Horizons North Camps and Catering

ISSUED FOR USE

TEMPORARY BARGE CAMPS OPERATING IN ROBERTS BAY, NUNAVUT

V23201254

June 2010

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APPENDICES

1.0 INTRODUCTION

The following information is provided to describe the proposed mooring and over-wintering by Horizons North Camps and Catering (Horizon North) of two floating barge camps to be moored in Roberts Bay of the Arctic Ocean.

2.0 PROJECT DESCRIPTION

Hope Bay Mining Limited (HBML) has contracted Horizons North Camps and Catering to provide and operate two floating barge camps to support construction of the Doris North Project and exploration of the Hope Bay belt. The primary reason that additional beds are required at site is that the Windy Camp is unsuitable for worker accommodations at this time and is proposed to be relocated during 2011. There are also insufficient accommodations at Doris North to house workers sufficient to offload supplies and carry out construction-related activities.

3.0 LOCATION OF THE PROPOSED ACTIVITY

Horizon North proposes to temporarily moor two floating barge camps together at a location approximately 50 metres from shore in Roberts Bay, Nunavut (Figures 1 and 2) to support the development of shore-based facilities for Newmont Mining Corporation.

4.0 DESCRIPTION OF FLOATING CAMP FACILITIES

The floating camp (see Photo 1) will consist of:

- The Arctic Star – a 3 story 88 man camp situated on a pontoon style barge platform approximately 88 x 250 feet.
- The John Wurmlinger – a 40 man camp on a barge structure 70 x 220 feet (21 x 67 m) with a machine shop on the main deck. It has large gravity spuds to hold it in position.

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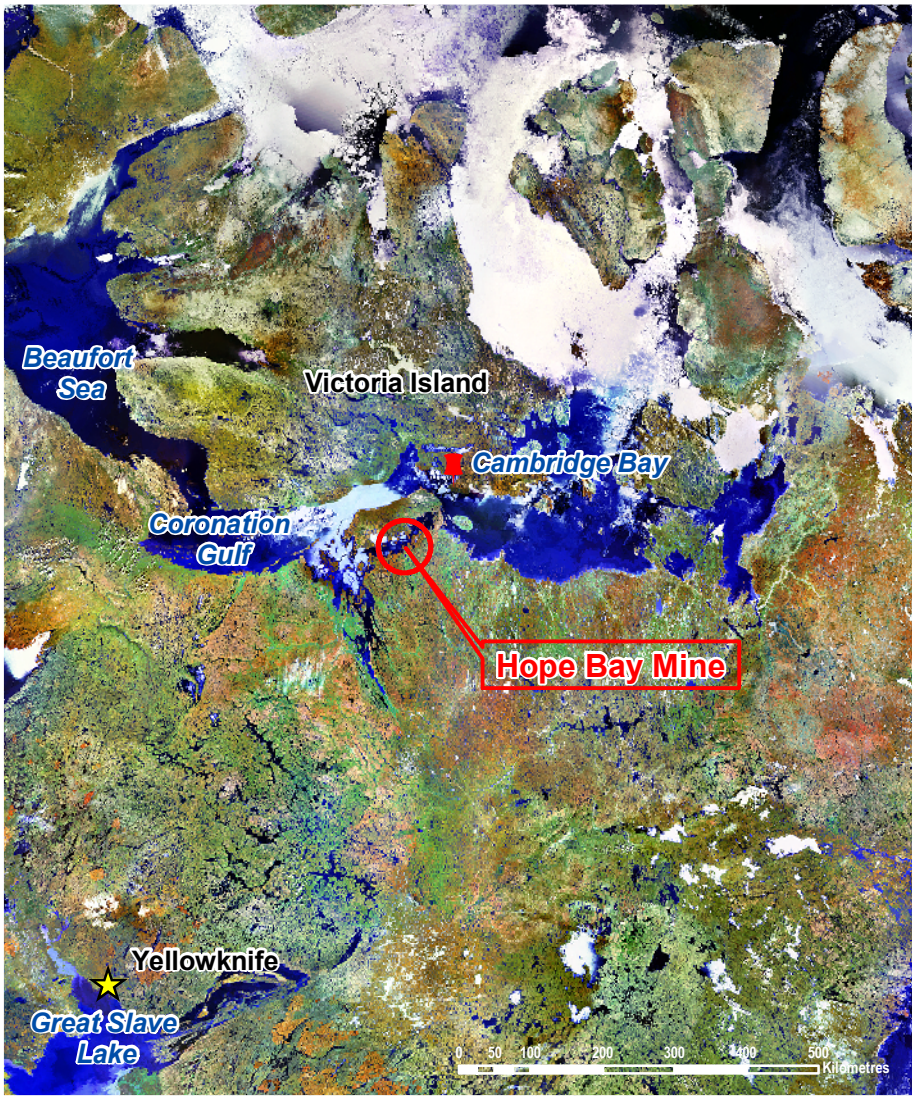

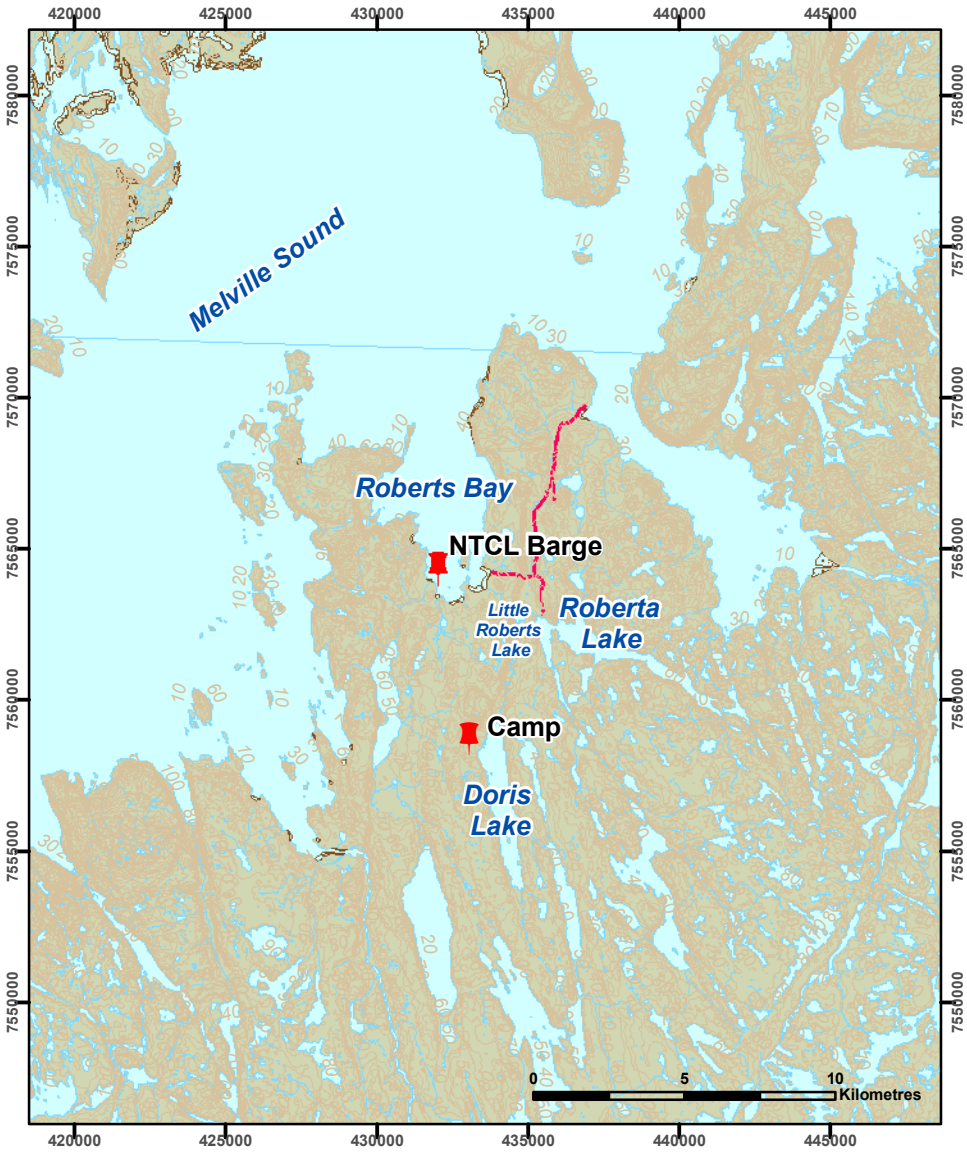

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Base data source:
NA 150 EartSat - ESRI Data and Maps
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ISSUED FOR USE

CLIENT
HORIZON NORTH
Logistics Inc

PROJECTION	DATUM
UTM Zone 13 N	NAD83

FILE NO.
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EBA Engineering Consultants Ltd.

