Environmental Impact Statement

Long Harbour Commercial Nickel Processing Plant

APPENDICES

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Appendix A -
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Appendix B -
Glossary and Acronyms

Glossary

Term	Definition
(Iron) Hydroxide-Gypsum Residue	Iron containing calcium sulphate solids residue that is produced in this plant by the neutralization of acidic plant solutions with limestone and lime.
Aliphatic Diluent	See solvent extractant diluent.
Amphoterics	Chemical substance that is capable of acting as either an acid or a base.
Anode	A positively charged electrode, as of an electrolytic cell.
Anolyte	The electrolyte adjacent to the anode in an electrolytic cell
Antimony	A metallic element commonly metallic silvery white, crystalline and brittle and that is used as a constituent of alloys and semiconductors.
Atmospheric Leaching	Leaching process step that is conducted at atmospheric pressure in a continuous stirred tank reactor.
Autoclave	Pressure vessel
Autoclave Leach Residue	The solids residue that remains after all the metal and other dissolvable substances are leached in an autoclave.
Bio-leaching	Leaching process that uses naturally occurring bacteria and an acid solution to leach metals from a ore heap, commonly outdoors.
Brown Field	A tract of land that has been developed for industrial purposes and then abandoned.
Bund or Bunded	An embankment or dike used to contain leaks and spills. A bund is an embankment or wall of brick, stone, concrete or other impervious material, which may form part or the entire perimeter of a compound and provides a barrier to retain liquid. Since the bund is the main part of a spill containment system, the whole system (or bunded area) is colloquially referred to within industry as the 'bund'. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground, and to facilitate clean-up operations. As well as being used to prevent pollution of the receiving environment, bunds are also used for fire protection, product recovery and process isolation.
Calcining	The process of heating and burning a material in order to remove all the water and other loss on ignition material. In the Commercial Plant, this process refers to converting limestone to lime by heating at high temperatures (800 to 1000 degrees Centigrade).
Calcium Oxide	Commonly known as burnt lime. The material that is the product of calcining limestone in a lime kiln.
Calcium Sulphate	Commonly known as gypsum. See (Iron) Hydroxide-Gypsum Residue
Cathode	An electrode through which *electric current* flows *out of* a polarised electrical device. When metal ions are reduced from ionic solution onto the cathode, they form a pure metal surface on the cathode. Items to be plated with pure metal are attached to and become part of the cathode in the electrolytic solution.
Cathode Mandrels	A cathode 'template' on to which metal is electrowon. The electrowon metal is removed and the mandrel is reused.
Catholyte	The electrolyte adjacent to the cathode in an electrolytic cell.
Cobalt Anolyte	Solution used in cobalt electrowinning to donate the electron in an electrolytic cell.
Cobalt Catholyte	Solution used in cobalt electrowinning to receive the electron in an electrolytic cell. This action results in the plating of the electrowon metal on the cathode.
Cobalt rounds	A high-purity, primary form of the metal produced by electrowinning. The unique button-shape makes this product safe, convenient to handle and easy to transfer from drums
Cofferdams	A watertight enclosure from which water is pumped to expose the bottom of a body of water and permit construction (as of a pier).
Copper Electrolyte	The copper ion containing solution used in copper electrowinning circuits.

Glossary

Term	Definition
Copper Sulphide Leach Residue	Residue solids that remain after attempting to dissolve of the metal and other soluble components.
CSTR	Continuous Stirred Tank Reactor - a tank containing an agitator that is in a state of continuous feed and discharge.
Cupric	A bivalent compounds of copper
Cyanex 272	Commercial name for a solvent extraction organic used as the extractant.
D2EHPA	Commercial name for a solvent extraction organic used as the extractant.
Decant Water	Water that is produced by decanting from a slurry.
DEPHA	See D2EHPA.
Dissolution Filtrate	The liquid that remains after filtering the slurry that is produced after a step aimed at dissolving a solid into the liquid.
Dry Stacking	The process of creating a pile of gypsum from solid gypsum filter cake.
DSAs	Dimensionally stable anodes
Electrolysis	The producing of chemical changes by passage of an electric current through an electrolyte.
Electrolyte	A liquid substance which acts as a medium to conduct electricity
Electrowinning	The electrodeposition of metals from their ores that have been put in solution or liquefied. Electrowinning is electroplating on a large scale and is an important technique that allows purification of non-ferrous metals in an economical and straightforward step.
Elevated rim ditching	A method for stacking gypsum that uses a combination of ditches and berms to make the gypsum slurry flow along an elevated ditch around an inside perimeter dike of a surface impoundment. Coarse particles settle in the ditch around the rim and finer particles are directed to the center of the impoundment. As the coarse materials settle in the rim ditch it is excavated from the ditch and continually used to construct the rim berm. After the rim berm is constructed the rim ditch is dammed to allow the ditch to fill with material. The operation then moves to the center of the impoundment to develop another rim ditch and berm. The process continues, as the material is stacked higher and closer to the center of the impoundment.
Eluted	To remove adsorbed material from an adsorbent by means of a solvent.
Escaid	Commercial name for the diluent used in the organic phase in a solvent extraction circuit, similar to kerosene.
Exothermic	Characterized by or formed with the release of heat. A chemical reaction that gives off heat.
Flashed	The process step of reducing the pressure of a stream, usually resulting in the evaporation of water in order to dissipate the enthalpy.
Flocculant	Polymer chemical used in solids thickening and liquor clarification to improve the performance of solids removal and settling.
Footprint	
Green Field	Undeveloped land.
Guar	Chemical additive used to improve the performance of an electrowinning circuit.
Gypsum	See Calcium Sulphate.
Gypsum Precipitate	See Calcium Sulphate.
Gypsum Residue	See Calcium Sulphate.
HDPE	High density polyethylene
Hydrolysis	The reaction of donating a proton to a chemical species by the addition of hydrogen.
Hydrometallurgical	A hydrometallurgical process technology is conventionally defined as a process in which metals-bearing minerals are processed in an aqueous phase for the separation and recovery of the valuable metals in the form of pure metals or as intermediate metal products. Vis-à-vis, a pyrometallurgical process technology is conventionally defined as a process in which metals-bearing minerals are treated directly in a smelter to upgrade and recover the valuable metals in the common form of mattes. The metals-bearing mattes are then treated further in a refinery process, which commonly utilizes a hydrometallurgical process technology to separate and

Glossary

Term	Definition
	recover the valuable metals in the form of pure metals or as intermediate metal products.
Hydrometallurgical Technology	Technology that refers to the refining of metals from an ore using water based acidic and basic solutions.
Hypochlorite	Solution containing hypochlorite ions, OCl-.
Ion Exchange	The process step that removes trace amounts of metals from solution by exchanging them with other ions.
Jarosite	A sulfate of iron and potassium or sodium containing water.
Kilovolt ampere	An electrical power-rating product of voltage and current, as specified for an uninterruptible power source. Dividing that product by the line voltage, (110V in the USA, 220V in Europe) yields the output current rating of the power source.
Lewat TP 214	Commercial name for an ion exchange resin.
Lime kiln	A furnace used to reduce naturally occurring forms of calcium carbonate to lime.
Limestone	A rock that is formed chiefly by accumulation of organic remains (as shells or coral), consisting mainly of calcium carbonate. It is extensively used in building and yields lime when burned.
LIX 84	Commercial name for a solvent extraction organic used as the extractant.
Mandrel	A metal bar around which other metal may be bent.
Metal Remobilization	The redissolution of a metal from a solid. <Might I suggest changing to redissolution in the text and delete this from the glossary.
Mother Blanks	The stainless steel cathodes that are used to electrowin metal on.
MSDS	Material safety data sheet.
Neutralization (as related to leach residue)	The reaction where an acidic solution is made less acidic by the additional of a basic solution or slurry.
Nickel Anolyte	Salt solution used in nickel electrowinning.
Nickel Concentrate	Milled concentrate containing approximately 20% Nickel, 42% Iron, 2% Copper and <1% Cobalt
Pressure oxidative leaching	Is a technology used for processing base metal sulphides (e.g. nickel, copper and zinc). It operates at higher than atmospheric pressures and ambient temperatures.
Project	
Pyrometallurgy	An ore-refining process, such as smelting, dependent on the action of heat.
Raffinate	The solution that contains the metal species that were not extracted in a solvent extraction circuit. Is that portion of a treated liquid mixture that remains undissolved and is not removed by the selective solvent.
Rounds	A high-purity, primary form of the metal produced by electrowinning. The unique, button-shape makes this product safe, convenient to handle and easy to transfer to drums.
Smelter-refinery	Metal separation process that involves melting the feed at high temperature, allowing the metal to separate from the other molten material, and then collecting the metal phase and other phase separately.
Sodium Laurel Sulphate	Additive used to improve the performance of electrowinning circuits.
Sodium Lignosuphonate	Additive used to improve the performance of pressure leach autoclaves.
Solvent Extraction	A method to separate. A process used to selectively transfer one species from an aqueous liquid to a different aqueous liquid using an organic extractant (liquid).
Solvent Extraction Diluent	Organic liquid used to make-up the organic phase used in the solvent extraction process. The extractant is dissolved in and diluted by the diluent.

Sparge	The introduction of a gas into a vessel containing liquid. The vessel can be under pressure but does not have to be. The gas is bubbled through the liquid to assist with or initiate a reaction
Spent Electrolyte	A depleted, metal-bearing solution being removed from a electrowinning circuit due to the removal of desired metals to a desired level.
Starter Sheet	Sheet of nickel metal, produced on a mother blank, used as the cathode in nickel electrowinning.
Strip Solution	The acidic solution used to strip the metal from the loaded organic in a solvent extraction circuit.
Subaerial	Situated, formed or occurring on or immediately adjacent to the surface of the earth.
Subaqueous	Existing, formed or taking place in or under water.
Surfactant	A surface-active substance (as a detergent).
SX Diluent (Escaid 110; type of kerosene)	See solvent extraction diluent. Escaid 110 is the commercial product name for this organic liquid.
Utilidor	A utilidor is a conduit that contains multiple utility systems such as compounds based on their solution preferences for two different immiscible liquids, usually water and an organic solventwater, sewerage, fuel oil, gas, electrical power, telephone, and central heating in various combinations or in some cases all together. Utilidors have been constructed above and below ground, and range in size from a simple insulated conduit to a walk-through passageway.
WHMIS	Workplace hazardous materials information system

Appendix C –
Public Consultations

Pre-Registration Public Meetings and Presentations		
Date	**Location**	**Event**
3 October 2003	Placentia	Presentation to Opportunity Argentia Conference
1 April 2004	Argentia	Presentation to Community Liaison Committee
30 September 2004	Placentia	Presentation to Opportunity Argentia Conference
25 November 2004	St. John's	Presentation to NEIA Luncheon
17 February 2005	Placentia	Update to Community Liaison Committee
22 September 2005	Placentia	Update to Community Liaison Committee
26 January 2006	Argentia	Meeting with Town of Placentia and AMA Board
26 January 2006	Placentia	Update to Community Liaison Committee

Pre-Registration Government Meetings		
Date	**Location**	**Event**
5 October 2004	St. John's	Meeting with provincial departments of Natural Resources and Environment and Conservation regarding assessing two process alternatives in one EIS
8 October 2004		Teleconference with CEA Agency and Transport Canada to provide project information and discuss likely federal concerns and regulatory responsibilities
26 October 2004	St. John's	Meeting with CEA Agency to discuss project details and potential federal triggers
4 January 2005	St. John's	Meeting with provincial Department of Natural Resources to update on schedule and approach and to seek input
6 January 2005	St. John's	Meeting with Transport Canada to discuss project and schedule and Transport Canada's role and responsibilities
6 January 2005	St. John's	Meeting with provincial Pollution Control Division to discuss the project and the Division's information needs
6 January 2005	Mount Pearl	Meeting with Environment Canada to provide schedule and project information and to seek input, discuss concerns, etc.
10 January 2005	St. John's	Meeting with DFO to provide schedule and project information and to seek input, discuss concerns.
17 February 2005	St. John's	Meeting with CEA Agency to advise of delay in project registration due to need for more engineering and environmental studies related to residue transport and storage
18 February 2005		Call to Transport Canada to advise of delay in project registration due to need for more engineering and environmental studies related to residue transport and storage
22 February 2005		Call to DFO to advise of delay in project registration due to need for more engineering and environmental studies related to residue transport and storage
26 April 2005	St. John's	Meeting with DFO to discuss project scoping, freshwater baseline studies and DFO's information needs
8 June 2005	St. John's	Meeting with DFO to discuss marine baseline studies
29 August 2005	Argentia	Tour of Demonstration Plant for DFO officials from Ottawa and St. John's, followed by presentation on the project focusing on interactions with the marine and freshwater environments

18 January 2006		Calls and e-mails to CEA Agency, DFO, Transport Canada, Environment Canada and provincial Environmental Assessment Division advising of decision to move site from Argentia to Long Harbour
26 January 2006	St. John's	Meeting with CEA Agency regarding the federal EA process and path forward
27 January 2006	St. John's	Meeting with CEA Agency, DFO and Transport Canada regarding federal EA approach
16 February 2006	St. John's	Meeting with CEA Agency to review draft of Project Description/Registration document
17 February 2006	St. John's	Meeting with Transport Canada to review draft of Project Description/Registration document (sections pertaining to that department's mandate)
21 February 2006	St. John's	Meeting with DFO to review draft of Project Description/Registration document (sections pertaining to that department's mandate)
13 March 2006	St. John's	Briefing session for federal and provincial regulators to review draft Project Description/Registration document and address questions. Twenty three regulators from 3 federal departments and 4 provincial departments attended.

Post-Registration Public Open House Events

Date	Location	Number of Attendees	Exit Surveys	Primary Interest Cited on Survey	Primary Concern Cited on Survey
19 April 2006	Long Harbour	52	28	Employment	Environment
20 September 2006	Long Harbour	102	43	Employment	Environment/Effects of pollution on wildlife and habitat
21 November 2006	Ship Harbour	26	10	Environment	Environment/Effects of pollution on wildlife and habitat
22 November 2006	Placentia	36	25	Employment	Environment/Groundwater
23 November 2006	Whitbourne	54	24	Employment	Environment/Effects on Whitbourne and local areas

Post-registration Public Meetings and Presentations

Date	Location	Event
5 April 2006	Long Harbour	Presentation to Long Harbour Town Council
20 April 2006	Placentia	Update to Community Liaison Committee
21 April 2006	St. John's	Presentation to PEGNL Luncheon
31 May 2006	Arnold's Cove	Presentation to Placentia Bay Integrated Management Planning Committee
20 June 2006	Whitbourne	Presentation to Isthmus Joint Council
12 Oct. 2006	Ship Harbour	Community Meeting
16 Nov. 2006	Placentia	Update to Community Liaison Committee
17 May 2007	St. John's	Presentation to NEIA Session on Placentia Bay
24 May 2007	Placentia	Update to Community Liaison Committee

Post-registration Government Meetings		
Date	**Location**	**Event**
7 April 2006	St. John's	Meeting with provincial Environmental Assessment Division regarding feedback to date from provincia the ongoing environmental assessment process
11 April 2006	St. John's	Meeting with CEA Agency on harmonizing the federal and provincial environmental assessment processes and the timing for the federal decision
10 May 2006	St. John's	Presentation on residue handling/storage for federal and provincial officials, followed by question and answer session. Total of nine attendees from DFO, Environment Canada, Transport Canada and NL Environment and Conservation Department
11 May 2006		Teleconference with CEA Agency regarding federal/provincial coordination on the environmental assessment process and issues related to using Sandy Pond for residue storage
12 May 2006	St. John's	Meeting with Environmental Assessment Division to discuss comments received on Registration document
29 May 2006	St. John's	Meeting with Assessment Committee
12 June 2006	St. John's	Meeting with six member agencies on the Assessment Committee regarding socio-economic issues. Discussed jobs and training, women's employment, business opportunities and health-related concerns.
16 June 2006		Teleconference with CEA Agency regarding timing of federal decision
11 July 2006		Telephone conversation with Environment Canada regarding update on federal EA process
20 July 2006	St. John's	Meeting with provincial Environmental Assessment Division to discuss draft EIS Guidelines.
24 July 2006	St. John's	Meeting with Assessment Committee to discuss draft Guidelines
9 August 2006	St. John's	Meeting of agencies on Assessment Committee responsible for socio-economic related items
10 August 2006	St. John's	Meeting of agencies on Assessment Committee responsible for biophysical related items
14 August 2006		Telephone conversation with CEA Agency regarding update on federal environmental assessment process
23 August 2006	St. John's	Meeting with DFO to provide information and seek input on water supply plans
24 August 2006		Telephone conversation with Environmental Assessment Division regarding timing of release of draft EIS Guidelines
25 August 2006	St. John's	Meeting with provincial Water Resources Division to provide information and seek input on water supply plans
7 September 2006		Telephone conversation regarding public review period for draft Guidelines
7 September 2006		Telephone conversation with CEA Agency regarding timing of federal decision on approach relating to Sandy Pond
12 September 2006	St. John's	Presentation and meeting on Environmental Risk Assessment Study with federal and provincial Assessment Committee members and other regulators
26 October 2006	Ottawa	Presentation and meeting with senior Environment Canada and DFO officials
2 November 2006	St. John's	Meeting with Environmental Assessment Division regarding proposed Table of Contents and structure of EIS and timelines
16 November 2006	St. John's	Meeting with DFO regarding status of studies and schedule; compensation strategy
9 February 2007	St. John's	Meeting with Environmental Assessment Division and Pollution Prevention Division regarding the potential of adding a third processing option to the EIS
12 February 2007	St. John's	Meeting with CEA Agency regarding the potential of adding a third processing option to the EIS
21 February 2007	St. John's	Meeting with DFO regarding the potential of adding a third processing option to the EIS
23 February 2007	St. John's	Meeting with DFO to discuss HADD determination and compensation strategy; freshwater and marine consultants also provided updates on their studies
28 February 2007	St. John's	Meeting with CEA Agency regarding residue disposal site and potential third processing option
28 February 2007	Mount Pearl	Meeting with Environment Canada regarding residue disposal site and potential third processing option
12 March 2007	St. John's	Meeting with Transport Canada regarding residue disposal site and potential third processing option
15 March 2007	Ottawa	Meeting with CEA Agency, Environment Canada, DFO and Natural Resources Canada regarding residue disposal site and potential third processing option

