



**Environmental Impact Statement**  
**Long Harbour Commercial Nickel Processing Plant**

**Table of Concordance**  
**for**  
**2007 EIS Submission Review Comments**

**Vale Inco Newfoundland & Labrador Limited**  
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**April 2008**

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# Contents

	Page
<b>Introduction</b>	1
<b>Letter from Minister Charlene Johnson to Mr. Todd Burlingame</b>	2
<b>General Comments</b>	3
<b>Comments by Environment Canada on Environmental Risk Assessment</b>	4
<b>General Technical Comments and Concerns</b>	6
<b>Specific Technical Deficiencies, Concerns and Issues</b>	16
Executive Summary	
Volume 1	
Volume 2	
Volume 3	
<b>Appendices</b>	65
<b>Specific Editorial Points and Errors</b>	66
<b>Appendix A: Further Comments from EC Pertaining to Air Contaminants</b>	67

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## **Introduction**

This Table of Concordance has been prepared to assist in directing readers to revised text within the EIS as a consequence of the review completed by the Environmental Assessment Committee (EAC) of the November 2007 submission.

For ease of reference, the review comments have each been assigned a number; the comments are repeated verbatim as received (*in italics*). Following each Comment, Vale Inco NL has provided a response that is titled as one or more of the following:

**EIS Text Edited** – where a specific text change (usually as noted in the Comment) has been made. The location of the change is also noted for reference (e.g., Volume 1 Section 6.2.3 [**section header**], p. 6-1.)

**EIS Text Amended** – where substantive text in the EIS has been added or amended in response to the Comment provided. Text change location is noted.

**Point Noted** – where no response is required, e.g., where the Comment is simply an observation or point of information.

**Explanation** – where a response is provided within the Table of Concordance.

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**Letter from Minister Charlene Johnson to Mr. Todd Burlingame**

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**01 EAC Comment**

Mr. Todd Burlingame  
Project Manager, Environmental Assessment  
Voisey's Bay Nickel Company Limited  
Suite 700, Baine Johnston Centre  
St. John's NL A1C 1K4

January 15, 2008

Dear Mr. Burlingame:

**RE: Environmental Impact Statement (EIS) for Long Harbour Nickel Processing Plant**

In response to your November 6, 2007 submission, this EIS has been reviewed by Agencies and the public in accordance with Part X of the Environmental Protection Act.

The Assessment Committee has prepared a list of general and specific comments (attached) some of which are technical; others editorial. There are numerous important information gaps, concerns, errors, and clarifications that require attention. They span all areas of the EIS such that an addendum would not be feasible.

Among the areas where the Project Guidelines have not been met and the EIS falls short of what is needed are:

- the residue pond issue (the duration of the Project needs clarification, capacity and structural integrity of the pond has not been proven),
- impacts of accidental events on aquaculture and the scenario pertaining to marine birds,
- evaluation of cumulative effects with respect to accidental events,
- within-Project alternatives (engineered residue containment, dredging, accommodations facility, outfall routing), and
- clarification on the geographic extent determinant for significance.

Also there is insufficient information provided on the outfall bypass, chemicals of potential concern, mitigative measures in several areas, dredging, the effects of climate change, the impacts of sulphate deposition, information on fish habitat, project interaction with avifauna, the monitoring and transplantation of boreal felt lichen, food handling by/for workers, disincentives for "gravel pit camping" by workers, emergency planning cooperation, consultation with and compensation policy for fishers and aquaculture operators, impacts of the Project on marketability of resources, and real time water quality and quantity monitoring.

I concur with the findings of the Assessment Committee, and ask that you revise or supplement the final text, in a revised EIS document. There will need to be a further public review, and the fee payable by the Proponent on submission will be \$3,000. I ask for your submission of 20 CD's and forty hard copies of the new text; the current appendices as revised may be on a CD for the hard copies. Also a CD suitable for Web Site posting is needed.

If you have questions, you or your Consultants may contact Carl Strong, Chairperson of the Assessment Committee, who will meet with you if necessary.

Sincerely yours  
CHARLENE JOHNSON  
Minister

**Explanation**

See Transmittal Letter from Vale Inco NL to Minister of Environment and Conservation.

A revised EIS and Table of Concordance have been prepared.

**Comments of the Assessment Committee on the Environmental Impact Statement (EIS) for the  
Long Harbour Commercial Nickel Processing Plant**

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**GENERAL COMMENTS:**

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**02 EAC Comment**

- *Environment Canada has identified certain issues for which the EIS Guidelines have either not been adequately addressed or for which analysis and/or interpretation is not correct. These issues relate to the departmental mandate for pollution prevention and control, environmental quality, and wildlife. The Proponent has undertaken some important work that is reflected in the EIS. Environment Canada is confident that the Proponent should be in a position to address the identified deficiencies so as to help ensure the potential impacts are understood and appropriate mitigation and follow-up monitoring measures are identified. Departmental commentary is consistent with other recent reviews of major projects subject to environmental assessment in the Placentia Bay area and includes some information that could be helpful to the Proponent as planning proceeds. We look forward to revisions which address the specific requests for additional information, analysis, and clarity.*
- *The Proponent's commitment to optimization and working with communities and service providers is a cornerstone for Health planning and preparedness. Eastern Health, Peninsulas Division, under the leadership of Patricia Coish-Snow, looks forward to working with the Proponent on various committees and information sharing initiatives to ensure that optimization strategies are developed and implemented.*
- *Attention to numerous general and specific editorial problems in the EIS would be helpful in communicating environmental assessment findings and facilitating the ongoing review. In addition to technical deficiencies, the Proponent is urged to give proper consideration to what individually are minor concerns, but collectively have importance in how the EIS is received as a compilation of scientific predictions and professional judgements by experts on a Project of great importance to all readers.*

**Explanation**

Meetings have been held with EAC members and reviewers to clarify comments and discuss future liaison. Text changes have been made as appropriate and included in the revised EIS.

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## **COMMENTS BY ENV. CANADA ON ENVIRONMENTAL RISK ASSESSMENT REPORT:**

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### **03 EAC Comment**

*In addition to the General Comments (above) and the remaining EIS Comments that follow this Section, Environment Canada (EC) has provided Comments on the Environmental Risk Assessment Report (a Report referenced in the EIS) that will be useful to the Proponent in relation to work required on the EIS; in particular with respect to Environmental Effects Monitoring (EEM). Other EEM comments by EC that relate to specific Sections and Sub-Sections of the EIS are noted in the Sections of this Attachment that follow this Section.*

*EC has reviewed those portions of the Ecological Risk Assessment (ERA) which are related to the departmental mandate including the Conclusions and Recommendations presented in Sections 5 and 7. Based on the ERA conducted by Intrinsik (2007), further consideration should be given in the EIS to potential impacts of sulphate deposition on freshwater ponds. In Table 5-4, sulphate deposition from stack emissions is identified as a Chemical of Potential Concern (COPC) for freshwater environments. However, the modeling assumptions used to assess aquatic impacts (Intrinsik 2007) include a pond pH of 5.7 that is held constant over the 15 years of processing plant operation. An accurate assessment of the potential impacts of acidic emissions is important as local ponds have very low buffering capacity.*

*Any drop in pond pH as a result of acidic emissions may affect methylmercury levels in fish, which will in turn affect mercury exposure of fish-eating wildlife and be a human health factor. Unfortunately, baseline data on mercury levels in freshwater fish are not presented in the ERA (missing from Table 5-28). Any decrease in pond pH could also reduce the biomass of aquatic invertebrates, which would limit the food available for black ducks.*

*Based on the ERA, the following suggestions should be taken into account as project planning proceeds and environmental management plans are developed:*

*Metal concentrations in effluent discharged to the marine environment are based on maximum concentrations allowed under the NL Environmental Control Water and Sewage Regulations (Executive Summary, page vi). This approach provides worst-case concentrations in support of the ERA, but predictions should be refined when better estimates of expected metal concentrations in these effluents become available.*

*Elevated levels of several metals/metalloids (copper, lead, selenium, and zinc) in blue mussels near the marine diffuser are predicted (Table 5-41). These predictions should be confirmed when better estimates of effluent metal concentrations become available. Elevated concentrations of lead and selenium in bivalves could have impacts on mollusc-feeding seaducks.*

*The potential for selenium impacts on river otter and cormorants feeding on marine fish in Long Harbour is predicted. These predictions should be refined when better estimates of selenium concentrations in effluents become available.*

*In total, the information and clarification requested by EC should facilitate a better understanding of potential impacts and necessary mitigation and monitoring measures.*

### **Explanation**

Refined estimates of effluent concentrations for the Hydromet facility are now available from Vale Inco NL. An addendum to the Ecological and Human Health Risk Assessment (ERA - Intrinsik 2008) that revisits the marine aspects of this study has been submitted to the EA Committee for review. The result is an improvement in the level of effects predicted. The EIS reflects the resulting changes in effects predictions.

The modelling of future Contaminants of Potential Concern (COPC) concentrations in freshwater ponds is conservative, and it overestimates future concentrations of COPCs in freshwater that could occur via atmospheric deposition. The sulphate anion was not found to pose a potential risk to freshwater aquatic life in the ERA. While ponds in the area have a low natural buffering capacity and may be susceptible to decreases in pH that could



potentially arise from acidic inputs, the amount of acid added to the worst-case pond (P28) from atmospheric deposition of emissions from the Hydromet or Matte facility would be extremely low, and likely insignificant, in light of natural waters already being in equilibrium with atmospheric carbon dioxide. Therefore it is unlikely that pH changes would occur in the worst-case pond or other ponds in the Study Area.

With respect to methylmercury, the low likelihood for pH changes in Study Area ponds should not result in an increased potential for methylmercury formation. Inorganic mercury concentrations in freshwater surface water or sediment as methylmercury are limited by the amount of inorganic mercury that is available for methylation. Mercury (inorganic or methyl mercury) was not identified as a COPC for the ERA, as it is not released from either the Hydromet or Matte facilities, in either air emissions or effluent discharge. In addition, mercury is present at low concentrations in baseline Study Area soils, freshwater sediments, freshwater surface waters (where it was mostly non-detectable), marine sediments, and seawater (where it was not measurable in any sample) that are below the relevant environmental quality guidelines for mercury in these media (for protection of both ecological receptors and humans). Mercury baseline media concentrations are provided in Appendix B of the ERA. Baseline data on mercury concentrations in whole freshwater fish are available in the baseline freshwater study, but since this metal is not expected in emissions, these data were not presented in the Intrinsic ERA (2007; albeit they were considered and evaluated in the screening process; see AMEC 2007 baseline study of freshwater environment).

With respect to pH effects on biomass, while a pH drop could potentially result in adverse effects on primary productivity in what are naturally low productivity ponds and streams, the modelling of atmospheric inputs concludes that they will not cause an alteration in pH in area ponds.

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**GENERAL TECHNICAL COMMENTS & CONCERNS:**

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**04 EAC Comment**

- *The fact that the Proponent chose to prepare the Table of Concordance for just the first 11 pages of the Guidelines was a surprise and disappointment to the Assessment Committee. Because the General Technical points that follow are not attributed to specific sections/pages/paragraphs, the Proponent is required to provide with the re-submitted EIS a covering letter with an attached Table of Concordance for these General Technical points.*

**Point Noted.**

This Table of Concordance provides an accounting for the “General Technical points” and also for all the review comments provided by the Minister. Each comment has been assigned a number; where the comment has resulted in a change in the EIS, a location reference to the revised EIS is provided.

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**05 EAC Comment**

- *Under Part XI of the Environmental Protection Act , Certificates of Approval will be required from Pollution Prevention Division (PPD) for construction and operation of the facility. The permitting of the construction can be site-wide or component-based. In the event that the facility design is not sufficiently advanced to enable a site-wide permit to be completed prior to the start of initial construction activities, PPD is prepared to issue individual permits for each component or groups of components following the completion of design and prior to the start of construction on those components. A similar process can be applied with regard to approvals for operation in the event that the operating components are to be commissioned in phases. The approval applications will take approximately four to six weeks to process depending on the complexity of the process involved and the level of detail provided in the application.*

**Point Noted.**

Vale Inco NL acknowledges the requirement for obtaining Certificates of Approval from the Pollution Prevention Division and appreciates the flexibility of PPD in allowing for component-based permitting. Engineering and permitting staff will work with PPD to ensure that permitting activities are coordinated in an appropriate manner.

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**06 EAC Comment**

- *DFO has determined that a HADD to fish habitat will occur in the marine environment; however, this is not reflected in the EIS. A fish habitat compensation strategy that is satisfactory to DFO will be required prior to release from the Federal Environmental Assessment Process.*

**Point Noted.**

The HADD determination by the Department of Fisheries and Oceans (DFO) was not made at the time of EIS submission. Vale Inco NL is aware of the necessity to develop a fish habitat compensation strategy and has been engaged with DFO officials in the development of this strategy prior to the submission of the EIS. The strategy will be completed prior to release from the Federal Environmental Assessment Process.

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**07 EAC Comment**

- *Appendix E lists the need for Permit(s) under the Navigable Waters Protection Act. Applications are required for the following ten categories of structures/works (completed applications with detailed plans and scale drawings are needed for all except decommissioning):*

- dams on Sandy Pond,
- dredging around, and expansion of, the current marine wharf,
- pipeline, dam, and pumphouse at Rattling Brook Big Pond,
- stream crossings due to construction of access roads,
- new shoreline protection,
- water/flow control structure at Rattling Brook Big Pond,
- effluent discharge pipeline to the mouth of Long Harbour,
- berm and channel construction redirecting flow into Rattling Brook,
- arches and culverts for Rattling Brook crossings, and
- decommissioning of the site.

**Point Noted.**

Vale Inco NL has completed applications for submission to Transport Canada under Section 23 of the Navigable Water Protection Act. These applications have been prepared with the cooperation of Transport Canada staff.

**08 EAC Comment**

- *Pertaining to Air Quality, Greenhouse Gases, and the Regulatory Framework for Industrial Air Emissions, the Proponent is no doubt aware that the federal government announced its Regulatory Framework for Air Emissions on April 26, 2007. This framework includes mandatory reductions in emissions of greenhouse gases (GHG's) and air pollution. The GHG Regulations will come into force in 2010 and air pollutant regulations will take effect in the 2012 to 2015 timeframe. The smelting and refining sector is one of the sectors included in the Framework, and all new facilities must comply with the Regulations once they are in force. Although the Regulations are under development, the direction for industrial facilities in Canada is clearly laid out in the Framework; namely, that Canada "will have one of the most stringent sets of regulated targets for the emissions of (GHG's) and air pollutants in the world"(see "Regulatory Framework for Air Emissions. Government of Canada", April 2007, pages 1 - 2.) All new industrial facilities should be designed to meet that objective. The Proponent must become familiar with the Regulatory Framework and participate in the consultations during the regulatory development exercise. Information on the Framework and the consultations can be found at <http://www.ecoaction.gc.ca/turning-virage/index-eng.cfm>.*

**Point Noted.**

Vale Inco is a member of the Mining Association of Canada (MAC) and is a participant in the MAC "Towards Sustainable Mining Initiatives" program. One of these initiatives relates to Energy Use and Greenhouse Gas Emissions Management. Vale Inco NL has started to implement these initiatives at the Voisey's Bay site and is working towards fully conforming to new standards as they come into force. Additional information on MAC towards Sustainable Mining Initiatives can be found at:  
[http://www.mining.ca/www/media\\_lib/MAC\\_Documents/Presentations/English/Copper\\_2007.pdf](http://www.mining.ca/www/media_lib/MAC_Documents/Presentations/English/Copper_2007.pdf) .G90

**09 EAC Comment**

- *Further comments from EC pertaining to sources of air contaminants from this Project are attached to this Appendix.*

**Point Noted.**

Each specific comment has been addressed (see Comments #183 – #186).

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## 10 EAC Comment

- *The Proponent needs to provide further details in the EIS on how climatological factors and best available data have been taken into account in designing structures (e.g., water control structures, residue management dams, marine terminal) and identify steps that would help ensure built structures remain effective during and after storm events. This information is important to an understanding of the risk of accidents and malfunctions (including system upsets), and potential impacts on valued ecosystem components.*

### **EIS Text Amended.**

See Volume 1, Section 6.10, **Storm-Water Management**, p. 6-8.

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## 11 EAC Comment

- *The Proponent has presented some analysis of climate trends and potential implications for project design and operation. The Proponent is also encouraged to consider the recently released Intergovernmental Panel on Climate Change Working Group I Full Report as applicable. EC may be able to provide some additional information and guidance that could be of assistance to the Proponent in a further assessment of potential effects of the environment on the project.*

### **Point Noted.**

Vale Inco NL will avail of the offer to provide information and guidance.

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## 12 EAC Comment

- *When applying meteorological information to design parameters for infrastructure, EC generally encourages the Proponent to consider the Report, Water Sector: Vulnerability and Adaptation to Climate Change (GSCI and MSC, 2000). For example, when accounting for the effect of climate change on extreme events, such as particularly heavy precipitation, it should be recognized that the return periods for these events could reduce by at least a factor of 2 by the end of the century.*

### **Point Noted.**

Current methods used to define extreme events are statistical, based on observed historical data. Before a reliable method becomes available to define or adjust the definition of the extreme events, the most practical way is to incorporate the most recent meteorological observations to reflect the changing climate. This approach has been adopted for the Project.

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## 13 EAC Comment

- *The conservation of migratory birds is the joint responsibility of the countries these birds visit during the breeding, migration, and non-breeding seasons. EC is responsible for fulfilling Canada's obligations for the conservation of migratory birds through administration of the Migratory Birds Convention Act (MBCA) and the associated regulations. Migratory birds protected by the MBCA generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (i.e. birds with principally terrestrial life cycles). Most of these birds are specifically named in the EC publication, Birds Protected in Canada under the Migratory Birds Convention Act, Canadian Wildlife Service Occasional Paper No. 1.*

### **Point Noted.**

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## 14 EAC Comment

- *EC, Fisheries and Oceans Canada, and Parks Canada Agency share responsibility for the protection and recovery of species listed under the Species at Risk Act (SARA). The Parks Canada Agency is responsible for species, including aquatic species, occurring in or on federal lands as defined in subsection 2(1) of the Parks Canada Agency Act (e.g., national parks and national historic sites); Fisheries and Oceans Canada is responsible for aquatic species; and, EC is responsible for all other species, including migratory birds, listed under the SARA.*

### **Point Noted.**

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## 15 EAC Comment

- *The general prohibitions of the SARA (sections 32 and 33) apply on all federal lands, as well as to aquatic species and a species of bird protected under the MBCA wherever they occur. The MBCA and regulations administered by EC include numerous prohibitions, and it is the Proponent's responsibility to ensure that these are known and respected by their staff, subcontractors, etc. It is incumbent on the Proponent to identify the best approach, based on the circumstances, to complying with all legislation.*

### **Point Noted.**

Vale Inco NL will incorporate, in the EPP and through other means, the prohibitions of SARA and the MBCA to all relevant staff and contractors.

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## 16 EAC Comment

- *Certain project interactions with birds have not been considered in the EIS. Attention to the potential effects of transmission lines and tailings ponds on birds is important to understanding potential impacts and identification of appropriate mitigation and monitoring measures. The proposed transmission line presents a collision or electrocution risk to birds which should be assessed. Erickson et al. (2001) estimated the number of bird collisions with power lines in the United States at somewhere between tens of thousands to several million per year. Bevanger (1998) listed 245 species of birds recorded as victims of power lines, with numbers of collisions ranging from 1 to 2,983 in documented studies. Power lines also pose a risk of electrocution if a bird should touch two phase conductors simultaneously or one conductor and a ground device. Bevanger listed 34 species of documented electrocution victims, with raptors being the most susceptible. There are several factors that determine the potential impact to birds, including (but not limited to) transmission line siting, local topography, habitat, weather conditions, transmission pole design, and line configuration. In addition, different species groups can have differing sensitivities, and may be impacted during feeding, breeding, courtships, or migration. Though the issues are complex, many can be mitigated through proper planning and project design. The Canadian Wildlife Service of EC should be contacted for advice, particularly if sensitive areas are detected through wetland inventories, waterfowl surveys, or landbirds surveys. The following references are offered for consideration in addressing this issue:*
- *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute. Washington, D.C.*
- *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 1996. Edison Electric Institute and the Raptor Research Foundation. Washington, D.C.*
- *Avian Power Line Interaction Committee (APLIC). APLIC "2 hour" short course. Power Point presentation at <http://www.aplic.org/resources.htm>*
- *Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.*

- Bevanger, K. 1994. *Bird interactions with utility structures: collision and electrocution, causes and mitigating measures*. *Ibis* 136: 412-433.
- Bevanger, K. 1998. *Biological and conservation aspects of bird mortality caused by electricity power lines: a review*. *Biological Conservation* 86: 67-76.
- Erickson, W.P., G.D. Johnson, M.D. Strickland, D.P. Young Jr., K.J. Sernka, and R.E. Good. 2001. *Avian Collision with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States*. National Wind Coordinating Committee (NWCC) Resource Document.
- Manville, A.M. 2005. *Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science - Next Steps Towards Mitigation*. USDA Forest Service Gen Tech Rep PSW-GTR-191.