HORIZON NORTH
CAMPS AND CATERING

Temporary Barge Camp Location Roberts Bay, Nunavut

PROJECT NO.	DWN	CKD	REV
V23201254	KMW	RH	0

OFFICE	DATE
EBA-VANC	June 30, 2010

Figure 1

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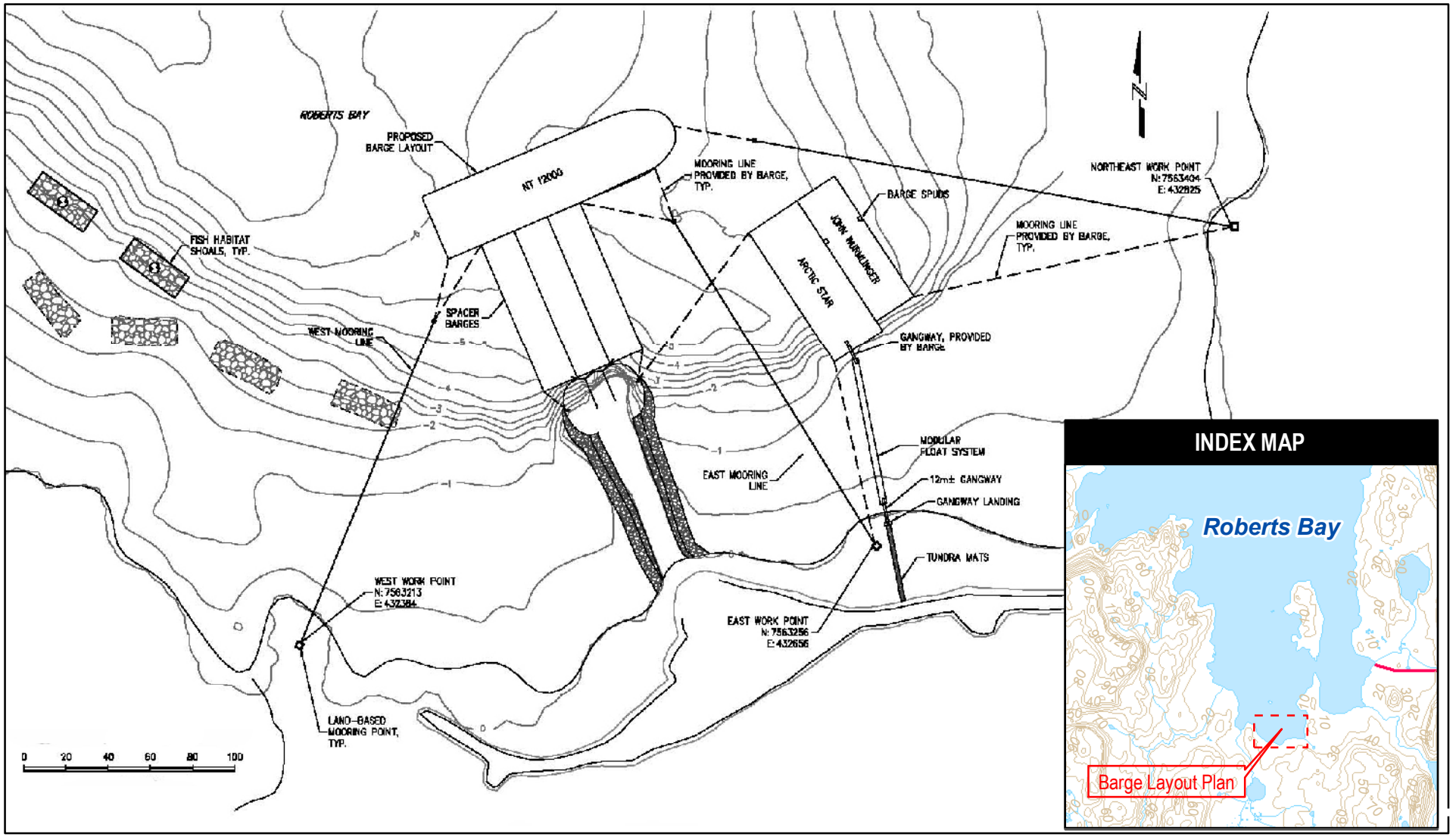

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HORIZON NORTH Logistics Inc

PROJECTION	DATUM
UTM Zone 13 N	NAD83

FILE NO.
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EBA Engineering Consultants Ltd.

HORIZON NORTH CAMPS AND CATERING

Barge Layout Plan

PROJECT NO.	DWN	CKD	REV
V23201254	KMW	RH	0

OFFICE	DATE
EBA-VANC	June 30, 2010

Figure 2

Photo 1
The Arctic Star (left) and John Wurmlinger (right) moored at Inuvik, May 29, 2010

These barges will be moored together on the east side of the existing jetty in Roberts Bay. They will be held in position with a combination of lines to shore based moorings points and the spuds on the John Wurmlinger. The barges are anticipated to be moored at this location from summer 2010 to late summer 2011.

4.1 WATER TREATMENT

The floating barge camps are self contained and do not require any water licencing from the Nunavut Water Board or others as fresh water is generated on the vessel.

The camps each have their own fresh water reverse osmosis units to supply potable water. Feed salt water from the sea will enter each unit at approximately 90 to 135 L/min and fresh water production from the feed stream is approximately 10% to 15%, or 10 to 20 L/min. The remaining feed water stream is returned to the sea. Feed water pump rates, and fresh water production varies with filter conditions, salinity, temperature, and membrane conditions. All fresh water produced is metered and recorded daily.

4.2 SEWAGE TREATMENT

Treated sewage effluent discharge for these 2 barge camps is proposed. It is understood that this activity would proceed under the provisions of the Arctic Waters Pollution Prevention Act (AWPPA) as they are marine units and will be temporarily moored in Roberts Bay.

Horizon North proposes to treat and process all sewage and grey water using a state-of-the-art Membrane Bioreactor (MBR) Sewage Treatment Plant (STP) housed in a single container, for the effective removal of BOD, TSS and other constituents to exceed all applicable regulatory discharge limits. Since the treated effluent will be generally comparable to clean, fresh water, Environment Canada indicated that it is not considered to be a deleterious substance and thus is not considered to be a deposit of a waste into the receiving environment.

Detailed specifications for the proposed MBR treatment system are provided in Appendix A. This treatment system does not use any chemicals for the treatment of sewage. All solids and sludge from the treatment plant will be collected in the plant and temporarily stored for future disposal at an approved landfill site.

The MBR treatment system will be installed on the John Wurmlinger and will service both accommodation barges. The MBR treatment system is designed for 100 people (equivalent to 25,000 L/d based on an average design flow rate of 250 L/person day). . The treated effluent from this plant will have BOD_5 less than 5 mg/L, TSS less than 1 mg/L, and turbidity less than 1 N.T.U., which exceeds the applicable regulatory discharge limits. In addition, the ultra filtration (UF) membranes, with a pore size of 0.04 um, provide an absolute physical barrier for the complete removal of fecal coliforms and 4-log removal of viruses.

The maximum long term personnel loading average for the camp is estimated at 50 persons for 10 months. Based on a “rule of thumb” estimate of 250 litres per person day, this would equal approximately 3,750 cubic metres of treated effluent. Based on past experience it has been demonstrated that 250 litres per person day is almost double the actual water usage in these barge camps, due to the use of vacuum sewage systems, water miser shower heads and low volume flush toilets. Therefore the total treated effluent discharge estimates are expected to be much less than the rule of thumb quantity noted. Treated effluent from the sewage plant will be metered and recorded.