20 March 2007	St. John's	Meeting with Assessment Committee
23 March 2007	St. John's	Meeting with Assessment Committee Chair to discuss comments on Socio-economic Component Study
31 May 2007	St. John's	Meeting with Assessment Committee to discuss refinements, additions and corrections to the Socio-economic Component Study

ISSUES TRACKING

INTEREST/CONCERN	CATEGORY*
BIOPHYSICAL FOCUS	
Effects of emissions on air quality.	1
Concern about Sulphur deposits. Why can't it be taken out of the residues? Is it better environmentally to do so?	8
Concern about the quality of the effluent being released into the harbour, and the impact on the nearby aquaculture (mussel farm) facility.	7
Concerns about the quality and quantity of effluents on the blue cultured mussels aquaculture project in Long Harbour, as well as the impacts from flooding, monitoring, the availability of test results and the discharge standards used by the project.	7, 2
What would be the effects of any dredging around the wharf in relation to the exposure of buried phosphorus?	7
Environmental impact on fish, birds, habitat, and water quality.	5, 6
Impacts of this operation on health and safety issues remaining from previous industrialization.	1, 8
What is the makeup of the marine effluent?	8, 7
What volume of the marine effluent will be released to the environment?	8, 7
Will there be any thermal effects of the marine effluent?	8, 7
Where will the marine outfall be located?	8, 7
Possible impacts of blasting during construction.	8
Concern over the intention to store large quantities of sulphur waste material in Sandy Pond, and whether this storage should be in a lined man-made pond, rather than a natural one.	10
Is there information that exists on how other Hydromet facilities disposed of wastes containing sulphides?	2
Sulphur being stored underwater and being thermodynamically unstable with respect to oxidation by oxygen (in water or in air), would create sulphur dioxides, sulphur trioxides, and eventually in the presence of water turn to sulphuric acid. What is the rate of oxidation in Sandy Pond estimated at and the rate of leakage of sulphuric acid produced into the nearby land environment?	10, 6
Concern over the likelihood that toxic heavy metals present as traces in the ore will enter the marine environment if water in Sandy Pond is leaked into the ocean at Long Harbour.	7, 10
Effect of land use on wildlife (migratory species, raptor species (Bald Eagle), etc.)	5
Emissions/effluent disposal effects of particular species at risk such as Boreal Felt Lichen, at-risk Baleen whale species, and Red Crossbill).	1, 5, 7
Effects of bioaccumulation and impacts on bottom dwelling marine species.	7
Effects of land use on hunting/fishing – potential loss of fishing/trouting habitat.	9, 5
Concern for fish habitat and effects of groundwater runoff.	5, 6
Availability and accessibility of effluents and hazardous waste test results to public.	2
Matte plant scenario is preferable with respect to water consumption, waste minimization, and minimizing the loss of fish habitat.	8
Potential impacts to groundwater and surface water coming from the area.	6
Impacts of the physical environment on the project (such as from floods, storms, and climate change).	8
Concern about oil on the ship and effects on the environment.	7
Potential for damage to a fishery already endangered.	7
What will happen to the fish in Sandy Pond now?	5, 10
Concern about INCO releasing 3 million cubic metres per year of treated effluent into the marine environment and 375,000 tonnes of neutralized slurry residue into Sandy Pond using a 3.8 kilometre pipeline.	10, 6, 7
Will Sandy Pond be able to hold the entire estimated volume of residue generated from the plant?	10

INTEREST/CONCERN	CATEGORY*
How will the discharge of water be monitored, and by whom?	2, 6, 7
What is the minimum allowable volume of chemicals/toxins/heavy metals to be discharged in the effluent?	7, 8
Will reports of testing and analysis results of discharged water be available in some manner to concerned persons and/or companies?	2
What if sea water in nearby areas becomes contaminated? Who is responsible?	7, 8
Processing of ore not from Voisey's Bay and PGM recovery not part of present Hydromet process scope. Concern that it could be an issue if ores not from Voisey's Bay are processed that contain PGM's.	8
Will there be any compensation from the company or government for destroying the country, if the plant is not constructed?	11
It is important that VBNC give comfort and assurance that it is committed to the area.	2, 8
Is there a third option if Hydromet or Matte is not acceptable?	8
If there is some insurmountable problem in registering the project at Long Harbour, what will the company do?	11
Concern that Sandy Pond is too 'leaky' and not feasible to use.	10
Concern that there are problems with the land; too many streams; too much bog land; and therefore the project will not be approved.	5, 6
Environmental Assessment processes.	11
Why are mussels presently being farmed in Long Harbour not used in the study?	7
Concern that sulphur stored in Sandy Pond will get into the ground and out into the environment and the damage it may do.	10, 6
Will marine monitoring be conducted in Long Harbour after commencement of the Hydromet operation?	7
Concern that when Sandy Pond is poisoned then everything is, and that the technology is taking it from the air where you can see it and putting it under water where you can't see it.	10, 6
Concerns about the fishermen. What is the effluent going to do to the fish? Can you guarantee that all the birds, wildlife, etc., won't get poisoned?	7, 5, 9
Concern over the short-term and the long-term effects of the facility within the environment and the local surrounding areas.	6, 7, 9
Concern about the fishery in the area, with regard to cod, crab, and the effect on the future of the fishery.	7, 9
Will there be any pollution that will stop campers from setting up on Villa Marie road?	9
What is the difference between Hydromet and Matte technology?	8
Are the ponds in Long Harbour connected in any way to the ponds in Placentia?	6
What are the results of the baseline studies?	2
When will the EIS be submitted?	2
Why was the project moved from Argentia?	8
Use of area for "gravel pit camping" by construction workers and need to address this issue.	6, 9
Concern over policies pertaining to contamination of local areas.	6, 9
Is the land area for the new location within the Long Harbour town boundary?	8
Concern over the trail-building effects on local cabin properties. Concern that trails come closer to pond area than were mapped, and that ATV's and snowmobiles will use them, resulting in negative impacts on cottages in the area.	9
What happens if there are snags encountered in the environmental assessment in Long Harbour?	11
Potential effects of dust from trucking.	1
Potential loss of productive forest land.	5, 9
How big is the footprint in Long Harbour?	8
Commitment of Voisey's Bay Nickel to do minimal damage to the environment.	8
Concern about Sandy Pond and effect of residue storage on surrounding area for birds, animals, and vegetation.	10, 5
Concern for animals going through ice on ponds used for residue storage and ingesting	10, 5

INTEREST/CONCERN	CATEGORY*
residues from water.	
How much area will be taken up by VBNC?	8
How long will you be able to make Sandy Pond last?	8, 10
How will the company deal with environmental problems?	8
How was Long Harbour permitted to extend their boundary?	11
Concern over the 'hidden facts'. How can we trust you [VBNC]?	11
Concern to have more information sessions regarding boundaries and seepage.	2
How well will site systems withstand the unpredictable forces of nature, such as abnormal rain amounts creating flooding conditions and spawning new rivers with the possibility that runaway waters may find their way into the sea?	8, 6, 7, 5
Matte vs. Hydromet and why? Consideration given for less waste produced, less energy required, and less resources consumed all in favor of Matte processing when compared to Hydromet processing.	8
How close will VBNC own land? Is there any account taken that this area is our hunting grounds, wood cutting area and berry picking grounds?	9, 8
The proposal for the Hydromet plant should be refused on the basis that it does not identify any such alternatives to using and destroying existing fish habitat.	8, 5
Concerns about the impact of such a facility would have on the marketability of nearby aquaculture projects (blue cultured mussels).	7
Experimental nature of Hydromet – community apprehension to the success/failure of the technology.	8
Matte processing alternative is not described in enough detail to enable a fair evaluation.	8, 2
Both Matte and Hydromet processing alternatives will have enormous impacts on marine environment and will damage a fishery already endangered, violating Section 36 of the Fisheries Act.	7
Canada and Newfoundland should not be supporting dumping waste of any kind into the ocean.	7
Concern over ocean mine waste dumping and the impact of thermoclines (bioaccumulation) on organisms that live under the thermocline and on the ocean bottom.	7
The need for a nickel processing project – are the concerns we have on risks to health and the environment as important as the needs of the "Chinese nickel appetite"?	1, 9
Loss of clean unencumbered land and water courses.	9, 5, 6
Cumulative effects of this project with others existing/planned within/for the area.	9
Concern about the future growth of Whitbourne.	9
Will people still be able to fish in nearby ponds?	9, 5
Will there be a dome put over Sandy Pond to trap any sulphuric acid from going into the environment?	10, 6
What are the positives for Ship Harbour?	3, 9
Concern for wildlife, marine life, environment, and the impact of the project on the community.	5, 6, 7, 9
The boundary Long Harbour has taken and disposal site near Ship Harbour will not be tolerated.	9
What does Ship Harbour get?	3, 9
Concern the project and facility will have on the community of Ship Harbour – hunting grounds being destroyed and land taken over.	5, 9
Requests for clarification of the actual facility being proposed and the nickel process.	2, 8
Ongoing monitoring of the nickel processing (procedure) during and beyond the life of the project.	2, 8
Access to continuous updates via the Internet (web).	2

SOCIO-ECONOMIC FOCUS	
The potential for spin-off opportunities.	3
Politics should not play a role in where this processing plant should be located due to the importance of needed jobs that would be in jeopardy pending negative outcomes.	3, 4
The impact of the project for Trinity and Placentia Bay areas.	3, 4, 9
Concern that the majority of future workers at the plant would not live in Long Harbour, but travel from St.John's and other areas. Concern about the negative effects of increased traffic but no benefit of the secondary spin-off effects of a larger community with increased infrastructure and services.	3, 4, 9
Concern over the impact of the project and proposed facility on the social-economic development of the surrounding area.	3, 4, 9
Why can't the project go to Argentia? The town's water supply could be moved to circumvent issues with running long effluent pipes across watersheds.	8
Concern that the Town of Placentia will not receive taxation benefits. Concern that the town will not grow since Long Harbour is near the TCH and people will tend to live elsewhere.	3, 9
Can things like warehousing/purchasing/head office/logistical support/training be tied to the Placentia area?	3
What jobs will be available at facility; when and how many?	4
Employment and business opportunities.	3, 4
Concern for access to more information on jobs and updates on opportunities as they take place.	2, 4
Economic growth potential for the surrounding area.	3
Will there be specific job descriptions updates available? If so, when?	4, 2
Concern for job security and training of quality personnel to have them ready for the project.	4
Access to more information on the new technologies used by facility.	2, 8
What information is there on training needed for jobs? Will training take place in local colleges?	2, 4
Obtaining full-time positions with INCO.	2, 4
Employment for the area – bring our children home.	4, 9
Jobs for local community; good community co-operation.	4
Is there enough Hydro power to supply the industry?	8
Providing employment for the community and a stable environment for the future.	3, 4, 9
How many shiploads a year of nickel concentrate would be coming in?	8
Is all the nickel coming from Voisey's Bay?	8
The estimated life of the project is 20-30 years. Could the project last beyond that timeframe?	8
If Hydromet didn't go through in Long Harbour, could a Matte plant be built in Argentia?	8
What is the cost of building the plant?	8
Will VBNC keep up with the use of good technology?	8
Could the new owners of INCO (CVRD) put a halt to this project?	11
Could a Hydromet plant be converted to a refinery?	8
Regarding jobs will it be locals first or will workers come from outside the area?	4
Interest in finding out more information about potential proposals regarding the facility.	3
What will happen to the demonstration plant after 2008?	11
What business opportunities could be available for surrounding areas.	3
Concern to maximize as much as possible local employment and the use of local suppliers.	3, 4
Environmental effects and on water and health – commitment to educating public on effects.	1, 6, 7, 2
Power generation for site? Where will the power come from and is there enough to run a plant of this size?	8
Suggestion that a road be built to Long Harbour from Ship Harbour to avail of work, and also bring tourism to Ship Harbour.	4, 3
Truck traffic on local byways.	9
What are the phases of the project and the timelines?	8

Plans after decommissioning phase. What will happen? Should there be a fund built up over the years to take care of people and communities to mitigate any negative effects.	8, 9
Continuous updates on project progress and developments.	2
Commitment from VBNC to keep up with new technology.	2, 8
Tax benefits to area.	3
Proponents intended support to regional suppliers to enhance capacity and competitiveness for construction and longer term service and supply needs.	3
Impacts on health and quality of life for surrounding residents.	1, 9
Attractive healthy communities where employees can live.	9
Assurances for environmentally friendly living conditions.	9
Concern to learn about the 'nickel process' and its impacts.	2, 8
The project is taking too long to start.	11
Public consultations can be structured to enable all residents to comfortably comment.	11
Impacts of increased industrialization on marketability of seafood from the area.	7, 1
The good record of the proponent in supporting local suppliers, contractors, and businesses.	3
Long range benefits to the province from being at the leading edge of Hydromet technology and from hosting a world-class facility.	3
The 'robbing' of our best resource, our tradespeople by the province of Alberta.	11
The environmental responsibility record of this proponent [VBNC].	2, 8
Maximizing business opportunities for local companies 'Per the spirit of the Industrial and Economic Benefits Agreement' signed as part of the 'Voisey's Bay Project Agreement'.	3
Concern that VBNC, the government of Newfoundland & Labrador, and the Government of Canada proceed in an environmentally acceptable manner to ensure than not only is our community and province a safe place for today's generation, but that all efforts are take to protect future generations.	8, 9
Concern that the well-being of local residents be put first and foremost and that the proponent [VBNC] carefully and critically consider every aspect of the environmental assessment process to ensure the communities and local resident's interests are given careful consideration.	9
Express concern that this project must be subject to an extensive environmental assessment that includes a federal component involving consultation with public stakeholders, and that the project require at least a comprehensive study under the Canadian Environmental Assessment Act.	11

*Categories

1. Air Emissions and Human Health Effects
2. Availability/Accessibility of Information
3. Business Opportunities/Benefits
4. Employment Benefits
5. Fish/Wildlife Habitat
6. Ground/Surface Water Contamination
7. Marine Environmental Effects
8. Project Design/Description
9. Regional Quality of Life
10. Residue Storage/Sandy Pond
11. Other

Appendix D –
Environmental Impact Statement Guidelines

GUIDELINES

for both the

ENVIRONMENTAL IMPACT STATEMENT

(pursuant to Part X of the Environmental Protection Act)

and the

FEDERAL ENVIRONMENTAL ASSESSMENT

(pursuant to the Canadian Environmental Assessment Act)

LONG HARBOUR COMMERCIAL NICKEL PROCESSING PLANT
(PLACENTIA BAY, NEWFOUNDLAND and LABRADOR)

AS PROPOSED BY

VOISEY'S BAY NICKEL COMPANY LIMITED

Issued by
Honourable Clyde Jackman
Minister

2006 10 23

ENVIRONMENTAL IMPACT STATEMENT GUIDELINES

PREFACE:

Voisey's Bay Nickel Company Limited has been required, through the provincial Environmental Assessment Process, to prepare an Environmental Impact Statement (EIS) for their proposed Long Harbour Commercial Nickel Processing Plant. These Guidelines are intended to assist the proponent with the preparation of the EIS. The EIS will identify the important environmental impacts associated with the undertaking, as per the Registration on March 21, 2006, identify appropriate mitigation, and produce a statement of residual effects for evaluation by the Minister of Environment and Conservation.

Component Studies will address baseline information gaps for particular Valued Ecosystem Components (VEC's). The EIS is expected to contain a review of all available pertinent information as well as such additional new information / data as may be required by the Assessment Committee. The EIS must present the information necessary for making an informed decision. The contents of the EIS will be used by the Minister of Environment and Conservation to determine the acceptability of the proposed project based on the severity of remaining unmitigable residual impacts and the potential level of socio-economic benefit the proposed undertaking may provide. The Minister will forward a recommendation to Cabinet. Cabinet will make the final determination on whether or not the undertaking will be released from environmental assessment and allowed to proceed to licensing and permitting, and thereby potentially enter construction and operation phases.

Section I of the Guidelines describes the general requirements for organization and content by highlighting the major items to be included in the EIS. Section II contains detailed project-specific information requirements, including Component Study requirements. It summarizes the concerns which have been raised by the Screening Committee Agencies, Assessment Committee, and the public submissions received by the Minister during the review of the registration document. Furthermore, the proponent is required at a minimum to hold public consultation meetings in the Long Harbour - Placentia - Whitbourne Area.

Since this project requires authorization under Section 35(2) of the *Fisheries Act* and Formal Approval under Section 5(1) of the *Navigable Waters Protection Act*, this undertaking is also subject to the Canadian Environmental Assessment Act (CEAA). The Department of Fisheries and Oceans (DFO) is the lead Responsible Authority for conducting the Federal Environmental Assessment. In an effort to harmonize the provincial and federal assessment processes to the extent possible, the proponent will prepare one acceptable EIS. DFO intends to use the EIS and associated documentation as the source of information regarding the project description and analysis of anticipated impacts for the Federal Environmental Assessment. Therefore the EIS must also address the sustainability of the natural resources of the area, consider cumulative impacts, and describe the process used to select VEC's.

Once the requirements under both Acts have been fulfilled by the proponent, both governments retain their respective decision-making responsibilities and authority.