### **EIS Text Amended.**

See Volume 2, Section 8.7.11, **Electrical Transmission Line**, p. 8-16.

### **Explanation**

The Project will result in the construction by Newfoundland and Labrador Hydro of 0.9 km of a new 230-kV transmission line connecting a terminal station at the Tier 2 Plant site to the existing (NL Hydro) system. This will require a total of 14 lattice-frame steel tower structures. Vale Inco NL distribution lines (13.8 kV) will all be relatively short wood-pole structures. The likelihood of interaction is low and the potential environmental effect is *negligible*; nevertheless, Environment Canada will be consulted on final design for the electric power transmission system structures and, as necessary, the implementation of mitigation measures.

The Environmental Protection Plan, in consultation with Canadian Wildlife Service, will address these mitigation measures in detail.

“Tailings ponds” are addressed in response #17 below.

## **17 EAC Comment**

- *Birds may be attracted to tailings ponds. It would be helpful if further details could be provided so that the risk of potential access by birds to such facilities could be better understood, and the likely effectiveness of safeguards determined. Project design and operational measures should be put in place to prevent harmful exposure of migratory birds to contaminants.*

### **EIS Text Amended.**

See Volume 2, Section 8.7.2, **Residue Storage**, p. 8-11.

### **Explanation**

This response is with respect to effluent treatment ponds and the Hydromet Plant residue storage pond.

General industrial activity will occur in the area of the effluent treatment ponds. As well, the lack of natural features (riparian or emergent vegetation) will act to discourage birds from approaching the area. Short exposures will, in any case, not be lethal. Monitoring will be undertaken to determine any problems and to develop further deterrence as needed.

Residue storage in Sandy Pond will cause declining water quality in the pond in the form of turbidity during residue deposition, covering of benthic habitat, increased sulphate concentration and increased metals concentrations. Selenium concentration in the water (0.022 mg/L; M. Stephenson, Vale Inco NL, pers. comm.) will be within the Canadian Environmental Quality Guideline for chronic water ingestion by livestock (0.036 mg/L), (Intrinsic 2007). The concentration of sulphate in Sandy Pond (1,950 mg/L - M. Stephenson, Vale Inco NL, pers. comm.) will exceed these guidelines for chronic water ingestion by livestock and wildlife (both 1,000 mg/L) (Intrinsic 2007). The residue will be treated with lime before deposition, so the pH of Sandy Pond water will be slightly alkaline.

Bird ingestion of Sandy Pond water will likely be occasional and acute, rather than chronic. Other water sources are abundant in the Project Area, so birds will typically be ingesting drinking water from a variety of sources. However, among those birds that do attend the pond, it is not known whether the residue will change the taste of water in a way that would make it unpalatable to birds (Intrinsik 2007). Direct (dermal) contact (e.g., by landing or wading) will not result in any measurable effects (chronic or acute lethality). The absence of biomass production in Sandy Pond as the deposition of residue progresses will reduce the pond's attractiveness to birds as a foraging site. These factors will combine to reduce the probability of birds ingesting or accumulating any contaminants present in the water. Consequently, the ERA did not identify any risks to terrestrial avifauna (Intrinsik 2007). In addition, water bird abundance in the Project Area is low. Baseline surveys (e.g. the waterfowl brood survey of the Project Area on August 2, 2007) found a duck density of less than 10 pairs per 100 km<sup>2</sup> in the Project Area and found no loons, waterfowl or shorebirds on Sandy Pond itself (Goudie 2007a). This low density further reduces the probability of bird exposure.

The residual effects of the residue storage ponds will be continuous, of long duration (greater than 72 months) and irreversible, but of negligible magnitude and intermediate geographic extent (11 to 100 km<sup>2</sup>). No mitigation measures are necessary to prevent bird ingestion of Sandy Pond water and all residual adverse environmental effects are considered not significant.

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## 18 EAC Comment

- *There is a lack of details on the mitigative measures that will be applied during construction, operation, and decommissioning phases to protect marine and freshwater fish and fish habitat. The EIS indicates that the Environmental Protection Plan (EPP) will contain these details. A determination related to the significance of environmental effects cannot be made if this information is not included in the EIS.*

### **Point Noted.**

The approach to environmental management and the generic overview of designed-in mitigation measures are described in Volume 1 of the EIS (Section 9.13, **Prevention and Mitigation**; Section 10.2, **Environmental Management**). Standard, proven mitigation measures can be assumed in making effects predictions. Detailed documentation of such measures is normally incorporated into the Construction Environmental Protection Plan and tied to specific construction activities and work sequence.

Where specific further requests have been made for mitigation details, information has been provided throughout the revised EIS.

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## 19 EAC Comment

- *The primary interest of Wildlife Division is the mitigation measures that will be implemented during the construction, operations, post-closure, and closure stages of the proposed project. It is suggested within the EIS that mitigation measures will be further outlined/detailed in the EPP. There was not sufficient detail given within the EIS to allow a comprehensive evaluation of the mitigation measures for the VEC's for otter, Erioderma, bald eagle, and cormorants. Wildlife Division will therefore give careful attention to the approval process for the draft EPP.*

### **Point Noted.**

Details of mitigation measures for otter, boreal felt lichen, Bald Eagle and cormorants will be provided in the EPP. Input will be sought from Wildlife Division on appropriate mitigation measures.

See also responses to Comments #20 and #21 below.

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## 20 EAC Comment

- *In terms of Environmental Effects Monitoring (EEM), Boreal felt lichen (Erioderma) is listed, but there was no detail provided on the specifics of monitoring. For example, what monitoring will be done and will it relate to air emissions? If thali are transplanted, Wildlife Division would need monitoring done on these individuals. Wildlife Division will therefore give careful attention to the approval process for the draft EEM Program Plan.*
- *The relocation of boreal felt lichen should be to reserves and other areas of currently existing complete protection in order to augment populations known there. The Departments of Natural Resources (Forestry Division) and Environment & Conservation (Wildlife Division) will need to agree with the relocation plan.*

### **EIS Text Amended.**

See Volume 2, Section 10.6.3, **Boreal Felt Lichen**, p. 10-12.

### **Explanation**

The EEM program will include a detailed sampling design for monitoring boreal felt lichen, including air-borne transport mechanisms, and evaluating the effectiveness of any transplants. Wildlife Division will be consulted on EEM design and implementation.

The relocation plan for boreal felt lichen will be submitted for approval by Forestry Division and Wildlife Division.

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## 21 EAC Comment

- *Given the lack of baseline data for Otter demographics (i.e. population size, home range size, site fidelity, etc.) the Proponent may want to consider partnering with other agencies/industries in studying the demographics of the Otter population in the area. It is currently being proposed to the Newfoundland and Labrador Refinery Project that such a study be undertaken in participation with Wildlife Division. This would greatly improve the knowledge base for Otters and provide a detailed monitoring program in the event of an oil spill or other accidental event that could have a negative impact on the Otter population within the area. The Proponent should contact Wildlife Division to explain their interest in partnering with any of the monitoring programs.*

### **Point Noted.**

Vale Inco NL will consult with Wildlife Division and other resource management agencies in the design of its EEM program.

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## 22 EAC Comment

- *The proposed food handling practices associated with the Construction Accommodation is acceptable; however, food handling provisions for workers on-site who carry lunches are unknown. The food handling / eating facilities for workers reference in the Guidelines pertained to food handling in general. Food held for two hours at temperatures between 4C and 40C could become toxic or infectious. The EIS needs to state/commit that there will be on-site shelter for minor food preparation; e.g., heating; and that there will be provision for cold-holding.*
- *The Construction Accommodation will require inspection and licensing by an Environmental Public Health Inspector with the Government Services Centre. The on-site facility will not require licensing but will require general inspection for basic sanitation standards, because there is no specific regulation related to food handling on-site where the Proponent is not preparing or providing the food.*

### **EIS Text Amended.**

See Volume 1, Section 6.2, **Construction Accommodations**, p. 6-3.



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## 23 EAC Comment

- *The Proponent plans to construct an accommodation facility for 500 workers and suggests that the presence of “high-quality” accommodations in the area will be a disincentive to the practice of gravel-pit camping (which has been a problem for many years in the area of the project footprint). The Proponent plans to draw workers from as far away as St. John’s and Conception Bay North and expects daily commuting aided by a travel allowance. It’s been past experience with other projects, that workers will maximize the take on the travel allowance, and other incentives, by living as cheaply as possible. This usually translates into gravel pit camping with all the associated hazards (road safety, unsanitary sewage and solid waste disposal, sub-standard water supplies, etc.). It has been made clear to the Proponent that the EIS needs to state policies that will truly be a disincentive to the practice of gravel pit camping by workers directly employed and by subcontractors.*

### **EIS Text Edited.**

See Volume 3, Section 5.4.8, **Housing**, p. 5-35.

### **Explanation**

Vale Inco NL will support Government measures to exercise its authority in regards to gravel-pit camping.

See also responses to Comments #170 and #175.

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## 24 EAC Comment

- *Concerning Emergency Preparedness Planning, the Proponent appears to be planning in isolation and relying on the adequacy of Emergency Plans of surrounding municipalities. It is the experience of this Agency that local response plans tend to be weak and not all-encompassing. The Guidelines require the Proponent to plan with the communities to ensure any response is effective and coordinated. It’s important that one not find the other lacking in any emergency situation. The EIS needs to state that the Proponent will be more proactive in the area of ensuring communities are partners in the emergency planning and exercise processes.*

### **EIS Text Amended.**

See Volume 1, Section 9.14, **Emergency Response**, p. 9-14.

### **Explanation**

Vale Inco NL will work with the Town of Long Harbour-Mount Arlington Heights and the Newfoundland and Labrador Department of Municipal Affairs Fire and Emergency Services to develop an Emergency Preparedness Plan to ensure emergency response actions are effective and coordinated.

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## 25 EAC Comment

- *Sandy Pond will be utilized as the location for residue impoundment for the preferred Hydromet processing method. Residue will be sent to Sandy Pond at an estimated rate of 381,000 t/yr for 15 years. There is an absence of information on contingency plans for residue storage if it is found that Sandy Pond will be become full before the life of the mine has been reached, or if new mining areas are found that may extend the life of the mine and consequently additional residue generation. Also nickel concentrate from other mines may be processed here too. Therefore, information is required in the EIS on what the Proponent intends to do if one of these scenarios is realized. Among the questions that need answering are:*
  - *the additional residue storage capacity of Sandy Pond?*
  - *the maximum volume (number of years) Sandy Pond can store?*
  - *was additional residue generation/storage from plant life expansions in site selection criteria?*

- *When replacement concentrate is brought from outside the Province (to compensate for the volume of concentrate from Voisey's Bay processed outside Newfoundland and Labrador) could the quantity of residue generated be higher, or did the EIS incorporate this into the annual rate of residue production?*

**EIS Text Amended.**

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3.

**Explanation**

In planning for the development of the Hydromet facility, a comprehensive examination of residues storage alternatives was conducted (Vale Inco NL 2008). Sandy Pond was identified as the best alternative for the Project under assessment, and the dams have been designed to be able to expand in storage capacity. One of the design criteria is that "Dam alignment and design must take into consideration the possibility of future dam rising"; the storage capacity of Sandy Pond can be doubled by increasing dam height by about 8 m.

The current design includes a 15 per cent capacity contingency factor, which is adequate to contain any additional residue generated during the 15-year operating life due to non-Voisey's Bay sourced feed material.

In the event that additional reserves at Voisey's Bay are defined or additional feed is secured to extend the operating life of the facility, alternatives for residue storage would include expanding the capacity of Sandy Pond or examining other potential sites in the local area. The evaluation of those alternatives would be undertaken to support any required environmental assessment of the expansion, should this be proposed.

See also responses to Comments #37 and #53.

**26 EAC Comment**

- *The Guidelines required the Proponent to establish real time water quality and quantity monitoring stations. The EIS must state the Proponent's intentions with respect to this real time monitoring. There does not appear to be any reference to real time monitoring in the EIS. Real time monitoring is presently being done; however, it needs to be spelt out in the EIS.*

**EIS Text Edited.**

See Volume 1, Section 10.2, **Environmental Management**, p. 10-3.

**Explanation**

Real-time monitoring currently onsite includes:

- a contract between Vale Inco NL and the Province to operate and maintain two long-term/real-time monitoring stations at Long Harbour,
- a Monitoring Station located on Rattling Brook and recording water quality and water level (water level is later transposed to flow data), and
- Monitoring Station located on Rattling Brook Big Pond and recording water level.

Vale Inco NL will continue to cooperate with the Province in the operation and maintenance of the stations during all Project phases.

**27 EAC Comment**

- *Concerns identified in the Guidelines related to the effluent pipeline which will discharge storm water and treated wastewater from the site to the marine environment during the undertaking's operational phase. There are existing aquaculture activities (i.e., blue mussel farms) ~1.5 km from the described location. The viability of aquaculture operations in the Long Harbour area will depend on the accuracy of the predictions made respecting the marine fish outfall, its location, the design of the diffuser, and flow rates as described. The conclusions were that the risk to habitat (i.e., thus aquaculture) will not be significant, greater than 250 m from the diffuser. This is also true for other identified risks. The viability of aquaculture operations during the construction phase will depend on the*

*accuracy of the EIS predictions respecting the risk of disruption and/or damaging of fixed gear due to solid waste and construction debris. The risks associated with the construction phase have been predicted to be negligible to insignificant. The validation of predictions through long-term Environmental Effects Monitoring (EEM) in the marine environment is a critical component of the EIS acceptability. The Department of Fisheries and Aquaculture also will be giving careful attention to the approval process for the draft EEM Program Plan.*

**Point Noted.**

A draft EEM plan will be developed and submitted to government agencies (including DFAA) for review prior to implementation. An Environmental Effects Monitoring (EEM) Program for the marine environment will be designed and implemented to test the predictions of the EIS regarding potential effects of Project activities on marine fish and fish habitat.

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**28 EAC Comment**

- *The EIS acknowledges the concerns raised by the aquaculture industry during public consultations respecting the potential loss of opportunity/market. Despite the predicted low risk to aquaculture, as concluded in the EIS, the Proponent needs to take a pro-active approach in consulting with aquaculture farms on compensation in the event that damage and/or contamination to aquaculture site(s) resulted from the undertaking. If these consultations are underway or intended, it is not clear in the EIS. There is a precedent for the inclusion of aquaculture operations in consultations with fishers respecting the compensation for damaged gear (e.g., the EIS recently produced for the NLRC undertaking).*

**Point Noted.**

Consultation has occurred with the aquaculture operator and with the Aquaculture Association.

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**29 EAC Comment**

- *There is information presented in several areas of Volume 2 (Effects Assessment – Biophysical Environment) where significance predictions are not adequately supported, and cumulative effects are not adequately assessed. Notably, the impact prediction of an accidental oil spill on marine birds is based on a model that does not address the “worst case scenario”, and therefore, does not adequately address impact significance. Specific commentary is provided below on the pertinent Sub-Sections of the EIS. The referenced information sources and corrections, and requested clarification and analysis, would allow the EIS Guidelines to be addressed and thereby facilitate a better understanding of potential impacts and necessary mitigation and monitoring measures.*

**Point Noted.**

Vale Inco NL has examined oil spills and sought to identify a “reasonable worst-case scenario,” keeping in mind that there will be no marine transport of oil as cargo for this project and that the Placentia Bay port of call is Long Harbour. It is recognized that an oil spill near Cape St. Mary’s during the breeding season (April to September) is the absolute worst-case scenario for an oil spill in Placentia Bay and could result in significant effects on seabird populations. This scenario has been analyzed in several oil transportation project EAs for Placentia Bay. As a result, Vale Inco NL decided to select a scenario that was specific to the Project – namely, a spill of ship’s fuel at the entrance to Long Harbour.

See also response to Comment #157.

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**SPECIFIC TECHNICAL DEFICIENCIES, CONCERNS, OR ISSUES:**

*(Sections/Clauses unacceptable; need to be supplemented, clarified, corrected, or enhanced)*

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***Executive Summary:***

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**30 EAC Comment**

- *Section 1.0; page 3; para. 1: The words “identified their status” need to be changed to “outlined their departmental responsibilities”.*

**EIS Text Edited.**

See Executive Summary, Section 1.0, **Introduction**, p. 3.

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**31 EAC Comment**

- *Sub-Section 3.2; page 11; para. 3: See the comment for Section 3.0 of Volume 1 relative to the need to explore three additional within-Project alternatives:*
  - *placing the outfall line along land to the point where it can turn North to enter the Harbour and extend to the outfall location,*
  - *the use of suction dredging instead of barge excavation marine dredging, and*
  - *the use of a floating (mobile) accommodation facility.*

**EIS Text Amended.**

See Executive Summary, Section 3.2, **Alternatives**, p. 10.  
See also responses to Comments #44 and #57.

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**32 EAC Comment**

- *Sub-Section 3.2; page 12; para. 2: It is not clear what is meant by “preferably in a natural water body” (are these words necessary?, what makes it preferable?, costs?, structural security of containment?, probability of catastrophic failure and release?, other reasons?, combinations?).*

**EIS Text Edited.**

See Executive Summary, Section 3.2, **Alternatives**, p. 10.

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**33 EAC Comment**

- *Sub-Section 3.2; page 12; para. 3 & 4: The use of Sandy Pond as a residue storage area will require an amendment to the Metal Mining Effluent Regulations (MMER) so that they apply to Hydromet facilities. A second amendment will be required to list Sandy Pond on Schedule 2 of the MMER. These amendments require Governor in Council approval in accordance with the Fisheries Act paragraph 36(5)(a) to (e). Fisheries Act Authorizations are not issued for the deposition of deleterious substances.*

**EIS Text Edited.**

See Executive Summary, Section 3.2, **Alternatives**, p. 10.

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### 34 EAC Comment

- *Sub-Section 3.2; page 13; Figure 3.1: This site plan shows the footprint for both processes without indication of the spacial requirements of hydromet compared to matte. This Figure should show some sort of differentiation between the processes (i.e. different colours) or two figures should be presented.*

#### **EIS Text Edited.**

See Executive Summary, **Figure 3.1**, p. 13.

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### 35 EAC Comment

- *Sub-Section 3.3; page 16; para. 1: It needs to be clarified (here or in Volume 1, page 7-14) whether the “polishing/cooling ponds” are manmade or natural waterbodies.*

#### **EIS Text Edited.**

See Executive Summary, Section 3.3, **Project Description**, p. 12.

See Volume 1, Section 4.0, **Project Layout and Main Components**, p. 4-1.

#### **Explanation**

These are constructed facilities.

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### 36 EAC Comment

- *Section 4.0; page 21; bullet 6: There is also a provincial role and requirement pertaining to stream crossings. This statement needs to be clarified; it may be preferable to replace “issued by DFO” with “and terms and conditions of permits of federal and provincial agencies”.*

#### **EIS Text Edited.**

See Executive Summary, Section 4.0, **Application of Environmental Best Practices**, p. 18.

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### 37 EAC Comment

- *Section 5.0; page 23; para. 3: Why will not project Operation continue for at least 20 years as stated in the Registration. The EIS in its entirety is written for a 15-year life span. There needs to be up-front resolution of the reasons for this change and the effects of the 25% reduction on such project features as the duration of socio-economic benefits and residue storage capacity requirements (what if the plant operation is to be extended by 5 years). Is not the extension to 20 years inevitable, and should not the impacts from 20 years of operation be covered by the EIS?*
- *Section 5.0; page 23; para. 4: It is stated here that plant design life is for 15 years and residue storage at Sandy Pond is based on an assumed annual waste production rate (381,000t/yr) for this period. Both Sections 3.1 and 4.6.3 of the Voisey’s Bay Agreement (VBA) generally state that the Proponent has indicated that the processing facility will be operated beyond the life of the mine and that the Proponent will explore technical and economically feasible opportunities to do this. Also Section 3.3.3 (VBA) generally estimates the life of the project at 30 years. But in Volume 1 of the EIS on the 5th paragraph on page 2-8, it states that the Voisey’s Bay Mine life is 15 years and any plans for extended life is outside of the current EIS. Again, there needs to be up-front resolution of the reasons for this change and the effects of the 25% reduction on such project features as the duration of socio-economic benefits and residue storage capacity requirements (what if the plant operation is to be extended by 5*

years). *Is not the extension to 20 years inevitable, and should not the impacts from 20 years of operation be covered by the EIS?*

**EIS Text Edited.**

See Executive Summary, Section 3.0, **The Project**, p. 9.