Samples of effluent will be taken and tested before discharge, and regularly during the camp operations to ensure quality control of the treated effluent. All sample test results will be made available for verification of effluent quality. The sludge cakes (solids) produced by the MBR treatment system will be securely stored aboard the John Wurmlinger and transported to an approved northern landfill site such as the Inuvik landfill.

5.0 DESCRIPTION OF EXISTING ENVIRONMENT

Marine environmental studies sponsored by HBML and others over a number of years from 1996 to 2003 provide descriptions of the shoreline habitats, benthic invertebrates, fisheries resources, marine mammals, and avifauna (birds) of the Roberts Bay area (Rescan 1996, 2001; RL&L Environmental Services Ltd. / Golder Associates Ltd. 2002, 2003)..

The shoreline habitat of Roberts Bay was characterized in 2000 by Rescan (2001). The fish habitat along the southern shoreline of Roberts Bay was rated as generally good quality for fish and marine benthic organisms by Rescan (2001), based on assessments of nearshore areas and shoreline conditions. The substrate in this area was composed predominately of sand, with some cobble, boulder, and bedrock. The stream outflows around the mouths of Glenn and Little Roberts creeks, were considered to provide good to excellent habitat for fish and marine benthic organisms because of the presence of fine substrates that supported benthic growth and provided feeding areas for fish (Rescan 2001)

The invertebrate benthos of Roberts Bay was dominated by Polychaeta (segmented marine worms), Nematoda (round worms), Pelecypoda (clams), Cumacea, Isopoda and Amphipoda (crustacea). Polychaeta (lugworms, tube worms and marine bristle worms) contributed to more than 50% of benthic community total numbers. The composition of benthic communities was found to be typical for Arctic regions.

Based on the studies conducted, thirteen (13) fish species have been documented to occur in Roberts Bay. Of those, four of the species do not reside year round in the marine environment; they use the marine environment to feed primarily during the open-water period. These species include Arctic char (*Salvelinus alpinus*), lake trout (*Salvelinus namayacush*), cisco (*Coregonus artedi*), and least cisco (*Coregonus sardinella),* which typically represented < 1% of the total catch.

Of the resident marine species encountered, saffron cod (*Eleginus gracilis*) and capelin (*Mallotus villosus*) were the predominant species in the overall catch. Other marine species included Arctic flounder (*Liopsetta glacialis*), fourhorn sculpin (*Myoxocephalus quadricornis*), pacific herring (*Clupea harengus pallasi*), greenland cod (*Gadus ogac*), rainbow smelt (*Osmerus mordax*), and longhead dab (*Limanda proboscidea*). Although broad whitefish (*Coregonus nasus*) were not documented in Roberts Bay during the baseline studies, this species does feed in the ocean environment during the open-water period.

Directional movement data from a fyke net set in Roberts Bay indicated that similar numbers of saffron cod were captured in the east and the west bound nets throughout the sampling period; thus, these fish are likely utilizing the bay for rearing and feeding (Supporting Document C2, page 62). Of the large numbers of capelin encountered, all of these fish were captured in the east bound net. Although the timing of their capture coincided with the spawning period, the consistent direction of movement indicates that the capelin were not spawning near the location of the fyke net set, but were migrating through the area to spawning habitat located elsewhere (RL&L Environmental Services Ltd. / Golder Associates Ltd. 2002).

Ringed seals were the only marine mammal species identified during 1996 spring marine aerial surveys (Rescan 1996). Coastal surveys for birds and bird colonies were flown in August 2000. No bird colonies were found in Roberts Bay. However, numerous flocks of waterfowl, mostly moulting eider and Canada geese, were observed along the coast (Rescan 2001).

6.0 ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES

Potential environmental effects related to the temporary (approximately 1 year) moorage of the Horizon North accommodations barges (Arctic Star and John Wurmlinger) will be limited to:

- temporary shading of the marine offshore habitat;
- treated sewage effluent discharge (essentially fresh water) into the offshore marine environment;
- fishing by accommodations barge residents; and,
- potential effects of accidental fuel spills.

6.1 EFFECTS OF TEMPORARY SHADING

One of the main, but temporary effects will be the creation of a seasonally varying, shaded condition over the offshore marine habitat below the barges and floating gangway to shore for the duration of the moorage period. As previously indicated in Figure 2, the accommodations barges will be moored in two to six metres of water depth, seaward of the edge of the shallow, nearshore zone.

The shallow nearshore zone (<2m) freezes to the bottom each winter, and based on the results of previous marine biological studies in the area, the life on the seafloor is primarily limited to benthic infauna (worms and clams), and a few species of small crustaceans (amphipods, isopods and cumacea) that inhabit the surface of the seafloor. The substrate conditions in the area where the barges will be moored is dominated by sand and silt, and there is no reported indication of marine seaweeds being present at this location.

As a result, the temporary and seasonally varying shade condition created by the presence of the floating, moored accommodations barges and the floating gangway from the barges to the shore is not expected to trigger a HADD (incidence of Habitat Alteration, Disturbance or Destruction) as defined by the federal Fisheries Act.

6.2 EFFECTS OF TREATED EFFLUENT SEWAGE DISCHARGE

Treated sewage effluent discharge for these 2 barge camps is proposed. It is understood that this activity would proceed under the provisions of the Arctic Waters Pollution Prevention Act (AWPPA) as they are marine units and will be temporarily moored in Roberts Bay.

As previously indicated in Section 4.2, Horizon North proposes to treat and process all sewage and grey water using a state-of-the-art Membrane Bioreactor (MBR) Sewage Treatment Plant (STP) housed in a single container, for the effective removal of BOD, TSS and other constituents to exceed all applicable regulatory discharge limits.

Detailed specifications for the proposed MBR treatment system are provided in Appendix A. This treatment system does not use any chemicals for the treatment of sewage. All solids and sludge from the treatment plant will be collected in the plant and temporarily stored for future disposal at an approved landfill site.

The treated effluent from this plant will have BOD_5 less than 5 mg/L, TSS less than 1 mg/L, and turbidity less than 1 N.T.U., which exceeds the applicable regulatory discharge limits. In addition, the ultra filtration (UF) membranes, with a pore size of 0.04 um, provide an absolute physical barrier for the complete removal of fecal coliforms and 4-log removal of viruses.

Since the treated effluent will be generally comparable to clean, fresh water, Environment Canada has indicated that it is not considered to be a deleterious substance and thus is not considered to be a deposit of a waste into the receiving environment.

6.3 FISHING BY ACCOMMODATIONS BARGE RESIDENTS

As previously indicated in Section 5.0, a number of species of fish, including herring, flounder, cod, are present year-round and Arctic char, lake trout and cisco are present seasonally in Roberts Bay. To ensure that no effects occur to the limited fish resources of the area, HBML has instituted a No Fishing Policy for its employees and contractors.

6.4 POTENTIAL EFFECTS OF ACCIDENTAL FUEL SPILLS

All fuel stored aboard the two accommodations barges will be stored in secure fuel storage tanks approved for use by the Canadian Coast Guard. Horizon North's plan is to load sufficient fuel on board the barges such that there will be no need for refuelling to occur for the currently planned duration of the temporary accommodations contract. If refuelling is required such refuelling would be conducted by HBML in accordance with their corporate refuelling procedures. The risk of a fuel spill occurring into the marine receiving environment is exceedingly low, but if such an incident were to occur, the procedures outlined in Horizon North's Spill Contingency Plan would be immediately implemented. A copy of Horizon North's barge-specific Spill Contingency Plan is provided in Appendix B.

Birds are typically most vulnerable to the effects of a fuel spill, however, no significant concentrations of birds would be expected to be present in the area for most of the year. The short open water period is the time when a fuel spill could most potentially enter the waters of Roberts Bay. With the effective application of Horizon North's Spill Contingency Plan, no significant effects to the marine environment of Roberts Bay from a fuel spill incident would be expected to occur.

