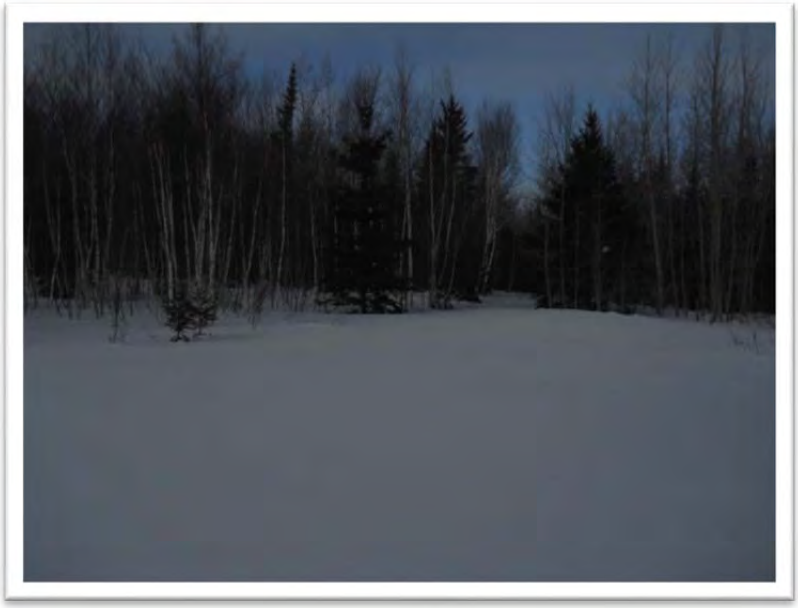
Waypoint #62: N47.89081/W065.85696

Trees; Birch, Spruce, Popple, Larch

Point D

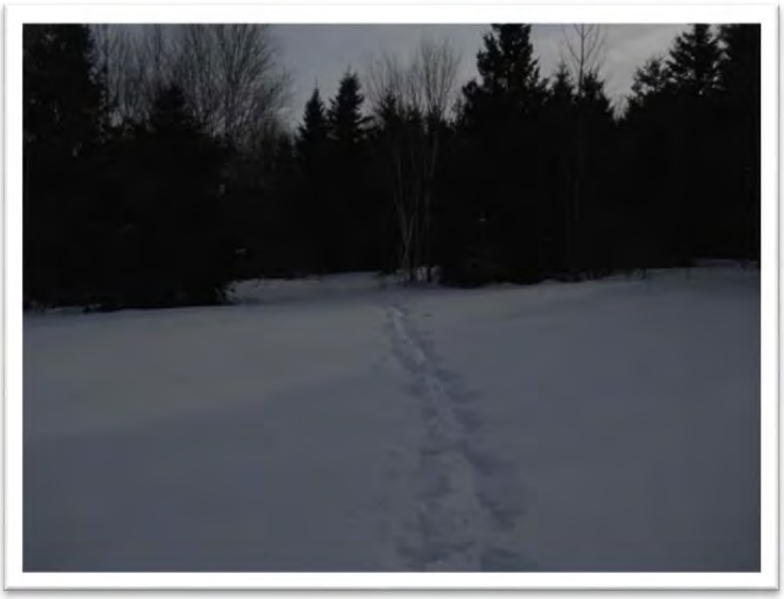
Waypoint #63: N47.89001/W065.86031

Trees; Birch, Spruce, Popple

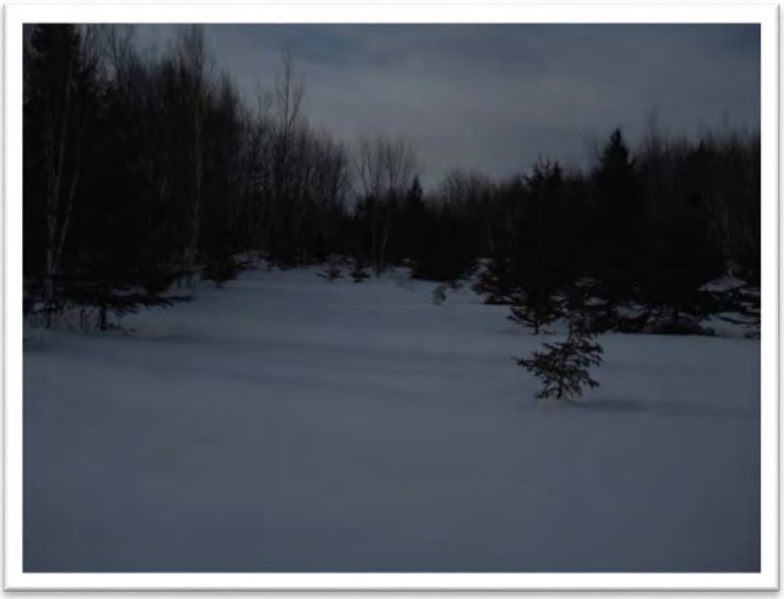


Looking West

Looking North



Looking East



Looking South