See Executive Summary, Section 5.2, **Production Operations – Residue Storage and Management**, p. 28.

**Explanation**

At the time the Project was registered for Environmental Assessment, Vale Inco NL believed that the typical facility life of the Project was 20 years; following registration, however, it was determined that project life should be linked directly to the known reserves at Voisey’s Bay. In the event that the Project life is extended (e.g., if additional nickel reserves are defined at Voisey’s Bay or other feed sources are secured), the environmental effects of the project life extension will be addressed under regulatory regimes that will be in place at that time.

Sandy Pond dams have been designed to be able to expand the storage capacity. One of the design criteria is that “Dam alignment and design must take into consideration the possibility of future dam rising.” The storage capacity can be doubled by increasing dam height by about 8 m.

See also responses to Comments #25 and #53.

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**38 EAC Comment**

- *Sub-Section 5.2; page 33; para. 2: The current wording implies more perpetual storage; the statement requires expansion; consider adding “for appropriate disposal” after “stored”.*

**EIS Text Edited.**

See Executive Summary, Section 5.2, **Production Operations – Waste Management**, p. 28.

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**39 EAC Comment**

- *Section 6.0; page 35; para. 2: The Human Health Component Study is conspicuously absent; all six Component Studies should be included in the seven or more baseline studies referenced.*

**EIS Text Edited.**

See Executive Summary, Section 6.0, **Environmental Assessment**, p. 32.

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**40 EAC Comment**

- *Sub-Section 6.1; page 36; para. 1: In line 4, “ten” is a mis-count; there are “eleven” VEC’s.*

**EIS Text Edited.**

See Executive Summary, Section 6.1, **Valued Ecosystem Components**, p. 33.

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**41 EAC Comment**

- *Section 7.0; Conclusion; page 46; para.1: The words “..... elsewhere on the Avalon Peninsula” are too limiting. As a minimum this needs to read “..... elsewhere in Southern Newfoundand”. Boreal felt lichen have been found in the Bay D-Esvoir area (3,000 to 4,000 thalli), off the Burgeo Road, on the Burin Peninsula, and in the Bay du Nord Wilderness Area.*

**EIS Text Edited.**

See Executive Summary, Section 7.0, **Conclusions**, p. 43.

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**Volume 1:**

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**42 EAC Comment**

- *Section 2.0; page 2-3; para. 3: As for page 3 of the Executive Summary, the words “identified their status” need to be changed to “outlined their departmental responsibilities”.*

**EIS Text Edited.**

See Volume 1, Section 2.2, **Purpose of the Environmental Impact Statement**, p. 2-2.

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**43 EAC Comment**

- *Section 3.0; page 3-1; Alternatives to the Project: These four sentences imply that the “no project” alternative would mean there would not be a nickel processing plant in Newfoundland and Labrador and the ore would not get processed for world markets. In reality, an alternate proponent at an alternate location in the Province could, in time, take over.*

**EIS Text Edited.**

See Volume 1, Section 3.1, **Alternatives to the Project**, p. 3-1.

**Explanation**

The discussion is in accordance with EIS Guidelines. The text has been changed to clarify that Vale Inco NL is referring to its own project and its own alternatives as Proponent.

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**44 EAC Comment**

- *Section 3.0; page 3-1; Alternatives within the Project: There is a need to explore the three additional within-Project alternatives as noted for Sub-Section 3.2, page 11, paragraph 3 of the Executive Summary.*

**EIS Text Amended.**

See Executive Summary, Section 3.2, **Alternatives**, p. 10.

See Volume 1, Section 3.2.6, **Marine Effluent Line Routing**, p. 3-10.

See Volume 1, Section 3.2.7, **Dredging**, p. 3-11.

See Volume 1, Section 3.2.8, **Construction Accommodations**, p. 3-11.

See also response to Comment #31.

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**45 EAC Comment**

- *Section 3.0; page 3-2; para. 3; line 7: If there are “other considerations” for selecting Long Harbour, they should appear in the EIS text (not keep everyone guessing).*

**EIS Text Edited.**

See Volume 1, Section 3.2.2, **Site Selection**, p. 3-2.



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## 46 EAC Comment

- *Section 3.0; starting on page 3-3: It is stated that, “Combining the two residues takes up about 10% less volume and enhances the stability of both products. The optimum approach combines the two residues and disposes of them under water.” Further detail must be provided as to why the combined residues cannot be stored above ground. Further information is required on the engineered (land based) containment locations. They are dismissed with no qualifying information. Details on an engineered sub-aqueous containment should also be provided. If further details are contained in another report, that report must be referenced in the EIS and made available.*

### **EIS Text Amended.**

See Volume 1, **Table 3.2, Alternatives Evaluation**, pp. 3-7 to 3-9.

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3.

### **Explanation**

As explained in the EIS, any location that contains favourable topographic features has some aquatic habitat present. Every candidate site, including all natural water bodies, will require some containment structure to be built in order to obtain the required secure storage capacity.

One site was selected where no aquatic habitat was present within the footprint. This site contains no favourable topographic features and would require extensive excavation to create a storage area. Such an excavation would greatly affect the surrounding groundwater hydrology and require a disposal site for some 23 million cubic metres of excavated material, a volume that would fill 9,200 Olympic-sized swimming pools.

Nevertheless this site, along with all others, was fully evaluated against a full range of criteria. All relevant reports (e.g., Vale Inco NL 2008) have been referenced in the EIS and are available.

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## 47 EAC Comment

- *Section 3.0; page 3-4; para. 1: It is stated that “attention was focused on the identification and evaluation of candidate subaqueous sites including natural water bodies as well as engineered (land-based) containment locations.” However, the 11 potential sites considered (Figure 3.1) were all natural water bodies. Information has not been provided on whether engineered sites were unfeasible for technical, environmental, and/ or socio-economic reasons. As a consequence, the evaluation of the alternatives available for residue disposal is incomplete. There has been verbal comment from the Proponent that, if a depression does not contain water, it means that it is leaking (to groundwater); however, this should not preclude an engineered, land-based location.*

### **EIS Text Amended.**

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3.

### **Explanation**

The sites shown in Figure 3.1 are not all natural water bodies. As explained in the EIS, engineered (land-based) containment locations and natural water bodies were considered. Figure 3.1 Volume 1 shows seven of the former and five of the latter. Only one site was identified which has no aquatic habitat within its footprint. It also lacks any favourable topographic features.

All twelve alternatives for residue disposal were evaluated (Vale Inco NL 2008) by a detailed examination and comparison of the selected candidates. A summary table has been presented in the EIS to illustrate the outcome.

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## 48 EAC Comment

- *Section 3.0; page 3-6; Table 3.2: It needs to be explained how the “Capacity of Natural Basin” of (for example) Sandy Pond of 2.9 Million cubic metres relate to a 20-year operational life of the plant as in the Registration?*

### **EIS Text Edited.**

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3

### **Explanation**

The 2.9 million m<sup>3</sup> is the existing storage capacity of Sandy Pond. The entire volume of the residue is estimated to be about 6.0 million m<sup>3</sup>, including a 15 per cent contingency. The additional volume is provided by the construction of three dams. The operating life of the plant is 15 years.

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## 49 EAC Comment

- *Section 3.0; pages 3-6 & 3.7; Table 3.2: Under “Accessibility”, the qualifiers for conditions “normal”, “difficult”, and “very difficult” needs to be explained. How was resource use conflict determined? The EIS states unattractive fish resource for Sandy Pond, however it is used to some extent in the recreational fishery.*

### **EIS Text Amended.**

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3

### **Explanation**

The accessibility descriptors refer to the nature of the terrain with respect to road access for construction and maintenance of a pipeline route, which is required to operate the effluent pond. The main drivers are steep slopes and hilly areas and the location of major watercourse crossing points.

Resource-use conflict was determined by identifying current resource-use activity as documented through baseline studies and public consultation efforts. These uses were considered in terms of the extent to which each would be affected (diminished or precluded) by use of the site for residue storage.

The “unattractive fish” statement is attributable to local residents, who describe the fish as poor-tasting due to the pale flesh. This may be due to the presence of prey fish (smelt).

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## 50 EAC Comment

- *Section 3.0; page 3-9; para. 2 & 3: As stated for Sub-Section 3.2 of the Executive Summary, the use of Sandy Pond as a residue storage area will require an amendment to the Metal Mining Effluent Regulations (MMER) so that they apply to Hydromet facilities. A second amendment will be required to list Sandy Pond on Schedule 2 of the MMER. These amendments require Governor in Council approval in accordance with the Fisheries Act paragraph 36(5)(a) to (e). Fisheries Act Authorizations are not issued for the deposition of deleterious substances.*

### **EIS Text Edited.**

See Volume 1, Section 3.2.4, **Hydromet Process Residues**, p. 3-3.

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## 51 EAC Comment

- *Section 3.0; page 3-9; last sentence: It is stated that a 15 ha footprint is required for storage; however in the Executive Summary in paragraph 2 on page 31 it is stated that gypsum residue storage will require 20 ha. Also the 30 m apex of the pile needs to be clarified since paragraph 2 on page 19 of the Executive Summary indicates a 4 m high berm is required. This would appear as a discrepancy to many readers.*

### **EIS Text Edited.**

See Volume 1, Section 3.2.5, **Matte Process Residues**, p. 3-10.

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## 52 EAC Comment

- *Section 3.0; page 3.3; para. 1: The EIS states that Rattling Brook Big Pond is “not readily accessible to the public” yet there are cabins on the Pond. To lessen the chance of confusion, it should be reworded to say that there is no access for road vehicles to Rattling Brook Big Pond.*

### **EIS Text Edited.**

See Volume 1, Section 3.2.2, **Site Selection**, p. 3-2.

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## 53 EAC Comment

- *Section 4.0; page 4-8; para. 4: It is stated in the EIS that three dams at Sandy Pond will provide sufficient capacity for the settled residue from the Hydromet plant. What happens if the Project extends beyond the proposed life, (i.e. the Voiseys Bay Mine extends its operation to the underground reserves)?*

### **EIS Text Amended.**

See Volume 1, Section 4.0, **Project Layout and Main Components**, p. 4-1.

### **Explanation**

The dams have been designed such that they can be raised to increase capacity. In the event additional reserves at Voisey’s Bay are defined or additional feed is secured to extend the operating life of the facility, alternatives for residue storage would include expanding the capacity of Sandy Pond or examining other potential sites in the local area. Should this occur, the evaluation of those alternatives will be undertaken to support the regulatory approval of the expansion.

See also responses to Comments #25 and #37.

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## 54 EAC Comment

- *Sub-Section 5.2; page 5-3; Figure 5.1: Due to poor colour quality, this Figure is difficult to read.*

### **Point Noted.**

The figure is copied from a cited reference. The original is of poor quality.

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## 55 EAC Comment

- *Sub-Section 5.4; pages 5-19 to 5-24: Information on the wave climate was developed by the Proponent primarily from one AES40 Wind and Wave Hindcast grid point location at the mouth of outer Placentia Bay. The wave analyses on these data, including the extremal analyses and the joint probability of extreme significant wave heights and peak wave periods, were well done. However use of the MSC50 Wind and Wave Hindcast dataset would have been preferable since it is available on a finer spatial and temporal grid spacing. There are several output grid point locations in outer Placentia Bay, with a spacing is 0.1°, and the output is available every 3 hours instead of every 6 hours as with the AES40. Individual grid point data and corresponding extremal analysis results are now available from EC's Atlantic Climate Centre in Fredericton. Extremal analysis results are also available in mapped form online at [www.oceanweather.net/msc50waveatlas](http://www.oceanweather.net/msc50waveatlas). It would be helpful to at least compare extremal analysis results from the two databases for the outer Placentia Bay area.*
- *Sub-Section 5.4; pages 5-19 to 5-24: Extreme waves measured by the SmartBay buoy between 28 September 2006 and 4 January 2007 are reported in the EIS. It would be helpful to extend this reporting period so as to account for the passage of two high wave events. Specifically, on 13 September 2006, the buoy measured a significant wave height of 6.2 m, and later in January 2007, the buoy measured a significant wave height of 9.1 m. These data are being taken into account in other project assessments in the Placentia Bay area.*
- *Sub-Section 5.4; pages 5-29 to 5-31: It would be helpful to discuss tropical or transitioning cyclones in the presentation of the climatology of winter storms, given their contribution to extreme high wind events. The role of such cyclones is referenced elsewhere in the EIS.*
- *Sub-Section 5.4.1; pages 5-31 to 5-36; Wind: Data from a range of sources in Placentia Bay are presented. The extremal analysis appropriately adjusts maximum one-hourly-mean wind speeds to equivalent maximum 10-minute-mean wind speeds. However, it should be noted that the ICOADS winds are reported from ships as estimates or measurements from anemometers at various heights, without adjustment to the standard reference height of 10 m.*
- *Sub-Section 5.4.3; pages 5-37 to 5-44: It is noted that the maximum 24-hr rain amounts recorded at various stations around Placentia Bay are presented; however, an extremal analysis should also be conducted so as to extend the values to longer return periods.*
- *Sub-Section 5.5.1; pages 5-45 to 5-49; Historical Trends: The Proponent should take into account that tropical cyclone activity in the North Atlantic has increased since 1995. There has been a corresponding increase in the frequency of tropical, transitioning, or post-tropical cyclones moving through the Canadian Maritimes and Newfoundland waters (Meteorological Service of Canada (Atlantic), 2005). These cyclones have included Luis (1995), Gert (1999), Michael (2000), and Florence (2006) which have all had impacts on Placentia Bay. The Proponent is encouraged to consult the Meteorological Service of Canada (Atlantic) 2005 report entitled A Climatology of Hurricanes for Canada – Improving our Awareness of the Threat which is available on CD-ROM from EC.*

### **EIS Text Amended.**

See Volume 1, Section 5.4.6, **Wave Climate**, p. 5-18.

See Volume 1, Section 5.5, **Climate**, p. 5-29.

See Volume 1, Section 5.6.1, **Historical Trends**, p. 5-45.

### **Explanation**

Most of this EIS text is extracted and summarized from an approved Component Study. Suggested changes and additional text have been provided.

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**56 EAC Comment**

- *Sub-Section 5.5.1; pages 5-53; para. 4 & 5: Will Matte carriers be ice strengthened? If not, this should be considered in the sections on accidental events.*

**Explanation**

The vessels used to transport matte product to Long Harbour would be transporting product from an eastern Canadian port facility via open sea routes. During winter, if the port is ice-bound, the product would be transhipped by rail to an ice-free port for collection. Since Long Harbour is ice-free the year round, an ice-strengthened vessel will not be required.

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**57 EAC Comment**

- *Section 6.0; page 6-4; para. 2: Have other dredging options, such as suction dredging (that minimize the amount of sediment to be suspended in the water) been considered? Is there elemental phosphorus, uranium and thorium, or other contaminants in the dredge spoils to be removed from the dock area?*

**EIS Text Amended.**

See Volume 1, Section 6.3, **Marine Works**, p. 6-4.

**Explanation**

A sampling program will be conducted in the dredging area to characterize the sediments in advance of any excavation; this will form the basis for a detailed plan for environmental protection including the handling, transportation and disposal of dredged material. Suction dredging is discussed in Response #31 and #44.

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**58 EAC Comment**

- *Section 6.0; page 6-9; para. 4: The upgrading of Route 202 has been recommended. It is not the purpose of this EIS to make recommendations to the provincial and federal governments. Although elsewhere in the EIS (Volume 3; Sub-Section 5.1.5) highway maintenance schedules are nicely explained, whether this is part of “The Project” is questionable. It should be better explained or removed from Volume 1. Also see the similar comment on Volume 3, Sub-Section 1.1.3.*

**EIS Text Edited.**

See Volume 1, Section 6.11, **Access Roads**, p. 6-9.

**Explanation**

The EIS provides information about the Project that can assist governments and other stakeholders in planning.

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**59 EAC Comment**

- *Sub-Section 6.1.2; page 6-11; para. 2: The storage capacity of the pond is designed to accommodate the 1:100 year storm event. What happens to the runoff from consecutive major storm events? Increased variability and occurrence of extreme events are symptoms of our current climate patterns. How will these be accommodated in the design of safe containment and storm water handling facilities?*

### **Explanation**

The cited text (Volume 1 Section 6.1.2 para. 2) discusses the coffer dam, a temporary water-control structure required for construction of the residue storage main dam. For a temporary coffer dam, the 1:100-year storm event is adequate.

For the residue pond, to design the required storage, including the anticipated residue material and the potential runoff from extreme precipitation events, a four-year water balance model was developed to represent extreme flood conditions during the deposition period. The model was used to confirm that the pond storage capacity is sufficient to contain extreme floods with the designed pumping rate. The simulation scenario began with an average year to ensure that the starting water level condition would be representative of an average condition. It was followed by a 1:100 wet-year annual runoff, then a design year with 1:100-year spring runoff. The combination of two consecutive 1:100-year long term flood series presents a strongly conservative scenario. The volume resulting from a 1:100-year storm (short duration) or a combination of short period storms cannot create a run-off volume comparable to what has been incorporated in the design.

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### **60 EAC Comment**

- *Sub-Section 6.1.2; page 6-13; para. 4: As in bullet 3, an emergency outfall bypass line acts as a contingency line when the ocean outfall cannot be operated. Under what conditions and at what frequency is this expected to occur?*

#### **EIS Text Amended.**

See Volume 1, Section 6.13, **Pipelines**, p. 6-13.

### **Explanation**

This line returns effluent water to Sandy Pond if it is not up to standards for discharge or in cases where the ocean outfall is not operational. The line will be used rarely, and only in the case of an upset/unplanned event.

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### **61 EAC Comment**

- *Sub-Section 6.1.2; page 6-13; para. 6: The information on the effluent discharge pipeline is meager. The significant length should be stated (even though it is in Volume 2), and other basic information is needed to properly describe this feature of the project (diameter, if shoreline protection is required, how it would be anchored in place, grade, normal operating pressure and velocity, etc.).*

#### **EIS Text Amended.**

See Volume 1, Section 6.13, **Pipelines**, p. 6-13.

See Volume 1, Section 7.4.2, **Process Effluents**, p. 7-17.

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### **62 EAC Comment**

- *Sub-Section 6.1.2; page 6-15 & 6.16; Lighting: Street lighting and high mast pole lighting may require registration with Civil Aviation of Transport Canada by submission, prior to installation, of an Aeronautical Obstruction Clearance Form. This should also be identified in Appendix E.*

### **Explanation**

Following a review of the Canadian Aviation Regulations (2007-1) and discussions with Transport Canada – Atlantic Region, it has been determined that such a registration is not required for the Project. No structures are higher than 90 m, and the Project is remote from any designated airport.

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**63 EAC Comment**

- *Section 7.0; page 7-14; para. 5: See comment on Sub-Section 3.3; page 16; paragraph 1 of the Executive Summary.*

**EIS Text Edited.**

See Volume 1, Section 7.1.1, **Process Effluent Neutralization**, p. 7-6.

See Volume 1, Section 7.2.3, **Process Effluent Neutralization**, p. 7-11.

**Explanation**

The polishing/cooling pond is a fabricated structure.

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**64 EAC Comment**

- *Section 7.0; page 7-18; last para.: Provisions are noted here for the potential treatment of storm water from Tier 2 through sand filters. The Proponent should confirm if similar provisions will be made in the design and layout at Tier 1 for treatment of the storm water or reasoning why it will not be required.*

**EIS Text Amended.**

See Volume 1, Section 7.3.2, **Storm Water**, p. 7-14.

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**65 EAC Comment**

- *Section 8.0; page 8-1; para. 6: There is, no doubt, a requirement that the draft Rehabilitation and Closure Plan be submitted to several agencies. For purposes of this EIS and the submission “prior to the completion of construction”, the last line of this paragraph should be changed to read “..... Assessment Committee for approval by the Minister of Environment and Conservation prior to .....”.*

**EIS Text Edited.**

See Volume 1, Section 8.0, **Rehabilitation, Closure and Decommissioning**, p. 8-1.