7.0 CUMULATIVE ENVIRONMENTAL EFFECTS

Cumulative environmental effects can result from the combination of environmental effects from a number of different developments and/or activities. In determining possible cumulative effects, the Canadian Environmental Assessment Agency recommends that three basic premises be considered:

- There must be an environmental, biophysical, social or cultural impact related to the project.
- The effect must be demonstrated to operate cumulatively, additively or synergistically with impacts from other projects or activities.
- The other projects or activities exist or are likely to be carried out and are not hypothetical.

As noted earlier, Horizon North proposes to temporarily moor two floating barge camps together at a location approximately 50 metres from shore in Roberts Bay, Nunavut (Figures 1 and 2) to support the development of shore-based facilities for Newmont Mining Corporation.

These barges will be moored together on the east side of the existing jetty in Roberts Bay. They will be held in position with a combination of lines to shore based moorings points and the spuds on the John Wurmlinger. The barges are anticipated to be moored at this location from summer 2010 to late summer 2011.

Minimal or negligible environmental impacts are expected to occur as a result of this stationary floating operation. All of the proposed activities will be of a highly localized, short term, and completely reversible nature. No residual impacts on water quality, wildlife or other aspects of the environment are expected to occur.

The only other activities that will be occurring in the Roberts Bay area will be limited shipping seasonal shipping activities associated with the jetty in Roberts Bay and some offshore floating fuel storage to service HBML's mining exploration operations. As a result no cumulative effects are expected to occur from the implementation of the proposed Horizon North accommodations barge program.

8.0 APPLICABLE REGULATORY REQUIREMENTS

Horizons North has not identified any permits that would be required in order for this activity to proceed. However, the barge camps will operate in compliance with all applicable regulatory requirements, as detailed below.

Arctic Waters Pollution Prevention Act

The discharge of the treated sewage effluent is subject to approval by Transport Canada in accordance with the provisions of the Arctic Waters Pollution Prevention Act and Regulations. Transport Canada has accepted Horizon North's plan for the processing of all camp sewage through the MBR treatment system and the discharge of the high quality treated effluent directly to the sea through a submerged outfall line as compliant with the applicable requirements (Appendix C).

Navigable Waters Protection Act

The two barges (essentially ships) will be moored offshore at a designated shallow water (~ 3 m deep) location in Roberts Bay where they will not present a navigational obstruction or barrier to the limited industrial vessel traffic that will operate in the Roberts Bay area during the summer months. As a result, the provisions of the Navigable Waters Protection Act, administered by Transport Canada, will not apply to this operation.

Fisheries Act Section 36(3)

Section 36(3) of the federal Fisheries Act prohibits the deposit of deleterious (toxic or harmful) substances into fish-frequented waters or in a place or under any conditions where it may enter fish-frequented waters. Environment Canada (Mr. Mark Dahl) indicated to EBA via telephone communications that since the highly treated sewage effluent would be essentially comparable to clean fresh water, the treated effluent was considered to be non-deleterious and thus would not constitute a deleterious substance as defined in Section 36(3) of the Fisheries Act.

Nunavut Air Quality Guidelines

The limited air emissions associated with conventional diesel power generation aboard the Horizon North barges are expected to be in full conformance with the applicable criteria of the Nunavut Air Quality Guidelines.

Nunavut Spill Planning and Reporting Regulations

A copy of Horizon North's barge-specific Spill Contingency Plan is provided in Appendix B.

9.0 CLOSURE

We trust that the information provided will assist with the review by interested parties of the proposed temporary accommodations barge mooring operation in Roberts Bay, Nunavut.

Based on EBA's previous experience with regulatory approvals for other marine operations in Canada's Arctic waters and our recent communications with Transport Canada and Environment Canada, it is our understanding that the proposed temporary barge mooring and effluent management approach is suitable, will have no adverse environmental effects and compliant with all applicable regulations.

Please contact the undersigned if you have any questions or concerns.

Sincerely,
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REFERENCES

Rescan. 1996. BHP World Minerals Hope Bay Belt Project Environmental Baseline Studies Report 1996. Prepared for BHP World Minerals by Rescan Environmental Services Ltd.

Rescan. 2001. 2000 Supplemental Environmental Baseline Data Report. Prepared for the Hope Bay Joint Venture by Rescan Environmental Services Ltd.

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RL&L Environmental Services Ltd. / Golder Associates Ltd. 2003. Doris North Aquatic studies – Final Report. RL&L/Golder Report No. 022-7009: 72 p. + app.

APPENDIX A

APPENDIX A DESCRIPTION OF MEMBRANE BIOREACTOR (MBR) SEWAGE TREATMENT PLANT

May 26, 2010

Subject: **100 P.E. (25,000 L/d) Containerized FII-MBR STP based on an average design flow rate of 250 L/man.d**

We are pleased to provide you proposal for **100 man camp (equivalent to 25,000 L/d based on an average design flow rate of 250 L/man.d) FII Membrane Bioreactor (MBR) Sewage Treatment Plant (STP) for removal of BOD_5, TSS, and other constituents up to the required discharge standards.** The treated effluent from this plant will have BOD_5 less than 5 mg/L, TSS less than 1 mg/L, and turbidity less than 1 N.T.U., which exceeds the local regulatory discharge limits. No other conventional technology can match this quality. In addition, the ultrafiltration (UF) membranes, with a pore size of 0.04 um, provide an absolute physical barrier, for a complete removal of fecal coliforms and 4-log removal of viruses.

The benefits that the containerized FII-MBR system offers include:

- Reliable and low maintenance system;
- Simple and easy-to-operate system;
- Superior effluent quality;
- Extremely small footprint, minimal noise and no odour;
- Fully automated and user-friendly remote monitoring;
- Fully portable and transportable;
- Proven system performance; and
- Plug-and-play package system ready for operation.

The proposal comprises the following sections such as system performance and design consideration; operation and maintenance; FII scope of supply and price.

1. SYSTEM PERFORMANCE AND DESIGN CONSIDERATION

FII-MBR STP is an MBR treatment technology that is simple, yet effective combination of an activated sludge biological treatment process with membrane filtration. UF membrane acts as physical barrier filter and provides absolute solid-liquid separation instead of conventional gravity clarification. This eliminates problems with sludge settling and separation and allows for design at much higher mixed liquor suspended solids (MLSS) concentrations (typically 8,000 to 18,000 mg/L vs. 2,000 to 4,000 mg/L in conventional activated sludge system). This results in a robust, versatile, and ultra compact wastewater treatment system.

The containerized FII-MBR system with 25,000 L/d capacity is housed inside a 53-ft modified high-cube shipping container - completely pre-assembled, pre-piped, pre-wired and pre-tested, ready for a quick site installation and start-up. The container needs only to be placed over a firm base of 10 ft x 56 ft size.

The containerized FII-MBR STP plant has the following characteristics:

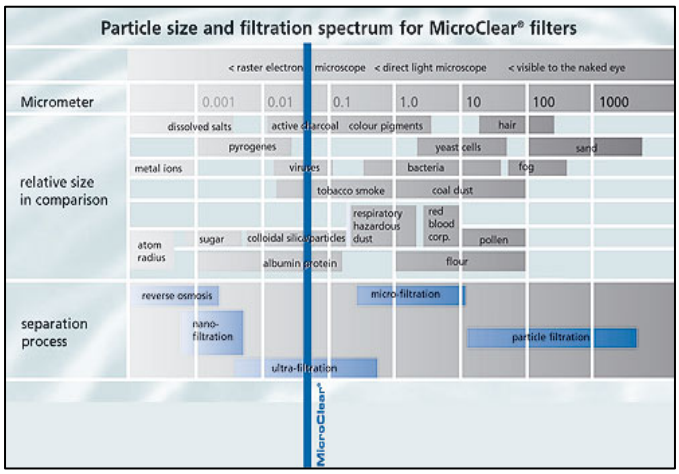
- Compact plant with a small footprint (10 ft x 56 ft)
- Comfortable working environment inside the container – requisite lighting, heating, and ventilation
- HDPE process tanks – no corrosion, and low shipping/operating weight of the plant
- Foam suppression system – mostly needed during startup
- Linear air compressors – light weight and low noise
- DO control for operation of air blowers for aeration tank for energy savings and process optimization
- Backflushing of the membranes – for a more thorough cleaning of the membranes
- PCL with touch screen – automatic operation with operator interface
- Telemetry – for remote monitoring and control

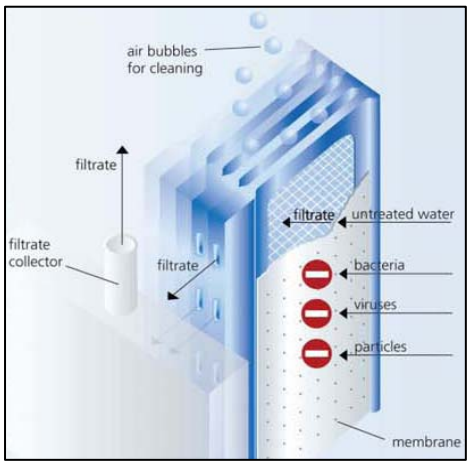
The high quality effluent from FII-MBR (please see below) is the best candidate for landscape irrigation / land seepage, toilet flushing, or surface water discharge, as per local regulations.

