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March 29, 1999

File No.: 4194-82/1

John Appleby
Public Works And Government Services Canada
Environmental Services
1713 Bedford Row
Halifax, Nova Scotia
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Dear Mr. Appleby:

**RE: Draft Comprehensive Study Report
Aguathuna Dolomite/Limestone Quarry and Marine Terminal
Port au Port Peninsula, Newfoundland** **EAS # 98-021**

As requested, Environment Canada (EC) has reviewed the draft Comprehensive Study Report for the above-noted project proposal received from your office on February 12. It is understood that Atlantic Canada Opportunities Agency (ACOA) is responsible for ensuring the comprehensive study is conducted in accordance with the *Canadian Environmental Assessment Act (CEAA)*.

Based on the information provided, it is understood that the proponent plans to develop a dolomite and/or limestone quarry and marine facility in Aguathuna, Port au Port Peninsula, in Western Newfoundland. The project would involve re-opening an abandoned open-pit limestone quarry and constructing a deep-water ship loading facility that would accommodate panama-sized vessels. Construction of the marine terminal would involve infilling a portion of the bay with 12,000 C.M. of clean limestone boulders from the existing East Quarry site, and installing a L(113m) X W(16m) X D (5.5m) floating dock, supported using anchors and buoys. The stern end of the dock would be pinned and hinged to the rock fill, while the bow would be free-floating.

Activities during the operation phase of the project would include drilling, blasting, crushing, dry and wet screening and ore stockpiling. The proponent proposes to produce 150 000 tons of multi-grade crushed stone in the first year of operation, eventually building up to a production capacity of 500 000 tons per year thereafter. Access to the quarry would be by an existing gravel road connecting to the highway to





the south and access to the marine facility would be by the existing road to the north of the highway.

The proponent hopes to commence construction work, including the installation of the crushing/screening plant and stockpile area, the new dolomite quarry and the marine terminal, in the late summer of 1999 and hopes shipping will commence in the fall of 1999. The quarry would operate from April to December, with a life expectancy of 20 years. The entire project is anticipated to cost approximately \$4.5 million. The site would be fully decommissioned upon closure.

As you recall, EC's July 1998 letter confirmed that the department has in its possession specialist knowledge and information relevant to the federal environmental assessment of the proposed project. In addition, EC offered comments on the project which the department had submitted during the course of the provincial environmental assessment, and during subsequent correspondence with the proponent. This review of the draft comprehensive study report (CSR) formalizes preliminary comments on the CSR documentation provided on March 10 and includes recommended best practices which could be further discussed in detailed Environmental Protection Plans for the project. Detailed comments of an editorial nature are included in Appendix 1.

Project Description

The following information on the project should be included in the description of the project to facilitate identification of impacts and determination of appropriate mitigation and monitoring measures:

- construction methods and materials proposed for the floating dock (including anchors), service sheds, vehicle fuelling facilities and tool sheds;
- identification of any proposed on-site diesel/gas fuel tanks, including number of tanks, volumes, location (including distance from nearest waterway), and provisions for secondary containment; and,
- buffer zones between surface waters and operational areas, and information on the dust suppressants proposed for use.

Wildlife

Species at Risk

The proponent claims that there are no rare or endangered species in the development area, however there are no data to support this statement. It is simply noted that a biologist made a site visit in 1998 and that "the only flora observed consisted of

moderate concentrations of song birds". Flora actually refers to vascular plants, not birds.

Given the lack of information and the inaccurate reporting, it is recommended that a professional biologist conduct a complete wildlife (including plants) inventory of the area at an appropriate time of year in order to determine the presence or absence of species at risk. In revising the CSR, the following data and analysis should be presented to support claims regarding species of risk:

- name(s) of the biologist(s) conducting wildlife surveys, the dates conducted and the methods used;
- an inventory of and discussion on the species and habitats observed with reference to the most recent Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listing, the Nature Conservancy Ranking System used by the Atlantic Canada Conservation Data Centre, applicable provincial designations and other published guidance; and,
- conclusions on the biological diversity of the area.