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**66 EAC Comment**

- *Section 8.0; page 8-2; para. 3: The Navigable Waters Protection Act needs to be included because any removal of in-water structures will require Approval.*

**EIS Text Edited.**

See Volume 1, Section 8.0, **Rehabilitation, Closure and Decommissioning**, p. 8-1.

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**67 EAC Comment**

- *Section 9.0; page 9-2; para. 2: The Canadian Coast Guard (CCG) is the lead federal agency for all ship-source spills of oil or other noxious substances into the marine environment in waters under Canadian jurisdiction. In order for the CCG to be satisfied with the polluter’s intentions / plans, assume the role as the Federal Monitoring Officer, and monitor the polluter’s response and provide advice and guidance as required, the CCG will require more details on the Third Party Response Plans. Will there be response equipment stationed on the various vessels*

or will there be a requirement to transport the response equipment from some central location? Is there particular equipment designed for countermeasures for specific chemical releases such as those chemicals that are identified for this facility? What type of training will be required for response personnel? Detailed response plans for each type of chemical that has been identified to be handled at the facility, should be made available to Environmental Response prior to any handling at the facility.

- Section 9.0; page 9-3; para. 4: In the event of a release of oil it would be the Response Organization, Eastern Canada Response Corporation (ECRC), that would be responding on the ships behalf. The facility will not be a "Designated Oil Handling Facility" (OHF) due to the fact that there will not be seaborne shipments of fuel. Normally, OHF's maintain small amounts of oil containment boom at the facility for initial response to an incident while ECRC is in transit. Even though this will not be a designated OHF, there will be fuel stored on shore in tanks as well as in the various fuel tanks of the different ships that plan to visit the facility. Does the Proponent plan to have oil pollution response equipment stored on site to deal with oil in the marine environment?

**Point Noted.**

Vale Inco NL will consult with Canadian Coast Guard and other agencies with respect to Emergency Response Plans. Copies of plans will be provided to CCG. Vale Inco NL will have spill response equipment stored at site to deal with oil in the marine environment. CCG will be consulted on the selection and quantity of response equipment, and its deployment.

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**68 EAC Comment**

- Section 9.0; page 9-5; para. 2: The Proponent has indicated that a 1 in 25 year return period 24-hr rain event would be used by in the design of the ponds while a 1 in 100 year return period 24-hr rain event would be used for the design of the ditches. These particular values should be identified and a more detailed explanation should be provided on how climate change would be taken into account (e.g., project design criteria that accommodate potential increases in precipitation up to the 3% mentioned on page 5-52 of Volume 1).

**EIS Text Amended.**

See Volume 1, Section 9.5, **Large Storms**, p. 9-5.  
See also response to Comment #59.

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**69 EAC Comment**

- Section 9.0; page 9-7; para. 3: It is stated that dams associated with the project shall be in accordance with the CDSA 1995; however, it should state the "latest edition of the Canadian Dam Association's Dam Safety Guidelines" (as the 1995 Guidelines were recently updated).

**EIS Text Edited.**

See Volume 1, Section 9.9, **Dam Failures**, p. 9-7.

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**70 EAC Comment**

- Section 9.0; page 9-9; Figure 9.3: A potentially important portion of the base topographic mapping is not shown at the top of Figure.

**EIS Text Edited.**

See Volume 1, **Figure 9.3**, p. 9-9.



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## 71 EAC Comment

- *Section 9.0; page 9-9; last para.: The risk of aquatic invasive species in the Gulf is high. Bilge and ballast water from ships will be handled by third-party contractors. No details are provided. Ballast water exchange and movements of fouled ship and barge hulls represent a significant vector for the introduction of aquatic invasive species. The water temperatures in Placentia Bay will not act as a deterrent; this would only be the case for organisms associated with warm water or tropical ports of origin. There needs to be some revision or supplementation of these two paragraphs.*

### **EIS Text Amended.**

See Volume 1, Section 9.11, **Introduction of Invasive or Hazardous Species**, p. 9-10.

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## 72 EAC Comment

- *Section 9.0; page 9-11; para. 3: There is no mention of seals. In view of the public submission concerning marine mammals, the Proponent may feel that it is appropriate to include mention of them in this paragraph or a separate paragraph.*

### **EIS Text Edited.**

See Volume 1, Section 9.12, **Ship Collisions with Marine Mammals**, p. 9-10.

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## 73 EAC Comment

- *Section 9.0; page 9-12; para. 2 & 3: This page references separately two mandatory hydrocarbon spill/leak report numbers, and it is done in a manner that is confusing. Both numbers are answered by the same office and probably ring on the same phone. The only difference is that the provincial requirement excludes losses of 70 litres or less. This should be explained or the page could be written in a way so that the two numbers can be referenced together (a call to one fulfills the requirement to call the other).*

### **EIS Text Edited.**

See Volume 1, Section 9.13.1, **Fuels and Fueling**, p. 9-12.

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## 74 EAC Comment

- *Section 9.0; page 9-14; para. 3: The Proponent may want to expound on the experience with the Demonstration Plant Emergency Response Plan; the writer is aware of just one incident.*

### **EIS Text Edited.**

See Volume 1, Section 9.14, **Emergency Response**, p. 9-14.

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## 75 EAC Comment

- *Section 10.0; pages 10-4 & 10-5: Please include under “Construction” mitigations related to blasting such as those listed in DFO Factsheet – Blasting – Fish and Fish Habitat Protection.*

**EIS Text Amended.**

See Volume 1, Section 10.2, **Environmental Management**, p. 10-3.

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**76 EAC Comment**

- *Section 10.0; page 10-8; first sentence: A complete forecasted inventory of GHG emissions including sources and quantities from all project phases (e.g. construction, operation, and decommissioning) would be more useful. Within the EIS, detail should be provided on the key assumptions underlying GHG emission estimates and on the steps that will be taken to verify actual GHG emissions upon project implementation. Additional information on strategies to reduce GHG's (e.g. emission control targets, employee engagement and motivation, and internal financial signals to encourage emission reduction) should be provided. The EIS should also include an analysis of the project emissions intensity (GHG emissions per unit of material processed, or other appropriate measurement) and provide a comparison to relevant technology performance standards and emission profiles for other processing plants inside and outside of Canada. Submission of a GHG management plan for review would allow EC to provide focused input and recommendations. The Federal Provincial Territorial Climate Change and Environmental Assessment Working Groups guidance document entitled, "Incorporating Climate Change Consideration in Environmental Assessment: General Guidance for Practitioners" ([http://www.ceaa.gc.ca/012/014/index\\_e.htm](http://www.ceaa.gc.ca/012/014/index_e.htm)), should be helpful to the Proponent in preparing a GHG management plan.*

**EIS Text Amended.**

See Volume 1, Section 10.3, **Climate Change**, p. 10-7.

See also response to Comment #08.

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**77 EAC Comment**

- *Section 10.0; page 10-10; Women's Employment: The Women's Employment Plan (WEP) referenced in paragraph 2 must be approved by the Minister Responsible for the Status of Women and the Minister of Environment and Conservation prior to construction. There has been extensive input to the Proponent to date on what the WEP needs to contain.*

**EIS Text Amended.**

See Volume 1, Section 10.5.3, **Women's Employment**, p. 10-10.

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## Volume 2:

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### 78 EAC Comment

- *Sub-Section 2.1.2; Table 2.2; page 2-3: Is there data missing? The Key at the bottom defines “NARL”, but NARL is not used in the Table.*

#### **EIS Text Edited.**

See Volume 2, **Table 2.2**, p. 2-3.

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### 79 EAC Comment

- *Sub-Section 2.1.3; Sulphur Dioxide; page 2-4; para. 1: Local sources could be the cause of elevated annual average levels of SO<sub>2</sub> at Fox Harbour, as hypothesized by the Proponent. However, it is unlikely that wood stoves burning wood would be a contributor. Residential wood burning releases little or no SO<sub>2</sub>, therefore clarification is required.*

#### **EIS Text Edited.**

See Volume 2, Section 2.1.3, **Sulphur Dioxide (SO<sub>2</sub>)**, p. 2-3.

#### **Explanation**

The sentence cites a source (Newfound Knowledge Inc. 1999).

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### 80 EAC Comment

- *Sub-Section 2.2.4; pages 2-14 & 2-15; Songbirds and Woodpeckers: Two days of point counts, particularly conducted so close together, will not adequately represent the entire landbird community. Species at low densities, including any woodpeckers or species at risk, would likely be underrepresented or missed altogether in these surveys. This should be acknowledged in the discussion of the surveys, so that the results are not interpreted to be absolute, or used as a rationale for concluding the absence of species at risk.*
- *Sub-Section 2.2.4; pages 2-15 & 2-16; Waterfowl: In these three paragraphs, the information in the first paragraph contradicts that in the last paragraph. The text must be reconciled accordingly. There is no indication that the results of two different surveys are being discussed separately. This Sub-Section should clearly indicate that there are two sets of results being discussed; one resulting from a reconnaissance-type survey (not designed for waterfowl) and a second one from a dedicated waterfowl aerial survey. The timing of the surveys should also be specified. This clarification will also help explain the difference in results.*
- *Sub-Section 2.2.5; page 2-17; para. 4: The meadow vole is identified as “the only native small mammal prey of carnivores”. Is this an item of trivia related to the “native” descriptor; what relevance is it to the current ecosystems if there are established populations of such small mammals as deer mice, squirrels, hares, and shrews in the area?*
- *Sub-Section 2.2.5; pages 2-20 & 2-21; Avifauna Species at Risk: Both paragraph 1 and Table 2.7 indicate that eleven populations of birds occurring in Newfoundland and Labrador have been listed as ‘species at risk’ by provincial and federal legislation. There are more than 11 species listed here, including the Eskimo curlew, common nighthawk, and the chimney swift; however, none of these species will likely be associated with Placentia Bay. Clarification is required.*
- *Sub-Section 2.2.5; page 2-22; Peregrine Falcon: Both subspecies of the peregrine falcon are now listed separately by the COSEWIC as special concern. The SARA listings have not yet been changed. This needs clarification and*

should also be reflected in Table 2.7 on page 2-21 (by a second Note?).

**EIS Text Amended.**

See Volume 2, Section 2.2.4, **Terrestrial Avifauna**, p. 2-12.

See Volume 2, Section 2.2.6, **Species at Risk – Avifauna**, p. 2-20.

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**81 EAC Comment**

- *Sub-Section 2.2.5; page 2-26; Plants: Changes agreed to in the finalization of the Terrestrial Component Study have not been included in the EIS to correct the impression left by the current EIS wording (i.e. Nova Scotia population has collapsed during the past twenty years, with the underlying cause of this decline being air pollution (Maass and Yetman 2002). However, additional search effort has resulted in a known Atlantic (NS and NB) population of nine sites with 31 thalli (Environment Canada 2007). However, ....)*

**EIS Text Amended.**

See Volume 2, Section 2.2.6, **Species at Risk – Plants**, p. 2-24.

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**82 EAC Comment**

- *Sub-Section 2.3.3; page 2-46; para. 6: The EIS states that “As a conservative estimate, the latter value has been used .....”. For extraction rates in relation to “Water Resource Use”, wouldn’t the conservative choice be the larger (former) value? If correction is not appropriate, this needs to be better explained.*

**EIS Text Edited.**

See Volume 2, Section 2.3.3, **Fish Habitat - Water Resource Use**, p. 2-45.

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**83 EAC Comment**

- *Sub-Section 2.3.4; page 2-49; last para.: The EIS states that three waterbodies may be impacted by the Project – Sandy Pond, Pond P26 (Moore’s Pond), and Pond P27. Details on how these ponds may be impacted need to be provided.*

**EIS Text Amended.**

See Volume 2, Section 2.3.4, **Sandy Brook (S 26) Sandy Brook Lacustrine Habitat**, p. 2-48.

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**84 EAC Comment**

- *Sub-Section 2.3.6; page 2-58; lines 2 & 3: The designation as a species of special concern requires a management plan under SARA. While these do not always contain specific conservation measures the same way a recovery strategy does, there may be specific conservation measures listed in such a plan that would give the species a heightened level of protection.*

**Point Noted.**

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**85 EAC Comment**

- *Sub-Section 2.4.1; pages 2-60 - 2-62: In the discussion of differences in marine water quality between inner and outer harbour locations, it would be helpful to present the magnitude of difference in concentrations or to provide the actual concentrations; concentrations of what “were generally higher” and by how much? Similarly, in discussing the differences in marine sediment quality, it would be helpful to note the magnitude of differences or to provide the actual concentrations. What are the “some parameters” referenced in the second last line on page 2-61 and what are the concentrations?*

**EIS Text Amended.**

See Volume 2, Section 2.4.1, **Marine Ecosystem - Long Harbour**, p. 2-58.

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**86 EAC Comment**

- *Sub-Section 2.4.1; page 2-61; Table 2-11: What are the N-values and measures of central tendency (standard deviation or standard error) for these data? Interpretation of these data is impaired without this information.*

**EIS Text Amended.**

See Volume 2, **Table 2.12**, p. 2-61.

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**87 EAC Comment**

- *Sub-Section 2.4.1; page 2-64: As much information is extracted from the study on sedentary macrofauna in Placentia Bay (Ramey and Snelgrove 2003), a map depicting the sampling locations should be provided.*

**EIS Text Amended.**

See Volume 2, **Figure 2.27**, p. 2-60.

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**88 EAC Comment**

- *Sub-Section 2.4.3; page 2-68; Sea Scallop: “Scallop bed habitat type” needs to be defined rather than deferring to a reference. Also, clarify what is meant by “juveniles of a certain size”.*

**EIS Text Edited.**

See Volume 2, Section 2.4.3, **Macroinvertebrate and Fish Species - Sea Scallop**, p. 2-68.

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**89 EAC Comment**

- *Sub-Section 2.4.3; page 2-70; Adult Fish: The Proponent describes “resident” fish as “moving”, often out of Placentia Bay; this needs to be clarified. This confusion also appears in the final paragraph of this portion of the EIS; there appears to be movement to the offshore, yet the Proponent is presenting the evidence as an argument for “strong inshore residency”. Clarification is again required. What are “larger” vs. “smaller” fish in terms of size?*

**EIS Text Edited.**

See Volume 2, Section 2.4.3, **Macroinvertebrate and Fish Species - Atlantic Cod and Adult Fish**, p. 2-69 and p. 2-71.

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## 90 EAC Comment

- *Sub-Section 2.4.3; page 2-73; Capelin: The statement reading capelin are often associated with eelgrass habitat in mud, sand and/or gravel substrate” needs to be supported with a reference.*

### **EIS Text Edited.**

See Volume 2, Section 2.4.3, **Macroinvertebrate and Fish Species – Capelin**, p. 2-74.

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## 91 EAC Comment

- *Sub-Section 2.4.6; pages 2-79 - 2-81; Table 2-12: The designations "Common, Uncommon, Scarce, and Rare", used to describe seasonal occurrences of marine-related birds in Placentia Bay, are undefined, and as such, do not communicate any particular insight. However, quantitative descriptions of seasonal occurrences would be helpful.*
- *Sub-Section 2.4.6; page 2-82; Table 2-13: More recent data for this Table on Colonies and Populations Designated as Important Bird Areas in Placentia Bay is available from the following papers:*
  - *Robertson, G. J., J. Russell and D. Fifield. 2002. Breeding population estimates for three Leach’s Storm-petrel colonies in southeastern Newfoundland, 2001. Canadian Wildlife Service Technical Report Series No. 380. Atlantic Region.*
  - *Robertson, G.J, J. Russell, R. Brayant, D. Fifield and I. Stenhouse. (in prep) Size and trends of Leach’s Storm-petrel Oceanodroma leucorhoa breeding populations in Newfoundland. Atlantic Seabirds 8: 41-50. (attached in Appendix 1)*
- *Sub-Section 2.4.6; page 2-84; Loons: The sentence “Sub-adults remain in saltwater throughout the year, breeding on insular Newfoundland and north of Newfoundland in coastal areas during spring and fall migration, and during winter” needs to be re-written. Clarify that it is not the sub-adults that are breeding.*
- *Sub-Section 2.4.6; page 2-87; Storm-petrels: Updated information on the breeding colonies can be obtained from the same two references (above) for Table 2-13.*
- *Sub-Section 2.4.6; pages 2-87 & 2-88; Shorebirds: It is stated that “Arnold’s Cove contains tidal flats that attract up to 100 individuals during peak days in August and September, with greater yellowlegs, semipalmated plovers, semipalmated sandpipers and white-rumped sandpipers being the dominant species”. This number appears too low, as more than 100 shorebirds have been seen in Arnold’s Cove during migration by Canadian Wildlife Service staff (D. Fifield, pers. comm.). It should be clarified how this number was determined.*
- *Sub-Section 2.4.6; page 2-88; Shorebirds: It is stated that “field work for VBNC during the shorebird migration in 2006 found a maximum of 47 shorebirds of five species on 23 August, with semipalmated plover (20) and greater yellowlegs (14) being the dominant species (LGL 2007)”. It is unclear whether this data was recorded from a single day of survey effort. If this is the case, the data is merely anecdotal, and should not be interpreted to represent migration populations/patterns or level of importance for shorebird migration.*
- *Sub-Section 2.4.6; page 2-88; Terns: The discussion of active common tern nests on Crawley Island should include reference to ground counts for terns on Crawley Island conducted by the Canadian Wildlife Service of EC in 2005.*
- *Sub-Section 2.4.6; page 2-90; Mures: Common Murres are not scarce (as stated in the EIS) in Placentia Bay during winter. The abundance of Common Murres wintering in coastal Newfoundland waters increases further south in the Bay. As an example, 7 of 32 Common Murre recoveries from last winter’s hunt were in Placentia Bay. Numbers likely further increase in late winter (January – March).*
- *Sub-Section 2.4.6; page 2-90; Razorbill: More current data are available for razorbill populations from:*

- Chapdelaine, G., A.W. Diamond, R.D. Elliot and G. J. Robertson. 2001. *Status and population trends of the Razorbill in eastern North America*. Can. Wildl. Serv. Occas. Pap. No. 105. Ottawa.

- *Sub-Section 2.4.6; page 2-91; Puffin: More recent data on Atlantic Puffin populations can be found in the following references:*

- Rodway, M. S., H. M. Regehr, and J. W. Chardine. 2003. *Status of the largest breeding concentration of Atlantic Puffins, *Fratercula arctica*, in North America*. Canadian Field Naturalist 117: 70-75.

- Robertson, G. J., S.I. Wilhelm, and P.A. Taylor. 2004. *Population size and trends of seabirds breeding on Gull and Great Islands, Witless Bay Islands Ecological Reserve, Newfoundland, up to 2003*. Canadian Wildlife Service Technical Report Series No. 418. Atlantic Region.

- *Sub-Section 2.4.7; page 2-102; para. 1: The text refers to “PCB and DDT mixtures”. The writer is aware of several PCB’s but feels there is only one chemical structure of DDT. If so, perhaps this would more correctly read “PCB mixtures and DDT”; if not so, perhaps this should read “mixtures of PCB’s and DDT’s” or “PCB mixtures and DDT mixtures”?*
- *Sub-Section 2.5.2; pages 2-113 & 2-114; Federal Listings: An explanation is needed on why some of the species discussed in the text are not present in the respective listings for species as set out by the federal government and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); e.g. omission of Peregrine Falcon, Barrow’s Goldeneye, and Piping Plover from the Table headed “SARA Schedule 1 Special Concern”. Also, the beluga whale (*St. Lawrence*) is a threatened species under SARA. The Proponent needs to clarify whether the listings of species are restricted to those likely to be impacted by project activities.*

#### **EIS Text Amended.**

See Volume 2, Section 2.4.6, **Marine-related Avifauna**, p. 2-79.

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## **92 EAC Comment**

- *Sub-Section 3.4.1; page 3-9; Geographic Extent: These two lines are insufficient to justify the professional judgement (as appears later) that a > 100 km<sup>2</sup> area would need to be impacted for it to be determined that an impact was “significant”.*
- *Sub-Section 3.4.3; page 3-10; Residual Environmental Effects; para. 5: In that Sub-Sections 5.1 (wrongly numbered page 5-12), 6.2 (page 6-1), 7.2 (page 7-2), 8.2 (page 8-2), 9.2 (page 9-1), and 10.2 (page 10-4) state that “an effect can be considered significant, not significant, or positive”; and such Tables as 5.5 (wrongly numbered page 5-24), 6.2 (page 6-7), 7.2 (page 7-17), 8.2 (page 8-7), 9.2 (page 9-8), and 10.2 (page 10-7) have a column titled “Potential Positive (P) or Negative (N) Environmental Effect”; “negative effect” should be defined here and in Tables 5.6 (wrongly numbered page 5-25), 6.3 (page 6-8), 7.3 (page 7-18), 8.3 (page 8-8), 9.3 (page 9-9), and 10.3 (page 10-8). The implication is that “negative effect” is defined by defining “significant environmental effect” in this paragraph; however, when the term “negative effect” is used in the text and tables noted above, the definition should not be left to the reader and the circumstances warrant its own definition.*

#### **EIS Text Edited.**

See Volume 2, Section 3.4.3, **Residual Environmental Effects** (various locations).