The picture on the left side (below) shows a settled sample of mixed liquor from the aeration tank. As shown, top portion of the sample is turbid. This would be of a typical effluent from a conventional sewage treatment plant. In contrast, the picture on the right side (below) shows the clean water effluent (permeate) from FII-MBR.

SEWAGE DURING TREATMENT **MBR TREATED EFFLUENT** **LEFT: RAW SEWAGE RIGHT: MBR EFFLUENT**

FII-MBR Membrane Filtration





1.1 FEATURES OF FII-MBR MEMBRANE MODULES

FII-MBR membrane modules provide the following unique advantages:

- Low electric power consumption - filtrate is drawn through and out of the filter by a slightly negative pressure (vacuum) of only 0.07 – 0.15 bar (1 to 2.2 psi)

- Membrane sheet-to-backing sheet welding by laser – perfect welding, ensures no ingress of dirty wastewater into the clean permeate

Laser-welded Flat-sheet Membrane during Pressure Test

- UF membranes with a molecular weight cut-off of 150k Dalton, equivalent to a pore size of 0.05 µm, leaving out any bacteria (1 – 2 µm), parasites (5 – 50 µm), with a bacteria removal of 99.9999% and virus removal of 99.99%
- No weekly/monthly maintenance cleaning required – as needed for hollow-fibre membranes
- Cleaning during operation by cyclic backflushing – probably the only backflushable flatsheet membrane modules in the marketplace
- Patented special design of backing sheet surface – thus no need for a gauze between the membrane and backing sheets to prevent adhesion
- FSD™ (full surface distribution) – full membrane surface utilization for permeate collection by multiple outflow points, thus no short-circuiting and even flux distribution

1.2 DESIGN BASIS

The FII-MBR system has been designed based on the following:

- Average flow : 100-man @ 250 L/man.d, 25 m^3/d
- Influent sewage temperature : 15 ^{0}C (minimum)
- FOG_T (total fats, oils, and grease) : Max. 10 mg/L
- Site altitude above sea-level : ≤ 500 m assumed (please inform if more than this)
- Power available at site (assumed) : 3-phase, 230 volts, 60 Hz; 1-phase, 110 volts, 60 Hz

Prohbited items:

- Hydrocarbons – lubricants, gasoline, diesel, etc.
- High amounts of FOG (fats, oils, and grease) - grease trap outside the kitchen must be checked regularly for its proper functioning
- Paints, solvents, silicones
- Bentonite, diatomaceous earth

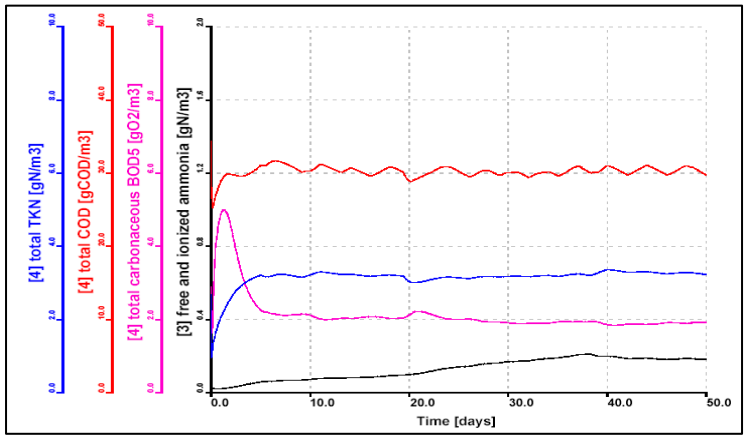
Influent Sewage Characteristics and Treated Effluent Quality

Parameters	Unit	Influent Sewage (assumed)	FII-MBR Effluent
pH		7.6	
BOD_5	mg/L	306	5
Turbidity	N.T.U.	-	1
TSS	mg/L	200	1
COD	mg/L	673	-
Alkalinity	mg/L as $CaCO_3$	> 200	-
Total hardness -	mg/L as $CaCO_3$	< 120	-

assumed			
Total dissolved solids - assumed	mg/L	< 1000	-

Process Design Methodology including GPS-X™ Modeling

A TYPICAL MBR ANALYSIS RESULT WITH GPS-X™



In addition to considering certain site constraints while designing a sewage treatment plant such as temperature, altitude above mean sea-level, flow rate & its variations, etc., the following information is also essential:

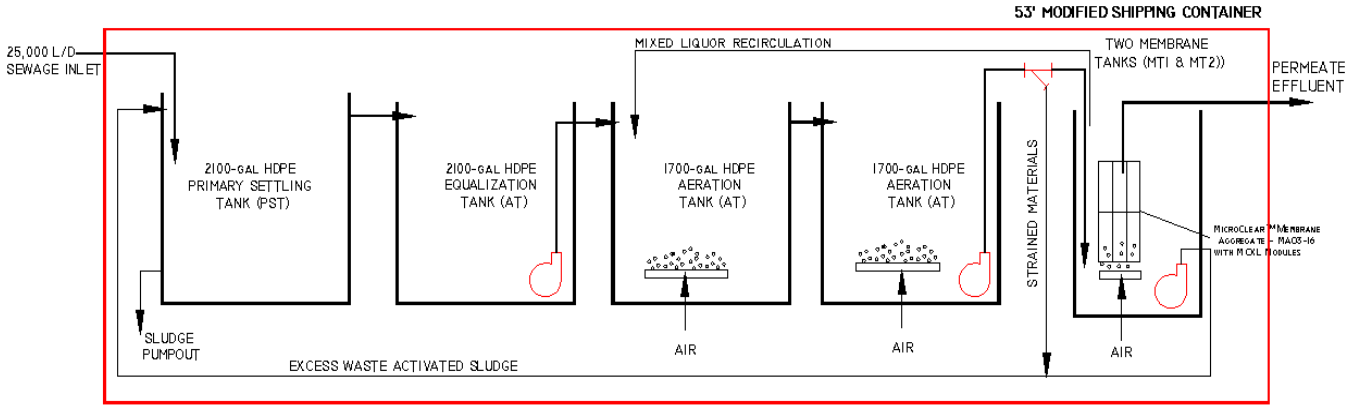
1. Influent sewage characteristics – BOD_5, COD, TSS and its fractions, etc. and their variations with flow
2. Treated effluent quality required - BOD_5, TSS, NH_4^+-N, TP, alkalinity, etc.

This information is then fed into a model which contain biological oxidation rate equations (latest) based on BOD_5, COD, TSS, TKN and its fractions, to calculate the size of the aeration tank and air requirements. [Others are using only BOD_5, and TSS, and **COD is ignored**.]

We also utilize GPS-X™, a proprietary software, for dynamic modeling of wastewater treatment plants. This helps during: plant design, startup when conditions are unsteady, and later, optimization, for better plant control and reduction in the operating cost. Please see above a typical result from GPS-X™:

1.3 PROCESS DESCRIPTION

Schematic flow diagram and Layout inside the 53-ft Container



PRELIMINARY TREATMENT

Grease trap (by others)

It is anticipated that the sewage will pass through a grease trap (or similar facility for grease/fat removal) if there is kitchen usage onsite to prevent excessive oil and grease from entering the treatment system.