Looking West at old woods road

Waypoint #64: N47.89071/W065.86243

Trees; Birch, Spruce, Red Maple, Beech, Popple

Wood is thicker on North side

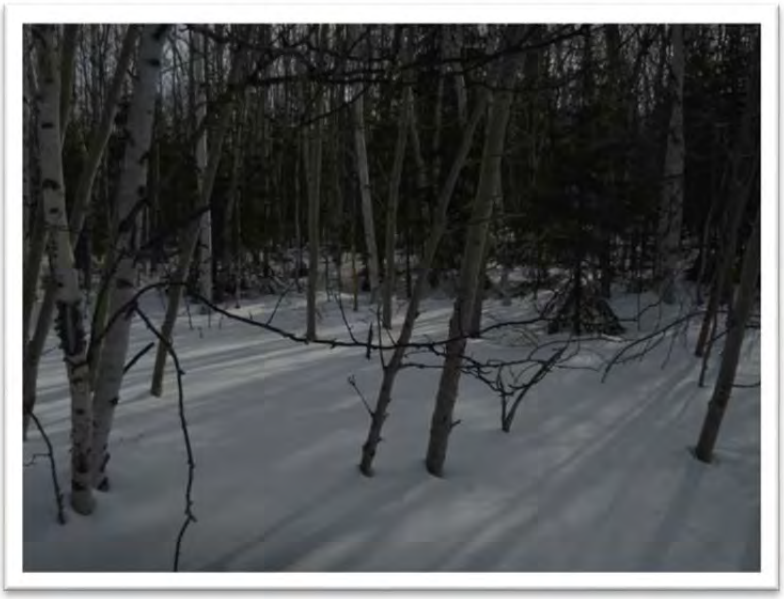
Point E

Waypoint #66: N47.89056/W065.86318

Trees; Birch, Popple, Spruce, Cherry tree, Fir

Looking West

Looking North



Looking East