More specific comments related to migratory birds and plants are offered based on the department's expertise.

Migratory Birds

Migratory birds are protected under the *Migratory Birds Convention Act (MBCA)* and the associated regulations. As set out in the MBCA "no person shall disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird" without a permit.

In revising the CSR, EC recommends that the extent and nature of migratory bird use of the area be described taking into account:

- the results of surveys undertaken by a professional ornithologist at the appropriate times of the year. For example, to assess the use of the area by breeding birds, an appropriate survey would be carried out in June. Bird surveys in spring (May) and fall (Sept-Oct) would describe the use of the area by migratory birds (as well as area residents), while surveys in December would provide information on wintering species of birds;
- consultations with professional ornithologists, naturalist groups and/or bird watchers;
- available data for the area including that maintained by the Atlantic Canada Conservation Data Centre in Sackville, N.B.; and,
- applicable published guidance including the EC publications, *Migratory Birds Environmental Assessment Guideline*, *Environmental Assessment Guideline for Forest Habitats*, and *Setting priorities for conservation, research, and monitoring of Canada's landbirds* (by E. Dunn, 1997).

In achieving compliance with the MBCA, and as best practice, consideration should be given to scheduling vegetation clearing activities so as to avoid the nesting period of most migratory birds (i.e. clearing should not be conducted until chicks have fledged from their nests). Site-specific circumstances related to the presence of certain habitat and species, may warrant further restrictions or protection measures.

Plants

In revising the CSR, EC recommends that the plants in the area that may be affected by the proposed development (including the old quarry and surrounding area) be described taking into account:

- the results of surveys undertaken by a professional botanist(s) at the appropriate times of the year;
- consultations with botanists, naturalist groups or local people interested in botany;
- available data for the area including that maintained by the Atlantic Canada Conservation Data Centre in Sackville, N.B.; and,
- reference to publications such as *Rare Vascular Plants of the Island of Newfoundland* (Bouchard, A. et al., 1991).

Site Reclamation

It is recommended that the proponent revegetate the area using only native plants.

Managing Impacts on Water Quality

General

EC works with the Newfoundland Department of Environment and Labour (NDEL) and the Department of Fisheries and Oceans (DFO) in helping to ensure water quality is adequately protected. EC's interest in water quality principally stems from a responsibility for administration of Section 36 of the *Fisheries Act* with the understanding that DFO has the federal lead on matters related to erosion and sedimentation. However, EC also has pertinent expertise related to pollution prevention and environmental effects monitoring: It is in this context that EC recommends that the following information and clarification be provided in the comprehensive study report to help ensure potential water quality impacts are fully considered, mitigated and monitored.

Site Drainage

In general, it is recommended that a commitment be made to placing a priority on pollution prevention in further developing and refining the proposed *Erosion and Sedimentation Control* EPP with attention to best practices (e.g. Appendix 2).

The following information should be provided in the revised CSR to facilitate a better understanding of potential impacts and the necessary mitigation and monitoring measures:

- precipitation data and runoff catchment area;
- water quality in existing quarries/ponds that may need to be dewatered; and,
- estimated volume of "make-up water" to be withdrawn from *Jack of Club's Pond* for the wet screening process and potential impacts on the pond.

In the revised CSR, information on the number and location of product stockpile areas, respective volumes of stone to be stored in each area, distance of the piles from waterways, and measures proposed to prevent dust/silt from entering into nearby waterways should be provided. In general, it is recommended that stockpiles be sloped and compacted to prevent ingress of moisture and protected from erosion with mulch, plastic or geotextile; surrounded by straw, earthen berms or silt fences and located away from watercourses.

The following clarification related to management of settling ponds should be provided in the revised CSR:

- number, location, dimensions of the proposed settling/sedimentation ponds, and the related pathways of effluent discharges; and,
- provisions for removing sludge from the settling ponds (e.g., method, frequency) and provisions for sludge disposal (e.g. disposal location and method).