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SECTION I - GENERAL GUIDELINES:

The draft Environmental Impact Statement and all associated Reports and Studies (the EIS) shall use System International (SI) units of measure and terminology throughout. An initial need for twenty-five copies of the draft EIS is anticipated; sixty copies of the final draft, including at least one and up to twenty electronic copies, may be sufficient. They must be printed or copied onto two sides of recycled ("Environmental Choice") paper in a loosely-bound format. The paper choice must be conspicuously stated. Where possible maps and other attachments should be scaled to fit on standard size papers to facilitate copying.

Throughout the preparation of the EIS, the proponent should freely cite experiences from other environmental assessments, with emphasis on (but not necessarily limited to) Newfoundland and Labrador and Canadian examples, to support the methodology and value of the information provided, or as reasons why a different approach has been chosen as a preferred alternative.

The EIS shall include as a minimum Chapters on the following:

1. Executive Summary

The summary should be written in terms understandable to the general public and in such a manner as to allow reviewers to focus immediately on items of concern. It must include identification of the proponent, a brief project description, predicted environmental effects (including socio-economic effects), mitigative measures, residual effects, monitoring programs, and a summary of the fundamental conclusions. A Table of Concordance, that will identify the place(s) where the Guideline requirements are addressed in the EIS, must either be placed at the end of the Executive Summary or its location (such as in an Appendix) must be referenced in the Executive Summary.

2. Introduction

   (i) Identification of Proponent

   (ii) Purpose of the Project

   (iii) Purpose of the Environmental Impact Statement

3. The Proposed Undertaking

   (i) The Prospective Site and Study Area - a description of the proposed undertaking.

A precise description of the boundary of the site accompanied by a map or maps of suitable scale and with the National Topographic Survey edition number affixed must be presented in relation to the proposed study area (terrestrial and marine). The delineation of geographic coordinates for the study area and location of project components is crucial to scope the extent of the environmental assessment.

(ii) Rationale/Need - the proponent's rationale shall be presented.

The relationship to the "Voisey's Bay Development Agreement" of September 30, 2002 must be stated. Also the reasons in the Registration as to why both a Hydrometallurgical (Hydromet) Plant scenario and a Matte Plant scenario must be pursued needs to be restated.

(iii) Alternatives - the alternative methods of carrying out the undertaking, and the alternatives to the undertaking must be presented.

Of particular interest will be alternatives with respect to location and alternatives for residue treatment disposal for both the Hydromet Process and the Matte Process. All aspects of both processes must be examined in a thorough manner such that all potential environmental effects are identified. A detailed summary is required of the possible alternatives which were considered to satisfy the need. If only one alternative is viable or possible, a statement should be made to this effect with supporting argument.

(iv) General Layout:

Physical features of the undertaking shall be described and identified on maps of suitable scale. This should include but not necessarily be limited to the following:

1. Access Roads and Raw Material Conveyors, Storage, and related infrastructure,
2. Storage for Reagents and Final Products,
3. Berms / Dams, Pipelines, Pumphouse, and Associated Structures (such as spillways, intake, screening, trash racks) and the freeboard for the water supply/supplies,
4. Dock / Port and Laydown Area,
5. Oxygen Plant, Backup Power Plant, and Fuel Storage,
6. Existing Power Substation and Proposed Transmission Line(s),
7. Stream Crossings for roads and pipelines (culverts, bridges and fording sites),
8. Tier 1 and Tier 2 Administration and Laboratory Buildings,
9. Borrow Pits, Quarries, Batch Plants, Major Excavations, and Waste Rock Disposal Locations (including their rehabilitation),
10. Provisions and Facilities for Sheltering/Feeding Construction and Operation Workers and Visitors (including sub-contractors),
11. Berms / Dams, Pipelines, Residue Pond(s), Clarification Pond(s), Stormwater Pond(s), and Associated Structures (such as spillways, outfalls/intakes, screening, trash racks) for the Hydromet Process,
12. Pipelines, Berms, and Associated Structures for residue and waste storage for the Matte Process,
13. Temporary Stream Diversions and locations of all Ponds to be Infilled,
14. Preparation and Process Buildings, and
15. Pipelines and Outfall Structures for Treated Effluents including Sewage.

(v) Construction:

The details, materials and methods, schedule, recruitment and employment by occupation, and location of all planned construction activities related to the above features must be presented. This should include but not necessarily be limited to the following:

1. Construction Yard / Laydown Areas: Establishment and Operation
2. Provisions and Facilities for Sheltering/Feeding Construction and Operation Workers and Visitors (including sub-contractors),
3. Widening of the Existing Dock, Possible Dredging, and Removal of the Sunken Vessel near the Dock,
4. Clearing of Right of Ways and Area to be Flooded (Vegetation Removal, Grubbing, and Disposal of Debris),
5. Collection of Disposal of Solid Wastes including Office Wastes and Food Wastes,
6. Blasting Activities
7. Control of Stormwater and Sedimentation
8. Plans for the Sheltering/Feeding of Construction and Operation Workers and Visitors (including sub-contractors),
9. Storage, Use, and Transportation of Hazardous Material; Fuels, Lubricants, and Explosives, and
10. In-stream Activities and Steam Crossing Structures.

(vi) Operation and Maintenance:

Identify and describe all aspects of the operation and maintenance of the proposed undertaking including but not limited to:

- physical components required for operation and maintenance,
- structures, facilities, and staff associated with environmental controls, the offloading and conveying of concentrate, and wastewater treatment and residue management,
- employee orientation programs, recruitment and hiring plan and policies, and health and safety plans and policies,
- an overview of systems to detect and respond to spills/leaks, process upsets, and emergencies, and
- the protection and maintenance of the outfall/diffuser from storm damage).

(vii) Post-Closure:

The predicted and design lifespan of the facility and details of the decommissioning shall be indicated. In particular, the maintenance and management of any residue ponds that will be left after closure.

4. Existing Environment

The EIS must contain a description of the present environment (biophysical and socio-economic), and resources and socio-economic features that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the proposed undertaking with emphasis on the Valued Ecosystem Components (VEC's) that are listed below. Qualitative and quantitative descriptions of present and potential resource use and identification of knowledge gaps are imperative.

The proponent must provide a Section on Human Resources or describe a Health, Safety, and Environment Management System that would include a Statement of Principles under which INCO and Voisey's Bay Nickel Company Limited operates (such as plans to provide an Environmental Protection Plan (EPP), a Womens Employment Plan (WEP), a Human Health Risk Assessment, a Health & Safety Plan (H&SP), and an Accidental Effects & Environmental Emergencies Response/Contingency Plan and intentions to meet ISO 14001 and OHSAS 18001).

Discussion of the descriptions of the existing environment is to be presented for both the preferred and any favourable alternatives under the following headings:

- the marine environment (currents, tides, benthic habitat, flora and fauna including shell fish and indicator species),
- employment, out-migration, tax base, local area demographics, and other socio-economic conditions,
- local businesses, recreation facilities, accommodation, tourism, and other infrastructure,
- archaeological sites,
- municipal structure and services including emergency response,
- climate and air quality,
- physiography, surficial geology, soils, and geological formations,
- forest resources and vegetation (with emphasis on the area to be cleared/flooded),
- wildlife resources (other than identified VEC's), and
- freshwater environment including benthic habitat and fish resources (other than identified VEC's).

Identification of VEC's is critical to the remainder of the assessment. The proponent, in consultation with the Assessment Committee, identifies the environmental assets which are important in the study area. A general description of the process that has been used by the proponent and the Assessment Committee to select VEC's must be stated. The VEC's are as follows:

- avifauna including raptors, water fowl, and marine birds,
- species at risk (including wildlife, avifauna, rare vascular plants and lichens) listed under the *Species at Risk Act*, the *Endangered Species Act*, or COSEWIC,
- water quantity and quality (including wetlands),
- services and infrastructure (including health infrastructure),
- economy, business, training, and employment,
- otter,
- fish and fish habitat (including commercial fisheries and aquaculture),
- air quality, and
- recreational activities including hunting, fishing, boating/kayaking, sport, and hiking.

5. Environmental Effects - a description of the effects that would be caused, or that might reasonably be expected to be caused, to the biophysical and socio-economic environment.

The EIS should define and describe the methods used to identify and describe the potential effects on the existing environment and selected VEC's. Also the method to be used to determine significance, and complete rationale, must be stated in the EIS.

For those alternatives which have found favour in the preliminary analysis, a comprehensive analysis (definition and quantification) of the positive and negative environmental effects of each proposal must be presented for the VEC's identified. Analysis must provide enough information for an informed decision for each alternative, if more than one.

The EIS must include a description of any cumulative effects that are likely to result from the project in combination with other existing and reasonably foreseeable projects (such as forest harvesting, fishing in Placentia Bay, transportation, existing industrialization, and other undertakings that are Registered for environmental assessment). Predicted impacts of the preferred options must be explained in full. Impacts should be expressed in terms of frequency, spatial extent, magnitude, duration, significance, and likelihood for the three phases of a project (ie. construction, operation and decommissioning). The EIS must consider likely interactions between the potential impacts of the project on the VEC's and interactions between the potential environmental impacts of the project and those of existing and planned projects/activities.

Environmental effects of malfunctions or accidental effects must be discussed with respect to risk, severity of consequence, and significance of effects. The discussion should include a Human Health Risk Assessment and catastrophic event impacts on air quality, the terrestrial environment, and marine / fresh water ecosystems. The Human Health Risk Assessment must consider also non-emergency releases and emissions.

Also necessary to be discussed are:

- the sustainability of renewable resources that are likely to be significantly affected by the project,
- the ability of the project to withstand the effects of climate change,
- the effects of the project on climate change, and
- the predicted future condition of the environment that might reasonably be expected to occur within the expected lifespan of the undertaking if the undertaking was not approved.

6. Environmental Protection and Selection of Preferred Alternative

The EIS must state the actions necessary (or that may reasonably be expected to be necessary) to prevent, change, mitigate, or remedy the effects upon (or the effects that might reasonably be expected upon) the environment, by the undertaking.

(i) Mitigation: measures proposed to minimize or eliminate negative effects or enhance positive impacts, and fish habitat compensation for losses that cannot be mitigated, must be described/examined/discussed in this chapter. A plan of proposed rehabilitation measures is required with an explanation of how the measures will reduce or eliminate various negative impacts following construction, operation, and decommissioning.

(ii) Residual Impacts: the impacts remaining after all mitigative measures have been applied must be presented. Included in this should be any irretrievable commitment of resources and irreversible impacts including an assessment of the potential effects of the project on

the sustainable use of renewable resources which may be affected by the project. Residual impacts should be defined in terms of spatial extent, magnitude, duration, probability of occurrence, and frequency.

(iii) Selection Criteria: the proponent's selection criteria and rationale for the preferred alternative should be clearly presented. This section in the EIS must provide a detailed discussion and comparison of the residual impacts relative to the technically and economically feasible alternatives that were subject to impact assessment. All selection criteria (including both positive and negative biophysical, economic, and social impacts) should be presented and discussed in sufficient detail to allow a comparative analysis by the proponent with regard to costs, benefits, and environmental risks associated with both the preferred alternative and the technically and economically feasible alternative options.

(iv) Monitoring Programs: compliance and effects monitoring programs are required to ensure compliance with legislation, to ensure that commitments made in the EIS are fulfilled, to monitor all toxic substances and other harmful impacts that would be produced by the undertaking, to evaluate the validity/accuracy of predicted impacts, and to evaluate the success of proposed mitigation. Program descriptions should include detailed statements of objectives, methodology, duration of program, and reporting procedures.

7. Public Participation

In accordance with Part X, Section 58 of the ***Environmental Protection Act***, public consultations / meetings are required of the proponent to present the proposal and to record public interests and concerns including those received in response to the Registration. These concerns must be addressed in a separate chapter of the EIS. Protocol for this meeting shall comply with the legislation and with divisional policy included in Appendix A.

As a minimum, public consultation meetings must be held in the Towns of Long Harbour, Placentia, and Whitbourne. Based on input from the public to date, the format should accommodate daytime and evening sessions.

8. Component Studies - original baseline information gathering.

Component Studies are required to gather baseline information to assist the proponent in predicting impacts to VEC's and to assist the Assessment Committee and the Minister in determining significance of impacts. Component Studies are intended to be separate baseline description documents only, and are not to include sections related to impact prediction or mitigation measures which must be addressed in the EIS. Not all VEC's will require a Component Study (where it can be demonstrated that existing information is available on impacts, mitigation, and monitoring of effects) and not all Component Studies need to relate to a VEC.

Component Studies generally adhere to the following format:

(i) Rationale/Objectives

In general terms, the rationale for a Component Study is based on the need to obtain original data to determine the potential for significant impact due to the proposed undertaking on a VEC and to provide the needed baseline information for monitoring programs. Generally, all unpublished information generated as a result of studies and field work commissioned by the proponent should be presented in these Component Studies even though it would be considered "existing" prior to the Minister's decision requiring an EIS on May 11, 2006.

(ii) Study Area

The boundary of the study area will vary depending on the environmental component being investigated. These need to be justified for each individual Component Study and should be agreed with the Assessment Committee Chairperson and the agency/agencies primarily involved.

(iii) Methodology

To be proposed by the proponent in consultation with the Assessment Committee.

(iv) Study Outputs

To be proposed by the proponent. Information generated must be sufficient to adequately predict the impacts on the VEC.

For this project, the Assessment Committee and the proponent have determined that at least one Component Study is required for each of:

- the terrestrial environment (including avifauna and species at risk),
- freshwater resources (including fish, fish habitat, and fisheries),
- the marine environment (including otter, fish, fish habitat, and fisheries)
- historic resources,
- human health, and
- socio-economics.

In addition, the proponent may choose to include components such as an economic analysis, individual species at risk, air quality and risk assessment, physical oceanography, sediment, seabirds, and groundwater/wetlands in the above or in separate Component Studies.

9. Environmental Protection Plan

A site specific Environmental Protection Plan (EPP) for the proposed undertaking must be prepared, submitted after the EIS is judged acceptable, and approved before construction of the project proceeds. For the purposes of the EIS an outline of the EPP should be included. The target audience for the EPP will be the site foreman/supervisor, proponent compliance staff, and the provincial environmental surveillance officers. The EPP should be a "stand alone" document with appropriate maps and diagrams. Statements regarding the commitment to and philosophy of environmental protection planning and self regulatory compliance monitoring should be restricted to the EIS document. Also the EPP should not include any analysis of impact prediction or mitigation. Therefore the EPP should concentrate on addressing such issues as construction/operation mitigation, permit application and approval planning, monitoring activities, contingency planning for accidental and unplanned events, contact lists, and the type of training/instruction to be given to all site workers on such matters as wildlife harassment, garbage disposal and litter, personal sanitation, and hazardous materials. The objective is to present concise, comprehensive, and easily accessed environmental protection information for field use by the target audience.

10. References Cited

A complete list of references used to support the EIS is essential.

11. Personnel

Brief descriptions of expertise and qualifications of personnel involved in the completion of the EIS are required.

12. Copies of Reports

Copies of Reports produced for any studies undertaken specifically in connection with this EIS are to be appended. In particular, it is anticipated that the following will be provided separate from the main EIS document:

- an Archaeological Impact Assessment,
- a Report on the Public Consultation Program,
- an EPP Outline;
- a Wastewater Management and Residue Treatment/Disposal/Storage Report (necessary to present the alternatives for both processes;
- a description of a Health, Safety, and Environment Management System that would include a Statement of Principles under which INCO and Voisey's Bay Nickel Company Limited operates (such as courses of action or steps to be followed to provide a WEP, to achieve employment equity for women and to monitor/report on progress; a Human Health Risk Assessment; a Health & Safety Plan; and an Accidental Effects & Environmental Emergencies Response/Contingency Plan).

Component Studies and Reports may be appended, but would preferably be submitted for review by the Assessment Committee (and recommendation to the Minister as to their suitability) as they are prepared.

SECTION II - PROJECT-SPECIFIC GUIDELINES:

1. **Agency Comments:**

Department of Environment and Conservation - Pollution Prevention Division

- Specific concerns which PPD believes should be addressed by the proponent in an EIS include but may not be restricted to the following:

- All activities associated with this proposal are subject to Air Pollution Control Regulations, 2004. Air emissions will be subject to monitoring to ensure compliance. It is anticipated that a monitoring schedule will be determined in consultation with the proponent prior to project start up in a Certificate-of-Approval process; however the proponent's general intent should be stated in the EIS.

- Schedule E of the Regulations prohibits the open burning of such wastes as plastics; chemically treated lumber; asphalt and asphalt products; drywall; demolition waste; hazardous waste; domestic waste; trash, garbage, or other waste from commercial, industrial or municipal operations; tires and other rubber wastes; tar paper; paint and paint products; fuel and lubricant containers; used oil; hazardous substances; and materials disposed of as part of the removal of decontamination of equipment, buildings, or other structures. The proponent's intent for the disposal of such wastes needs to be stated, and any on-site landfilling would require a Certificate-of-Approval.

- Non-treated woody debris may be disposed of on site through opening burning provided it is in compliance with the Environmental Code of Practice for Open Burning (1992) and provided a permit to burn is obtained from the Department of Natural Resources. The planned extent of debris burning needs to be stated in the EIS.

- The proponent must state plans to handle wastes and litter both during construction and operation. Waste receptacles shall be installed at all active areas for use by construction crews. The proponent shall ensure that all construction waste materials, domestic waste, and empty oil/fuel containers are recovered and disposed of in accordance with environmental legislation. Upon completion of construction, the site should be left clean and clear of all litter and debris.

- All waste material shall be considered, prior to disposal, for reuse, resale, or recycling. Waste materials not reused, resold, or recycled, and not landfilled on site in accordance with a Certificate-of-Approval shall be disposed at an approved waste disposal site, provided the owner/operator is willing to accept such waste and the local Government Service Centre has agreed with the disposal of the waste materials at the site.

- The proponent should become aware of proximity to any previous landfill sites in the area. The presence or absence of disposal sites needs to be stated in the EIS.