#### **Explanation**

Geographic extent is the area (km<sup>2</sup>) of an effect from the Project footprint or from Project activities. It may be defined in various ways, including chemical, biological or behavioural, and may vary with Project activity and VEC. For example, a geographic extent of an effect on sediment chemistry can be defined as a measurable increase over baseline levels. A biological effect could be an increase in body burden of a particular metal. A behavioural effect could be one that deters an animal from carrying out important life functions (e.g., an exclusion effect). In general, the geographic extent of an effect is an important part of environmental assessment and is required under the

Canadian Environmental Assessment Act. It is appropriate to use geographic extent in the definition of significance, and the definitions used in this EIS are compatible with virtually all marine EISs and EAs conducted in Newfoundland and Labrador marine waters from Hibernia onward. The methodology has developed into common usage in Canadian biophysical environmental assessment and is used by several provincial governments and federal departments. As detailed in Section 3.4 of the EIS, a negative or adverse effect is defined below.

The characterization of effects included the consideration of key factors considered for determining adverse environmental effects, per the CEA guidelines (CEA Agency 1994b). They are:

- Negative effects on the health of biota,
- Loss of rare or endangered species,
- Reductions in biological diversity,
- Loss or avoidance of critical/productive habitat,
- Fragmentation of habitat or interruption of movement corridors and migration routes,
- Transformation of natural landscapes,
- Discharge of persistent and/or toxic chemicals,
- Toxicity effects on human health,
- Loss of, or detrimental change in, current use of lands and resources for traditional purposes, and
- Negative effects on human health or well-being.

Positive effects are simply the converse of the above negative effects and are often omitted in biophysical effects assessment.

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### 93 EAC Comment

- *Sub-Section 3.7.8; page 3-13: With some 212 persons employed in the forestry sector on the Avalon at the level of the Maximum Sustainable Harvest, replacement of the word “modest” should be re-considered.*

#### **EIS Text Edited.**

See Volume 2, Section 3.7.8, **Forestry**, p. 3-14.

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### 94 EAC Comment

- *Section 5: Page numbering begins with 12 (there are no pages 1 to 11).*

#### **EIS Text Edited.**

EIS pagination corrected.

See Volume 2, Section 5.0, **Freshwater Resources Effects Assessment**, p. 5-1.

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### 95 EAC Comment

- *Sub-Section 5.6.2, (incorrect) page 5-26, para 1: The Proponent discusses the groundwater flow through the shallow overburden tills and fractured bedrock and then indicates that it will take approximately 1500 years for groundwater transport to reach the marine environment. Based on our review of the groundwater modeling, the Proponent assumed no groundwater flow in the upper 10 m of fractured bedrock and overburden (due to grouting). Therefore the 1500 year timeframe for groundwater transport to the marine environment is from the deep groundwater system. We feel this paragraph in the EIS is misleading the readers and that the Proponent should clearly state that it was assumed no flow was permitted in the upper fractured bedrock/overburden and indicate that field investigations and engineering work will be required to prevent groundwater transport in these zones.*



## EIS Text Amended

See Volume 2, Section 5.6.2, **Residue Storage**, p. 5-14.

### Explanation

There was no intent for the EIS to be “misleading” the readers. The assumption made in the Comment above –“no groundwater flow in the upper 10 m of fractured bedrock and overburden (due to grouting)” – is incorrect. The effect of grouting was simulated explicitly by the groundwater flow model and assumed to result in a greatly reduced flow ( $K=1 \times 10^{-5}$  cm/s and thickness of 1 m) in the shallow system, but not eliminated completely.

Shallow groundwater flow is predicted (AMEC 2007f) to be intercepted primarily by the creek, located at a distance of about 700 m to 800 m north of Sandy Pond. As a result, the remaining groundwater plume, discharging into Long Harbour, is expected to migrate primarily in the deep rock system, characterized by low hydraulic conductivity values, resulting in the 1,500 year timeline indicated in the report.

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## 96 EAC Comment

- *Sub-Section 5.6.2; (incorrect) page 5-27; para. 1: It is stated that the predictions on contaminant transport have a “low confidence” due to the modeling over such a long time frame. At the end of this Sub-Section the potential to utilize drilled wells are suggested as a potential mitigation to capture contaminated groundwater. As such, a commitment to use these wells should be given as they are a known mitigation measure and the modeling confidence is low.*

### Point Noted.

Vale Inco NL, in consultation with Environment Canada and Water Resources Division, Department of Environment and Conservation, will install groundwater monitoring wells down gradient of the residue storage area.

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## 97 EAC Comment

- *Sub-Section 5.6.4; (incorrect) page 5-29; first sentence: A low level of confidence is expressed concerning the residual impacts of air emissions on localized small water bodies such as Pond P28. The Proponent should identify what additional studies or measures will be undertaken or completed to reduce or monitor for this uncertainty.*

### Point Noted.

As part of the design of the required Environmental Effects Monitoring Program, Vale Inco NL will include studies to quantify airborne emissions and characterize any associated deposition on local water bodies. The study design will be completed in consultation with the Department of Environment and Conservation and other interested regulatory agencies.

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## 98 EAC Comment

- *Sub-Section 6.4; para. 1: Aside from the editorial matter (mentioned later), don't the four primary concerns listed here need to agree with the five primary issues listed in the summary in Sub-Section 6.10? It needs to be stated that water quality, while it is a primary concern, it was addressed in Section 5.*
- *Sub-Section 6.5; para. 1: Clearly the intent is to summarize existing knowledge for the four primary concerns in Sub-Section 6.4; or should it be five primary concerns (see previous deficiency)? The next three Sub-Sections attempt that, but Sub-Section 6.5.4 (water quantity) is missing, and the writer feels Sub-Section 6.5.5 is also missing (see previous deficiency).*

**EIS Text Edited.**

See Volume 2, Section 6.4, **Issues and Concerns**, p. 6-2.

See Volume 2, Section 6.5, **Existing Knowledge**, p. 6-2.

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**99 EAC Comment**

- *Sub-Section 6.5.1; page 6-2; para. 1 & 2: The specific streams and ponds that will be lost due to the footprint of the plant and altered due to diversions need to be stated. DFO advises that the second paragraph needs revision. The Fisheries Act permits a HADD of fish habitat to occur if authorized by the Minister or under regulations made by the Governor in Council. Authorizations are issued in accordance with the Policy for the Management of Fish Habitat.*

**EIS Text Amended.**

See Volume 2, Section 6.5.1, **Loss and/or Alteration of Freshwater Fish Habitat**, p. 6-2.

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**100 EAC Comment**

- *Sub-Section 6.5.1; page 6-2; para. 2: There is a wording problem with the second sentence; it must be clarified/corrected.*

**EIS Text Edited.**

See Volume 2, Section 6.5.1, **Loss and/or Alteration of Fish Habitat**, p. 6-2.

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**101 EAC Comment**

- *Sub-Section 6.5.1; page 6-3; para. 2: The amount of information is meager for an issue of great interest to several agencies and the public. As a minimum, the quantity of habitat that will be impacted by the Project must be stated.*

**EIS Text Amended.**

See Volume 2, Section 6.5.1, **Loss and/or Alteration of Fish Habitat**, p. 6-2.

**Explanation**

A large quantity of detailed information is provided in the approved Component studies that form part of this EIS.

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**102 EAC Comment**

- *Sub-Section 6.6.1; page 6-5; para. 3: Mitigative measures related to earthworks need to be included in this Sub-Section.*

**EIS Text Amended.**

See Volume 2, Section 6.6.1, **Earthworks**, p. 6-4.

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**103 EAC Comment**

- *Sub-Section 6.6.1; page 6-7; Table 6.2: For “Water Supply Dam”, it needs to be added that “Loss of Fish Passage (N)” is a negative environmental effect and “Construction of a Fish Passage” is a mitigation.*

**EIS Text Edited.**

See Volume 2, **Table 6.2**, p. 6-9.

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**104 EAC Comment**

- *Sub-Section 6.6.2; page 6-8; para. 2: Mitigative measures related to blasting need to be included in this Sub-Section.*

**EIS Text Amended.**

See Volume 2, Section 6.6.2, **Blasting**, p. 6-8.

**Explanation**

Standard, proven mitigation measures as would be described in an EPP have been provided.

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**105 EAC Comment**

- *Sub-Section 6.6.2; page 6-9; para. 1: Page 16 of the Registration identifies that excavation of “2.4 million cubic metres of rock, including 4,000 cubic metres of trench blasting to accommodate pipelines” will occur. Volume 1 (page 6-8) says only 1.1 million cubic metres of fill and rock will be moved for residue storage. The following paragraph explains that 22% of the volume to be moved for the Matte Plant residue storage could require blasting. This information is minimal to assess how realistic it is that the Project can be accomplished with as little as 11 blasts a year as stated in this Sub-Section? Further information is required.*

**Point Noted.**

The frequency of blasting as described in the EIS is given as a range (11 – 50). The precise number of blasts will lie within this range and will be determined based on further definition of construction sequencing, construction implementation planning, and blasting procedures.

The Construction EPP will document the proven and established measures to reduce or eliminate negative environmental effects from blasting.

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**106 EAC Comment**

- *Sub-Section 6.6.4; page 6-10: The Proponent needs to explain the meaning of a CIP culvert. Mitigation measures related to watercourse crossings need to be included in this Sub-Section. Mitigations must allow for fish passage and prevent sedimentation into the watercourse. Mitigations must include, but are not limited to, appropriate sizing, countersinking, addition of baffles, minimum disturbance of adjacent vegetation, and appropriate stabilization techniques such as riprap and revegetation.*
- *Sub-Section 6.6.5; page 6-11; para. 1: Mitigative measures related to water supply construction (i.e. berm construction) including general details on the fish passage need to be included in this Sub-Section.*

**EIS Text Edited.**

See Volume 2, Section 6.6.4, **Supporting Infrastructure (Roads, Storm System, Pipelines and Powerlines)**, p 6-12.

See Volume 2, Section 6.6.5, **Water Supply**, p. 6-15.

**Explanation**

CIP means “corrugated iron pipe.” Standard proven procedures are in practice with respect to culvert placement and berm construction. These will be detailed in the Construction EPP and, as requested, have been added to the EIS.

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## 107 EAC Comment

- *Sub-Section 6.6.6; page 6-11: With respect to the use of Sandy Pond for residue storage, information on the fate of brook trout resident in that Pond should be provided. Brook trout numbers and biomass have been relatively high in Sandy Pond (Volume 2; Sub-Section 2.3.6; page 2-57).*

### **EIS Text Edited.**

See Volume 2, Section 6.6.6, **Residue Storage**, p. 6-16.

### **Explanation**

Vale Inco NL will identify the accepted practice associated with other recent Fish Habitat Compensation plans and consult with DFO on the appropriate procedure to address this issue. The required Fish Habitat Compensation Plan will address the disposition of brook trout currently in Sandy Pond.

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## 108 EAC Comment

- *Sub-Section 6.6.6; page 6-11; para. 3: In this Sub-Section it is stated that the geographical extent of the effects will be “very low (< 1.0 km<sup>2</sup>)” yet Sandy Pond itself has a drainage area of 2.3 km<sup>2</sup> and removing this Pond entirely will also have downstream effects. Although Fish Habitat Compensation may mitigate the effects, it will not alter the footprint (i.e. geographical extent) of removing Sandy Pond and the geographical extent listed in the EIS must reflect this reality.*

### **Point Noted.**

This comment was withdrawn by the reviewer.

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## 109 EAC Comment

- *Sub-Section 6.7.1; page 6-12; para. 1: The use of Sandy Pond as a residue storage area will require an amendment to the MMER to allow deposition; Fisheries Act Authorizations are not issued for the deposition of deleterious substances.*

### **Point Noted.**

Note has been made elsewhere in the EIS that DFO and Environment Canada have identified the need to amend MMER. The EIS text provided here refers to the determination of a HADD and the consequent requirement for a Fish Habitat Compensation Plan.

See also responses to Comments #33 and #50.

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## 110 EAC Comment

- *Sub-Section 6.7.4; page 6-16; para. 3: It is ridiculous to state a frequency of 11 to 50 annual rainwater and snow melt occurrences. It would appear that these figures came from the Sub-Section on blasting on page 6-9. The Proponent must attend to these mistakes; the number of which are overwhelming.*
- *Sub-Sections 6.7.5 and 6.7.6; page 6-17; para. 3 & 5: Again the frequency of 11 to 50 times annually is stated. Is this coincidence or more cut and paste errors? Also, in Sub-Section 6.7.6, what about maintenance of conveyors and baghouses?*

### **Point Noted.**

The statement made in Section 6.7.4 is correct. The frequencies identified are a best fit, based on ranges in the assessment tables. In this case, it was determined that a rainfall or snowmelt event having the potential to cause excess erosion will occur in the range of 11-50 times a year.

The statements made in Section 6.7.5 (11-50 washdown events) and Section 6.7 (11-50 road re-grading events) are accurate and are neither coincidence nor “cut and paste errors”. Washdown will occur following each ship transfer; road maintenance can be expected to involve monthly grading.

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## **111 EAC Comment**

- *Sub-Section 6.10; page 6-18; para. 1: Please refer to comments on Sub-Section 6.4 (above); the four primary concerns listed in Sub-Section 6.4 need to agree with the five primary issues listed here. Also, the reason for all the capitalization in this list compared to the (similar/same?) list in Sub-Section 6.4 is puzzling.*

### **EIS Text Edited.**

See Volume 2, Section 6.10, **Summary of Effects on Freshwater Fish and Fish Habitat**, p. 6-23.

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## **112 EAC Comment**

- *Sub-Section 7.1; page 7-1: From a DFO perspective, species other than winter flounder and blue mussels have been assessed and determined to interact with marine activities and therefore will be included in the HADD quantification assessment. These species include but are not limited to lobster, herring, American plaice, sea scallop, and clam. Listing and focusing only on winter flounder and blue mussels gives the impression that these are the only two species to be affected by activities in the marine environment. More sensitive or more mobile species also requires consideration (i.e. herring are the species most well known for being affected by effluent from the phosphorus plant). DFO suggests removing sections related to the impact of specific species and focus on the impacts to groups of species such as invertebrates, finfish.*
- *Sub-Section 7.1; page 7-1; para. 2: Winter flounder will commonly agitate the bottom when they come to rest on it. This action serves to produce a thin dusting of particulates over them to camouflage them. To describe them as “sometimes buried” would be misleading to some readers.*

### **Point Noted.**

Blue mussels and winter flounder were chosen as focal species for the assessment because they use bottom habitat, the part of the marine ecosystem that would likely be most affected by Project activities, and they are both permanent resident species in the area. Both were sampled during the two-year baseline study conducted at Long Harbour (2005–2007), and both will likely be part of a marine Environmental Effects Monitoring (EEM) Program. Other marine species may also be included in the EEM, but that has not yet been decided.

The assessment of residual effects of Construction, Operation and Decommissioning activities on the marine fish and fish habitat VEC pertains to all marine invertebrates and fish, including all species identified in the HADD quantification assessment.

We acknowledge that winter flounder do sometimes occur on the bottom substrate covered only with a relatively thin layer of sediment, but often only the eyes of the fish are apparent. Reference to winter flounder being “buried” is commonly used in the scientific literature (e.g., Phelan et al. 2001; NOAA 1999) and even on the DFO website (<http://www.glf.dfo-mpo.gc.ca/os/bysea-enmer/estuaries-estuaire-e.php>). Therefore, the description of winter flounder as “sometimes buried” is justified.

References:

Phelan, B.A., J.P. Manderson, A.W. Stoner and A.J. Bejda. Size-related shifts in the habitat associations of young-of-the-year winter flounder (*Pseudopleuronectes americanus*): field observations and laboratory experiments with sediments and prey. *J. Exp. Mar. Biol. Ecol.* 257(2): 297-315.

NOAA (National Oceanic and Atmospheric Administration). 1999. Essential fish habitat source document: Winter flounder, *Pseudopleuronectes americanus*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-138.

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## 113 EAC Comment

- *Sub-Section 7.3; page 7-2: The possibility of contaminant release from the proposed dredging operation should be addressed here.*

### **EIS Text Amended.**

See Volume 2, Section 7.5.3, **Dredging**, p. 7-20.

### **Explanation**

Dredging is described in Volume 1, Section 3.2.7, **Dredging**, p. 3-11.

See Volume 1, Section 6.3, **Marine Works**, p. 6-4.

See Volume 1, Section 10.2, **Environmental Management**, p. 10-3.

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## 114 EAC Comment

- *Sub-Section 7.4.3; page 7-4; Habitat Alteration, Disruption, and/or Destruction (HADD): The Title should be “Harmful” Alteration, Disruption, and/or Destruction (HADD). Debris can be habitat for fish species and without an appropriate biological effects program to establish the baseline/physical conditions of species within the project area (wharf area), the utilization/suitability of the present habitat should not be considered to be negatively affected by elevated metals/phosphates. The Proponent states, “Biota living at the surface of the covered natural habitat would likely be displaced but there would be less effect on biota living in the substrate (i.e., infauna).” Infauna buried by armor stone and related filler material would not likely survive. The armour stone and pipeline may provide additional habitat for benthic species, however the initial activity of placement will result in the loss of existing bottom habitat and associated species. As such please revise to reflect a HADD to fish habitat. The resulting negative environmental effect can then be mitigated through an acceptable fish habitat compensation program.*

### **EIS Text Amended.**

See Volume 2, Section 7.4.3, **Harmful Alteration, Disruption and/or Destruction (HADD)**, p. 7-4.

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## 115 EAC Comment

- *Sub-Section 7.4.4; page 7-4; para. 1: Why are elemental phosphorus, thorium, and uranium not considered potential chemicals of concern; due to past activities at the site there is a potential for cumulative effects.*

### **Point Noted.**

These substances are not used within, or released by, the Hydromet or Matte facility processes. Moreover, they are not reported to be present in the raw materials for either facility type. A rigorous COPC identification process that included comparisons of baseline environmental media concentrations of uranium and phosphorus to relevant environmental quality benchmarks for the protection of both human and environmental health, as well as to

reference area concentrations, did not find that these substances merited inclusion in the Ecological and Human Health Risk Assessment Study (Intrinsik 2007).

Given that neither the Hydromet nor the Matte facility will release uranium, phosphorous or thorium, there is no potential for cumulative effects in relation to these substances.

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## 116 EAC Comment

- *Sub-Section 7.4.4; pages 7-4 & 7-5: In the ERA, the chemicals of potential concern (COPC) are listed according to the hydromet or matte plant processing options. This same approach should be taken to presenting information in the EIS. Alternatively, it should be indicated that, for the matte plant, all of the listed COPC are evaluated whereas for the hydromet option all of the listed COPC, with the exception of arsenic and chromium, are evaluated. Total suspended solids (TSS), a COPC in the ERA, is missing from the EIS.*

### **EIS Text Amended.**

See Volume 2, Section 7.4.4, **Chemicals of Potential Concern**, p. 7-4.

See Volume 2, Section 7.4.5, **Ecological Risk Assessment**, p. 7-11.

See Volume 2, Section 7.4.6, **Total Suspended Solids**, p. 7-13.

### **Explanation**

The approach has been consistent, is clearly laid out and includes a consideration of Total Suspended Solids (TSS).

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## 117 EAC Comment

- *Sub-Section 7.4.5; pages 7-11 & 7-12: This Sub-Section describes effects on marine pelagic life. However, the focal species identified for assessment of effects on marine fish and habitat, and presumably for any future follow-up monitoring, are blue mussels and winter flounder. Blue mussels are sessile filter feeders while winter flounder feed on benthic organisms. Both species could be directly or indirectly affected by changes in sediment quality as a result of effluent discharges. Hence, it would be of greater value to the environmental assessment if the ERA summary was focused on bottom dwelling rather than pelagic marine life, and included a consideration of both water and sediment quality effects.*

### **EIS Text Amended.**

See Volume 2, Section 7.4.5, **Ecological Risk Summary**, p. 7-11.