Site Restoration

It is recommended that provisions for reclaiming the open pit be clarified in the revised report with attention to:

- how large the pit will be at the end of the operations;
- whether the pit is to be slowly flooded to become a lake; and,
- as applicable, the quality of discharge from a flooded pit that is expected to overflow.

In-water Work

Provisions for minimizing impacts on water quality during in-water work should be described. As the proponent is aware, in-water work (e.g., infilling activity/installing anchors for the dock) will cause re-suspension and spreading of bottom sediments, as well as any associated contaminants, if present. Construction methods should be chosen to minimize disturbance of sediments and measures should be taken to control the dispersion of re-suspended material. The fill material proposed for use should be free of contaminants and fines.

Monitoring

Section 13 of the report deals with follow-up studies and provides a very general outline of some monitoring programs that might be implemented. It states in the report that the proponent will monitor for suspended solids during construction and operational activities; however, a monitoring program is not described. The proponent should confirm that the monitoring program related to water quality will include:

- monitoring frequency and location of sampling, parameters monitored and contingency plans should pre-established criteria be exceeded;
- the need to comply with Section 36 of the *Fisheries Act* while also taking into account applicability of the CCME Water Quality Guidelines (1987) and CCME *Interim Marine and Estuarine Water Quality Guidelines for General Variables* (1996)

Land-based sources of siltation and the loss of product during loading activities could result in the build up of fine material which smothers organisms and changes fish habitat conditions. EC recognizes this issue falls outside the department's mandated area of responsibility. However, based on our experience and expertise in environmental effects monitoring, it is suggested that in addition to baseline surveys of the marine area, a photographic record of the habitat and substrate in the area of the dock be obtained. One effective means of monitoring possible changes to the bottom conditions could be to conduct regular visual surveys by diver or ROV of the area around and under the dock. At the discretion of the proponent, these suggestions could be reviewed with DFO if not already under consideration.

Hazardous Materials and Wastes

General

Provisions for the management of hazardous materials (e.g. fuels, lubricants, hydraulic oil, cement, wet cement, concrete additives and agents, asphalt, paints, solvents, de-icing agents, preservatives, etc.) and wastes (e.g. waste oil) should be identified and described so as to ensure the risk of chronic and accidental releases are minimized. In this regard, a clear priority should be placed on pollution prevention opportunities. For example, whenever possible, the proponent should consider the use of non-toxic alternative materials or choose materials that are less hazardous.

Storage and Handling

The following Canadian Council of Ministers of the Environment (CCME) publications should be consulted as applicable:

- *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.* CCME-EPC-LST-71E. August 1994
- *Environmental Code of Practice for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.* CCME-EPC-LST-61E. March 1993.

Drums of petroleum products or chemicals should be tightly sealed against corrosion and rust and surrounded by an impermeable barrier in a dry, water-tight building or shed with an impermeable floor. Waste oil should be returned to a facility that recycles oil or, if this is not possible, disposed of in an approved manner.

Refuelling and Maintenance Activities

Refuelling and maintenance of equipment/machinery should take place in designated areas, on level terrain, at least 100 m from any surface water, and on a prepared impermeable surface with a collection system to ensure oil, gasoline and hydraulic fluids do not enter surface waters.

Blasting Agents

Potential environmental effects of blasting agents such as ANFO (ammonium nitrate and fuel oil) include ammonia toxicity, nitrification and hydrocarbon contamination. Ammonia can be a problem in site drainage from quarries. The need for preventive measures (e.g. containment around storage and mixing area(s)) and spill contingency planning for handling blasting agents should be recognized and appropriate precautions should be further defined in the EPP. Undetonated blasting agents may also contribute to a contamination problem and should be addressed.

Use of Treated Wood

If pressure-treated wood is proposed as construction material, the proponent should be aware that significant adverse effects on fish and other aquatic organisms can result if these products are misused or improperly applied. Guidance related to treated wood, and selection of environmentally preferable alternatives, is outlined in Appendix 3.