- On page 11 of the Registration, "minor dredging" may involve contaminated sediments that may have to be brought ashore to be treated or disposed. This should be done in accordance with Department policy. Also, recovered scrap steel and metals must be recycled.

- Containers used for shipping concentrates, reagents, chemicals, etc. should be reusable or recyclable. The EIS should quantify various solid waste streams and predict their impact on existing recycling and disposal facilities that can be used. The proponent will need to assess the recycling and reuse potential of containers relative to other issues such as residue contamination.

- No information has been provided regarding the selection of the proposed site for storage of the residue from the Matte Process, and there is no information regarding the process of choosing Sandy Pond as a residue disposal area for the Hydromet Process. A study of all potential residue storage alternatives for both project options is required. This study must include detailed evaluation of all natural and manmade alternatives including, but not limited to, the usage of other ponds in the area that may be suitable for residue storage, and the creation of constructed impoundments. The evaluation of alternatives for both options must include hydrological and hydrogeological assessments of the potential impacts to surface and groundwater from the proposed impoundments and associated pipelines, and must also include information regarding the proposed monitoring programs for evaluation of surface and groundwater contamination that may result if the residues cannot be successfully contained in the pipelines or impoundments.

- Upon termination of operations, the site must be rehabilitated to the satisfaction of the Department. Termination is defined as out of use, by the proponent, for any consecutive 12 month period or when the proponent indicates there will be no further activity at the site. All materials, equipment, buildings, and waste not disposed of in accordance with an Approval are to be disposed of in accordance with the legislation. The site must also be vegetated by placing organic material, if necessary, and seeding as required. This should be addressed in the Decommissioning Section of the EIS.

- A Certificate-of-Approval(s) under Section 83 of the Environmental Protection Act will be required from the Division for construction and operation of the plant. Extensive further information is required from the proponent in the EIS as well as part of the application process for the construction and operating Approvals. It is to the proponent's benefit to answer questions pertaining to as many of these information needs as possible in the EIS. Among the questions that need to be addressed are:

1. There is indication of water treatment prior to discharge for the Hydromet Scenario; however, there is no indication of what types of effluents are expected, what types of treatments are being considered, and what the anticipated treated effluent will contain.

2. For the Matte Scenario, there will be a need for a subaerial disposal location. Will this disposal site be lined, will there be catchment structures, will this effluent need to be treated, is dust lift off a concern, etc.? To advise on the degree of environmental impact of this undertaking, many of these details should be provided in an EIS rather than in final design at the time of permitting.

3. The hydromet and matte alternatives have contaminated gypsum as a by-product. The issues of contaminant design, monitoring, treatment of runoff / leachate, capping, and decommissioning need further development. Also, the potential recycling of these wastes should be considered with the prospects stated in the EIS.

4. Any hazardous or special waste generated from the undertaking may require laboratory analysis and/or permission from the GSC for final disposal to landfill. Waste that meets the definition for "hazardous" will have to be transported by a licensed transporter to an approved final disposal facility.

5. This processing facility will require the storage, handling, and use of many chemicals. The Registration does not provide any information on the concerns associated with these products. For example, will special storage facilities be required? Can all of these chemicals be stored in the same area? Will there be enclosed containment systems? What is the eventual fate of these chemicals?

6. Projected effluent quality values are not provided for either option. Section 3.2.4.1 of the Registration notes that the Hydromet Plant liquid effluent may contain low levels of cadmium, chromium, beryllium, nickel, copper, manganese, cobalt, iron, and aluminum. Although it is noted in multiple locations within the Registration that the effluent discharge will be compliant with the *Environmental Control Water & Sewage Regulations*, it is required that the proponent develop reliable estimates of effluent concentrations for all parameters regulated under Schedule "A" of these *Regulations*.

7. No details have been provided regarding the design, construction, or maintenance of the impoundment for the Matte Plant gypsum residue. Any potential for impact if there are problems with the stability of the impoundment berm must be clarified in the EIS.

8. The Registration refers to a lined pond for temporary storage of iron/arsenic residue, but the proposed location of this pond is not stated. This information will be required for the Approval application process.

9. Figures 3.2 and 3.3 of the Registration note a minor impurities residue stream coming from the impurities solvent extraction step for each process. No information is provided regarding the projected quantities and content of these residue streams and how are they to be handled.

10. Clarification is needed regarding the dam construction at Sandy Pond for the Hydromet Plant. It is not clear if one or two dams are proposed.

11. The Registration does not mention the operation of the residue, reclaim, and effluent pipelines with regard to spill control features or operational monitoring of pipeline parameters. Full details of pipeline design and operation are required.

12. No details were provided in the Registration regarding projected air emissions from either option. Figures included in Tables 3-1 and 3-2 identify projected annual fuel quantities. Potential uncontrolled sulphur dioxide emissions can be estimated from these quantities by reasonably assuming that #6 Fuel Oil has 2.0% w/w sulphur and a specific gravity of 1.0, and #2 Fuel Oil has 0.05% w/w sulphur and a specific gravity of 0.85. Estimates by the Division based on these assumptions indicate that uncontrolled sulphur dioxide emissions of approximately 150 tonnes per year can be expected from the Hydromet Plant and approximately 670 tonnes per year can be expected from the Matte Plant. Estimated uncontrolled particulate matter emissions from fuel combustion are 10 tonnes per year for the Hydromet Plant and 44 tonnes per year for the Matte Plant.

13. No information is provided regarding potential or estimated emissions of particulate matter (dust and aerosols) from materials handling and processing operations at either plant. Information is needed regarding other gaseous emissions that may result from the proposed process options. Estimated emissions from all sources are required.

14. The *Air Pollution Control Regulations, 2004* require all new stack installations with annual releases in excess of 20 tonnes of particulate matter or sulphur dioxide to meet good engineering stack height. The *Regulations* also require new or modified emission sources to employ best available control technology.

15. There is no mention in the registration of ambient air monitoring being conducted. It is highly likely that ambient monitoring will be required by the Department unless pre-operational dispersion modelling indicates it is unwarranted.

16. Concerning source testing, both facilities can be classified as a Type I source based on power consumption in excess of 25 MW on a continuous basis. Section 1 of Guidance Document GD-PPD-009.2, *"Determination of Compliance with the Ambient Air Quality Standards"*, defines the types of sources and the requirements for testing of those sources. A new Type I emission source is required to register a stack emission test and a dispersion model within the first six months of operation, and to have a second stack emission test and dispersion model registered within the last six months of the first two years of operation. From that point the facility will be required to register a stack emission test and dispersion model once every four years if it has been shown, through a registered dispersion model, that the facility is compliant with the ambient air quality standards for all pollutants. If the model indicates the facility is not compliant with the ambient air quality standards for all pollutants then the facility will normally be required to complete and register a stack emission test and dispersion model once every two years.

17. Tables 3-1 and 3-2 of the Registration note 55-67 MW of power will be required to supply the facilities. It is not noted where this power is to be obtained. In the event that the power is to be supplied by thermal generation on site, any emissions associated should be considered a cumulative impact of the commercial plant.

- Petroleum storage and handling, associated with construction and operation of this project, shall be in compliance with the Storage and Handling of Gasoline and Associated Products Regulations, 2003. All leaks/spills must be reported to the Department. An Environmental Emergency and Accidental Events Contingency Plan must be developed which includes information regarding the location of spill response equipment and trained contractors. An inventory of spill response equipment must be located on site or nearby. Any/all petroleum storage tank system(s) with a capacity in excess of 2,000,000 litres must be dealt with in detail in the EIS (not deferred to licensing/permitting). Oils, greases, diesel, gasoline, hydraulic fluids, and transmission fluids should be stored at least 100 m from any body of water. Re-fueling and maintenance activities should also occur at least 100 m from any body of water and on level terrain.

- To comply with the Used Oil Control Regulations, waste oils and waste lubricants shall be retained in a tank or closed container, and disposed of by a company licensed for handling and disposing of waste hydrocarbon products.

- Any use of regulated halogen substances, for example in fire suppression or air conditioning

systems, associated with the proposal is subject to the Halocarbon Regulations.

- All waste water and storm water discharges from the site, during construction and operation, are subject to compliance with the Environmental Control Water & Sewer Regulations. Waste water discharges will be subject to a monitoring schedule to ensure compliance. To advise on the degree of environmental impact of this undertaking, many of these details should be provided in an EIS rather than in final design at the time of permitting.

- The effluent produced may be subject to analyses above and beyond the scope of Schedule A of the Regulations. This will be a general water chemistry analysis to assess the water quality of the effluent. Again, it is anticipated that this could be determined in consultation with the proponent in a Certificate-of-Approval process. All water analyses will be subject to the accredited and certified laboratory policy, PD:PP2001-01.

Department of Environment and Conservation - Water Resources Management Division

The Division, responsible for regulating alterations to bodies of water and for allocating uses of waters within the Province, also has concerns which should be addressed by the proponent in an EIS:

- In order to assess the impact on water resources, the Division will require real-time water quantity and quality monitoring stations at appropriate locations. The exact locations and number of stations will depend on the selected process scenario and will be confirmed through a reconnaissance survey. The EIS should state the proponent's intentions in this respect and that they will handle the cost associated with the reconnaissance survey, instrumentation purchase, installation of stations, and annual maintenance and operational costs. For quality assurance / quality control purposes, the stations will be operated by Environment Canada under the existing federal-provincial agreement.

- Additional information is required on the hydrological and hydrogeological water quality impacts to surface and groundwater of the pipelines, roads, water withdrawal, and the residue treatment and storage areas; and the potential quality and quantity impacts of the project on water supplies in the area.

- The proponent's plans for perpetual storage of residue, and decommissioning intentions to protect the area from continuing or worsening impacts, are needed.

- Information is needed on the preliminary design and operation parameters including for pipelines, the subaerial Matte Process disposal area, the dam(s) at Sandy Pond, the Rattling Brook Big Pond water control structure, and the wharf extension.

Department of Environment and Conservation - Wildlife Division

The Division is concerned about the potential impacts of plant emissions on air quality. The boreal felt lichen, *Erioderma pedicellatum*, as been found in the general area. This species is extremely sensitive to air quality and even limited emissions may have a negative impact on local populations. The EIS must predict the potential for air quality deterioration in the area as a result of plant emissions. The results of

surveys of the project area for the presence of *Erioderma pedicellatum* must be reported. The Division may be consulted for appropriate survey methodology and mitigation measures that should be applied.

The Registration mentions only marine and freshwater environments under potential resource conflicts. Although the terrestrial environment is already an industrial area, some consideration should be given to the terrestrial environment to ensure that further contamination does not occur. A monitoring program should be developed for eagles, osprey, and otter that are resident in the area. Although contamination of their food source may be limited, these species are already subject to contamination from other sources and the potential for cumulative impacts should be assessed. The existing environment for aquatic furbearers must be addressed in the EIS. There is a need to know the level of impact and mitigation and/or compensation that is possible. Observations on raptor nest sites must be collected. Depending on the results, impact predictions, avoidance regimes, and compensation/remediation negotiation would follow.

If there are indications that terrestrial wildlife (and especially moose) are entering the tailings pond, the Division requests that the pond be fenced or that other measures approved by the Division be taken to keep wildlife from entering the pond.

Department of Natural Resources - Mines Branch

The proponent must provide details on the proposed dredging, including an outline of the area to be dredged, the location for disposal, and the testing for contaminants in the marine sediments.

The proponent must outline the measures to be taken to ensure that the stored nickel concentrate remains in a state that minimizes risks associated with concentrate oxidation and alteration.

Department of Natural Resources - Energy Branch

A transmission line easement (~1 km) will be required from the existing Long Harbour sub-station to the Tier 2 site prior to the start of construction in 2009. Depending on the proponent's power reliability requirements, an additional transmission line may be required between Western Avalon and Long Harbour (~ 15 km). This would require either widening of the existing transmission line easement or an additional easement at least 2 years prior to the 2012 operation target (by either the proponent or the utility providing of the power). The issues of power transmission and reliability requirements must be clarified in the EIS.

Department of Natural Resources - Forestry Service

Merchantable Crown timber (9 cm in diameter or greater, 1.3 m above mean ground level) to be cleared from the site must be harvested by an existing commercial permit holder, if one is available in the area, to facilitate sustainability of the timber resource in this Forest Ecosystem Management District. Regardless, this timber is to be salvaged to a 8 cm top and brought to a landing for conventional use such as sawlogs, fuelwood, or pulpwood. The proponent's intentions in this respect is to be stated in the EIS or a Component Study.

A portion of the site is located within a designated "Domestic Cutting Area" (map has been supplied to the proponent). There should be provision for traditional forest harvesting activities by Domestic

Cutting Permit holders to continue in non-conflict areas. Staff from the District Forest Resources Office at Paddy's Pond should be consulted to delineate an acceptable area for traditional forest harvesting activities.

If the water in Sandy Pond is expected to become toxic to wildlife as a result of the discharge of residue from the Hydromet Process, the proponent should construct a high fence around the Pond to minimize impacts to wildlife and mitigate the need for wildlife removal from the area.

During decommissioning, revegetation of the site must also include reforestation where technically feasible. Consultation with the District Forest Resources Office can assist in determining appropriate areas to be reforested.

Department Of Tourism, Culture & Recreation - Cultural Heritage, Archaeology Section

By virtue of the *Historic Resources Act* and the *Archaeological Investigations Permit Regulations*, an Archaeological Impact Assessment is required for certain areas within the project footprint. Sod houses have been reported by a hiker to be in proximity to the proposed development but their location is uncertain. One theory is that, if they exist, they may be related to construction camps for the railroad in the late 1800's. This area has archaeological potential and the following areas require assessment:

- location of the Tier 2 Plant,
- road and transmission line corridor to the Tier 2 Plant,
- pipeline corridor to Sandy Pond,
- entire shoreline of Sand Pond and the small unnamed pond to its northeast,
- pipeline corridor to Rattling Brook Pond,
- the affected shoreline of Rattling Brook Pond (pumphouse and intake areas),
- pipe corridor to Residue Storage Area, and
- Residue Storage Areas.

The Archaeological Impact Assessment may be appended to the EIS.

Women's Policy Office

In 2004 women comprised almost 20% of those employed in natural and applied science occupations; women also comprised 4.5% of those employed in trades, transport, and equipment operator occupations. The Government of Newfoundland and Labrador is committed to the advancement of women in occupations where they are currently under-represented. Therefore, the Women's Policy Office requires that this proponent commit in this EIS to supply:

- a corporate objective to achieve employment equity for women in the construction, operation, and decommissioning phases of the project;
- a WEP to meet the corporate objective;
- a commitment to report on progress at least quarterly;
- quantitative goals to be achieved;
- qualitative goals that identify barriers to be eliminated as a result of an employment systems review;
- any special measures and permanent positive policies and practices to achieve goals; and

- how the program will be regularly communicated and monitored. (A monitoring system should include: (i) methods to be used to determine the proponent's status with respect to meeting its employment goals at any given time; (ii) the timeframe and methodology for periodically reviewing the statistical profile of the organizations workforce, communication of women's employment achievements or concerns, the status of remedial measures, and the impact of new policies and practices; and (iii) provisions for revising the WEP when goals are not being achieved and for re-evaluation of goals if set goals are being achieved more quickly than expected.)

The commitment for a WEP must be incorporated into the EIS. The WEP must be approved by the Minister responsible for the Status of Women prior to any construction tendering or hiring.

The Women's Policy Office recommends the use of guidelines published by the Government of Canada for the Federal Contractor's Program.

Department of Health & Community Services

- There is no mention of food handling or eating facilities for workers. This must be clarified in the EIS.

- Health, sanitation, environmental, and road safety concerns exist relative to roadside / gravel pit camping. The issue of roadside / gravel pit camping by workers involved in the project must be considered by the proponent; the proponent must outline measures that will be taken to prevent project workers from setting-up "residence" in roadside/gravel pit camping areas.

- The proponent provides assurances with regard to air and water discharges. However, concerns exist regarding the long-term underwater storage of hydromet residue in Sandy Pond. Further, what happens to clarified effluent from the settling pond when the facility is decommissioned; and will there be issues with regard to fish taken and consumed from impacted ponds and ocean discharge areas?

- Are there pathways for significant human health ingestion of contaminants from wildlife (including birds, trout, and marine fishes including shellfish) and berries traditionally harvested near this location?

- It is likely that a Matte Plant versus a Hydromet Plant will reduce the potential for environmental contamination and consequently the pathways for human exposures. The EIS must evaluate the residue disposal alternatives from a human health perspective as well as environmental perspectives.

- The proponent should partner with the community in emergency preparedness planning. Plans to eliminate reagent exposure to the community and, should an accidental release occur (especially with chlorine), that would ensure the community will not be impacted need to be outlined in the Health, Safety, and Environmental Management System.

- Human health impacts on the local population related to the operation of the Commercial Nickel Processing Plant is an issue that needs to be considered by the proponent. The proponent should establish baseline data on the health status of residents in the area which would be of value in determining potential impact in future years as a result of operations.

- It is recognized that the proponent proposes to assess the interactions of each of the project's phases and to plan actions/mitigations where environmental interactions are predicted.

- Eastern Regional Integrated Health Authority needs to see further information and assurances with regard to noise (process operations / shipping and ship off-loading) and potential air quality impacts on the community from ship idling.

- For similar projects, there has been an increased demand for Community Health services; particularly regarding child health. The proponent should consider impacts the development will have on the range of support systems and programs that currently support/address human health and community well-being in the area of the development.

- Is it the proponent's intention to continue quarterly meetings with the area's Community Liaison Committee (for the Demonstration Plant) with changes in membership due to the change in location of the facility? This would be a good forum to exchange information and to address health concerns that may arise in the community.

- Positive impacts that will occur include self esteem, quality of life, and improvement in overall health as a result of employment and a more secure financial future. On the other hand, industrialization may be interpreted as negative or positive depending on perspective; there may be negative health consequences. Just two such examples are:

- A sudden increase in population during construction could put a demand on housing, causing house prices to rise resulting in a higher cost of living impacting on individuals with fixed lower incomes.