Influent Pumping Station (by others)

Raw sewage will be delivered by others to an influent pumping station (by others). Submersible duplex pumps will pump the raw sewage to the treatment system.

Primary Settling Tank (2,100-gal HDPE)

Function: Settlement of settleable solids

Primary settling tank receives the raw wastewater. Due to the prevailing quiescent conditions, settleable solids settle under gravity. This greatly reduces organic loading on the biological treatment. The clarified effluent flows by gravity to the equalization tank.

The primary settling tank is also used to store waste activated sludge. The collected primary solids and waste activated sludge will be wasted from the primary settling tank and trucked off-site for disposal.

Equalization Tank (2,100-gal HDPE)
Function: Dampening the fluctuations in flow

Sewage flow varies much over a 24-hour period – higher in the mornings and evenings, and much less late at night. In order to dampen these fluctuations to the treatment plant, an equalization tank has been provided.

A submersible pump transfers sewage from EQ tank to the aeration tank.

SECONDARY BIOLOGICAL TREATMENT

Aeration Tanks (Two 1,700-gal HDPE tanks)
Objective: Oxidation of carbonaceous BOD

In the aeration tanks, fine-bubble diffused aeration system is installed to provide air to the microorganisms to meet the demand for biological oxidation and mixing requirement. A pump transfers mixed liquor to the membrane tank for filtration via a 1.5-mm strainer to remove hairy and fibrous materials. The screenings are collected in a pail and disposed off-site as per local regulations.

Membrane Tanks (*Two SS304 tanks*)
Objective: (i) Mixed liquor filtration, (ii) supplemental biological oxidation

Each SS 304 membrane tank contains a FII membrane aggregate (membrane modules complete with stainless steel housing, fine-bubble diffused aerators, and permeate piping). Vacuum pump connected with the aggregate draws clear water through the membranes under only a slight vacuum of 0.07 to 0.15 bar (1 to 2.2 psi). The permeate obtained is almost as clear as the city water.

Vacuum pump operates on a cyclic basis – for example, permeation for 9 minutes, and then stops permeation for about 45 seconds or so, to allow for backflushing (injection of clean water in the reverse direction), which thoroughly removes the particles precipitated inside the membrane pores. After this, permeation is restarted, and cycle is repeated continuously. Length of the cycle is adjustable to meet the particular plant operating conditions.
In addition to this, air diffusers placed below the membrane aggregate provide ***optimized air*** distribution for continuous scouring of the membrane surface to remove accumulated dirt layer. With air scouring, membranes are kept clean to the maximum extent during operation. Fine-bubble diffusers installed below the FII ™ membrane modules also provide for the efficient dissolution of oxygen into the mixed liquor, which complements the biological oxidation process occurs in the aeration tank.

Excess waste activated sludge is periodically pumped from each membrane tank to the primary settling tank for disposal.

Pumpout Chamber
Function: emergency overflow storage

The pumpout chamber is used as an emergency overflow storage tank in case if overflow occurs.

2.0 SYSTEM OPERATION & MAINTANENCE

FII-MBR is simple in operation and requires minimum maintenance, with no need for a full-time operator. However, a minimum level of upkeep will ensure that the plant operation is trouble-free and performs as designed. FII will provide System Operation and Maintenance (O&M) Manual for routine checks and troubleshooting, system maintenance including recovery cleaning.

In addition to upkeep, Filter Innovations will provide full technical support via telephone, e-mail and telemetry control.

Telemetry Control and Remote Monitoring

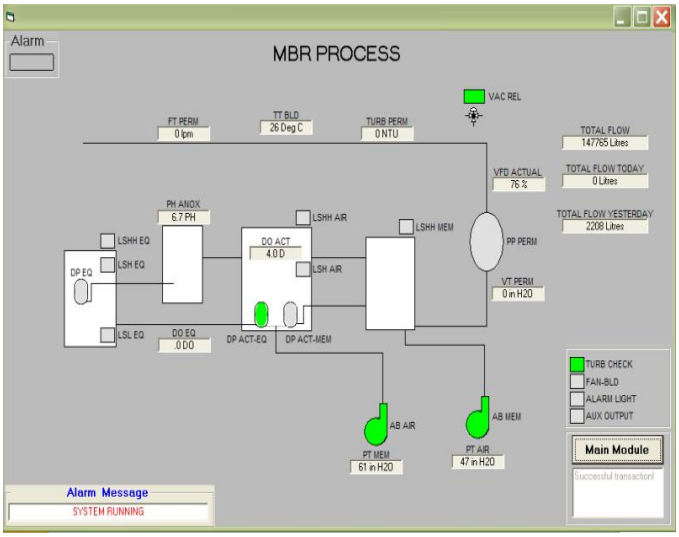
FII offers a customized telemetry control software program for use with FII PLC control panels to allow for complete automation of the FII-MBR STP as well as remote monitoring (DSL Ethernet Hookup required by others). Remote monitoring capability allows for real time analysis of critical system parameters to help troubleshoot and support local service people.

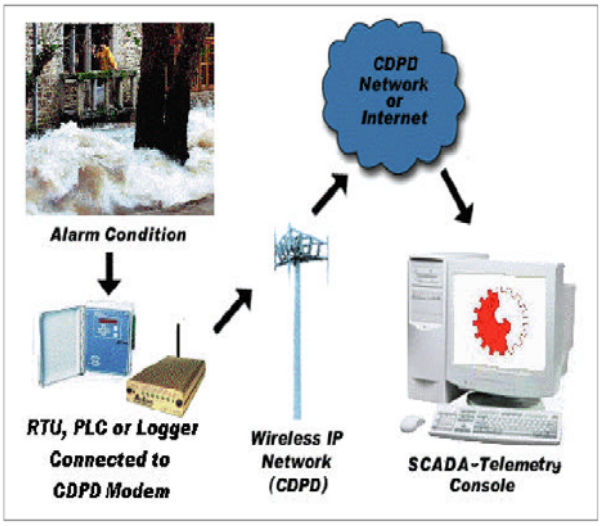
FII telemetry control is a low-cost, high-quality system that provides the user with the following features:

- Start / Stop / Alarm Resets
- Alarm history
- Runtime screens
- Customized process screen with P&ID display
- Entry for process set points
- Manual run, manual stop, automatic setting for each motor with REMOTE GUARD manual operating protection
- Daily data log summary report and historical data summary report
- Main data log for continuous data logging of analog signals at customer specified intervals
- Email reports

The basic system requires that the customer provide a standard computer network cable to the control panel. If the customer's computer network is accessible to the internet, this system can also be monitored from any internet enabled computer.

This SCADA-type solution is compatible with either land line modems or cellular modems, and is offered in three formats (email, direct link, and web link) to the meet the diverse needs of our clients.





3.0 SCOPE OF SUPPLY OF CLEATWATER ECO SOLUTIONS LTD

ONE 53-ft MODIFIED AND REFURBISHED HIGH-CUBE SHIPPING CONTAINER

Features of the container:

- Exterior steel siding
- Lifting eyes on the upper corners
- Gator Guard coated floor with fiberglass grating and 1/2" risers
- Painted interior and exterior
- Fully insulated floor, walls and ceiling
- Electrical distribution panel

- Two man doors with panic hardware
- Lighting
- Ventilation fan with thermostat and low profile hoods
- XP Propane heaters with thermostat
- Passive vent louvers with Low Profile hoods
- All influent, effluent, and drain lines plumbed to the outside of container
- Aluminum grating

The container is equipped with the following components:

ONE HDPE PRIMARY SETTLING TANK

Included for the tank:

- One 2,100-gal HDPE Closed top tank (87”D x 89”H), with 2” bottom drain
- Ball Float High High Level Alarm Switch
- Vent outside
- 2” sludge suction pumpout port

ONE HDPE EQUALIZATION TANK

Included for the tank:

- One 2,100-gal HDPE Closed top tank (87"D x 89"H)
- (Quantity 1) Zoeller M50 Series 1/3 HP Transfer pump
- Vent outside
- 2” emergency overflow to Aeration Tank