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## 118 EAC Comment

- *Sub-Section 7.4.5; pages 7-11 & 7-12: Based on modeling in the ERA, it is indicated that no precipitates are expected to form upon mixing of the hydromet or matte effluents with seawater. However, TSS concentrations of 12 -14 mg/L are predicted. The solids could contain metals or adsorption of metals onto the suspended solids could occur. Once the suspended solids settle out, they represent an exposure pathway between the COPC and the focal species. This potential interaction needs to be considered in the environmental assessment.*
- *Sub-Section 7.4.5; pages 7-11 & 7-12: For each COPC, the likelihood of adverse effects on marine pelagic life is presented. For the majority of the COPC's, the potential for adverse effects resulting from both the hydromet and matte plant processing options is indicated. However, for arsenic, chromium, cobalt, iron, nickel, and TSS, the likelihood of adverse effects from only one of the processing options is discussed. Arsenic and chromium are not COPC's associated with hydromet processing and so would not result in adverse effects on marine pelagic life. Cobalt, iron, nickel, and TSS have been identified as COPC's for both processing options, but reference is made to only one of them. If the likelihood of adverse effects resulting from the hydromet and matte plant processing options is the same for these COPC's, this must be clearly communicated in the EIS.*

### **EIS Text Amended.**

See Volume 2, Section 7.4.5, **Ecological Risk Assessment Summary**, p. 7-11.

### **Explanation**

For the effluent discharge to the ocean, the TSS levels will be 14 mg/L, most of which will be iron (9.8 mg/L total Fe versus the discharge limits of 10 mg/L). The solids will be stable in seawater and trace metals (e.g., Cu, Ni) will not come into solution (i.e., they are not bioavailable). At the ambient pH (>7) the adsorptive affinities of iron oxides for metal cations (e.g. Ni<sub>2+</sub>, Cu<sub>2+</sub>) is at its maximum and therefore there would be little, if any, desorption of these ions in seawater.

Results of modelling (AMEC 2007c in Intrinsic 2007), to simulate precipitation of solid phases when seawater and the marine effluent are mixed, indicated that calcium, copper and iron phases would precipitate as calcite and malachite. Once the proportion of effluent is reduced to about 1.3 per cent, they will re-dissolve. Iron would be stable during mixing with seawater if discharged as a solid (as part of TSS) or would precipitate if discharged as a dissolved ion. The amount of iron expected to precipitate from solution is considered negligible compared to that present in the form of TSS. These particles are predicted to settle out of the water column within a maximum of 1.5 km from the effluent release point. Based on the geochemical equilibrium modelling (AMEC 2007c in Intrinsic 2007), no incremental changes for metals apart from iron are predicted in the sediment bed as a result of effluent releases from the diffuser; thus none of the other COPCs is predicted to be associated with the suspended solids.

The likelihood of adverse effects (Hydromet or Matte plant) is the same for cobalt, iron, nickel and TSS. In the ERA, concentrations of iron, nickel and TSS at a distance of 10 m and 250 m from the diffuser are shown to be identical for either effluent (Intrinsic 2007). Cobalt is slightly higher for the effluent from the Matte plant; however, it is still below any effects level. Therefore the predictions of a negligible effect on marine aquatic life holds for both process effluents.

With respect to chromium, further testing at the Demonstration Plant has provided additional information since the ERA and EIS were submitted. Any low levels of chromium contained in the feed material can effectively be removed in the plant. Chromium gets trapped in the solvent extraction phase of the process and is removed for appropriate disposal as a hazardous waste. Therefore chromium would not report to the effluent stream, and there is no potential for any interaction in the marine environment.

The interactions related to sediments have been addressed in the Intrinsic (2008) report.

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## **119 EAC Comment**

- *Sub-Section 7.4.9; page 7-15; para. 1: It is not known if the effect of lighting is neutral. It is suggested to reword this, or provide appropriate references.*

### **EIS Text Edited.**

See Volume 2, Section 7.4.9, **Lighting**, p. 7-15.

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## **120 EAC Comment**

- *Sub-Section 7.5.1; page 7-16; para. 1: The effect of earthworks is sedimentation and possibly mobilization of contaminants. Mitigations to reduce these effects need to be provided in this EIS.*

### **EIS Text Amended.**

See Volume 2, Section 7.5.1, **Earthworks**, p. 7-16.



### **Explanation**

Mitigation measures represent standard practice as described in Volume 1 (Sections 6.1 and 10.2) of the EIS.

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#### **121 EAC Comment**

- *Sub-Section 7.5.1; page 7-17; Table 7.2: A satisfactory compensation plan should be included in the list of mitigation in the Table for components that will result in a HADD to fish habitat.*

#### **EIS Text Edited.**

See Volume 2, **Table 7.2**, p. 7-18.

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#### **122 EAC Comment**

- *Sub-Section 7.5.2; page 7-19; para. 1: Mitigative measures related to wharf expansion need to be included in this Sub-Section.*

#### **EIS Text Edited.**

See Volume 2, Section 7.5.2, **Wharf Expansion**, p. 7-16.

### **Explanation**

EIS text edited to refer to mitigation measures listed in Volume 1.

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#### **123 EAC Comment**

- *Sub-Section 7.5.3; pages 7-19 & 7-20: Will the harbour need to be re-dredged during the lifetime of the project? Dredging of contaminated sediments has the potential to release sequestered contaminants back into the marine environment. The sediments in the harbour that will be dredged contain elemental phosphorus, uranium, and other contaminants. The risks to the marine environment associated with dredging and disturbance of these sediments has not been addressed in the document. Mitigative measures related to dredging need to be included in this Sub-Section.*

#### **EIS Text Amended.**

See Volume 2, Section 7.5.3, **Dredging**, p. 7-20.

### **Explanation**

It is not anticipated that re-dredging on the north side of the wharf will occur during the lifetime of the Project. In the event dredging is required, the sediments in the area to be dredged would be characterized through a comprehensive survey. A plan would then be developed to ensure the use of appropriate measures for recovery, storage, transport and disposal. The operation would include appropriate mitigation measures and monitoring. Mitigation measures for dredging are described in Volume 1 Section 10.2.

See also response to Comment #115.

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#### **124 EAC Comment**

- *Sub-Section 7.5.4; page 7-20 Shore and Scour Protection + Table 7.2 and Table 7.3: While it is recognized that the installation of armour stone may provide additional habitat for benthic species, the initial activity of armour stone placement will result in the loss of existing bottom habitat and associated species. As such, please revise this Sub-Section and Tables 7.2 on page 7-17 and 7.3 on page 7-18 to reflect a negative environmental effect. The*

resulting negative environmental effect can then be mitigated through an acceptable fish habitat compensation program. Please revise the sentence “This increased species diversity (as a result of installing armour stone) could result in better prey selection for winter flounder.” Winter flounder will not likely occupy the armour stone habitat directly. In addition, their predominant prey are epibenthic soft-bottom substrate forms (which the armour stone will have buried). Therefore, it is difficult to predict that winter flounder will benefit from the installation of armour stone during this development. The prediction that the armour stone will “likely result in a higher diversity of invertebrate species” does not take into consideration effects of propeller wash or bow waves that may occur in the area.

**EIS Text Amended.**

See Volume 2, Section 7.5.4, **Shore and Scour Protection**, p. 7-21.

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**125 EAC Comment**

- *Sub-Section 7.5.5; page 7-21; para. 2: Will the pipeline be protected from ships in the harbour, anchors or dragging? Mitigation measures related to construction of the pipeline need to be included in this Sub-Section.*

**EIS Text Amended.**

See Volume 2, Section 7.5.5, **Effluent Pipeline**, p. 7-21.

**Explanation**

The line will be installed and operated in accordance with the *Navigable Waters Protection Act*. The route will be portrayed on nautical charts. It will not otherwise have any special protection from anchors or dragging. The grade and routing of the outfall line will accommodate ship movement near the wharf as well as in the general harbour area. The line is located clear of the designated ship anchorage area. Due to water depth in the harbour, the main concern for possible unintended contact with the line is near the wharf itself.

Risk analysis and construction methodology is to be further assessed as design progresses. A laydown area will be established onshore for mobilization and assembly of fused piping. Operation of barges, boats and associated equipment in a marine environment will be carried out in accordance with all applicable guidelines to ensure that environmental and safety measures meet all codes and regulations. All waste and surplus materials will be collected and removed from site after Construction and commissioning are complete.

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**126 EAC Comment**

- *Sub-Section 7.6; page 7-24; Table 7.5: A satisfactory compensation plan should be included in the list of mitigation in the Table for components that will result in a HADD to fish habitat.*

**Point Noted.**

This mitigation measures would apply to construction and hence would not be applicable to the Operations phase.

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**127 EAC Comment**

- *Sub-Section 7.6.1; page 7-23; para. 1: The Proponent estimates an increase in habitat because of an increase in the surface area for colonization. While this may be the case, such an increase is accomplished with a simultaneous loss of other substrates, namely the soft substrates and associated species. This should be revised to reflect a negative environmental effect.*

**EIS Text Amended.**

See Volume 2, Section 7.6.1, **Total Footprint**, p. 7-23.

### **Explanation**

The net change is positive; nevertheless, a *not significant* negative effect has been predicted.

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### **128 EAC Comment**

- *Sub-Section 7.6.2; page 7-25; Residue Storage: If seepage does reach the marine environment it will be at the most sheltered part of Long Harbour and may not be subject to “considerable mixing,” particularly if contaminants flocculate or precipitate on contact with seawater. This should be considered further.*

### **EIS Text Amended.**

See Volume 2, Section 7.6.2, **Residue Storage**, p. 7-26.

### **Explanation**

As shown in the EIS, Volume 2 Table 5.7, the model results for groundwater transport indicate the predicted concentrations of chemicals of concern (AMEC 2007e). Such low concentrations of nickel, copper, boron, selenium, iron and TDS in groundwater seepage to the marine environment would not be expected to form precipitates on contact and mixing with seawater. Consequently, formation of precipitates in the near-shore region is not predicted to occur.

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### **129 EAC Comment**

- *Sub-Section 7.6.3; page 7-26; para. 3 & 5: In both places, mitigative measures related to offloading need to be included in the EIS.*

### **EIS Text Amended.**

See Volume 2, Section 7.6.3, **Offloading**, p. 7-26.

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### **130 EAC Comment**

- *Sub-Section 7.6.3; page 7-26; para. 4: The fate of glycol when it is used for washing down the conveyor and ship’s hold needs to be described. Also, will the delegated ship for transport of concentrate from Voisey’s Bay require washdown and, if so, why?*

### **EIS Text Amended.**

See Volume 2, Section 7.6.3, **Offloading - Washdowns/Runoff**, p. 7-27.

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### **131 EAC Comment**

- *Sub-Section 7.6.5; page 7-28; first sentence: The statement that “uptake of metals into fish and benthos from deposited sediments is estimated to be limited.....” should be clarified. It would be preferable if such a statement could be rephrased as a quantitative estimate of uptake that could be measured in an EEM, or follow-up, monitoring program.*

### **EIS Text Amended.**

See Volume 2, Section 7.6.5, **Marine Effluent**, p. 7-28.

### **Explanation**

The cited references (Intrinsik 2007, 2008) are components of the EIS and provide details that support this statement, including the quantitative estimate of uptake.

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**132 EAC Comment**

- *Sub-Section 7.6.5; page 7-28; para. 2: The EIS states that “there will be limited opportunities for mussels to inhabit the near-field area of the effluent release (due to equally limited foraging of mussels by upper trophic level species for the same reasons).” DFO asks what this means; clarification is required.*

**EIS Text Edited.**

See Volume 2, Section 7.6.5, **Marine Effluent**, p. 7-28.

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**133 EAC Comment**

- *Sub-Section 7.6.6; page 7-28; para. 2: Mitigative measures related to site runoff need to be included in this Sub-Section.*

**EIS Text Edited.**

See Volume 2, Section 7.6.6, **Site Runoff**, p. 7-30.

**Explanation**

A description of storm-water management at Tier 1 (Port site) is provided in Volume 1 Section 6.10 **Storm Water**, pp. 6-8.

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**134 EAC Comment**

- *Sub-Section 7.6.8; page 7-29; para. 1: Will the 6 km outfall line and diffuser need maintenance over these 15 - 20 years? Is there capacity to hold the effluent during foreseeable maintenance periods? Can maintenance on conveyors and baghouse dust collectors be done between deliveries of concentrate and limestone? Mitigative measures related to maintenance need to be included in this Sub-Section.*

**EIS Text Amended.**

See Volume 2, Section 7.6.8, **Maintenance**, p. 7-30.

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**135 EAC Comment**

- *Sub-Section 7.7; page 7-29; para. 1: How many years post-closure will the residue storage pond, the dams, and the pipeline to Long Harbour be subject to on-going environmental monitoring, inspection, and maintenance?*

**Explanation**

Post-closure monitoring will be in accordance with the Rehabilitation and Closure Plan, which is to be submitted in draft form prior to the completion of Construction (see Volume 1 Section 8.0). The Plan will require approval by Government and will address post-closure monitoring. The standards set by Vale Inco NL with respect to the Demonstration Plant Decommissioning and Closure Plan will apply to the Project.

Following rehabilitation of the residue pond, post-closure monitoring of the area will likely be required for an extended period. This will be done on a regular basis, likely by a third-party contracted company with specific relevant competence. The scope of this work will be developed further in the detailed plan.

The ocean outfall pipeline and effluent treatment plant will be maintained for an initial period until the contaminant levels in the Sandy Pond water have returned to regulatory compliant and acceptable levels and the decant water can

be safely allowed to overflow into the creek. The ocean outfall line will be removed following Closure, unless it is deemed advisable to leave the line in place to protect the marine flora and fauna that will have developed around the structure during Operations.

The period of Post-closure monitoring will be reviewed periodically and terminated only with approval of regulators.

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### 136 EAC Comment

- *Sub-Section 7.7.1; page 7-29; para. 1: The wording of the brief second sentence asks a number of questions:*
  - *is there a fourth bullet?*
  - *did the Proponent intend that the first two words in line 2 read “three”?*
  - *did the Proponent intend that the first two words in line 2 read “four”?*
  - *could there be as many as six (there could be two in each bullet)?*

#### **EIS Text Edited.**

See Volume 2, Section 7.7.1, **Closure**, p. 7-32.

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### 137 EAC Comment

- *Sub-Section 7.7.3; page 7-30: Mitigative measures related to decommissioning need to be included in this Sub-Section.*

#### **EIS Text Edited.**

See Volume 2, Section 7.7.3, **Mitigation**, p. 7-32.

#### **Explanation**

Decommissioning activities are speculative at this stage of planning and design; hence it is premature to specify the associated mitigation measures. However, Volume 1 (Section 8.1 **Rehabilitation Overview**) provides a description of general mitigation measures.

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### 138 EAC Comment

- *Sub-Section 7.9; page 7-31; para. 2: It is not accurate to state that habitat losses will not occur due to enhancement of affected habitat areas. Activities such as dredging and armouring of the existing shoreline will result in a negative environmental effect. A determination that a residual loss in fish habitat will be not significant can only be made following mitigation that includes an acceptable fish habitat compensation program.*

#### **EIS Text Amended.**

See Volume 2, Section 7.9, **Summary of Effects on Marine Fish and Fish Habitat**, p. 7-33.

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### 139 EAC Comment

- *Sub-Section 8.1; page 8-1; para. 1: It is not clear why cormorants were chosen as a focal species for the avifauna VEC, especially considering that knowledge of their numbers in Placentia Bay is poor. The rationale for selecting this species, instead of a more commonly occurring species (e.g. murre, gannets, dovekies) should be provided here.*
- *Sub-Section 8.5.6; page 8-4; para. 2: With regard to diving birds, it should be noted that Gannets also dive to depths of 20 m and have dive times to match such depths, as outlined in the following reference:*

- Garthe, S., Benvenuti, S., and Montevecchi, W. A. 2000. Pursuit plunging by northern gannets (*Sula bassana*) feeding on capelin (*Mallotus villosus*). *Proc. R. Soc. London, Ser. B* 267: 1717-1722.

**Point Noted.**

The rationale is explained in the paragraph in question. Great Cormorant is a year-round species in Placentia Bay and it eats a wide variety of fish species. Long Harbour is part of its foraging habitat. Murres and dovekeys do not often occur in Long Harbour, and gannets are present for only eight months of the year.

Northern Gannets may dive to depths of 22 m but usually less than 10 m; typical time under water is about 10 seconds (Garthe et al. 2000).

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**140 EAC Comment**

- *Sub-Section 8.7.3; page 8-12: The conclusion that the residual effect of marine traffic on avifauna during the Operations Phase is not significant (Table 8.6 on page 8-15) is only based on anecdotal experience and the author's opinion, not scientific data. Bird disturbance by ships is highly species dependant and may not be adequately addressed by a two focal species approach.*

**Point Noted.**

There is no published evidence that routine marine traffic has a significant effect on avifauna. The two focal species (two resident top-level predators) were selected based upon their potential sensitivity to the activities of this specific project. The reviewer is correct in stating that any disturbance by ships is species-dependent. For example, it is known that Leach's Storm Petrels are particular prone to stranding on ships at night in the northwest Atlantic; however, this species is mostly an offshore seabird that occurs in the millions (see discussion on this species in Volume 2 Section 2.4.6.). Given their huge numbers and their wide offshore distribution, routine shipping activities will not cause a significant effect on this species.

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**141 EAC Comment**

- *Sub-Section 8.7.5; page 8-14; Table 8.5: Important data is missing from 24 cells on this Table.*

**EIS Text Edited.**

See Volume 2, **Table 8.5**, p. 8-13.

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**142 EAC Comment**

- *Sub-Section 8.7.11; page 8-16; para. 1: The Proponent needs to be more definitive in stating mitigations than to use "possibly".*

**EIS Text Edited.**

See Volume 2, Section 8.7.13, **Mitigation**, p. 8-16.

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**143 EAC Comment**

- *Sub-Section 8.8.2; page 8-17; line 3: More information is needed to justify the "positive effects on the avifauna VEC" from post-closure monitoring, care, and maintenance. The writer could understand how it might be neutral as the situation would revert to the current situation with respect to encapsulated phosphorus.*

**Point Noted.**

If the effects of Operations are considered negative, then it stands to reason that their cessation will be positive.

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## 144 EAC Comment

- *Sub-Section 9.5.11; page 9-12; line 1: It is not clear how temporary power (understood, but not stated, to be at Tier 2 for operation) “will result in loss of potential habitat” to otter during either construction or operation. There is no corresponding temporary power comment in Sub-Section 9.6. The Proponent needs to clarify this. Sub-Section 9.6.5; page 9-18; and/or Table 9.5; page 9-16: The text reads that the impacts and residual effects of sewage on otter and otter habitat will be negative, reversible, negligible, and not significant. However, the corresponding cell on Table 9.5 alludes to a possible positive effect. The Proponent must resolve this discrepancy.*

### **EIS Text Edited.**

See Volume 2, Section 9.5.11, **Temporary Power and Lighting**, p. 9-12.

See Volume 2, Section 9.6.5, **Sewage**, p. 9-18.

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## 145 EAC Comment

- *Sub-Section 10.1; pages 10-2 & 10-3: In that there is a Sub-Section “10.1.1 Provincial Listings”, the “Federal Listings” heading on page 10-2 should be bolded and numbered 10.1.2. Also the Table entitled, “SARA Schedule 1 Special Concern” on page 10-3, should include Barrow's Goldeneye and Peregrine Falcon. Both species should be added to the federally listed species identified as those that “might be encountered, in or immediately adjacent to the Project Area, albeit very rarely”.*

### **EIS Text Edited.**

See Volume 2, Section 10.1, **Existing Conditions**, p. 10-1.

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## 146 EAC Comment

- *Sub-Section 10.4; page 10-4: The primary concerns associated with the potential interactions between routine activities of the three phases of the Project and Species at Risk should also include disturbance effects.*

### **Point Noted.**

Disturbance effects are addressed in appropriate sections, e.g., **Blasting, Vehicular Traffic, Lighting and Noise**, in the section **Effects Assessment of Construction for Red Crossbill**.