Contingency Planning

A contingency plan that will enable a rapid and effective response to a spill or leak should be developed and implemented to handle any spills that may occur. In developing a contingency plan, it is recommended that the Canadian Standards Association publication, *Emergency Planning for Industry*, CAN/CSA-Z731-M91, be consulted as a useful reference. In general, appropriate spill response equipment (e.g., boom, absorbent pads, barrels) should be maintained in a readily accessible location. Personnel working on the project should be knowledgeable about response

procedures. All spills and releases should be promptly contained, cleaned up and reported to the 24-hour emergency response line in St. John's (1-800-563-2444) or (709) 772-2083.

Non-Hazardous Materials

Construction waste and other refuse associated with the proposed project should be reused or recycled on a priority basis. If reuse or recycling opportunities are not available, the refuse should be disposed of at an approved site.

Air Quality

It should be clarified in the revised CSR that the Newfoundland Department of Environment and Labour is principally responsible for air quality. However, the following comments are offered based on EC's experience and pertinent expertise on this issue.

In support of the impact analyses, it is recommended that rationale be provided for:

- use of meteorological data for Argentia rather than Stephenville taking into account the differences in such factors as wind speeds, and mixing heights with attendant implications for dispersion of pollutants;
- use of only 2 years of meteorological data. This is generally only appropriate for on-site or nearby data, whereas 5 years is recommended when using data from a site some distance away; and,
- why the selected weather data for 1993 and 1994 are considered the "worst case".

In addition, it is recommended that the proponent expand and refine impact predictions to include:

- the 1-hour average particulate concentrations in light of applicable national ambient air quality objectives set by EC (1-hour "intolerable" above 400 ug/m³); and
- the estimated background particulate concentrations in ambient air to which the quarry will contribute.

The following observations highlight the need for further clarification in the revised report:

- On page 71 it is stated that particulate concentrations adjacent to the facility exceed the Newfoundland regulatory limit occasionally but on page 75 it is stated that in all

cases the predicted concentrations were well below the regulatory limit. In paragraph 3, it appears that it was only beyond 1 km from the facility that no exceedances of the 24-hour limit occurred in the modelling outputs. It is difficult to determine from Fig. 11.1 what the exceedances might be. The isopleths are not explained. It is assumed they represent the model output of the maximum 24-hour average dust concentrations at each receptor over the 2-year period of data in micrograms per m³. A print out of these concentrations would make it easier to determine exceedances.

- The quarry source (Pg. 73, Table 11.2) is shown on Fig. 2.1 at more than twice the size used in the modelling input. The modelling input was 150 m by 200 m, whereas measuring the dolomite pit shown on Fig. 2.1 and applying the scale gave a size of 671 m by 105 m. Using the larger size would more than double the emission rate from the pit. However, the rate for this source is small compared to two of the other sources (plant and storage area, and haul road), so the impact on the modelling results is likely not significant. On the other hand, the size used for modelling the plant and storage area is about twice the size shown on Fig. 2.1 (i.e. modelling size 334 m by 58 m, whereas Fig. 2.1 shows 240 m by 37 m). Therefore, more emissions will be modelled from this source than Fig. 2.1 would indicate. The reasoning for the differences in the source sizes compared to Fig. 2.1 are not given.

I trust the above comments are helpful in finalizing the Comprehensive Study Report for the proposed project. While the comments largely reiterate EC's preliminary March 10 input, if you have any questions or concerns, do not hesitate to contact me at 426-4633 or Suzanne Wade at 426-5035.

Yours truly,


Barry Jeffrey
A/Head
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SW.BJ/

- cc. I. Travers
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Appendix 1:

Detailed Editorial Comments

Pg. 4, Table 1.1:

Environment Canada is not responsible for issuing an approval/authorization for the project in accordance with the *Canadian Environmental Assessment Act* as implied.

Pg. 7, Table 1.2:

The *executive summary* (Sections 1.0-1.12) has not been received.