- Women must be pro-actively recruited or men are more likely to receive the beneficial impacts of the project and women are more likely to experience a disproportionate share of the negative impacts.

Mitigation/Optimization measures to be covered in the EIS should include, but not be limited to:

- establishment of baseline health status,
- assessment and increase in community support services, if necessary,
- monitoring of housing costs with plans to mitigate adverse impacts on those with low incomes,
- creation of a contained living site with appropriate recreation facilities and/or support for the community to establish enhanced recreation facilities,
- establishment of a Community Liaison Committee,
- commitment to equitable employment of males and females,
- on-site Employee Assistance Program, and
- appropriate Environmental Monitoring Program with commitment to full community disclosure.

Department of Municipal Affairs

The EIS must consider the capacity of the Town of Long Harbour - Mount Arlington Heights to respond to the demands of this project, and examine the effects of the undertaking on the municipality in the areas of taxation, commercial/residential spin-off and the capacity of the municipality to provide municipal services to the plant, and any spin-off development in forms of administration, fire department, local road (upgrading / on-going maintenance), emergency planning and response, waste management, infrastructure (water and sewer services), and recreation.

This information must also be available to the Town as the Town is undertaking a municipal planning exercise. The proponent must openly participate in this process so that the Town can respond to the proposed plant and plan for future development.

Possible disaster events (minor as well as catastrophic) must be identified, and the economic and social impacts of the various disaster scenarios documented. In particular, social impacts in terms of community and employee well-being and demand on emergency, health, and social services must be identified. The EIS must also quantify impact of a disaster event on the local and provincial economy. The EIS must address proponent and community capacity to respond to, and recover from, such events. The possibility of compounded disasters should be recognized. Proponent must develop an Emergency Response Plan which addresses these disaster scenarios and which includes a plant and community evacuation plan. The Town of Long Harbour - Mount Arlington Heights, nearby communities and various emergency, health, and social service agencies should be intrinsically involved in the development of the Emergency Response Plan. The Town of Long Harbour - Mount Arlington Heights may also wish to prepare its own Plan; the proponent must provide the Town the necessary information so that it can prepare a relevant and responsive document.

Department of Fisheries & Aquaculture - Resource Policy & Development Division

The waters of Placentia Bay hold tremendous potential for the development of the aquaculture industry in NL. There currently exists several aquaculture operations in Long Harbour, Marasheen Island, and Dunville and the Government of Newfoundland and Labrador is actively fostering further development of the aquaculture industry in the wider parts of Placentia Bay (ie: mussels, salmonids, and cod). It is crucial that any potential negative impacts and possible mitigation on the these developments be assessed now. The Department requires the following additional information:

- How will the treated wastewater effluent and sewage affect the existing mussel farms, commercial fisheries, and fish in the vicinity of Long Harbour?

- How will the treated wastewater effluent and sewage affect future potential use of the area for aquaculture purposes?

- Where will the effluent outfall(s) be located, what will be the selection criteria, and what is the intended design?

- What will be the quality and quantity of any/all output(s) into the marine environment?

- Information is required on cumulative effects of all outputs to the marine environment.

- What is the existing current movement in the area and how will this affect distribution and attenuation of outputs into the marine environment?

- Will compensation/contingency programs be put in place regarding aquaculture site owner/operators in the area in the event of cumulative effects, accidental events, and/or marketability of product from the image of increased industrialization?

- More specific information on all environmental monitoring and mitigation of output(s) into the marine environment is required.

- More information is required regarding the existing contamination in the area of construction and potential effects to the marine environment.

- More information is required regarding the potential effects of the residual disposal and clarification ponds in relation to potential negative effects to the marine environment.

Department of Human Resources, Labour & Employment

The Registration, while providing a good overview of the undertaking in terms of timelines, also provides information related to employment in which there is some discrepancy with the Voisey's Bay Development Agreement (VBDA). The Registration is lacking in some needed employment information and this needs to be provided in the socio-economic component of the EIS. It is noted in the Registration that it is anticipated 3,000 person-years will be required for construction. However, in the VBDA it is indicated the Matte Plant would require 2,500 person-years (refer in particular to Sections 3.3.1 and 4.6.2).

There is a need to provide the occupational requirements by NOC. The current submission provides very general information regarding occupational requirements which is not conducive to a proper (socioeconomic) assessment of the undertaking.

As outlined in the Industrial and Employment Benefits Agreement (IEBA) there must be an employment strategy that ensures individuals resident in the Province are given first consideration for training and employment opportunities related to the undertaking. Specifically:

- Section 8.1.2 requires implementation of a Project Employment Strategy, consistent with the Canadian Charter of Rights and Freedoms and Applicable Laws, that ensures that individuals resident in the Province are given first consideration for training and employment opportunities related to the project.
- Section 8.1.3 requires implementation of programs that will allow for the orderly succession of residents of the Province to increasingly higher levels of responsibility, subject to the needs of the Project and the skills, qualification, ability and experience of such residents, and consistent with the Proponent's career development program.

- Section 8.2 relates to **Full and Fair Opportunity and First Consideration**. In keeping with the Proponent's commitment to providing full and fair opportunity and giving first consideration to residents of the Province for Project-related employment and training, the proponent is required to promote an understanding of the current scope of all phases of the project (sub-section 2.1); communicate information on the Project's labour and training requirements in a timely manner (sub-section 2.3); develop and implement appropriate training programs (sub-section 2.3); develop an employment equity policy and implement a plan that addresses recruitment, training, and advancement of qualified women, particularly in occupations where they have been traditionally under-represented and provide a monitoring program in respect to such implementation plan (sub-section 2.4); and develop and implement policies and procedures to encourage the participation of disadvantaged individuals and groups (sub-section 2.5).
- Section 8.1.3 requires that the proponent work co-operatively with the Government to implement a Human Resources Plan which shall comply with the requirements of the VEN Undertaking Order and address, without limitation, the matters referred to in Schedule 8.3.

These requirements of the IEBA are to be provided in the socio-economic component of the EIS or there must be a scheduled commitment that these needs will be submitted for review well in advance of commencement of any activities (to allow for proper review and response as well as opportunity to implement any programs to address identified labour force shortfalls). Of particular note is the submission of a Section on Human Resources with commitments for Plans in advance of any activities commencing.

Department of Innovation, Trade, & Rural Development

A thorough and comprehensive Socio-economic Component Study is needed to identify the positive and negative impacts on the immediate area, the Avalon, and the Province with a focus on, but not limited to:

- the business development opportunities from construction and operation,
- the policies/programs/procedures to be employed for the acquisition of goods and services (including training) to maximize opportunities,
- the potential impacts on existing businesses as a result of investment leading up to a possible "no-go" decision and from an emergency incident,
- the issues of employment, out-migration trends, and local taxation,
- the opportunities for transfer of new technologies/skills, joint ventures with out-of-Province companies, value added processing, and development of local business networks, and
- the impact of eventual decommissioning, including loss of employment.

The tourism and fishery are two important industry sectors in this area that are deemed to have the potential of being adversely affected. The Tourism Industry in the region is linked to the entry and exit of passengers on the ferry service between North Sydney and Argentia. This ferry service uses Placentia Bay and the lanes that will most likely be used by VBNC as materials are received and shipped. Statistics show that an average of 35,000 people use this service annually during the tourist season (June - October).

The Cape St. Mary's Bird Sanctuary reports between 10,000 and 20,000 visitors annually to this ecological reserve. Many birds from this site have been killed by ships who have polluted the waters in or near the mouth of Placentia Bay.

Placentia Bay is well known for fog, and the fishery in Placentia Bay involves fishers from the Burin Peninsula as well as the Placentia / Long Harbour side of the Bay. There is a potential for conflicts with fishers as large ship traffic increases. Currently large ships using the Placentia Bay lanes include those traveling to and from Argentia (mostly EMSKIP, trawlers, and Marine Atlantic) and those traveling to Whiffen Head and Come By Chance (mostly tankers). As well there is a significant amount of shipping traffic traveling along the mouth of the Bay. A catastrophic release, or reports of hazardous substances leaking into the marine environment, could create a market image problem for sea food products from this area or even from insular Newfoundland, depending on the market and its level of awareness. The EIS or Component Study must quantify the economic impact that a catastrophic release of contaminants could have on the fishery and tourism sectors.

Fisheries and Oceans Canada - Habitat Evaluation

The Department of Fisheries and Oceans (DFO) has determined that components of this project will likely result in the harmful alteration, disruption, or destruction (HADD) of fish habitat. As such, an Authorization pursuant to subsection 35(2) of the *Fisheries Act* and development of a plan to compensate for losses of productive fish habitat is required. As subsection 35(2) is included in the list of laws that trigger the *CEAA*, DFO is required to conduct an environmental assessment of the project, as prescribed by *CEAA*, prior to issuance of an Authorization.

In order for DFO to advise the Provincial Minister on the nature and significance of potential impacts upon fish and fish habitat, an Environmental Impact Statement must be prepared providing additional detailed information on the following:

- a description and quantification of fish habitat, fish species, and any fisheries that occur in the area of the proposed wharf expansion;

- a description and quantification of fish habitat, fish species, and any fisheries that occur in Sandy Pond and the unnamed ponds in the proposed location for the plant facility, including any outlet streams from these ponds;

- a description and quantification of fish habitat, fish species, and any fisheries that occur in Rattling Brook Big Pond and Rattling Brook, and any potential impacts on fish and fish habitat associated with water withdrawal from Rattling Brook Big Pond, including the potential impact on Rattling Brook;

- identification of water withdrawal requirements throughout the year with consideration given to the hydrology of Rattling Brook Big Pond and its supporting watershed and the ability of the basin to support daily demand and recharge throughout the year, identifying the water level variations in the Pond throughout the seasons as a result of water extraction;

- details of how the proposed dams will be constructed and the mitigations to be used during construction;

- a description of construction activities indicating the timing and duration of each construction phase (particularly with respect to instream activities);

- the potential impacts upon fish and fish habitat of construction activities such as blasting, siltation, instream works, dewatering/stream diversions, site runoff, quarry and borrow activity, grubbing, clearing, stream crossings, etc. should be identified and discussed in the EIS; it should describe appropriate mitigation measures to be implemented during construction, operation, and decommissioning/abandonment of the proposed undertaking to reduce potential impacts upon fish and fish habitat;

- detailed information on the stream crossings (location and fish and fish habitat at each, and the type of crossing - culvert, bridge, or fording) for the proposed access roads, pipelines, and transmission line;

- the EIS must contain a firm commitment by the proponent to compensation for fish habitat which may be harmfully altered, disrupted, or destroyed as a result of the proposed undertaking as per the No Net Loss guiding principle of the DFO Policy for the Management of Fish Habitat (this should be based on a clear indication of the quantity and quality of fish habitat which will be impacted after all appropriate mitigation measures are implemented).

- a commitment for a project specific Environmental Protection Plan which will describe the mitigative measures which will be implemented during construction and operation of the proposed undertaking to ensure protection of the fish and fish habitat and minimize the potential impacts of construction/operation on fish and fish habitat.

- a Component Study (and associated surveys) to describe fishery resources (i.e. fish, fish habitat, and fisheries) of the areas which will be impacted by the proposed undertaking.

- the location of the clarification pond for the matte facility, and whether the pond is natural or man-made. Any natural pond will require a description of fish, fish habitat, and any existing or potential fisheries.

- the location of the two stormwater ponds to collect run-off from the plant site, if the ponds are natural or man-made, and where water from the ponds will be discharged. Any natural ponds will require a description of fish, fish habitat, and existing or potential fisheries.

- fish species directly or indirectly supporting fisheries including the type, location, and magnitude/extent of existing, past, and potential commercial, recreational, and aboriginal fisheries within freshwater and marine environments of the proposed project area. The extent to which these fishing activities will be disrupted during construction and operation phases of the proposed project should be addressed.

- fish screens required at water intake structures to protect fish against entrainment or impingement; design details of the intake structure and mesh size of the fish screens must be provided.

- the marine outfall and associated pipeline, including location, size, construction activities, mitigations to be used, fish, fish habitat, and fisheries in the area.

- the marine shipping plan (i.e., shipping frequency, any ice-breaking requirements, etc.)

The above comments are based upon Sections 20 - 22, 26 - 30, 32, and 34 - 35 of the *Fisheries Act* only. Issues related to Section 36 (ie: Deposition of Deleterious Substances into Fish Habitat) of the *Fisheries Act* will be commented upon by Environment Canada.

Health Canada

Comments have been provided to DFO as lead Responsible Authority under provisions of the *Canadian Environmental Assessment Act* . Appendix C explains the Health Canada role and interests in the environmental assessment for this undertaking, and their expectations for the EIS / Federal Environmental Assessment relative to the description of the existing environment, noise levels, a monitoring program, and the potential for environmental health effects from releases and emissions of contaminants of potential concern. They are available to advise on Terms of Reference for a Human Health Risk Assessment that would be broader than just for accidental events.

Transport Canada - Navigable Waters Protection

In order to advise on the nature and significance of potential impacts upon navigation related to the proposal, the following additional information must be provided in an EIS:

- a description of the proposed berm/dam on Sandy Pond including location, length, height, width, and construction materials to be used;

- a description of the proposed wharf expansion including location, length, width, height above L.N.T., and construction materials to be used;

- a description of the proposed effluent pipe into Long Harbour including length, diameter, anchorage type, and pipe material specifications;

- a description of the proposed water control structure on Rattling Brook Big Pond (if required) including location, length, width, height, construction materials, and anticipated water level increase/decrease.

The above comments are based upon Section 5 of the *Navigable Waters Protection Act* (NWPA) only. The proponent should be advised that no work shall be build or placed in, on, over, under, through, or across any navigable water unless the work, site, and plans have been approved pursuant to ss. 5(1) or exempted pursuant to ss. 5(2) of the *NWPA* . Scaled drawings will be required prior to an approvals and/or exemptions, and may be provided with the EIS should the proponent feel that it is necessary to adequately provide the information.

Environment Canada

Appendix B contains indications of information needs that require coverage in the EIS to facilitate the Federal Environmental Assessment. The full text of Appendix B should be taken as if it forms a part of the main body of this Section of these Guidelines.

Additionally, Environment Canada requires that the proponent develop an environmental protection plan (EPP) that outlines mitigation measures for all phases of the project development (construction, operation, and decommissioning). The EPP would ensure that environmentally sound construction and operational practices, outlined in the comments below, are employed in the field:

- Concrete will be used in many of the project components. If concrete is to be produced on-site, the location and design of the concrete production area and yard should be described with provisions for environmental protection measures.

- Drainage from a concrete production area and yard, and washwater from the cleaning of batch plant mixers, mixer trucks, conveyors and pipe delivery systems, are very alkaline and may be harmful to fish. Drainage and washwater also contain sediment, and concrete additives and agents, which may be harmful to fish. Therefore, appropriate mitigations should be employed to ensure that these types of drainage do not enter receiving waters.

- The proponent should regularly monitor the discharges from any control devices associated with construction, aggregate storage, and concrete production in order to ensure that they are in compliance with the Fisheries Act. An effects monitoring program, to test water quality impact predictions, must be developed and appended to the EIS.

- Recommended mitigations include:

    - all drainage from concrete production area and yard, including washwater, should be directed to a settling pond for control and treatment, as appropriate.
    - solids that accumulate in a settling pond should be removed on a regular basis to ensure the settling pond remains effective.

- Aggregate used in the production of concrete may be stored and processed on site. Sediment-laden drainage from an aggregate storage area, and any washwater from the processing of aggregate may be harmful to fish. Recommended mitigations include:
    - all drainage from an aggregate storage area should be directed to a drainage control

device such as a settling pond.
- o if the aggregate is going to be washed on-site, a settling pond should be in place to receive effluent from any washing activities. Effluent should be treated as appropriate before release to receiving waters, or alternatively, effluent should be recycled for reuse after treatment.
- o solids which accumulate in a settling pond should be removed on a regular basis to ensure the settling pond remains effective.

- In order to ensure compliance with Section 36 (3) of the Fisheries Act, it will be necessary to prevent sediment-laden drainage associated with site preparation (including site clearing, grubbing, and general activities) and construction activities (e.g. trenching, etc.) from entering surface waters. The following mitigative measures are recommended to prevent the introduction of this runoff into surface waters in the area, as well as to prevent any chronic erosion problems:

  - o disturbed areas should be covered with a thin layer of brush or slash, and exposed soil stabilized with anti-erosion devices, such as rip rap, filter fabrics, gravel, or wood chip mulches.

  - o revegetation is recommended for disturbed areas in order to prevent erosion.

  - o a vegetated buffer zone should be maintained between the access road and surface waters.

  - o control devices such as filter fabrics, sediment traps and/or settling ponds should be in place to receive all drainage from areas disturbed by site preparation and any site clearing, grubbing, scarification and general construction activities. Solids which accumulate in a settling pond or behind a sediment trap should be removed on a regular basis, and disposed of in an approved manner, to ensure such devices remain effective.

- Use of treated wood in the construction of the proposed transmission line, timber crib cofferdams, bridge, or other project components may be considered. Under certain conditions, preservatives used for wood treatment can leach into the aquatic environment and be harmful to fish. Therefore the following mitigations are recommended to reduce potential impacts to receiving waters:

  - o handling and use of treated wood products should be in accordance with precautions outlined in "Wood Treatment: A Canadian Perspective" prepared by the Canadian Council of Ministers of the Environment.

  - o creosoted wood should not be used in a freshwater environment.