Looking South

Looking South at old woods road

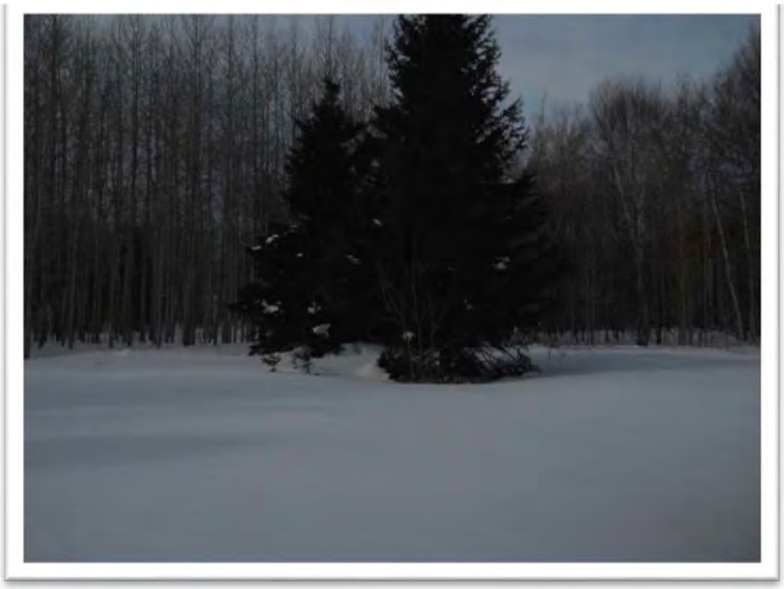
Waypoint #67: N47.88968/W065.86362

Trees; Popple, Spruce, Birch, Red Maple,

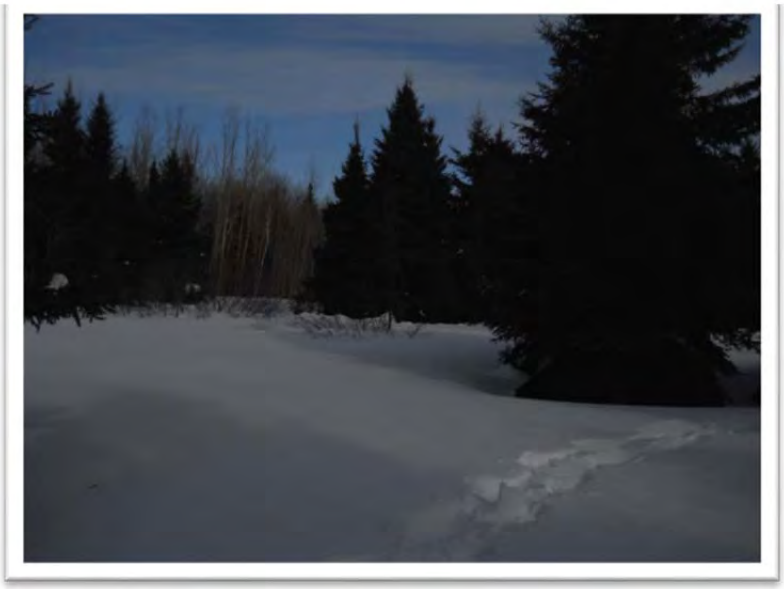
Open area

Waypoint #69: N47.88935/W065.86442

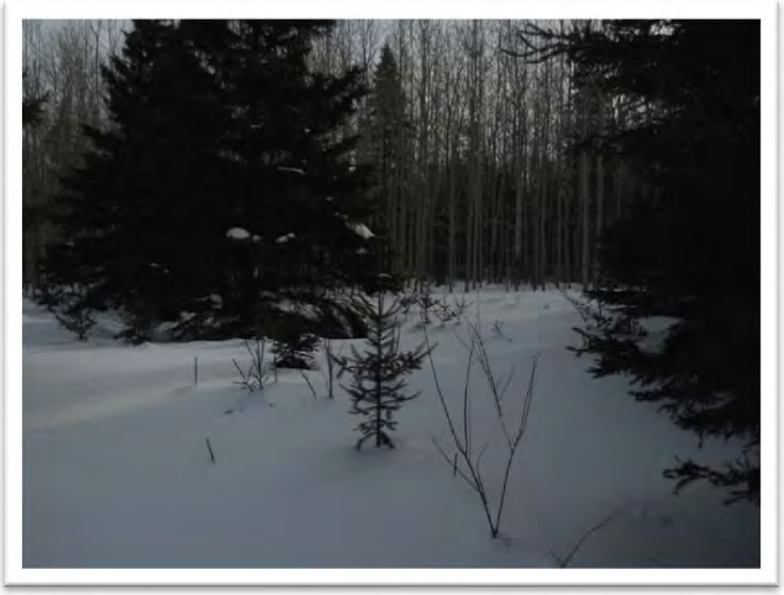
Trees; Spruce, Popple, Birch, Red Maple,