Pg. 8, Table 1.2:

Under the "RELEVANT SECTIONS OF THIS REPORT" column, it should be noted that Appendix A presents information on wave action, not information on public consultations and Appendix B does *not* contain information on potential environmental hazards to the project (see also pg. 33, Section 7.6) as stated. Under the same column, it appears that Sections 4.2, 4.3 and 4.4 as well as Appendix B are misquoted.

Pg. 12, para. 4:

It should be clarified how access to the site be blocked off when the site is not operational.

Pg. 13, para. 1, 4:

The "decant process" noted in para. 1 should be described.

The "ancillary facilities" noted in para. 4 should be thoroughly described, including their proposed locations, dimensions, and construction methods and materials.

Pg. 14, para. 3:

It is stated in the report that "Should weather conditions dictate, a wet screening system may also be installed." These weather conditions should be identified.

Figure 2.2:

Water pond No. 1 (P-1) and No. 2 (P-2) as well the tunnel under the highway (T-1) could not be located on the diagram provided.

Pg. 29:

In terms of administrative boundaries for ambient air quality, it should be clarified that it is the Newfoundland Department of Environment and Labour that primarily regulates emissions. The reference to Nova Scotia here is obviously in error. Environment Canada sets national ambient air quality objectives under the *Canadian Environmental Protection Act*.

Pg. 34:

The reference to "Appendix C" should be changed to "Appendix B" in the last sentence.

Pg. 37, *Predicted Effects*, para. 3:

The report states here that "infill material will be selected so as to contain not more than 5% fines", whereas on Pg. 43, the report states that rock with <10% fines will be utilized. This discrepancy should be clarified. An emphasis should be placed on minimizing the percentage of fines.

Pg. 38, para. 4:

The report states that "The conveyor loading system will be equipped with hoods to reduce the amount of fugitive dust and mitigate the occurrence of accidental material release." It should be clarified if conveyors will be covered or there will be drop chutes between conveyor belts or both. In EC's view, consideration should be given to covering the entire conveyor system.

Tables 8.1, 9.1, 10.1, and 11.3, column 1:

The term, "Frequency of occurrence", as used in these tables should be explained.

Pg. 45, Table 8.2, *Description of Effect* column:

The claim that "Habitat *may* be altered by infill" should be changed to "Habitat *will* be altered by infill." The same observation applies to the statement, "Anchors *may* destroy substrate."

Pg. 49, *Predicted Effects*:

The reference to "25mg/L/day average" is incorrect and should read "25 mg/L". (See also Table 9.2).

Sec. 9.2.2, last sentence:

It was claimed elsewhere in the document that make-up water would be drawn from Jack of Clubs Pond, not Goose Pond. Discrepancies related to the proposed source of make-up water should be clarified.

Pg. 67, Table 10.2:

The statement that "No critical wildlife habitat exists onsite" is inaccurate. There are no data presented in the CSR to support any conclusions regarding the presence or absence of species, or important habitat.

Pg. 70:

Three sources of particulate matter are first identified in the report, whereas four sources are identified on Pg. 72. While the latter appears to be correct, this discrepancy should be clarified.

Pg. 71, Table 11.1:

This table contains incorrect information for federal total suspended particulate (TSP) ambient air quality objectives and should be corrected.

The report states that there were 11 radial locations for each of 16 wind directions in the receptor grid (Pg. 73), but only 10 are actually enumerated (starting at 100 m).

Figure 11.1:

It should be clarified what is being depicted in this figure and the units should be identified.

For footnote 2, it should be noted that CEPA replaced the *Clean Air Act*. The ambient air quality objectives are published under Part I of CEPA.

Pg. 78, Table 11.4, column 5:

Consideration should be given to covering trucks hauling the product.

Pg. 84:

The proposed "periodic" site inspections by the proponent (bullet 2) should be discussed in greater detail with attention to the frequency and objective of site inspections (e.g., muddy water, dust clouds, noise)

While it is noted in bullet 6 that "CEAA requires that follow-up monitoring be conducted for potential changes in the environment...", the proponent has given no indication of the form or nature of any monitoring that is proposed.