- To ensure compliance with Section 36(3) of the Fisheries Act, it will be necessary to provide for the proper transport, storage, use, and disposal of all substances which can be harmful to fish (e.g. petroleum products, cement, concrete additives, and agents) so as to minimize the risk of chronic or accidental releases from occurring and to prevent a release from entering surface water. The following recommended mitigations are examples to prevent petroleum products and other toxic substances from entering waterbodies:

- refuelling and maintenance activities should be undertaken on level terrain, at least 100 m from any surface water, on a prepared impermeable surface with a collection system to ensure oil, gasoline, and hydraulic fluids do not enter surface waters. Waste oil should be disposed of in an approved manner.

- drums of petroleum products or chemicals should be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry, water-tight building or shed with an impermeable floor.

- in order to ensure that a quick and effective response to a spill event is possible, spill response equipment should be stored in an accessible location and readily available on-site. Personnel working on the project should be knowledgeable about response procedures. It is required that leaks and spills be reported to a supervisor and Environment Canada immediately via the 24-hour Environmental Emergencies number (709) 772-2083, and an Accidental Events and Environmental Emergency Contingency Plan must be prepared.

2. **Regulatory Requirements:**

Department of Environment and Conservation - Pollution Prevention Division

All activities associated with this project are subject to the *Environmental Protection Act* (EPA), the *Water Resources Act* (WRA), and their regulations. These comments highlight the pertinent issues of these acts and regulations and PPD's policies and guidelines.

- A Certificate-of-Approval(s) under Section 83 of the Environmental Protection Act will be required from the Division for construction and operation of the plant. It is anticipated that extensive further information from that provided in the EIS will be required from the proponent as part of the application process for the construction and operating Approvals.

- Sources of air emissions would require a Certificate-of-Approval and a monitoring schedule will need to be determined.

- Any on-site landfilling of wastes would require a Certificate-of-Approval.

- All pesticide use, purchase, and storage is subject to compliance with the Pesticides Control Regulations, 2003. The Regulations stipulate that an applicator must be licensed for the class of pesticide which is intended to be applied and that an operator cannot purchase pesticides without the appropriate license(s). If the use of a pesticide(s) is required (eg. for the control of insects, diseases, weeds, vegetation), the Pesticide Control Section must be notified at (709) 729-2556.

- The lined pond for temporary storage of iron/arsenic residue will require Approval.

- All petroleum storage tanks shall be registered with the Government Service Centre, and an Environmental Emergency and Accidental Events Contingency Plan must be approved by PPD.

Department of Environment and Conservation - Water Resources Management Division

- Permits from WRMD under Section 48 of the Water Resources Act are required for:

Both Scenarios

- to carry out modifications or expansion of the existing wharf loading/unloading facilities,
- to install the water supply intake in Rattling Brook Big Pond,
- to infill the two unnamed ponds to permit the construction of the processing plant, and
- to construct stream crossings (culverts or bridges) along all roads and pipelines within the project area for all streams that are large enough to appear on 1:50000 topographic maps.

Hydromet Scenario Only

- to construct the containment dams and other works associated with the proposed Sandy Pond tailings disposal area.

Matte Scenario Only

- to construct the drainage works and clarification pond(s) associated with the tailings disposal area.

- The proponent will require a Water Use Licence to extract water for any non-domestic purposes from Rattling Brook Big Pond.

These Permits and Licences will contain specific terms and conditions to prevent water quality degradation during construction and for the life of the project, and will include requirements for water quality monitoring and reporting.

Department of Environment and Conservation - Land Management Division

An application for Crown land title has been submitted for processing and may not proceed before a release from the EA Process. The proponent must obtain title before any use or occupation of the site other than to conduct the studies and data gathering required under the EA Process.

Department of Natural Resources - Mines Branch

Quarry permits are required for aggregate material used for the construction phase of the undertaking.

Department of Natural Resources - Forestry Branch

Cutting and conducting forestry activities during forest fire season require permits which may be applied for at the District Forest Resources Office at Paddy's Pond. Pollution Prevention Division allows non-treated woody debris to be disposed of on site through opening burning (provided it is in compliance with the *Environmental Code of Practice for Open Burning (1992*) and provided a permit to burn is obtained from this Branch.)

During the construction and operation of this project, the *Forestry Act* and *Regulations* will be the guiding legislation for all forestry related activities. All approvals and permits are to come from the District Forest Resources Office.

Department of Government Services - Occupational Health & Safety Division

The proponent is to:

- Ensure all work activities associated with this undertaking, along with any other work activities that may be indirectly associated with this undertaking, are carried out in accordance with the Occupational Health and Safety Act and Regulations.
- Ensure where less than ten workers are employed in a project, an occupational health and safety policy is developed and maintained at the workplace, and where ten or more workers are employed in a project, an occupational health and safety program is developed and maintained in accordance with the Regulations.
- Provide and maintain a workplace and the necessary equipment, systems, and tools that are safe and without risk to the health and safety of workers.
- Provide the information, instructions, training, and supervision and facilities, as necessary, for the health and safety of workers.
- Ensure workers, and particularly supervisors, are made familiar with any health or safety hazards that may be encountered by them in the workplace.
- Ensure detailed health and safety procedures are communicated to workers, enforced by supervisors, and followed by workers on the project.
- Conduct the undertaking so that persons not employed are not exposed to health or safety hazards as a result of the undertaking.
- Ensure personal protective equipment and devices are worn according to the work being performed and that workers are given operating instructions in the use of such equipment and devices provided for their protection.
- Consult and co-operate with the occupational health and safety committee at the workplace, where one has been established, or the worker occupational health and safety representative where one has been elected or appointed.
- Ensure machinery and/or equipment are operated by competent persons.
- Ensure an emergency response plan is in place that details measures to be taken to effectively respond to any foreseeable mishap that may occur as a result of the undertaking.

Department of Health & Community Services

- The proponent must obtain appropriate permits and approvals from the GSC (e.g. food permits, water supply and treatment system, sewage disposal system).

Department of Municipal Affairs

The Town of Long Harbour - Mount Arlington Heights now has a municipal planning area in place. The municipal planning area encompasses the proposed site of the processing plant. In addition, the Minister of Municipal Affairs has given the town Interim Development Regulations. As a result, all development within the municipal planning area requires approval from Council.

Once the Municipal Plan and implementing Development Regulations come into legal effect, all development must conform with the Plan and Regulations.

All building within the municipal boundary (which currently differs from the newly implemented municipal planning area) requires a building permit from the Town. All construction must conform to the National Building Code.

Fisheries and Oceans Canada - Habitat Evaluation

As components of this project will likely result in the harmful alteration, disruption, or destruction (HADD) of fish habitat, an Authorization pursuant to subsection 35(2) of the *Fisheries Act* is required.

As subsection 35(2) is included in the list of laws that trigger the *CEAA*, DFO is required to conduct an environmental assessment of the project, as prescribed by *CEAA*, prior to issuance of an Authorization.

Transport Canada - Navigable Waters Protection

Transport Canada, Navigable Waters Protection have determined that Formal Approval under Section 5(1) of the *Navigable Waters Protection Act* (NWPA) is required for the wharf extension and berm/dam construction on Sandy Pond therefore an assessment pursuant to the *Canadian Environmental Assessment Act* (CEAA) is required. Also, an Order in Council as per Section 23 of *NWPA* is also required.

No work shall be build or placed in, on, over, under, through, or across any navigable water unless the work, site, and plans have been approved pursuant to subsection 5(1) or exempted pursuant to subsection 5(2) of the *NWPA*. To begin these processes, the proponent is to contact Mr. Dan Shea,
Superintendent - Navigable Waters Protection Program, Marine Safety - Transport Canada
P.O. Box 1300, St. John’s, NL A1C 6H8 Tel: (709) 772-2284 Fax: (709) 772-3072.

The proposed water control structure on Rattling Brook Big Pond and the proposed effluent pipe into Long Harbour may require Formal Approval under Section 5(1) of the *NWPA*, therefore the proponent must submit scaled drawings of both structures.

Environment Canada

Environment Canada's Legislation, Control Instruments, and Policies relevant to the undertaking are:

- EC is responsible for administering subsection 36(3) of the Fisheries Act which prohibits the deposit of deleterious substances into fish bearing waters. Subsection 36(3) states that: "Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water." See: http://laws.justice.gc.ca/en/F-14/text.html
- Compliance and Enforcement http://www.ec.gc.ca/ele-ale/policies/c_and_e_fisheries_act/main_e.asp?print=1
- Canadian Environmental Protection Act (CEPA) and related regulations (see: http://laws.justice.gc.ca/en/c-15.31/text.html) enables protection of the environment, and human life and health, through the establishment of environmental quality objectives, guidelines, and codes of practice and the regulation of toxic substances, nutrients, emissions, and discharges from federal facilities, and ocean dumping.
- Compliance and Enforcement Policy for CEPA - March 2001 See: http://www.ec.gc.ca/CEPARegistry/documents/policies/candepolicy/toc.cfm
- Notice with Respect to Substances in the National Pollutant Release Inventory for 2005, February 19, 2005, CEPA. See: http://www.ec.gc.ca/npri

Reporting is required for certain substances on an annual basis if reporting criteria are met.

- New Substances Notification Regulations (CEPA) stipulate the information that must be submitted to EC prior to the import or manufacture of any new substance in Canada. See: www.ec.gc.ca/substances
- Environmental Emergency (E2) Regulations under Section 200 of CEPA apply to any person in Canada who owns, or has charge, management, or control of, a substance listed on Schedule 1 of the Regulations where either the total amount of the substance or the single largest container on site is equal to or greater than that specified in the Schedule. Where either or both of the criteria are satisfied, that person must undertake a number of actions.
- Hazardous waste to be transported out of the Province for disposal is subject to the Interprovincial Movement of Hazardous Waste Regulations (IMHWR) {2002} administered by EC under CEPA. These Regulations set out the conditions which must be met in order to monitor and track the transboundary movement of hazardous wastes in Canada to ensure that they are recycled or disposed of in an environmentally sound manner. Under the IMHWR {2002}, all hazardous wastes transported by an authorized carrier within Canada must be accompanied by a manifest. If the waste materials are to be shipped for disposal or recycling outside Canada, the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWHRMR) under CEPA would apply.
- Migratory Birds Convention Act and related regulations. See: http://laws.justice.gc.ca/en/M-7.01/text.html including recent amendments at http://www.parl.gc.ca/38/1/parlbus/chambus/house/bills/government/C-15/C-15_4/C-15-3E.html
- As amended, the Migratory Bird Convention Act states that "no person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such

waters or such an area." Under the Migratory Birds Regulations, "no person shall disturb, destroy or take a nest, egg, nest shelter, eider duck shelter, or duck box of a migratory bird." (migratory birds include those species listed in the Canadian Wildlife Service Occasional Paper Birds Protected in Canada under the Migratory Birds Convention Act,1994).

- Species at Risk Act, 2002 (see: http://laws.justice.gc.ca/en/s-15.3/text.html) prohibits damage, destruction, and interference with listed endangered, threatened, or extirpated species and their "residence". The Species at Risk Act also requires that the person responsible for a federal EA must, without delay, notify the competent minister(s) in writing if the project being assessed is likely to affect a listed wildlife species or its critical habitat. Notification is required for all effects, including adverse and beneficial effects, and the requirement to notify is independent of the significance of the likely effect. The person must also identify adverse effects of the project on listed species and their critical habitat. If the project is implemented, the person must ensure that measures are taken to avoid or lessen adverse effects and that effects are monitored. Mitigation measures must be consistent with recovery strategies and action plans for the species.

Federal Legislation, Control Instruments, and Policies for which Environment Canada shares a responsibility include:

- The Canada Shellfish Sanitation Program (CSSP). (The following website is a useful resource for CSSP: http://www.inspection.gc.ca/english/anima/fispoi/csspccsme.shtml) The CSSP is a federal program to ensure that all bivalve molluscan shellfish (i.e., clams, mussels, oysters, whole and roe-on scallops, and other bivalve molluscs) growing areas meet approved federal water quality criteria, that pollution sources to these areas are identified, and that all shellfish sold commercially are harvested, transported, and processed in an approved manner. In Canada, the legal authority for the CSSP is provided by the Management of Contaminated Fisheries Regulations under the Fisheries Act and the Fish Inspection Regulations (FIR) under the Fish Inspection Act.
- The objective of the Federal Policy on Wetland Conservation (FPWC), 1991 (see http://www.cws-cf.ec.gc.ca/publications/abstractTemplate.cfm?lang=e&id=1023) is to "promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future." In support of this objective, the Federal Government strives for the goal of "No Net Loss" of wetland function on federal lands or when federal funding is provided. The Policy recommends a hierarchical sequence of mitigation alternatives (avoidance, minimization, and as a last resort, compensation). The best and least disruptive approach to mitigation of environmental effects is impact avoidance. Avoidance refers to elimination of adverse effects on wetland functions, by altering the siting or modifying the design of a project.
- Canadian Environmental Quality Guidelines. See: http://www.ccme.ca/publications/ceqg_rcqe.html including updates to December 2005 See http://www.ccme.ca/publications/pubs_updates.html#258
- The Transportation of Dangerous Goods Act (TDGA) and Regulations administered by Transport Canada should also be consulted with regard to the handling, offering for transport, or transporting of dangerous goods, and any documentation pertaining to the transportation of such goods, as applicable. For more information concerning the TDGA and Regulations, Transport Canada can be contacted via http://www.tc.gc.ca/tdg/clear/tofc.htm .
- Canada Shipping Act and Regulations are also administered by Transport Canada.
- Canada-wide Standards for Particulate Matter and Ozone, including the provisions for Keeping Clean Areas Clean and Continuous Improvement. See:

http://www.ccme.ca/assets/pdf/pmozone_standard_e.pdf

- National Ambient Air Quality Objectives

3. **Public Comments on the Registration**:

The Department has received a number of submissions from environmental groups and individuals that are interested in the project. The submissions have been provided to the proponent in accordance with the *Access to Information Act* (in cases pertaining to individuals, the identity of the author has been withheld). The proponent is expected to address in the EIS relevant issues regarding the proposed project raised in these public submissions.

A person reviewing these Guidelines, and having a need to see all the comments as provided to the proponent, can arrange a copy by contacting the Chairperson of the Long Harbour VBNC Nickel Processing Commercial Plant Project Assessment Committee at 729-0834.

There follows lists of the issues raised by the public in conversations and submissions responding to the registration of this proposal:

General and Miscellaneous Issues:

- proponent's plans for monitoring
- availability of test results to the public
- the need for the project (are risks to health and the environment as important as the needs of the "Chinese nickel appetite")
- community apprehension due to the experimental nature of the Hydromet Process
- alternatives to the project such as the use of a lined man-made pond for residue
- loss of clean unencumbered land and water courses
- cumulative effects of this project with others existing/planned for the area

Socio-economic Issues:

- employment
- municipal growth and tax base
- economic development, economic security, and spin-off business opportunities
- spin-off economic growth and stability
- maximizing business opportunities for local companies "per the spirit of the Industrial and Economic Benefits Agreement signed as part of the Voisey's Bay Project Agreement"
- the record of the proponent supporting local suppliers, contractors, and businesses (including timeliness of information on construction and operation needs)
- proponent's intended support to regional suppliers to enhance capacity and competitiveness for construction and longer term service and supply needs
- removal of (or changes to) stresses on families and communities
- impact on out-migration trends, declining population, and changed demographics

- the "robbing of our best resource" (our tradespeople) by the Province of Alberta
- impacts on health and quality of life for residents
- attractive healthy communities in which employees can reside
- assurances for environmentally friendly living conditions
- that public consultations be structured to enable all residents to comfortably comment
- impacts of increased industrialization on marketability of seafood from the area
- the record of the proponent in the area of environmental responsibility
- long range benefits to the Province from being at the leading edge of hydromet technology and from hosting a world class facility
- possible effects from diminished aesthetics, wilderness values, lost heritage, disappearing wild areas, the full range of recreational pursuits (including hiking, kayaking, boating, hunting, fishing, and snowmobiling) and possible effects on current/future employment in eco-tourism

Biophysical Issues:

- Matte Plant scenario is preferable with respect to water consumption
- Matte Plant scenario is preferable with respect to waste minimization
- Matte Plant scenario is preferable with respect to minimizing loss of fish habitat
- alternative residue disposal to the permanent destruction of the Sandy Pond ecosystem
- regressive effect for all Canada of permitting a discharge contrary to the Fisheries Act
- quantity and quality of effluents
- potential impacts to groundwater and surface water coming from the area
- potential for trace heavy metals in the ore to enter the marine environment
- possible effects of effluents on shellfish harvesting, aquaculture, and fisheries
- possible effects on moose, small mammals, songbirds, and raptors
- impacts of the environment on the project (such as from floods, storms, and climate change)
- discharge standards that will be met
- potential for damage to a fishery already endangered
- possible effects on the rare boreal felt lichen
- bioaccumulation and potential for impacts on bottom dwelling marine organisms
- impact of emissions on commercial berry harvesting (whether secondary producers of berries will need a restrictive buffer)
- potential loss of fishing/trouting habitat
- potential loss of productive forest land
- incorporating this business into this site with the least possible effects on the environment
- impacts of this operation on health and safety issues remaining from previous industrialization
- potential effects of dust from trucking and discharge of emissions
- potential for effects on drinking water, fish, and humans from emissions and dust
- possible impacts of blasting during construction

APPENDIX A

Department of Environment & Conservation
Environmental Assessment Division

ADVERTISEMENT REQUIREMENTS FOR PUBLIC MEETINGS / INFORMATION SESSIONS

Purpose: To clarify for staff, proponents, public interest groups, etc. the types, timing, number, notification requirements, etc. for public consultations in relation to undertakings required under the *Environmental Protection Act, SNL 2002 cE-14.2*, (Section 58) to prepare an Environmental Impact Statement (EIS) or required under the *Environmental Assessment Regulations, 2003* (Section 10) to prepare an Environmental Preview Report (EPR).

1. The proponent is not required to conduct public meeting(s) (information sessions) under an EPR process unless specifically required to do so in the project Guidelines. This requirement shall be at the Minister's discretion, based upon advice from the Assessment Committee (AC) as provided by the Chairperson, taking into account the level of expressed public interest.