TWO HDPE AERATION TANKS

Included for the tanks:

- Two 1,700-gal HDPE Closed top tanks with 2" bottom drain (87"Dx 74"H)
- EDI Micro bubble air diffuser assembly
- (Quantity 10) - EDI 2" flexair micro bubble diffusers
- 304ss Pipe distributer system
- (Quantity 3) - Filter Innovation Non Clogging Foam Spray Nozzles
- (Quantity 2) Zoeller transfer pumps
- Amiad 2" Super brush away 1.5mm particulate filter
- Ball Float Level Switches
- Ball Float High High Level Alarm Switches
- Seametrics insertion magnetic flow meter
- Rosemount Process Control Unit:
    - Rosemount Dissoved Oxygen Sensor with DO Sensor maintenance kit

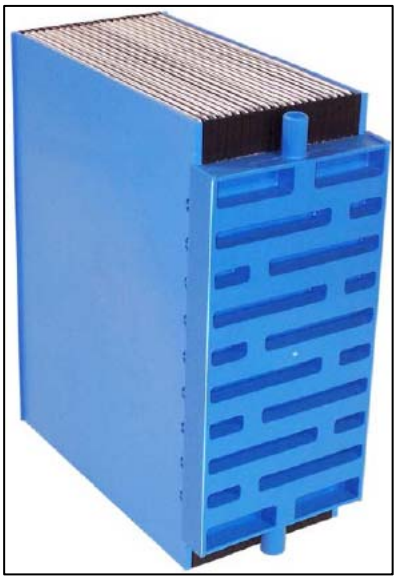
TWO SS 304 MEMBRANE TANKS with removable front access hatch and clear acrylic view window

SS Membrane Tank on the left side

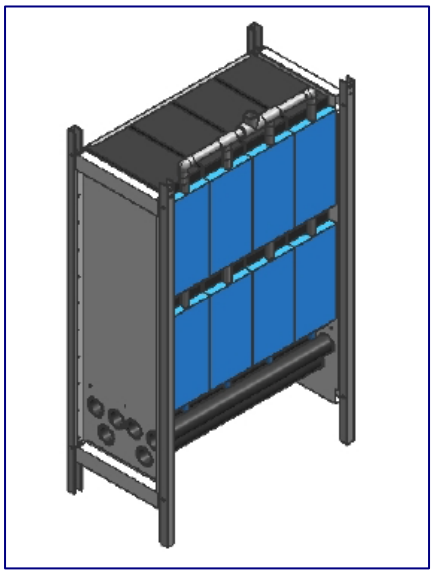
Included for the tanks:

- **Two FII MA03-16 UF membrane aggregates -** complete with SS housing, fine-bubble air diffusers, and permeate outlet piping. These aggregates are immersed in the liquid and operate under a slight vacuum of 0.07 to 0.15 bar
- Ball float level switches
- Ball float high high level alarm switches

FII MCXL Membrane



FII MA03-16 Membrane Aggregate



FII Membrane Aggregate

Type of membrane aggregate	**MA03-16**
Application	Membrane bioreactor
Type of membrane module	MCXL
Number of membrane modules	8
Membrane filtration area	56 m^2
Housing material	Stainless steel 1.4571
Dimensions	1000 mm L x 420 mm W x 1450 mm H
Weight	140 kg
Size of permeate connection	PVC DN 40
Required air flow	64 Nm^3/h
Size of air connection	G2”A
Type of air diffusers	Fine-bubble tube diffusers
Type of membrane	UF
Membrane material	PES
Separation limit	0.03 – 0.1 µm
Molecular weight cutoff	150 k Dalton
Pore size	0.04 µm
Membrane filtration (permeation) vacuum	0.1 – 0.15 bar negative pressure
Membrane backflushing (backwashing) vacuum	0.05 bar negative pressure
Mean flux	15 – 30 $L/m^2.h$ (0.36 – 0.72 $m^3/m^2.d$)
Maximum flux	50 $L/m^2.h$ (1.2 $m^3/m^2.d$)

ONE PERMEATE WITHDRAWAL SYSTEM

The system includes:

- Two P.D. Permeate Extraction Pumps
- VFDs for Flow Rate Control
- Vacuum 4-20 mA process transmitters
- (Quantity 2) Zoeller M98 series automatic 1/3hp water discharge pumps
- HDPE clean water / overflow pumpout tank

Treated Water Monitoring Instrumentation

- Rosemount Turbidity Sensor and transmitter

AIR BLOWERS FOR AERATON TANKS

Supply includes:

- (Quantity 14) 200L/min linear air compressors
- Pressure gauge
- Low pressure switch

AIR BLOWERS FOR MEMBRANE TANK

Supply includes:

- (Quantity 10) 200 L/min linear air compressors
- Pressure gauges
- Low pressure switches

CONTROL SYSTEM

PLC Series Direct Logic PLC based control panel with the following standard features:

- CUL certification
- NEMA-4 lockable panel enclosure
- Primary circuit protection with fused main disconnect
- Surge and lightning protection for control system
- Main power block
- Branch circuit protection with circuit breakers for motors
- Motor starters with overload protection
- Branch circuit protection with circuit breakers for powered devices
- VFD Controls for appropriate systems
- 24-V DC power supply
- One (1) duplex 15 Amp GFI receptacle
- Wired and installed
- Factory tested prior to shipping
- Power on light
- 6-inch User interface display touch screen
- Alarm reset button

- Emergency stop button
- Power Cord Holders with 50' cord on each reel
- Based on 2 source 230V 1P 30Amp feed

TELMETRY

- FII Standard Software - DSL Ethernet Hookup Required by others

4.0 Client's Scope of Supply and Work

- Firm base of 10 ft x 56 ft size for the 53-ft container
- Equipment offloading and placement according to the approved drawings
- Piping hookups to and from the MBR plant
- Electrical power supply to our electrical panel, lightning, earthing, etc.
- City water supply to the plant site for plant hydraulic test during startup and washing during onsite parameter testing
- Wastewater testing
- Any civil or other works required to complete the installation (except for equipment inside the container)
- Treated effluent and waste sludge disposal
- Grease trap to control entry of oil and greasy material to the MBR STP
- Anything not mentioned in Clause 3.0

5.0 Price

6.0 STARTUP

7.0 TERMS AND CONDITIONS

- Taxes, import duties, and offloading extra
- Prices are valid for 30 days

8.0 PAYMENT TERMS

9.0 DELIVERY PERIOD

Thank you for providing us the opportunity.

Sincerely,

Brad Wheeldon BSc, BEd.
Sales & Technical Consultant
ClearWater Eco Solutions Ltd.
Ph.: (403) 845-2742

Cell: (403) 846-5397
Fax: (403) 845-2349
E-Mail: bradw@clearwaterecosolutions.ca

APPENDIX B

HORIZON NORTH
Logistics Inc

Horizon Marine Inc.
170 Mackenzie Road, Po Box 1700 Inuvik NT X0E0T0
Ph :(867) 777 6000 Fax :(867) 777 6020

Spill Contingency Plan

Site Specifications:

The Arctic Star Barge and the John Wurmlinger camp barges will be moored in Hope Bay Nunavut from Summer 2010 until 2011. It will be operated by Kitikmeot Caterers and Horizon Marine Inc. (HMI) in support of the Newmont Mine construction during this period. The operating period for the camps will be both in open water conditions and during winter months with the barge frozen into the ice.

HMI will have a fuel spill response kit on board both vessels containing oil absorbent material, shovels, empty pails, poly to use as emergency liners, fire extinguishers, and containment berms. This equipment will be located in an accessable area known to the personnel responsible for camp maintenance and operations and ready for rapid deployment.

HMI has a general spill response plan for all operations (attached) and all aspects of this response plan will be followed at the Arctic Star and John Wurmlinger camps. In particular, preventative measues to reduce the potential of Spills and the proper procedure to respond to, and report a spill as well as contingency for cleanup.