Appendix 2:

Key Elements of an Erosion and Sedimentation Prevention and Control Strategy

- construction activities are coordinated with seasonal constraints (e.g. time clearing, grubbing, and excavation activities to avoid periods of heavy precipitation; avoid sensitive periods for fish and wildlife; shut down and stabilize the work site in accordance with pre-established criteria in advance of the winter season) {before revegetation is no longer possible and before freeze-up};
- measures are implemented, in advance of grubbing and excavation activities, that will allow surface drainage to be diverted around the work area;
- existing drainage patterns and vegetated buffer zones are maintained as appropriate to protect resources at risk;
- all perimeter control structures (e.g. silt fencing, sediment traps, settling ponds) are installed prior to any land disturbance;
- exposed soil, including stockpiled topsoil, is stabilized as soon as possible (e.g. mulch, erosion control blankets or fast-growing, non-invasive, native vegetation);
- sediment control structures are maintained (by repairing structural problems during and after storm events, removing accumulated sediment at regular intervals or at designated capacities, and by disposing of it at an approved site, given its unsuitability as structural fill material);
- on-site water is directed to vegetated fields and forest floors where possible;
- water retained by sediment control structures is sampled and analyzed to determine if further treatment is required prior to discharge. Suspended solids concentrations **within effluent** released from sedimentation control structures (e.g. settling ponds) should not exceed 25 mg/L (monthly average) or 50 mg/L (grab sample). (These concentrations reflect permissible limits of suspended solids in effluents subject to industry-specific regulations under Section 36 of the *Fisheries Act*);
- suspended solids levels in marine receiving waters are monitored to ensure they are consistent with the CCME *Interim Marine and Estuarine Water Quality Guidelines for General Variables* (1996), which state that human activities should not cause suspended solids levels to increase by more than 10% of the natural conditions expected at the time.
- receiving waters are monitored to ensure maintenance of the CCME *Canadian Water Quality Guidelines* (1987) for the protection of aquatic life (and other uses as appropriate) when considered in conjunction with existing ambient water quality and site-specific factors. The *Canadian Water Quality Guidelines* (1987) for the protection of aquatic life recommends that the concentration of suspended solids **within the receiving water** should: a) not increase by more than 10 mg/l if the background suspended solids concentration is equal to or less than 100 mg/l, or b) not increase more than 10% above the background concentration if the background concentration exceeds 100 mg/l);
- all personnel working at the site should be educated on the proper methods of erosion and sedimentation prevention and control.
- further mitigative actions are taken as necessary based on monitoring results.

Appendix 3

Use of Pressure-treated Wood in the Aquatic Environment

If pressure-treated wood is proposed as construction material, the proponent should be aware that *CCA treated lumber can have significant adverse effects on fish and other aquatic organisms* if misused or improperly applied. Copper is toxic to fish, and arsenic and chromium are both acutely toxic and are known to bioaccumulate in aquatic organisms. The proponent is encouraged to evaluate the use of any alternative materials that are technically and economically feasible (e.g. untreated wood, concrete, etc.).

A number of measures can be implemented to minimize the potential impacts of treated lumber on the aquatic environment including the following:

- pre-treated wood cut to pre-determined lengths should be utilized as much as possible (i.e. less waste, less sawdust, and no need for end treatments)
- any additional application of preservatives during construction or future maintenance activities, including the application of end-cut preservative which contains Tri-n-butyl-tin (TBT), should take place at a designated site away from the water.
- treated wood should not be placed in the aquatic environment until completely dried;
- creosote treated wood should be well aged (6 months minimum) before being placed in the aquatic environment;
- pentachlorophenol (PCP) treated poles should *not be used in the aquatic environment*;
- all waste wood and shavings should be contained within the upland construction site and disposed of in an approved manner.
- any material lost as a result of wave and storm action should be immediately recovered by the operator when safe to do so

In summary, if pressure-treated wood is proposed for use, CCA treated wood is probably the safest. Creosote is not recommended, while PCP should not be used in aquatic environments.