2. The proponent is always required to conduct public meeting(s) (information sessions) under an EIS process as specified in the Legislation. This requirement will be specified in the project Guidelines.

3. When required, a public meeting will normally be held in the largest local population centre within the project area. This will be the minimum requirement. In addition, when demonstrated public interest or concern warrants, additional meetings may be required. This may take the form of additional meetings to be held in major regional or provincial population centres, or possibly additional meetings within the original community. Such requirements are at the discretion of the Minister based on consensus advice from the AC Chairperson, and based upon public interest as evidenced by public submissions received.

4. The requirements for location of public meetings may be modified for projects proposed within areas subject to formal aboriginal land claims processes recognized by the provincial and federal governments, excluding projects located entirely within municipal boundaries. In such cases, a public meeting may specifically be required in an appropriate aboriginal community which has a direct interest in the land claim. Such a meeting may be required in addition to others required under #3 (above). The proponent may be required to provide appropriate translation services for such meetings. This provision is subject to alternate direction relating to dealings with aboriginal groups which may be imposed by government under special circumstances.

5. The format of the public meeting may be flexible, and the proponent is free to propose a suitable format for approval by the AC. The format may range from formal public meetings chaired by the proponent or representative with presentations followed by questions and answers, to a less formal open house forum where the public may discuss the proposal with the proponent or

representatives. Other formats may be considered by the AC. The purpose of the public information session is to 1) provide information concerning the proposed undertaking to those who may be affected, and 2) to record the concerns of the local community regarding the undertaking. Any format must meet these objectives.

6. The proponent must ensure that each public meeting is advertised in accordance with the following specified public notification requirements, which shall form part of the project Guidelines when appropriate:

PUBLIC NOTICE

Public Information Session on the Proposed

Name of undertaking
Location of undertaking

will be held at
Date and Time
Location

This session will be conducted by the proponent,
Proponent name and contact phone number,
as part of the environmental assessment for this project.
The purpose of this session is to describe all aspects of the proposed project,
to describe the activities associated with it, and to provide an opportunity for all interested
persons to request information or state their concerns.

ALL ARE WELCOME

- Minimum information content of public advertisement - (Proponent to substitute appropriate information for italicised items):

- If translation services are to be provided as per #4 (above), then the ad should specify this fact and the languages to be used for the session.

- Minimum newspaper ad size: 2 columns wide.

- Minimum posted ad size: 10 cm x 12 cm.

- Minimum newspaper ad frequency (to be run in newspaper(s) locally distributed within each meeting area or newspaper(s) with the closest local distribution area):

  - For dailies, the weekend between 2 and 3 weeks prior to each session and the two consecutive days prior to each session, OR
  - For weeklies, in each of the two weeks prior to the week in which the session is to be held.

- Minimum posted ad coverage: In the local Town or City Hall or office, and the local post office, within the Town or City where the meeting is to be held, to be posted continually for not less than 15 days prior to each session.

- Any deviation from these requirements for any reason must receive the prior written approval of the Minister.

- The proponent must provide the Chairperson of the AC with copies of advertisements and public notices.

APPENDIX B

ENVIRONMENT CANADA - Recommended Scoping Considerations

The scope of the Project to be assessed includes the proposed construction, operation, maintenance, and decommissioning of the following physical works and the following activities:

Lower Tier
Marine Terminal

- dredging of sediment and scrap steel, and disposal on land;
- upgrades to the existing marine terminal;
- repair and upgrading by infilling to accommodate two ships;
- any new facilities and modifications required for the management of hazardous materials and special wastes; the management of non-hazardous wastes; and the management of emissions and discharges including sanitary sewage, ballast water, and bilge water;
- any upgrades for fire suppression systems and lighting; and
- offloading facilities.

On-Shore Facilities and Activities

- vegetation clearing;
- road connecting upper and lower tiers;
- extension of power supply from existing substation on lower tier to upper tier;
- administration building;
- covered conveyors and storage areas for nickel concentrate, limestone, and chemicals
- equipment laydown area and parking;
- stormwater collection pond;
- sewage treatment facilities; and
- landscaping, lighting, and fencing.

Upper Tier
Processing Facility and Waste Treatment (Hydromet Plant)

- clearing, infilling, grading, leveling, and blasting (pipelines);
- roads to water supply (Rattling Brook Big Pond) and residue disposal site (Sandy Pond);
- processing facility, storage areas, laboratories, and main administrative offices;
- pumphouse and pipeline to convey process water from Rattling Brook Big Pond to the processing facility;
- addition of dams on Rattling Brook Big Pond;
- 3.8 km slurry pipeline from the plant to a residue disposal pond (Sandy Pond);
- construction of two dam(s) around Sandy Pond to contain the tailings;
- two dams around a clarification pond;
- effluent pipeline from the clarification pond to the processing facility for treatment;
- outfall from the processing facility to a discharge location west of the proposed wharf; and
- site runoff / stormwater collection pond.

Processing Facility and Waste Treatment (Matte Plant)

- clearing, infilling, grading, leveling, and blasting (pipelines);
- roads to water supply (Rattling Brook Big Pond) and residue disposal site;
- processing facility, storage areas, laboratories, and main administrative offices;
- pumphouse and pipeline to convey process water from Rattling Brook Big Pond to the processing facility;
- potential addition of dams on Rattling Brook Big Pond;
- 2 km waste slurry pipeline to a storage site surrounded by 4 m high containment berm;
- clarification pond to collect runoff and leachate;
- effluent pipeline from the clarification pond to the processing facility for treatment;
- outfall from the processing facility to a discharge location west of the proposed wharf;
- site runoff / stormwater collection pond; and
- final disposal site for iron/arsenic residue.

Shipping

- shipping activity within Placentia Bay including the area around Cape St. Mary's Ecological Reserve. The seaward boundary (of Cape St. Mary's Ecological Reserve) extends west for about three nautical miles and then swings south and east to a point about two nautical miles south of Redland Point. Shape files of the Reserve Boundary can be provided by Parks and Natural Areas Division GIS Staff, upon request (contact: Crystal Breon, 635-4536 or crystalbreon@gov.nl.ca).

For greater certainty, the scope of Project includes the following activities:

- any activities involving materials that could release toxic or deleterious substances into the environment such as the application of de-icing agents, the discharge of ballast water, the application of dust suppressants and fire suppressants, the discharge of bilge water, sewage disposal, and vessel repair, cleaning, maintenance (e.g., painting, sandblasting/de-painting), and refuelling; and,
- use of equipment, vehicles, and vessels during all project phases including use of terminal loading and unloading equipment during operation.

The description of the Project must include the following:

- each of the project elements identified above;
- the types, characteristics, and quantities of limestone, concentrates and chemicals to be handled;
- construction materials, and source and characteristics of fill;
- timing of construction activities including seasonal schedules, and anticipated commencement and completion dates;
- the types, characteristics, and quantities of input materials, including hazardous materials, to be used in the processes;
- the quantity of process water required and opportunities for recycling;
- the types, characteristics, and quantities of products to be generated;
- the types, characteristics, and quantities of special wastes that will be generated and the disposal options;
- the treatment process for the wastes that are not disposed;
- the characterization and quantities of the effluents released to the marine environment;
- emissions to the air from all phases of the project;
- noise sources for construction and operation phases;
- a description of maintenance planning and scheduling procedures; and,
- a description of the environmental management systems to be employed.

Information on the location and configuration of the Project (including appropriate mapping) must be provided. A description of the proposed location must include an explanation of provisions made during Project siting and configuration to avoid adverse interactions with environmental values. Details must be provided on the ownership of property within the Project footprint including land owned by the Proponent, the Crown, and private lands.

Further guidance on project components and information sources is found in the Addendum, Part A.

Technically and economically feasible alternative means of carrying out both the Project as a whole and the major components of the Project must be discussed. Alternative means, and selection criteria, shall be described in sufficient detail so the environmental effects associated with each, and the rationale for a preferred option, are apparent. The criteria used to select the preferred option shall reflect an explicit priority on opportunities to avoid or minimize impacts (e.g. pollution prevention).

Project relationship to existing or proposed regional-scale plans, strategies, and programs must be highlighted and explained (including those dealing with land use, pollution prevention, and emergency response including marine shipping incidents). Opportunities that have been or will be taken to integrate Project planning into ongoing regional-scale management efforts must be discussed.

Project relationship to contaminated site assessment studies and results, as well as any site remediation plans must be highlighted and explained.

Environmental policies, legislation, regulations, guidelines, objectives, standards, bylaws, and codes applicable to Project planning, design, and implementation must be described. Provisions for compliance with mandatory requirements, and adherence to best practices, must be highlighted and explained. Some of the requirements related to the EC mandate are included in the Addendum.

Additional factors to be considered are:

- the purpose of the Project;
- the environmental effects of the Project including the effects of accidents and malfunctions that may occur in connection with the Project and effects of the environment on the project;
- cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been carried out, and with other projects or activities that are reasonably foreseeable;
- mitigation measures, including contingency measures as appropriate, that are technically and economically feasible, and consistent with applicable species recovery strategies, action plans, and management plans;
- the significance of adverse environmental effects taking into account implementation of mitigation measures;
- the requirements of a follow-up program, and requirements for monitoring impacts on listed species at risk and their critical habitat; and,
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

The EIS strategy, methods, and boundaries must be described taking into account applicable best practices. The following elements must be clearly defined:

- the temporal boundaries (i.e. duration of specific Project activities and potential effects) for all Project phases;

- the study boundaries and all of the space that will be potentially impacted by the Project as proposed (or subject to subsequent modifications) and the method used to identify the study boundaries;
- the Valued Environmental Components (VEC's) and the methods used to identify VEC's;
- the strategy for investigating the interactions between the Project and each VEC;
- the VEC-specific criteria that will be applied to gauge the significance of an effect;
- the strategy for predicting and evaluating environment effects, determining mitigation, evaluating residual environmental effects, and establishing follow-up needs; and,
- provisions for ensuring the EIS, and the design of field surveys and other data collection exercises to be conducted in support of the EIS, reflect a consideration of available community knowledge and traditional ecological knowledge as applicable.

The VEC's to be considered, and the related approach to describing baseline conditions, predicting and evaluating environment effects, determining necessary mitigation, evaluating residual environmental effects, and establishing follow-up needs, must be confirmed in consultation with the Department of Fisheries and Oceans in conjunction with the writing of the Comprehensive Study Report. For greater certainty, the selected VEC's must include migratory birds, wildlife at risk, wetlands, fish and fish habitat, water quality, shellfish growing waters, and air quality. Impacts on marine navigation, land and transportation, and the commercial and recreational fishery must also be considered. Further guidance on VEC's and information sources is set out in the Addendum immediately following.

The proponent must integrate the EIS and the review of applications for permits and authorizations, which mandate application of *CEAA* to the extent possible; the EIS is to be conducted in an integrated and concurrent manner. Accordingly, information needed to support the review of applications for authorizations, and an understanding of related project-environment interactions, should be collected and included with the EIS as feasible.

The EIS must evaluate and predict environmental effects. The EIS must provide baseline descriptions of the physical, biological, and socio-economic environments and selected VEC's. The Proponent must clearly identify gaps in baseline information. The use of objective (quantitative) analysis is strongly preferred where it is technically feasible and reasonable. However, in recognition of any factor that may limit the ability to quantify environmental effects, predictions may be based on subjective evaluation using professional judgement and experience. In these cases, predictive statements must be accompanied by a discussion of the limitations of the analysis, references to supporting documentation, and the qualifying credentials of those making the predictions. All predictions must clearly specify any degree of uncertainty and be amenable to testing where possible through follow-up monitoring.

The goal of the cumulative effects assessment will be to place Project impacts and their management in a "bigger-picture" context. The assessment must include the following elements:

- opportunities to contribute to a regional approach to management of cumulative effects,
- identification of regional issues of concern and a focus on VEC's most sensitive to cumulative effects;
- a clear justification for the spatial and temporal boundaries used to address cumulative effects; and
- a clear description of the analysis undertaken and presentation of the results.

A priority for "pollution prevention" must be made clear (including with respect to the marine terminals and shipping). To develop this principle, refer to:

- American Association of Port Authorities. 1998. Environmental Management Handbook accessible at http://www.aapa-ports.org/govrelations/env_mgmt_hb.htm .
- US Environmental Protection Agency. 1997. Profile of the Water Transportation Industry (Shipping and Barging). Office of Compliance Sector Notebook Project accessible at http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/water.html .

Mitigation must be identified and described with a clear priority on impact avoidance or pollution prevention opportunities. Compensation must only be considered in those circumstances where it can be demonstrated that environmental impacts are unavoidable or cannot be adequately mitigated by any other feasible means. The specific circumstances under which mitigation (including contingency measures) will be implemented must be defined. Existing environmental management plans, environmental protection plans, and other related management instruments, which require revision and upgrade to accommodate Project needs, must be identified.

The following information is required to assist in the preparation of the Comprehensive Study Report by determining appropriate conditions under which the Project might proceed:

- Details of a monitoring program that would be undertaken to ensure that the work proceeds in accordance with the terms and conditions of the EIS and any other necessary environmental approvals. The program should include the appointment of a designated Environmental Minitor for the Project.
- Requirements of any follow-up program for verifying the accuracy of the EIS and determining the effectiveness of the implemented mitigation measures. If it is determined that a follow-up program is warranted, details must be provided on how the program would be undertaken, the schedule, and the parties responsible for implementation. The commitment to implement adaptive management measures should be clearly stated in the event that unanticipated adverse environmental effects, mitigation failures or deficiencies, or potential exceedances of environmental protection standards, objectives, guidelines, or approvals are identified.
- Plans to report periodically on implementation of the Project, on the findings of monitoring and follow-up programs, and on the implementation of adaptive management measures.

There must be a section in the EIS devoted to a summary of findings and conclusion. Findings must be summarized with an emphasis on the main environmental issues. Mitigation and follow-up measures that support conclusions shall be specified. Mitigation measures should be summarized by key project component. The magnitude of this project raises the need for high confidence in any impact predictions developed by the proponent. A comprehensive explanation of the factors which support the impact prediction should be contained within the EIS along with any further mitigation and a stringent monitoring regime proposed.

ADDENDUM

Guidance on VEC's, information sources, and key references:

Part A - Project Components

Air Emissions; emissions inventory for energy, process, transportation, and construction emissions.

- energy - estimated fuel use
- process - estimated emissions (estimates of dust arising from loading and unloading of limestone and concentrate) and analysis of the possibility of fugitive leaks of chlorine gas
- transportation - size and type of vessels, length of stay, and volume of vessel traffic. Estimated emissions from vehicles on-site.
- construction - emissions of dust from construction-related activities and emissions from vehicles
- cumulative effects analysis
- acid precipitation
- process - emission results from mini-plant in Sheridan Park and demonstration plant in Argentia emission results from Goro Nickel project in New Caledonia
- emissions from facilities in the area (e.g. Come-by-Chance Refinery)
- sulphate precipitation data

Fire Suppression Systems

- proposed locations and design of any fire suppression systems, including fixed and portable delivery systems, and provisions for management. Details required include type of suppressant, the capacity of the systems, and planned test procedures.

Storage Tanks

- aboveground and underground storage tank systems need to be designed, installed, operated, maintained, and withdrawn from service in accordance with the Canadian Council of Ministers of the Environment (CCME), Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products PN 1326. The EIS must outline the proposed locations and preliminary design of all anticipated storage tank systems (includes related piping).

Ballast Water

- "Guidelines for the Control of Ballast Water Discharge from Ships in Waters under Canadian Jurisdiction", published by Transport Canada in 2001, should be consulted. Transport Canada is presently drafting new *Ballast Water Regulations* under the *Canada Shipping Act* (contact Mr. Mihai Balaban, 902-426-3477 with Environment Canada in Halifax who is serving on the Committee guiding the initiative.

The EIS must demonstrate a priority by the proponent for non-chemical options for treatment of ballast water. What provisions will there be for control of invasive species, exchange of ballast water, and use of disinfectants? What will be the location, timing, and volume of any ballast water discharges? Are

there any existing plans and approvals for the use of disinfectants and for management of ballast water and potential invasive species?

Sewage

- Does the proponent have any existing policies or provisions for management of sewage?

Bilge Water

- Does the proponent have any existing policies, approvals, or provisions for management of bilge water?

Lighting

- What existing lighting will be utilized and what are the proposed location(s) and type(s) of lighting?

Decommissioning and Modifications

- What is the potential for interaction with existing area contamination (site assessment reports, remedial action plans, and summary of remedial efforts to date); what are survey results? What provision (management plan) is intended for identifying and containing/removing contaminants from the existing wharf and other structures to be modified, re-located, or demolished? The EIS must identify any contaminated sites (land-based or marine).

Contingency Planning

Guidance on development of the required contingency plan(s) to address the potential effects of accidents and malfunctions is available in the Canadian Standards Association publication, Emergency Preparedness and Response, CAN/CSA-Z731-03. The EIS must detail reasonably foreseeable accidents (e.g. release of chlorine gas) and malfunctions (failure of effluent treatment system) and provisions for response. The positive and negative experience of the proponent with existing emergency preparedness response plans in other locations should be explained.

Part B - Environmental Conditions

Effects of the Environment on the Project

Environmental hazards potentially affecting the Project shall be described (e.g. wind, currents, waves, storm surges, severe precipitation events, flooding, sea ice) and the predicted effects from these hazards on the Project shall be assessed. The EIS must take into account the potential influence of climate change scenarios (ie: sea level rise, increased severity and frequency of severe storms, tidal surges, and flooding). Extreme conditions, rather than means, are most pertinent in considering climate and weather.

Information must be presented on:

- the climate data used (including data quality and record length);

- how representative climate data are of the project area (in space and time); and
- how these factors affect the accuracy of the information derived.