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## 147 EAC Comment

- *Sub-Section 10.6.2; Red Crossbill; Table 10.2; page 10-7: It is unclear how the frequency evaluation criterion was assigned a value of “1” (< 11 events per year) for roads, pipelines, and powerlines. For example, a road is a permanent structure and has a perpetual impact due to disturbance and its construction represents a loss of habitat. The basis for these value determinations should be specified, otherwise, they appear to be arbitrary.*
- *Sub-Section 10.6.2; Red Crossbill; Table 10.3; page 10-8: Effects to individuals can have population-level consequences for at-risk species. As it stands, the Proponent has assigned a not-significant rating to all Project activities during the construction phase. However, these kinds of activities can have serious impacts on the individual Red Crossbill if they occur intermittently throughout the year. For example, if a Red Crossbill is breeding in a nearby tree before blasting events begin for the season, there is a high likelihood of nest abandonment once blasting commences. Such a reaction to this disturbance would adversely affect the nesting attempt, and by association, the eggs and/or young. Breeding success can also be impacted if habitat clearing involves the removal of nesting trees. Further consideration of such a potential project interactions with at-risk species is warranted given implications for impact significance findings. The 2004 EC document, Environmental Assessment. Best*

*Practice Guide for Wildlife at Risk in Canada, should be consulted as a useful reference in this regard ([http://www.cwscf.ec.gc.ca/publications/eval/guide/index\\_e.cfm](http://www.cwscf.ec.gc.ca/publications/eval/guide/index_e.cfm)).*

- *Sub-Section 10.6.2; Red Crossbill; Noise; page 10-8: While some species habituate to noise, others do not. EC is not aware of any evidence in the scientific literature to support the claim in the EIS that Red Crossbills habituate to noise. If this claim cannot be supported in the literature, it should be removed.*

### **Points Noted.**

The frequency evaluation for the linear construction activities was assigned a 1 (<11 events per year) because the part of the Construction Phase that could affect nesting only occurs at that frequency. It is during the Operations Phase that those activities or infrastructure can be considered to be continuous in frequency.

No Red Crossbills have been observed in the Project Area. Nonetheless, they are a widely distributed species in Newfoundland and they could occur there. Vale Inco NL understands that risks to individuals can affect populations that are at-risk. Vale Inco NL will develop an EPP that will address this issue and will contain provision for a survey for Red Crossbill nesting and an on-site environmental monitor.

The likelihood of a Red Crossbill nesting in a tree in the construction zone during the Construction Phase is extremely low. Densities of nesting Red Crossbills in eastern Newfoundland are very low and the habitat in the construction zone is homogeneous with that part of the Isthmus of Avalon and the Avalon Peninsula. Considering this, the effects of Project Activity are considered *not significant* to Red Crossbills.

Noise will be produced by numerous activities during Construction, potentially disturbing the Red Crossbill and causing a negative effect on the Species at Risk VEC. Given that this songbird habituates to noise and that the appropriate mitigation measures will be detailed in the EPP (e.g., mufflers and other noise suppression equipment), the predicted magnitude, geographic extent and duration of the reversible residual effects of noise on the Red Crossbill will be *negligible to low, 1 to 10 km<sup>2</sup>, and 37 to 72 months*, respectively (Table 10.2). This is considered *not significant* (Table 10.3).

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## **148 EAC Comment**

- *Sub-Section 10.6.3; page **10-11**; para. 2: Refer to the comment from Natural Resources (Forestry) and the first two of three comments by Wildlife Division in the General Technical Section of this List. Does scientific literature support the transplantation of lichen thalli and how is it accomplished? The words “if successful” in the text cast some doubt on the readers’ minds but may well be appropriate. It is noted that the Mitigations columns in both Table 10.4 (page 10.12) and Table 10.9 (page 10-19) do not reference transplantation despite all cautionary text being removed in the Summary (Section 10.10) and replaced with “will be supplemented by programs to relocate boreal felt lichen thalli”. Later (the last sentence of Sub-Section 12.2, Summary and Conclusions, Effects of the Project on page 12-3 is also more definitive stating that, “VBNC will institute mitigations including ..... transplantation where avoidance is not possible.”. The Proponent needs to better explain how realistic it is that transplantations will be attempted and the chances of success for that mitigation.*

### **EIS Text Edited.**

See Volume 2, Section 10.6.3, **Boreal Felt Lichen**, p. 10-12.

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## **149 EAC Comment**

- *Sub-Section 10.6.3; page **10-12**; Table 10.4: In addition to the comment in the preceding bullet, there are problems with the Reversibility column in this Table. Lower case “r” in the second cell should probably be upper case “R” to match the Key and most of the remaining cells. The cell with “E” for the Roads cell is more puzzling, but is probably a typo for “R”, the two being adjacent on the keyboard. This must not be left to the reader to figure out.*

### **EIS Text Edited.**

See Volume 2, **Table 10.4**, p. 10-13.



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## 150 EAC Comment

- *Sub-Section 10.6.3; **page 10-11**: More than half this page is blank. A glaring absence here is the fact that there is no “Project activity” analysis of the effects of construction on boreal felt lichen (tables only). Note that there is for operations (see the two headings on page 10-18) and corresponding treatment for construction would have resulted in eleven headings commencing on page 10-11.*

### **Point Noted.**

The assessment is placed in Section 10.6.3. While there is a relatively brief set of text, nevertheless a thorough assessment was conducted and presented.

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## 151 EAC Comment

- *Sub-Section 10.7.3; page 10-18; para. 2: That the negative effect of air emissions on boreal felt lichen would be “primarily by affecting balsam fir .....” is thought wrong. A reference is needed to substantiate this claim, or the text needs to show that the effect is directly on the organism or on the organism as well as on the balsam fir.*

### **EIS Text Amended.**

See Volume 2, Section 10.7.3, **Boreal Felt Lichen**, p. 10-18.

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## 152 EAC Comment

- *Sub-Section 10.10; page 10-21; para. 2: Some geographic qualification of the second last sentence is appropriate least it be interpreted that the VBNC work served to define the distribution beyond the study area or provincially.*

### **EIS Text Edited.**

See Volume 2, Section 10.10, **Summary of Effects**, p. 10-22.

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## 153 EAC Comment

- *Section 11.0; page 11-1; Accidental Events Effects Summary Page: Impact of an accidental event (i.e oil spill or concentrate spill) on aquaculture operations, fishing, or recreational use of the marine environment are not considered.*

### **Point Noted.**

Effects on all recreational uses are considered in Volume 3 Section 6.3 Recreational Activities Assessment.

The following is quoted from the DFO Aquaculture Action Plan (DFO 2007):

*“In determining whether a project is likely to cause significant adverse environmental effects, the consideration of effects on socio-economic conditions under CEAA is limited to those effects resulting from changes in the environment.”*

The EIS has determined the environmental effects of the Project (including accidental events) on the marine environment, and hence on marine aquaculture and commercial fisheries. These effects were predicted to be adverse but *not significant* (see Volume 2).

The focal species (blue mussels and flounder) used in the environmental assessment are particularly appropriate for assessing the effects of the Vale Inco NL Project on commercial aquaculture and fisheries in Placentia Bay. Both

species are full-time residents that are sensitive to Project activities, including the accident scenarios. In addition, the only aquaculture operations with potential to be affected by the Project are those growing blue mussels.

It is predicted that any reasonable worst-case accident caused by the Project will not affect the biophysical environment to the point of significantly affecting aquaculture or fisheries activities as a whole. However, there is a level of uncertainty in this prediction (as there is with all accidents) and product marketability could be affected for individual fishers. Vale Inco NL is developing a Fishery Compensation Program that will address adverse effects.

Reference:

DFO. 2007. DFO's Aquaculture Action Plan – Interim Guide to Consideration of Effects of Environmental Change on Socio-economic Conditions under CEAA Relative to Aquaculture Projects. [http://www.dfo-mpo.gc.ca/Aquaculture/ref /AAPceaa2\\_e.htm](http://www.dfo-mpo.gc.ca/Aquaculture/ref /AAPceaa2_e.htm) (as viewed 28 May 2007).

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## 154 EAC Comment

- *Sub-Section 11.5.1; page 11-6; para. 3: The accidental release of a sulphuric acid spill on marine fish and fish habitat is considered not significant based on the results of a spill in Brazil, with no additional detail (although the reference is cited on page 11-11). Context and additional details are essential in order to state this conclusion.*

### **EIS Text Amended.**

See Volume 2, Section 11.5.1, **Effects of Sulphuric Acid Spill**, p. 11-5.

### **Explanation**

While an attempt was made to model the effects of an acid spill on the marine environment (AMEC 2007d) there were a number of confounding factors, including the chemical reaction of the acid with the ship hull, the effect of TSS in sea water and the interactions with sea bottom sediments. Each of these will have an important influence of the fate and effects of spilled acid; however it was not possible to incorporate these into a model. Consequently reliance was placed on a review of empirical experience from sulphuric acid spills worldwide (Ifremer 2001, Bemvenuti et. al. 2003, EPA 2007; all as cited in AMEC 2007d). Modelling nevertheless served to provide an estimate of the spatial extent of a release. It showed that the relatively dense acid plume will descend rapidly (in minutes) as a “slug” and then more gradually disperse and dilute along the seabed.

The experience of actual spill events provides some insight into potential effects on the marine environment. Estimates of the plume size based on modelling can be compared with actual observations. The *Bahamas* spill as reported by Bemvenuti et al. [2003] was monitored for pH changes, and these results showed that the actual changes in pH were far less that resulted from modelling. It can be concluded therefore that the modeled area of impact is conservative (i.e., greater than will actually be the case).

Given the sinking behaviour of the acid plume, the major interactions will be with benthos, especially with immobile and bottom surface species. Least affected will be the mobile (especially pelagic) species. The spill in Brazil (Bemvenuti et al. 2003) resulted in acute and chronic impact on benthos within 500 m of the spill source. Species such as blue mussels would likely suffer high mortalities within the impact zone, as would a high proportion of sedentary organisms. The spilled acid can be expected to become neutralized and quickly dissolved in seawater, thereby losing its toxicity. In the actual spills reported, the affected areas all appear to have recovered within six months.

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## 155 EAC Comment

- *Sub-Section 11.5.3; pages 11-7 & 11-8; Effects of Oil Spill: Surely there is more recent supporting scientific literature to cite in this well-researched area than those from 1974, 1981 (three times), 1976, 1986, 1989, and 1984. Paragraph 3 on page 11-8 starts “There is an extensive body of literature .....”.*

### **EIS Text Amended.**

See Volume 2, Section 11.5.3, **Effects of Oil Spill**, p. 11-8.

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#### **156 EAC Comment**

- *Sub-Section 11.5.4; page 11-9; Dam Failure on Sandy Pond: TSS from the spill may smother and/or contaminate the benthic environment of the harbour. The potential for recolonization will depend on the constituency and consistency of the settled material. If it clads it may not be suitable for infauna and the chemicals in it may discourage settlement of sessile species.*

### **EIS Text Amended.**

See Volume 2, Section 11.5.4, **Dam Failure on Sandy Pond**, p. 11-10.

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#### **157 EAC Comment**

- *Sub-Section 11.6.3; page 11-13; Effects of Oil Spill: In Table 11.1 on page 11-1, the Proponent presents a scenario involving a springtime release of 2180 m<sup>3</sup> of Bunker C oil due to a shipping accident at a location between Crawley Island and southern shore of Long Harbour. While this particular scenario represents a most likely case, it is important that a “worst case” scenario also be considered as part of the environmental assessment. It is mentioned in Sub-Section 3.5 (Accidental Events page 3 11) that accidental events are to be examined and refined to indicate reasonable “worst case” scenarios. Given the international importance of the seabird breeding colonies at the Cape St. Mary’s Seabird Ecological Reserve, and the appropriate inclusion of the full extent of Placentia Bay in the marine study area (see Figure 3.2), the model should be further developed to examine a reasonable “worst case” scenario; an impact to the Reserve during the breeding season. A Figure illustrating the predicted zone of impact should be provided and the significance level should be re assessed based on the results of such a model. In the case of hydrocarbons, even a small spill could be significant if it reaches avian species at risk, sensitive habitats, or large numbers of birds. Therefore, as part of the environmental assessment it is important that the Proponent describe the measures that would be taken to keep birds away from a spilled substance, and procedures for dealing with accidents in which birds are oiled and/or sensitive habitat(s) are contaminated including whether birds would be left alone, captured and cleaned, or euthanized.*

### **Point Noted.**

The approach taken in the EIS was one of “reasonable worst-case scenario”. The Project involves the transportation of nickel concentrate or matte via cargo vessels and not petroleum products via tankers. The effects of oil spills in Placentia Bay have been considered in other Environmental Impact Statements such as those conducted for a proposed oil refinery and a transshipment terminal. Therefore, Vale Inco NL chose to analyze the effects of a ship’s fuel spill at the entrance to Long Harbour as a more relevant reasonable worst case for the Long Harbour Project than at other spill locations analyzed in other venues. Vale Inco NL is aware of issues surrounding increased shipping and the potential for accidents and oil spills in Placentia Bay. For this reason the Company has broadly engaged the concerned public throughout the region and has contacted specific user groups (fishers, aquaculture operator) to address their concerns.

The reader is referred to recent Environmental Assessments on oil developments that analyze oil spills in Placentia Bay in detail:

- Oil Transshipment Terminal EA (Chevron, Mobil, and PetroCanada. 1996. Newfoundland Transshipment Terminal Project: Environmental Assessment.)
- Newfoundland and Labrador Refinery Project (NLRC 2007. Newfoundland and Labrador Refinery Project Environmental Impact Statement Biophysical Assessment. Newfoundland and Labrador Refining Corporation.)

See also response to Comment #29.

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**158 EAC Comment**

- *Sub-Section 11.6.4; page 11-15; (Avifauna) Effects of Dam Failure on Sandy Pond: The particular effects that the release of this mixture could have on birds needs to be considered in the EIS.*

**EIS Text Amended.**

See Volume 2, Section 11.6.4, **Effects of Dam Failure on Sandy Pond**, p. 11-17.

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**159 EAC Comment**

- *Sub-Section 11.8.4; page 11-22; (Species at Risk) Effects of Dam Failure on Sandy Pond: Paragraph 1 does not end with a punctuation; is there something missing here? The Proponent has indicated that the residual effects of a large berm failure on Species at Risk are not significant. In assessing effects on at-risk species, the well-being of individuals can be particularly important, and should be factored into the environmental assessment accordingly. The 2004 EC document, Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada, may be helpful in this regard.*

**EIS Text Edited.**

See Volume 2, Section 11.8.4, **Effects of Dam Failure on Sandy Pond**, p. 11-25.

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**160 EAC Comment**

- *Sub-Section 12.2; page 12-2; para. 1: It is not correct to state that habitat improvements will occur “by removing debris and potentially contaminated sediment at wharf side and provision of nearshore habitat” (i.e. addition or armour stone). These activities will result in a harmful alteration, disruption, or destruction (HADD) to the existing fish habitat. Rather it can be said that, following mitigation and an acceptable fish habitat compensation program, impacts to fish habitat will be not significant.*

**EIS Text Edited.**

See Volume 2, Section 12.2, **Effects of the Project**, p. 12-1.

**Explanation**

Removal of debris and contaminated sediments has been accepted as a form of habitat compensation for other projects; hence, a similar logic was applied to the assessment.

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**161 EAC Comment**

- *Sub-Section 12.2; page 12-2; Species at Risk: The rusty blackbird has been designated as a species of special concern by the COSEWIC. Therefore, the rusty blackbird should be added to the accounting of Species at Risk that will interact with the Project. In lines 2 and 4 of this paragraph, for no apparent reason, “red crossbill” is capitalized in one place and not in the other. There is also one and one-half capitalization among ten non-capitalizations on page 10-9, one capitalization among ten non-capitalizations on page 10-10, and one capitalization among ten non-capitalizations on pages 10-14 to 10-15. In this Volume, and for just these two species, there is also one capitalization for both red crossbill and rusty blackbird on page 2-24 immediately following three non-capitalizations for red crossbill. The EIS needs to display consistency in this respect. This hap-hazard approach is most annoying to the reader; it casts doubt upon the credibility of the statements and conclusions when much of the EIS appears to have been written by cut and paste word processing.*

**EIS Text Edited.**

See Volume 2, Section 12.2.8, **Effects of the Project - Species at Risk**, p. 12-3.

### **Explanation**

Only SARA species were assessed. Rusty Blackbird is not a SARA species.

Vale Inco NL regrets that typographical edits were overlooked; however it is difficult to comprehend how inconsistent capitalization can “cast doubt upon the credibility of the statements and conclusions” made in the EIS.

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## **162 EAC Comment**

- *Sub-Section 12.2; page 12-3; para. 1: Elsewhere in the Volume (page 10-5), acid precipitation/air pollution was cited as one of the most serious threats to boreal felt lichen, followed by loss or degradation of habitat by habitat disruption or wood harvesting. It is misleading to cite forest harvesting in cumulative effects without citing these other main threats. Alternately the words “activities such as wood harvesting” can be replaced with “main threats”.*

### **EIS Text Edited.**

See Volume 2, Section 12.2.8, **Effects of the Project - Species at Risk**, p. 12-3.

### **Explanation**

There is no attempt to be misleading in referring to “activities such as wood harvesting” in the discussion of cumulative effects. The suggested text replacement would result in a sentence which implies that the Project is a “main threat” to the boreal felt lichen. Vale Inco NL does not believe this to be the case.

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## **163 EAC Comment**

- *Sub-Section 12.4; page 12-3; Cumulative Effects Summary: The Proponent has predicted that cumulative effects will be not significant. The evaluation of cumulative effects requires further attention, particularly with respect to accidental events that could influence marine birds and species at risk. Accidental oil spills located near important seabird concentrations, such as the Cape St. Mary’s Seabird Ecological Reserve, could be significant if they should occur at critical times of the year. The potential for a catastrophic event of this nature increases with increased vessel traffic. The cumulative effects assessment should include a thorough consideration of the increase in ship traffic in Placentia Bay resulting from this Project and others that are imminent.*

### **Point Noted.**

Vale Inco NL feels that it has provided a fair and balanced consideration of cumulative effects, in keeping with the size and scale of the Project, especially with respect to marine traffic and oil spills in the marine environment. The cumulative effect of accidental events is not normally conducted as an ingredient of contemporary environmental assessments, nor is it identified in the EIS Guidelines. The combination of a series of low probability events would lead to an extremely low probability of occurrence, and a highly speculative assessment.

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## **164 EAC Comment**

- *Sub-Section 12.6; page 12-4; Environmental Monitoring and Follow-up: Fish habitat compensation monitoring will be required.*

### **EIS Text Edited.**

See Volume 2, Section 12.6, **Environmental Monitoring and Follow-up**, p. 12-4.

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## 165 EAC Comment

- *Sub-Section 12.6; page 12-4: Although there will, if/when appropriate, be later approval for an EEM Program, information in the EIS is meager. The minimum scope is stated; however, it should be added that fish must be included in the EEM Program. In the EIS, winter flounder are specifically identified, along with blue mussels, as the focal marine species that are to be representative of marine fish and fish habitat.*

### **EIS Text Amended.**

See Volume 2, Section 12.6.2, **Effects Monitoring**, p. 12-4.

See Volume 2, Section 12.6.3, **Fish Habitat Compensation Monitoring**, p. 12-5.

See also response to Comment #166.

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## 166 EAC Comment

- *Sub-Section 12.6; page 12-4: More clarity needs to be provided on the impact predictions in the EIS that are to be tested by EEM. Specific EEM recommendations are presented in the ERA (Intrinsic 2007, pages 274-276) and should be affirmed in the EIS as applicable. In addition, EC offers the following specific suggestions for EEM:*
- *Based on predicted risks of elevated levels of metals/metalloids in mussels and fish near the marine effluent diffuser in Long Harbour, such contaminants in bivalves and fish near the diffuser should be monitored. Collection of adequate baseline samples would be necessary, if they are currently lacking, so that predicted risks to marine wildlife can be verified, and any appropriate corrective actions taken.*
- *EC has highlighted the need to refine modeling of aquatic impacts that could result from stack emissions. Subject to these results, monitoring of pond pH and metal levels, as well as metal levels (including mercury) in freshwater trout, should be conducted. This monitoring should build on the baseline monitoring information presented in the Component Studies.*
- *Although a top level predator is not specifically identified, a determination of metal body burden is appropriate. There is no obvious need for an EEM Program for seabirds in the immediate area around Long Harbour. However, it would be beneficial to have a long-term EEM Program that encompasses all of the industrial facilities around Placentia Bay that helps to assess the cumulative effects of marine traffic and accidental events on marine birds, including Species at Risk, and other marine life.*

### **Points Noted.**

As stated in the EIS, Vale Inco NL will design an EEM program in conjunction with resource management and regulatory agencies including the Department of Environment and Conservation, DFO and Environment Canada. This program will have components that address terrestrial (e.g., lichens), freshwater (e.g., water and sediments), and marine environments (sediment, bivalves, and finfish). The program will build on the recommendations provided by Intrinsic (2007) and will include sampling mussels and flounder for metal accumulation in the vicinity of the outfall; i.e., a “reasonable worst-case scenario” in terms of species and location for potential effects of routine activities. Mussels and flounder can likely serve as suitable surrogates for high-level predators; for example, if there is no measurable elevation of potential contaminant levels in these species at this location, then it is unlikely that there would be increases in top-level predators.