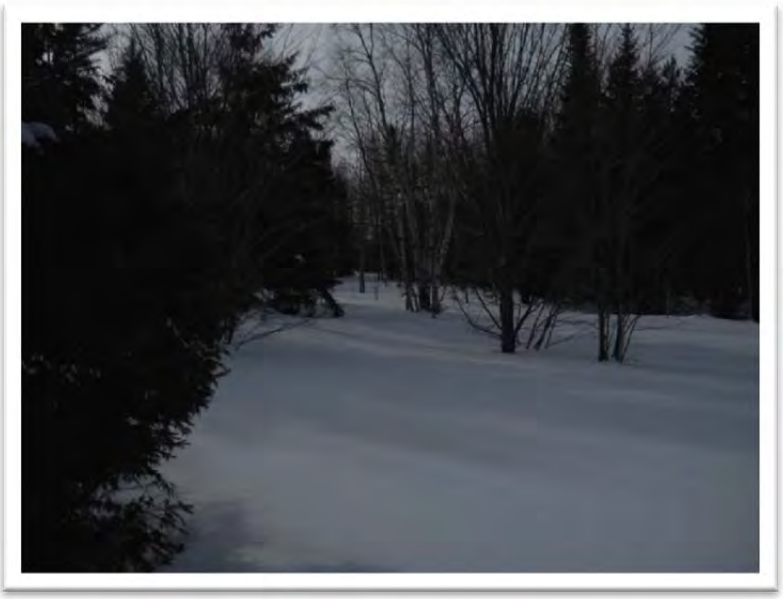
Looking West



Looking North



Looking East



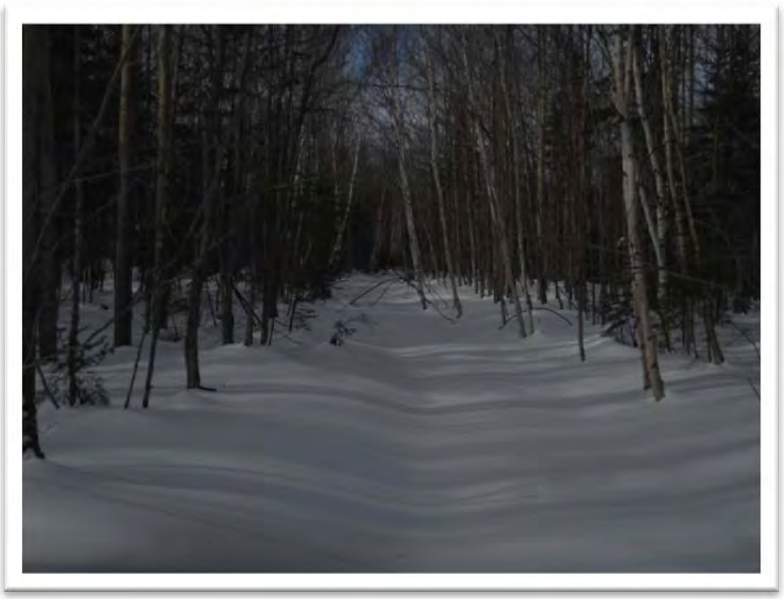
Looking South

Looking at old woods road

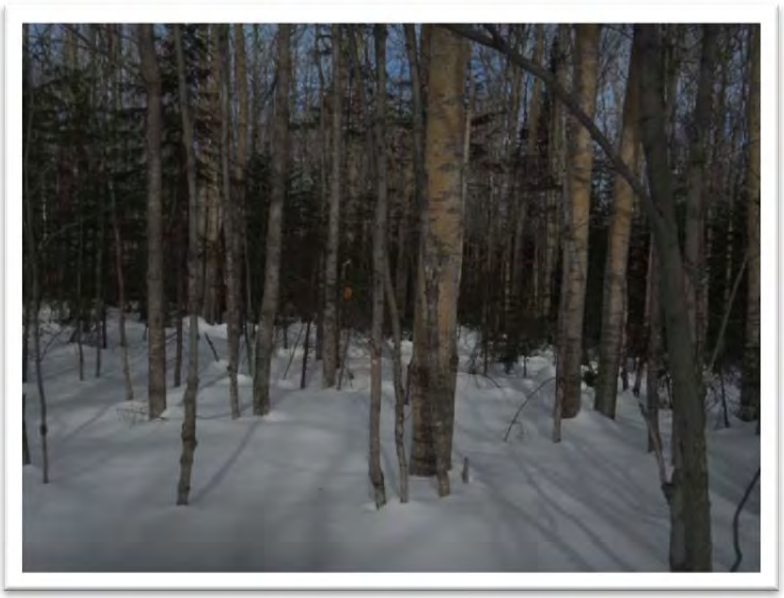
Waypoint #70: N47.88995/W065.86500

Trees; Popple, Red Maple, Fir, Birch,

Looking South



Looking West



Looking North

Looking at old woods road

Waypoint #71: N47.88982/W065.86765

Trees; Popple, Birch, Fir, Red Maple,

Looking South

Looking West

Looking North

Point F

Waypoint #72: N47.88923/W065.86858

Trees; Popple, Birch, Red Maple, Fir

Stockpile of materiel

Looking South

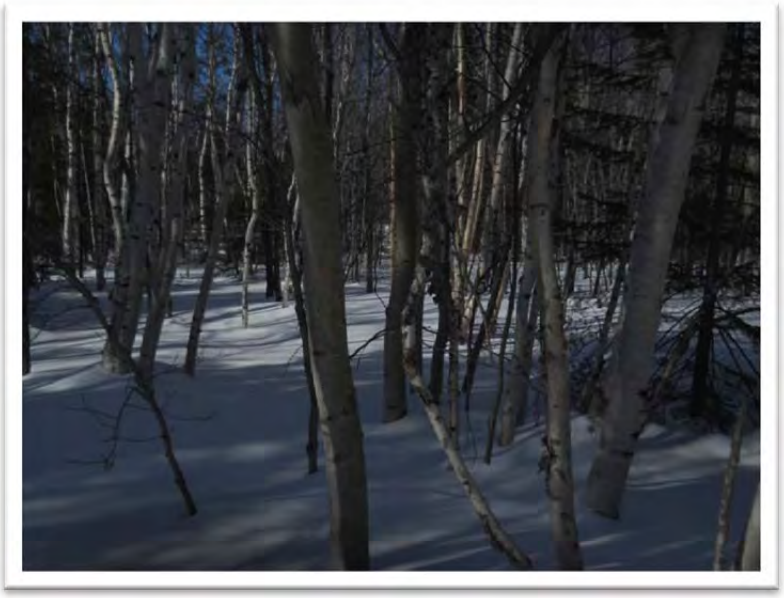
Looking North

Looking North