Climatological data can be found at http://www.climate.weatheroffice.ec.gc.ca/ , and value-added data can be obtained by consulting Environment Canada's Atlantic Climate Centre at 77 Westmorland Street, Suite 260, Fredericton, New Brunswick E3B 6Z3 (506) 451-6006 or (709) 772-4695
Fax: (506) 451-6010 E-Mail: climate.atlantic@ec.gc.ca

Sea ice data can be obtained by contacting Environment Canada's Canadian Ice Service. The Ice Service website is http://ice-glaces.ec.gc.ca/ , or contact Client Services, 373 Sussex Drive, Block E, Third Floor,
Ottawa, Ontario K1A 0H3 Phone: (613) 996-1550 or toll-free in Canada 1-800-767-2885
Fax: (613) 947-9160 E-Mail: cis-scg.client@ec.gc.ca

Wave data can be obtained from MEDS (Marine Environmental Data Service). The MEDS website is http://www.meds-sdmm.dfo-mpo.gc.ca/, or contact the Department of Fisheries and Oceans
W12082 - 200 Kent Street, Ottawa, Ontario, Canada K1A 0E6
General Inquiries: (613) 990-6065 Request Services: (613) 990-0243
Fax: (613) 993-4658 E-mail: services@meds-sdmm.dfo-mpo.gc.ca

Additional sources of information on sea level rise and storm surge are accessible via the Environment Canada website http://atlantic-web1.ns.ec.gc.ca/slr/ , and the website of the Centre for Marine Environmental Prediction at Dalhousie, which includes output from an operational storm surge model (http://www.phys.ocean.dal.ca/~cms/website/index.php?id=31).

Guidance on the assessment of effects of climate change on the Project is available in the document, "Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners" (Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment, 2003), which is accessible at http://www.ceaa.gc.ca/012/014/index_e.htm .

Effects on Migratory Birds and Wildlife at Risk

The EIS must identify potential effects on migratory birds and wildlife at risk, including their habitats.

Migratory bird data presented must be up to date and relevant to the project area. CWS has conducted recent aerial surveys in Placentia Bay (June 2000 and 2005; excludes Cape St. Mary's). They focused on counting nesting terns, but colonies of all seabirds (gulls, cormorants, kittiwakes, etc,) were noted. Also a selection of islands were visited by ground crews to count tern nests and assess species ratios. These included a selection of islands along the coast from Arnold's Cove to Long Harbour. This data ia available upon request from Greg Robertson 772-2778 or greg.robertson@ec.gc.ca .

Information on migratory birds and wildlife at risk potentially occurring in areas that would be directly and indirectly affected by the project should be obtained from the following sources:

- Species at Risk Public Registry at www.sararegistry.gc.ca ,
- Atlantic Canada Conservation Data Centre at www.accdc.com ,
- Provincial wildlife biologists, and
- local naturalist groups

Based on consultations with Environment Canada, Department of Fisheries & Oceans, and the appropriate provincial government agencies, it may be necessary to supplement the available information with field surveys by professional biologists with expertise at conducting the types of surveys required. Such surveys should be undertaken at the appropriate time of year in habitats potentially harbouring the species of interest. The fact that a species has not been confirmed in an area does not necessarily mean that it does not occur there, especially if habitat appropriate for that species is available. Detailed survey methodology and results must be presented in the EIS along with a mitigation and follow-up monitoring program.

The following considerations must be included in the EIS:

- seasonal variations and distribution of waterfowl species and coastal birds, as well as bird species of conservation concern;
- maps (to scale) showing locations of bird species of conservation concern and concentrations of birds in relation to existing infrastructure and the proposed Project;
- disturbance due to construction and operational activities;
- potential releases (large, accidental, and small chronic spills) into marine environment frequented by staging/wintering waterfowl, and migrating/foraging/resting birds;
- potential attraction to lighted vessels and facilities;
- chronic exposure of birds to contaminants; and
- potential attraction of certain species of birds to the site due to availability of food waste and nesting platforms, and any other pertinent factors.

Guidance on the assessment of effects is outlined in the following publications:

- "Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada, 2004 ISBN: 0-662-36753-7" at http://www.cws-scf.ec.gc.ca/publications/AbstractTemplate.cfm?lang=e&id=1059 .
- "Migratory Birds Environmental Assessment Guideline (1998)" at http://www.cws-scf.ec.gc.ca/publications/eval/index_e.cfm . Certain migratory bird species may also be considered wildlife at risk.

<u>Effects on Wetlands</u>

The EIS must identify the location, size, and class (based on the Canadian Wetland Classification System) of any wetland within the predicted zone of influence and conduct a wetland evaluation. The true ecosystem value of each wetland shall be examined through onsite investigations using comprehensive valuation methodology that assesses component, functional, and attribute values.

Field surveys and investigations required to supplement the available data shall be completed in a manner acceptable to Environment Canada and appropriate provincial agencies. Maps (to scale) delineating wetland habitat in relation to existing infrastructure and the proposed Project shall be provided.

Guidance on the assessment of effects on wetlands is outlined in the Wetlands Environmental Assessment Guideline (1998) at http://www.cws-scf.ec.gc.ca/cws-scf/publications/eval/index_e.cfm .

Effects on Air Quality

Existing ambient air quality must be described taking into account available ambient air monitoring data, the influence of local and regional emission sources, the influence of long range transport of air contaminants, and the influence of climate and weather conditions. The EIS must include an assessment of impacts of the Project on ambient air quality taking into account applicable provincial standards, the National Ambient Air Quality Objectives and the Canada-wide Standards for Particulate Matter and Ozone.

Effects on Water Quality

All receiving waters which may be impacted by the Project during all construction and operational phases must be identified. Impacts to surface waters must be assessed taking into account the Canadian Environmental Quality Guidelines and Canadian Shellfish Sanitation Program standards in conjunction with background water quality.

Effects Related to Accidents and Malfunctions

The mandatory assessment of environmental effects that could result from accidents and malfunctions must reflect a consideration of each Project phase and activity, plausible worst-case scenarios, and attention to site-specific conditions and sensitivities. For example, attention should be given to potential issues and incidents related to:

- spills of hazardous materials (on land and in water) and including while vessels are loading and unloading chemicals and product;
- explosion and /or fire;
- large storm events;
- transportation accidents;
- effluent treatment system failures;
- breaks or damage to the effluent outfall line and/or diffuser;
- dam failures;
- collisions with marine mammals;
- release of invasive or hazardous species through ballast water; and
- increased traffic to the port (on-land and marine).

- Emergency Response Plans must address the identified accident and malfunction scenarios and include (but not be limited to) the required training, exercise plans, equipment, and contacts.

APPENDIX C

HEALTH CANADA'S ROLE and INTERESTS

Under the *Canadian Environmental Assessment Act* , Health Canada makes available its expert knowledge to responsible authorities in areas of federal interest to support them in their decision-making relating to project environmental effects. Health Canada's expertise includes air, water, and soil quality guidelines/standards; toxicology (multimedia - air, water, soil, and food); drinking water and sewage management; contaminated sites; impacts of noise on human health; First Nations community health; environmental and occupational toxicology; health risk assessment and risk management; and radiation protection (ionizing and non-ionizing).

As it pertains to constitutional issues, Health Canada's expertise in health-related matters cannot be constitutionally challenged. Knowledge is not something limited by the constitution. In that context, we hope that the following will be considered by responsible authorities and discussed with the provincial authorities.

The EIS / Comprehensive Study Report needs to describe the existing environment. The baseline study would better support the environmental impact assessment (and human health risk assessment) if human health considerations were presented up front (ie: have a VEC specific to human health presenting existing air quality, water quality, soil quality, the quality of local produce, acoustic environment baseline data, etc. For example, current exceedances, if any, of existing provincial and/or federal health-based guidelines and the proximity of residences to the project sites must be identified.

The project description highlights the potential for the releases of chemical by-products into the existing environment and physical impacts (ie: particulate matter and noise) under normal operating conditions. To adequately assess the potential environmental health effects of by-products (chemicals and particulate matter), a detailed discussion must be provided to ensure a good identification of potential environmental health issues associated with specific project activities (ie: identification of contaminants of potential concern (COPC's) that will be released to the environment, details on the amount of the releases, predictions on the environmental fate of those COPC's, and clarification if there are exposure pathways for human receptors). In light of this detailed discussion, a Human Health Risk Assessment may also be required for some project operation activities. Health Canada would offer its support to Responsible Authorities and the provincial health authorities to develop Human Health Risk Assessment Terms Of Reference with coverage broader than for accidental events only.
To assess project physical impacts, adequate studies should be developed to ensure noise levels are protective of human health (workers and local communities). The Health and Safety Plan and Policies cannot replace an adequate assessment of health impacts associated with this project. Health Canada fully supports the development a scientifically sound monitoring program.

To discuss the above, the proponent may contact:

Jacinthe David, M Sc. A/ Senior Environmental Health Advisor Safe Environment Program St. John's, NL

tel: (709) 691-0113

Appendix E –
List of Relevant Permits

VBNC COMMERICAL NICKEL PROCESSING PLANT
Regulatory Requirements

Project Phase	Permit Required	Permitting Agency	Permit Type	Applicable Legislation
Planning Phase				
	Archaeological Research Permit	Historic Resources Division	Provincial	Historic Resources Act
	Application for Crown Land Title	Department of Environment and Conservation - Land Management Division	Provincial	Lands Act
	Fisheries Act Approval (HADD) Scientific Collection Permit	Department of Fisheries and Oceans	Federal	Fisheries Act
	Compliance with Town of Long Harbour Municipal Plan	Town of Long Harbour	Municipal	Urban and Rural Planning Act
Construction Phase				
	Development Certificate	Department of Municipal Affairs, Department of Government Services	Provincial	Urban and Rural Planning Act
	Certificate of Approval for Construction of Commercial Plant	Department of Environment and Conservation, Pollution Prevention Division	Provincial	Environmental Protection Act

Project Phase	Permit Required	Permitting Agency	Permit Type	Applicable Legislation
	Notification to Minister of OH&S of start of construction for any project over 30 days duration.	Government Services	Provincial	Occupational Health and Safety Act
	Permit to work in area of endangered species	Department of Environment and Conservation	Provincial	Endangered Species Act
	Cutting Permits	Department of Natural Resources - Forestry Branch	Provincial	Forestry Act
	Permit to Burn	Department of Natural Resources - Forestry Branch	Provincial	Forestry Act
	Quarry Permits	Department of Natural Resources - Mines Branch	Provincial	Quarry Materials Act
	Application for Permit Water and Sewage Works	Department of Environment - Water Resources Management Division	Provincial	Water Resources Act
	Application for Permit to Alter a Body of Water	Department of Environment - Water Resources Management Division	Provincial	Water Resources Act
	Schedule A - Culvert			
	Schedule B - Bridge			
	Schedule C - Dam			
	Schedule D - Fording			
	Schedule E - Pipe Crossing / Water Intake			
	Schedule F - Stream Modification or Diversion			
	Schedule G - Small Bridges			

Project Phase	Permit Required	Permitting Agency	Permit Type	Applicable Legislation
	Schedule H - Other works within 15 metres of a body of water			
	Permit to Construct Containment Dams and Other Works	Newfoundland Department of Environment - Water Resources Management Division	Provincial	
	Building Accessibility Design Registration	Government Service Centre - Engineering and Inspection Services	Provincial	Buildings Accessibility Act
	Fire Commissioners Form for Approval under the National Building / Fire / Life Safety Code	Government Service Centre - Engineering and Inspection Services	Provincial	
	Application for Ownership registation of Radiation Equipment	Government Service Centre	Provincial	Radiation Health and Safety Act
	Design Registration of Pressure Piping Systems	Government Service Centre - Engineering and Inspection Services	Provincial	Public Safety Act
	Petroleum Storage Tank Registration	Government Service Centre	Provincial	
	Diesel Generator Registration Form	Department of Environment and Conservation - Pollution Prevention Division	Provincial	
	Food Service Licence	Department of Health and Community Services	Provincial	Food and Drug Act
	Request for Project Review	Fisheries and Oceans Canada	Federal	Fisheries Act
	Formal DFO authorization under Section 35(2) of Fisheries Act	Fisheries and Oceans Canada	Federal	Fisheries Act

Project Phase	Permit Required	Permitting Agency	Permit Type	Applicable Legislation
	Navigable Waters Protection Act (NWPA) Assessment and Approval	Transport Canada - Navigable Waters Protection Program, Marine Safety	Federal	Navigable Waters Protection Act (NWPA)
	An Order in Council as per Section 23 of NWPA	Transport Canada	Federal	Navigable Waters Protection Act (NWPA)
	Dredged Material Disposal Permit	Environment Canada	Federal	Canadian Environmental Protection Act, 1999
	CNSC License Application for Fixed and Portable Gauges	Canadian Nuclear Safety Commission	Federal	Nuclear Safety and Control Act
	Construction Permit	Town of Long Harbour	Municipal	
	Occupancy Permit	Town of Long Harbour	Municipal	
Operations Phase Permits				
	Application for new/renewal of Water Lot Lease	Department of Environment and Conservation - Water Resources Management Divison	Provincial	Water Resources Act
	Water Use Licence for Rattling Brook Big Pond	Department of Environment and Conservation - Water Resources Management Division	Provincial	Water Resources Act
	Operation Permit for Ponds	Department of Environment and Conservation	Provincial	Environmental Protection Act
	Certificate of Approval for Industrial Facilities / Processes	Department of Environment and Conservation - Pollution	Provincial	Environmental Protection Act

Project Phase	Permit Required	Permitting Agency	Permit Type	Applicable Legislation
		Prevention Division		
	Permit for flammable and combustible liquid storage.	Department of Environment and Conservation	Provincial	Environmental Protection Act

Appendix F –
Environmental Protection Plan
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Appendix G –
EIS Study Team

EIS Study Team

Name	Organization	Roles and Responsibilities
Bennett, Bruce, B.Sc.	Jacques Whitford Limited	Terrestrial Environment
Bernard, Fred, B.A., M.A.	SENES	Noise
Bobbitt, Judith, M. Sc.	Oceans	Oceanography
Brown, Brenda, B.Sc., B.Ed.	VBNC	EA Administrator/Coordinator
Buchanan, Bob, M.Sc.	LGL Limited	EA Manager – Biophysical
Burlingame, Todd, B.Sc.	VBNC	EA Manager
Burnham, Carole, Ph.D.	Carole Burnham Consulting	Project Description
Canning, Strat, B.Sc.	Canning & Pitt	Fisheries Consultations
Chambers, Doug, Ph.D.	SENES	Air Quality
Christian, John, M.Sc.	LGL Limited	Marine Fish and Fish Habitat
Conway, Eugene	Newfoundland Lichen Education and Research Group	Erioderma
Coutts, Paula, M.Eng., P. Eng.	SENES	Air Quality
Devuyst, Erik, Ph.D.	Erik Devuyst Consultant Inc.	Residue
Donnet, Sebastien	AMEC	Accidental Release Modeling, Marine Sediment Modeling
Edwards, Alison, M.Sc.	MUN Health Research Unit	Human Health Status
Gadag, Veeresh, M.Phil., Ph.D.	MUN Health Research Unit	Human Health Status
Goudie, Ian, Ph.D.	LGL Limited	Bald Eagle and River Otter
Gullage, Stephen, M.Sc.	Jacques Whitford Limited	Terrestrial Ecology
Keeping, Brent, B.Sc.	Jacques Whitford Limited	Terrestrial Ecology
Kirkaldy, Jennifer, B.A.Sc.	SENES	Air Quality
Lander, Chris, B.Sc.	Oceans	Climatology
LeDrew, Bevin, M.Sc.	Sikumiut Environmental Management Ltd.	EA Advisor/Technical Reviewer
Locke, Wade, Ph.D.	Wade Locke Economic Consulting	Economic Impact
Mactavish, Bruce	LGL Limited	Marine Avifauna
Marshall, Lisa, B.Sc., MES	Intrinsik Environmental	Environmental Risk Assessment
Marson, Chris P. Eng	Senes	Air Quality
McCarthy, Jim, M.Sc., C.F.P.	AMEC	Freshwater Fish and Fish Habitat
McClintock, John, B. Math.	AMEC	Accidental Release Modelling, Sediment Modelling
McGrath, Jeana	AMEC	GIS data management, mapping
Miles, Calvin, P.Geo.	AMEC	Groundwater
Millard, Jim, M.Sc., P. Geo.	AMEC	Groundwater
Moulton, Val, M.Sc.	LGL Limited	Species at Risk
Moore, Christine, M.S.	Intrinsik Environmental	Environmental Risk Assessment
Penney, Gerald, M.A.	Gerald Penney & Associates	Historic Resources
Piercey, Wallace, CET	VBNC	Engineering Liaison
Pitt, Rob, M.A.	Canning & Pitt	Commercial Fisheries and Aquaculture
Radonjic, Zivorad, B.Sc.	SENES	Air Quality, Chlorine Release Modelling
Ryan, Ann, M.Sc.	MUN Health Research Unit	Human Health Status

EIS Study Team

Name	Organization	Roles and Responsibilities
Shrimpton, Mark, B.A.(Hons). M.A.	Jacques Whitford Limited	Socio-economics Manager
Storey, Keith, Ph.D.	Community Resource Services	Socio-economics
Trimper, Perry, B.Sc.F.	Jacques Whitford Limited	Terrestrial Environment
Victoria, Ivan, M.Sc.	Oceans	Oceanography
Warren, Jim, Ph.D., P.Ag., P.Geo.	AMEC	Marine Sediment Modelling, Pond Deposition Modelling
Wawrzkow, Mike, P.Eng., P.Geo	Calixte	Geology
Way, Elizabeth, M.Sc.	Jacques Whitford Limited	Socio-economics
Willis, Rob, B.Sc., MES, CCEP	Intrinsik Environmental	Environmental Risk Assessment
Woolgar, Susann, P. Eng.	SGE Hatch	Engineering Liaison