Similarly, Vale Inco NL will institute a freshwater EEM program that will sample water and sediment at a pond or ponds predicted by the modelling to be potential recipients of maximum routine plant emissions. Consideration will be given to periodic sampling of brook trout for body burdens, particularly if there is some indication of increasing levels of metals in water or sediment, and provided local populations of trout are large enough to sustain long-term sampling. It should be noted that Vale Inco NL has collected marine-associated bird data for several years through a cooperative study program and through the marine component study that was conducted to support the EIS.

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## Volume 3:

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### 167 EAC Comment

- *Sub-Section 1.1.3; page 1-3; para. 3: As for the comment on Volume 1, Section 6.0, the upgrading of Route 202 has again been recommended. It is not the purpose of this EIS to make recommendations to the provincial and federal governments. Although elsewhere in this Volume (Sub-Section 5.1.5) highway maintenance schedules are nicely explained, whether this is part of “The Project” is questionable. It should be better explained or removed.*

#### **EIS Text Edited.**

See Volume 3, Section 5.1.5, **Transportation**, p. 5-15.

#### **Explanation**

The EIS provides information about the Project that can assist governments and other stakeholders in planning.

See also response to Comment #58.

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### 168 EAC Comment

- *Sub-Section 4.1.2; page 4-4; para. 2: The Table (4.4) cited at the end of this paragraph is in error; the reader could not find the correct Table or Figure.*
- *Sub-Section 4.1.2; page 4-5; line 3: The Table (4.4) cited has nothing to do with the subject being discussed. Again the reader could not find the correct Table or Figure.*
- *Sub-Section 4.4.13; page 4-27; para. 4; line 3: It is stated that the issue of participation rates of women in skilled trades and ways to train and attract female workers is further addressed in Sub-Section 4.4.14. No it is not. The Proponent must correct this mistake.*
- *Sub-Section 4.4.14; page 4-31; para. 4; line 6: It is stated that “Mechanisms to maximize local business benefits are discussed in (Sub-)Section 4.4.14.”. No it is not. The Proponent must correct this mistake also.*
- *Sub-Section 4.4.17; page 4-38; para. 2: Optimization strategies are discussed in (Sub-)Section 4.4.15; not 4.4.14 as stated. The Proponent must correct this mistake also.*

#### **EIS Text Edited.**

EIS text edited in sub-sections noted above to provide correct cross-references.

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### 169 EAC Comment

- *Sub-Section 5.1.1; page 5-3; para. 1: There is no mention of pharmacies in Chapel Arm and Whitbourne, a full-time dental office in Whitbourne, and laboratory and X-Ray services at the Dr. W. H. Newhook Community Health Centre in Whitbourne.*

#### **EIS Text Edited.**

See Volume 3, Section 5.1.1, **Health**, p. 5-1.

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## 170 EAC Comment

- *Sub-Section 5.4.8; page 5-35; para. 2 & Sub-Section 6.3; page 6-9; para. 3: In addition to the General Technical Concern pertaining to the need for “policies that will truly be a disincentive to the practice of gravel pit camping by workers directly employed and by subcontractors”, the policies/disincentives could be stated here (either or both places). On page 5-37 (paragraph 3) the Proponent appears to be more concerned about measures to reduce worker traffic at the Project. It would seem that the Proponent has total control over both issues for both those directly employed and those employed by subcontractors; such could be made a standard condition of hiring/employment and a standard requirement in Contracts. This concern, clear in the Guidelines and clear in meetings that the Assessment Committee has had with the Proponent, has not been adequately addressed. Still, however, there is opportunity for the Proponent to be innovative with respect to this requirement.*

### **EIS Text Edited.**

See Volume 3, Section 5.4.8, **Housing**, p. 5-35.

See Volume 3, Section 6.3, **Recreational Activities Assessment**, p. 6-9.

### **Explanation**

Vale Inco NL will support Government measures to exercise its authority in regards to gravel-pit camping. Note, however, that labour contracts cannot be used to control this activity.

See also responses to Comments #175 and #23.

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## 171 EAC Comment

- *Sub-Section 5.4.10; page 5-39; para. 4: For the same reasons in the first paragraph/sentence under the following heading (Housing), there would be positive impact on Industrial and Commercial Real Estate; in a serious accident, there would be such needs as warehousing, office, and laydown sites.*

### **EIS Text Amended.**

See Volume 3, Section 5.4.10, **Accidental Events**, p. 5-38.

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## 172 EAC Comment

- *Sub-Section 6.1.1; Recreational Natural Resources Use; page 6-1; para. 1: The attention to marine recreational activities which exists in the area has been poor. Recreational activities such as marine recreational angling (trout, mackerel, cod, etc.) can be prosecuted in the area.*

### **EIS Text Edited.**

See Volume 3, Section 6.1.1, **Recreational Natural Resource Use - Angling**, p. 6-2.

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## 173 EAC Comment

- *Sub-Section 6.1.1; page 6-3; para. 1: Individuals are not refused domestic cutting permits in any approved operating areas in the Province unless prohibited as a result of Court conviction and outstanding fines. Hence the statement beginning “Demand for permits .....” should be changed or deleted. Also, in the last sentence, it should read “..... a total of 137 permits per year were issued .....”; the heading of column 3 in Table 6.3 (below) reads correctly.*



**EIS Text Edited.**

See Volume 3, Section 6.1.1, **Recreational Natural Resource Use - Domestic Wood Harvesting**, p. 6-3.

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**174 EAC Comment**

- *Sub-Section 6.3; page 6-9; Recreational Activities Assessment: It needs to be stated whether the public will have access to any ponds/streams within the boundary of the site?*

**EIS Text Edited.**

See Volume 3, Section 6.3, **Recreational Activities Assessment**, p. 6-9.

**Explanation**

Unauthorized public access will be prohibited on Project property.

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**175 EAC Comment**

- *Sub-Section 6.3; page 6-9; para. 3: Please refer to the concern (above) for Sub-Section 5.4.8, page 5-35, paragraph 2 pertaining to roadside (“gravel pit”) camping.*

**Point Noted.**

Vale Inco NL will support Government measures to exercise its authority in regards to gravel-pit camping. Note, however, that labour contracts cannot be used to control this activity.

See also responses to Comments #23 and #170.

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**176 EAC Comment**

- *Section 7.0; Commercial Fisheries and Aquaculture; pages 7-4 & 7-5; Figures 7.4 & 7.5: DFO is unable to reconcile much of the commercial landings data provided in the EIS with that from their catch and effort system. Most notable are the discrepancies with Figures 7.4 and 7.5. Attached are data tables (available in Excel format) for the Proponent’s consideration and use. Ms. Anne Russell, Statistics Officer in Statistics Division at DFO, can be contacted for follow-up on this information (PO Box 5667, St. John’s, NL A1C 5X1; (709) 772-3715; russella@dfo-mpo.gc.ca ).*

**Point Noted.**

Our consultant (Canning & Pitt Inc) contacted A. Russell about the referenced data. (Her unit was also the source of the NL portion of the data used by C&P.) She verified that the data shown in the Excel tables provided with the IR in January 2008 are NL Region data only. Thus, at least part of the discrepancy between the January Excel sheets and the C&P data used in the EIS can be attributed to the fact that part of the Placentia Bay (3Psc) harvest is recorded in the Maritimes Region datasets and not in the DFO NL data, because it was landed in Nova Scotia rather than in NL. (This was explained in a note in the “Data and Information Sources” sub-section of Section 7.0, Commercial Fisheries and Aquaculture, in the EIS.)

There is a slight variation in the datasets over time depending on when the datasets are accessed from the DFO records, since DFO Statistics is continually updating and/or reviewing its data, and the data integrity. C&P undertook a comparison of the numbers in the dataset they used for the graphs in Figures 7.4 and 7.5 with the numbers in the new Excel spreadsheet entitled “Harvest for All Fishers who harvested from 3Psc” (file name: 3PSV Harvest GF and Shellfish 98-2007 by all fishers.xls) provided with the IR, January 2008.

The results of the comparison are quite small (0%–2.8% difference) in all years except 2005. For 2005, where the difference is nearly 26 percent, further analysis revealed that the greatest difference is in the groundfish category. A comparison of the January Excel data with current DFO quota records for 2005 3Psc cod landings indicates that the January Excel groundfish total (4,888 t) matches the 3Psc Placentia Bay cod only catch total (4,889 t). This suggests that the data for the other groundfish species harvested from 3Psc (e.g., monkfish, white hake, lumpfish, pollock, hake) are not contained in the January Excel spreadsheet that DFO provided with its comments; this likely accounts for the major part of the difference.

Overall, the dataset used in the EIS is considered an accurate reflection of the actual catch from 3Psc, considering the factors discussed above.

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## 177 EAC Comment

- *Sub-Section 7.1; page 7-2; para. 1 & Sub-Section 7.1.3; page 7-26; para. 2 (below the map): There have been public submissions denying that there have been consultations with fishers from the Long Harbour area. It would be good to provide further information (not names, but times, places, numbers of fishers involved, etc.) in one or both these Sub-Sections.*

### **Explanation**

A program of stakeholder consultation has been conducted by Vale Inco NL.

### **Commercial Fishers**

Long Harbour is the home port of three Core enterprises and one non-Core enterprise. DFO area-level managers report a total of five enterprises whose registered home port is Mount Arlington Heights. Some Long Harbour-Mount Arlington Heights registered vessels are likely fishing from other Placentia Bay or Newfoundland home ports (Robin Smith, DFO Grand Bank, February 2008, pers. comm.). The Professional Fish Harvester's Certification Board indicates that there are a total of 16 individuals whose registered home port is either Long Harbour or Mount Arlington Heights (E. Smith, February 2008, pers. comm.). From these data it may be concluded that there are seven to nine enterprise owner/operators and the same number of crewpersons based in the Project Area.

Consultations (via telephone interviews) with four of the Project Area enterprise operators (three Core and one non-Core) were undertaken in early October 2006. In addition to these direct consultations during the latter part of 2007, Vale Inco NL held a number of Open Houses and other information sessions to which fishers and other area residents were invited. In December 2007 Vale Inco NL organized a special information session that was attended by two FFAW representatives and six area fishers.

### **Aquaculture Sector**

In October 2006 Vale Inco NL consultants interviewed the owner of the local aquaculture site to obtain site-specific details about his mussel-farming operations and identify his concerns about the Project. As the EIS developed, the owner has been subsequently contacted and his operation visited. In addition, as part of the collection of baseline environmental data, mussel samples from the operation have been analyzed.

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## 178 EAC Comment

- *Sub-Section 7.1.1; page 7-13; Table 7.6: This (2003) information is a little dated.*

### **Point Noted.**

The DFO data on Core, non-Core and recreational fishing licences (in all of Placentia Bay) indicated in Table 7.6 (Volume 3) were the latest year (2003) available to the consultants when the commercial fisheries baseline analysis

was being prepared. The consultants have contacted the relevant DFO manager and have obtained more recent (2006) licence data.

The consultants have also requested the data needed to update the information (number of Core and non-Core enterprises by vessel class) presented in Table 7.5 (Volume 3). This will require a special run of the relevant database. As of the production deadline for the revised EIS, the information had not been provided.

**EIS Text Amended.**

See Volume 3, Section 7.1.1, **Wild Commercial Fisheries**, p. 7-2.

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**179 EAC Comment**

- *Sub-Section 7.9.1; page 7-42; lines 3 & 12: There is an inconsistency between the projections in additional vessel movements during the construction phase; line 3 states “a total number of up to 9 vessel movements per month, associated with new construction projects for Placentia Bay as a whole”. The following paragraph states “The three new projects combined would add another 18 vessels (movements) per month”. The information needs to be revised to reflect the accurate numbers.*

**EIS Text Edited.**

See Volume 3, Section 7.9.1, **Construction Phase Cumulative Effects**, p. 7-41.

**Explanation**

Line 3 should have stated “up to six vessel movements per month.” All numbers are projections.

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**180 EAC Comment**

- *Sub-Section 7.11; page 7-44; para. 1: This is a good list of primary issues; however, impacts on “marketability of product” has not been directly referenced. It is a key concern of the existing aquaculture producer at Long Harbour. What mitigations do the Proponent intend?*

**EIS Text Amended.**

See Volume 3, Section 7.11, **Summary of Effects on Commercial Fisheries and Aquaculture**, p. 7-43.

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*Appendices:*

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**181 EAC Comment**

- *Appendix E: Forestry Division advises that, for the Construction Phase, an “Operating Permit” is required by Forest Resources Branch for industrial operations (construction using heavy equipment) in a forested areas during Fire Season.*

**EIS Text Edited.**

See Appendix E – List of Relevant Permits.

- *Appendix E: Also see Transport Canada comment on Volume 1, Sub-Section 6.1.2.*

**Point Noted.**

See Response #62.

- *Appendix G: The listing of the academic field of study for each member of the Study Team falls short of the expectation from Section 11 of the Guidelines of receiving qualifications for each member. A page on each of the 47 members is more than necessary; however, three to six bullets for each listing also years of service, experience in environmental assessment, and other relevant experience or related/similar projects would be a minimum.*

**EIS Text Edited.**

See Appendix G – EIS Study Team.

**Explanation**

With respect to the Guidelines requirement (Section 11), the submitted text has been amended to include degrees, qualifications and years of experience for the EIS team. Note that Component Study documents provide individual descriptions of Study Team qualifications. The level of detail provided in the EIS as submitted exceeds the contents of other contemporary accepted EIS documents.

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## *Specific Editorial Points and Errors:*

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### **182 EAC Comment**

- *Specific Editorial Points and Comments*

#### **Explanation**

This document was copy-edited and formatted using guides compiled for the Vale Inco NL environmental assessment process. It sets the "house style" for the use of acronyms, punctuation, capitalization, justification, italics and other matters of publication style. Many of these items are not necessarily rules of grammar or punctuation; instead, "style" refers to choices made to ensure clarity and consistency in presentation. The guide is based on *Canadian Press (CP) Stylebook*, *Canadian Style: A Guide to Writing and Editing*, and the *Canadian Oxford Dictionary*.

Notable exceptions to the indicated general rules:

- Use of commas for numeric separation in SI notation,
- Use of serial (Oxford) comma only for clarity,
- Capitalization of bird names as per conventions of the American Ornithological Union, and
- Capitalization of Project-specific terms such as Study Area, Plant Site, Project, etc.

Each point has been reviewed and, where applicable, addressed.

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## Appendix A

### Further Comments from EC pertaining to Sources of Air Contaminants from this Project

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#### 183 EAC Comment

- *Based on Table 2-4 of the Study, “Air Dispersion Modelling Assessment for the Long Harbour Commercial Nickel Processing Plant”, it appears that concentrations of some contaminants will approach air quality standards within the facility boundaries. PM and NO<sub>2</sub> are expected to be at high levels during the construction phase. During the operation phase, atmospheric concentrations of iron and nickel are predicted to be high at the hydromet plant, while elevated concentrations of SO<sub>2</sub> and nickel are anticipated for the matte plant. Given the possibility of exceeding ambient air quality standards, particular efforts should be made to reduce contaminant releases to the atmosphere.*

#### **Point Noted.**

The noted report (Senes 2007 Air Dispersion Modelling Assessment) predicted impacts during Construction that are as would be expected for a construction project of this size. Elevated levels of PM are predicted to occur near the access roads. Levels of NO<sub>2</sub> will be elevated where diesel-powered equipment is operating. The Construction EPP will specify that extra watering is to be arranged for days when there is a high potential for dust generation.

For both operating processes (Hydromet or Matte), any predicted elevated concentrations occur immediately beside the facility and drop off quickly with distance. Since this report was prepared, data have been made available on emission source testing undertaken at the Argentia Hydromet Demonstration Plant. The original estimates prepared by Hatch were very conservative. Measured nickel emissions were found to be more than three orders of magnitude lower than had been originally estimated.

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#### 184 EAC Comment

- *From Table 3-4 (Summary of Annual Emissions from Hydromet Processing Scenario) and Table 3-8 (Summary of Annual Emissions from Hydromet Processing Scenario), there are significant differences in the primary contaminants predicted to be released from the two processes. The matte process releases higher amounts of PM10 while the hydromet process releases higher quantities of SO<sub>2</sub> and NO<sub>x</sub>. It should be recognized that all three of these contaminants are subject to the Clean Air Regulatory Agenda Regulations under development by the federal government ( [http://www.ec.gc.ca/cleanair-airpur/Turning\\_the\\_Corner-WSF3084CB7-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Turning_the_Corner-WSF3084CB7-1_En.htm)).*

#### **Point Noted.**

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#### 185 EAC Comment

- *Fugitive emission estimates associated with unloading activities at the wharf are presented Table 3-7, Summary of Fugitive Emissions from Unloading at the Wharf. Wind speed information used to determine the specific emission factors for these estimates would be helpful in interpreting these data.*

#### **Explanation**

Table 3.7 from the noted report states that equations from U.S. EPA Ap-42 Section 13.2.4 were used. Meteorological data were extracted from CALMET from the Long Harbour site and plotted as a wind rose in Figure 4.6 of the report. The average wind speed was 3.5 m/s. Sample emission calculations are presented in Appendix A of the report and show the use of the 3.5 m/s average wind speed.

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## 186 EAC Comment

*The remaining points relate to the Section 3.2.1.2 – Road Transportation:*

- *Justification is required for the stated dust control efficiency of 90% attributed to watering unpaved roads. An explanation of why reduced road dust emissions (90% lower) are anticipated during the operation phase relative to the construction phase would also be helpful.*
- *The importance of considering road dust as a potential impact source is reflected in National Pollutant Release Inventory (NPRI) reporting requirements. Beginning in the 2007 reporting year of the NPRI Program under the Canadian Environmental Protection Act, TPM, PM10 and PM2.5 emissions from road dust are to be included in threshold calculations. Such emissions are to be calculated in relation to road dust caused by vehicular traffic on unpaved roads within facility boundaries. A paved road is defined as any road that has semi-permanent surface placed on it such as asphalt or concrete. Gravel surfaced roads, thin membrane bituminous surface treatments, and bituminous cold mix surfaces are referred to as unpaved roads. The reporting threshold for accounting for TPM, PM10 and PM2.5 emissions from road dust is 10,000 vehicle kilometres traveled (VKT) on unpaved surfaces within the facility boundaries in a given year. If the VKT threshold is met, emissions of TPM, PM10 and PM2.5 must be included when determining if mass release thresholds are met for the facility.*
- *From an environmental quality perspective, the application of water would be a preferred method of dust suppression. However, if chemicals such as calcium chloride or potassium chloride are being considered as dust suppressants, they should only be used and stored in accordance with the recently published EC guidance document, Best Practices For The Use And Storage Of Chlorid-Based Dust Suppressants ([www.ec.gc.ca/nopp/roadsalt/en/rpt.cfm](http://www.ec.gc.ca/nopp/roadsalt/en/rpt.cfm)). The applicability of the recommendations presented in this document should be discussed in the EIS accordingly.*

### Explanation

In Section 3.2.1.2, of the report it states that a control efficiency of 90 per cent was assumed for the emissions of dust from unpaved road sources using water. SENES has demonstrated this level of control for other clients with monitoring.

The actual watering intensity and frequency of watering may be determined by using the following equation (Control of Open Fugitive Dust Sources, EPA Manual, Cowherd et al. 1988):

$$C = 100 - \left( \frac{0.8 \times p \times d \times t}{i} \right)$$

where: C = average control efficiency (%)

p = potential average hourly daytime evaporation rate (mm/h)

d = average hourly traffic rate (h<sup>-1</sup>)

i = application efficiency (L/m<sup>2</sup>)

t = time between applications (h)

Table 3.3 of the report presents the controlled dust emissions for the Construction phase. As can be seen from that table, the total estimated controlled PM emission from all haul roads is 5.8 g/s. In Section 3.2.1.2, it states that for Operations phase, the controlled PM emissions were estimated to be 0.6 g/s or an order of magnitude less than during construction. Since the PM emissions from the unpaved roads during Construction showed only limited areas with elevated PM concentrations, the significantly lower unpaved road emissions rate during Operations was deemed to be insignificant and was not modelled.

Vale Inco NL plans to use water as the dust suppressant.