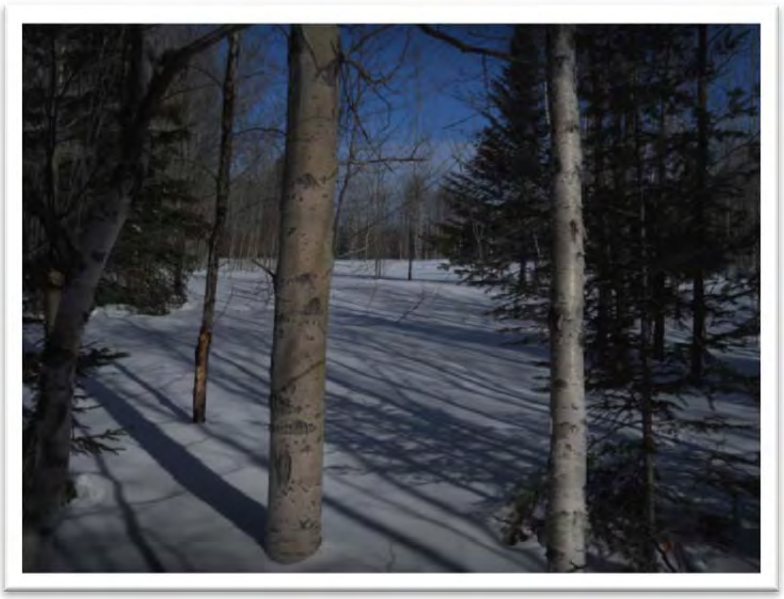
Point B

Waypoint #73: N47.88754/W065.86200

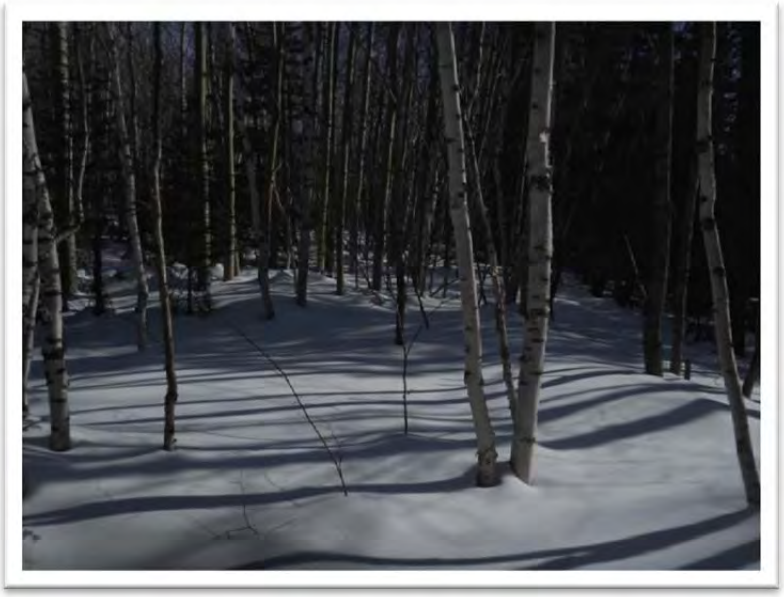
Trees; Popple, Birch, Spruce, Fir, Red Maple,



Looking West



Looking North



Looking East

Looking South

Point C

Waypoint #74: N47.88871/W065.86659

Trees; Popple, Birch, Fir,

Stockpile of materiel

Looking North

Looking South

Looking North

Looking North

Point G

Waypoint #75: N47.89144/W065.86765

Trees; Popple, Birch, Fir, Spruce,

There's maybe water in this area.

Looking East

Looking East

APPENDIX K

Environmental Management Plan

To be submitted prior to initiation of the project.

APPENDIX M

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