We would emphasize that the possibility of a spill of either oil or effluent off the barge camp is very remote. The John Wurmlinger barge has a large storage capacity and can hold enough fuel for both camp barges. Fuel would be transferred from this barge to the Arctic Star via a one inch hose when required, using proper transfer procedures. The only fuel tank for the Arctic Star generators is a double walled 15,000 liter tank on the deck of the Arctic Star barge and it will only need to be refueled once a month. No other refueling operations are expected to occur. In the event of a fuel leak from the tank, or from the line between the generator and the tank it should be able to be contained on the deck.

HMI has put in place a fuel spill contingency plan as described below. There are three scenarios of spills that could possibly occur. These could be:

Fuel oil spill from the generator supply tank.

The Arctic Star barge has one fuel tank on board roe storage of generator fuel only. This tank is a 15,000 liter double walled fuel storage tank. No equipment is fueled from this tank, or on Arctic Star or John Wurmlinger barges. Fuel is either delivered to this tank via fuel truck approximately once per month on an as required basis, or will be transferred from the John Wurmlinger barge sitting next to it. When fuel is being transferred, a portable spill kit will be on hand in case of a spill.

All transfers will be done with one person monitoring the tank level while the driver stands by the fuel truck to stop flow immediately in the event of a spill; Portable spill containment berms will be placed under the truck while pumping to catch any possible fuel drips. Transfers from the John Wurmlinger barge will be conducted with 3 persons, one person on the pump, one person monitoring the tank level and one person monitoring the hose length as it will be approximately 150 feet on length. All persons doing the fuel transfers from the John Wurmlinger will monitor intrinsically safe hand held radios while transferring fuel to ensure clear communications.

Fuel lines extending to the generator from the fuel tank are a potential source leak outside the double wall, in the event of a leak of this nature the flow would immediately shut off by isolation valves and any fuel contained on deck or into a barge compartment if possible. Fuel flow from this tank is thought to be low as the fuel lines enter the tank from the top of the tank. Therefore free flow from a broken line is limited.

Any fuel spilled onto the ice would be contained by snow and ice berms and cleaned up by pumping, vacuuming with a vacuum truck, or any means available to pick up the fuel. In the event of a spill the ice will act as a barrier to prevent migrations of contaminants or over a large area. All snow and the surface layer of ice would be loaded onto gravel truck boxes and transported for disposal.

Spillage of untreated effluent from sewage plant or holding tank.

In the unlikely event of a spill of effluent at the Arctic Star it would be contained barge surface, Berms would be constructed to contain the effluent to as small an area as possible. The waste water treatment plant has a overflow in the event that it becomes overfilled or shuts down for any reason. This overflow will be directed into a pump well and directed back to a tank either on the Arctic Star or Wurmlinger. This pump station will be set in place in the event of a overflow condition, and controlled by a float switch to turn on the pump as required.

Spill Response Plan Steps:

Assess Situation: Make sure area is safe and pinpoint cause/source of spill.
Minimize: Use any emergency shutdown device, valve, or block leakage.
Contain: Use available resources such as spill kits, heavy equipment, to prevent migration of spill.
Secure: Place appropriate warning devices and barriers.
Report: Fill out spill report form and notify government authorities. **(867) 920-8130**
Cleanup: Initiate cleanup plan and disposal of contaminates at an approved location.

Horizon Marine Inc. General Spill Response Plan

Fluid transfer guidelines

Many spills occur during routine fueling, pumping, and other fluid transfer operations. Most of these spills can be avoided my paying attention and taking simple precautions. HMI has developed field-wide fluid transfer guidelines which are summarized below.

Check all vehicles and equipment if a leak is apparent, or there are other obvious problems with the equipment, stop the job and have repairs done. Surface liners or drip pans may be used to contain leaks for a short time during critical operations; however, liners are not an acceptable substitute for maintenance.

Park vehicles and equipment away from water bodies, tundra, and wildlife habitat. Do not park on the edges of the pad.

Position equipment so that valves, piping, tank, etc., are protected from damage by other vehicles or equipment.

- Verify that adequate surface liners and sorbents are on hand.
- Inspect hoses, connections, valves, etc., before starting any fluid transfers. Be sure that valves are in the proper position and each connection is tightened properly.

Before starting, check all tank and container levels, valves, and vents to prevent overfilling or accidental releases.

- Surface liners or drip pans are required under potential spill points.
- Maintain a constant line-of-sight with critical components throughout fluid transfer procedure. Be prepared to stop the transfer immediately if you notice any leak. Do not attempt to fix a leak while fluid is being transferred. Never leave fluid transfer operations unattended. After the transfer is complete, continue to take these precautions while breaking connections, when finished, check the area for spills. Report all spilled immediately to your supervisor and to the 24-hour Spill Report Line (867) 920 8130.

Liner Use procedure

Liners and/or drip pans are not a substitute for good maintenance. Any unit that is dripping or leaking must be repaired as soon as possible. The operating procedure for liner use is summarized below.

Liners and/or drip pans are specifically required as follows:

- Under all non-operated support equipment (heaters, compressors, generators, etc).
- During all fluid transfers, at all connection points, from the beginning of hook-up through disconnection.
- Under fuel/fluid storage containers

Outdoor tank farms are usually located in lined dikes that must be dewatered at breakup to maintain their storage capacity.

GNWT Spill reporting procedure

All spills or potential spills of petroleum products or other hazardous materials must be reported to the 24-hour spill report line to ensure that an investigation may be undertaken by the appropriate government authority.

Fill out the Spill Report form as completely as possible before sending the report, then report the spill immediately to Yellowknife using the **24-hour Spill Report Line (867) 920-8130**. Spill Report forms are available from your supervisor and must be filled out as completely as possible.

A follow up written report that includes a final estimate of spill amount, cleanup and recovery activities undertaken, a disposal plan for any contaminates, and the actions taken to prevent a future occurrence must be written and sent to Spill Report Line.

Non-Emergency Spills. Spills that are on the pad, contained, under control, small in volume, and can be cleaned up by the spiller or the local Spill Response Team, must still be reported.

Emergency Spills. Spills involving injuries, fires or safety hazards, uncontrollable or continuously releasing materials, blowouts, or spills into waterways must be reported to the appropriate emergency number,

Spill Definition/Impact

Any incident that releases a contaminant in to the environment can be considered a spill, and will be taken very seriously by HMI. The regulations that apply to spill prevention, reporting, and response are complex, and the penalties for non compliance are severe.

We must be able to respond quickly and effectively to any type of spill or emergency. Comprehensive spill prevention and contingency plan have been developed by HMI and our clients, and highly trained response teams are on call 24 hours a day. If necessary we can draw on resources from throughout the North and Canada.

Most of the spills at our operations are small drips and leaks onto gravel pads, from vehicles and equipment, but we are also prepared to respond to more serious spill events. All spills in our operations must be cleaned up to the satisfaction of our client, HMI and the appropriate regulatory agencies.

Every HMI worker should know how to prevent spills and what to do if a spill occurs. Contact your supervisor if you need more information about your specific duties.

Prevention is our first and most effective line of defense against spills and is everyone's responsibility.

Emergency Response Plan

In order to respond in an orderly and efficient manner during an emergency situation it is necessary for all personnel who may be involved in an emergency to be trained and advised of their role in advance.

The lead role, in any emergency, is dependent on the type and magnitude of the emergency. HMI, the client or the government may take the lead in an emergency.

All HMI employees and contractors must be aware of the nearest “Emergency Meeting Point” and “Emergency Assembly Area” to their work location.

The First Ad Centre can be reached by local telephone or by radio. If an emergency occurs in your area call it in to the radio operator/medic or to your supervisor.

Under no Circumstances should you put yourself at risk during an emergency, do only the things you are trained to do. All injuries must be reported.

Horizon Marine Inc.

170 Mackenzie Road Po Box 1700 Inuvik NT X0E 0T0

Phone 867 777 6000 Fax: 867 777 6020

Emergency Response Contact Phone Numbers

Inuvik Emergency Service Contacts

Inuvik Regional Hospital	Inuvik	(867) 777 8000
Inuvik RCMP	Inuvik	(867) 777 1111
Inuvik Fire Department	Inuvik	(867) 777 2222
Paul Winje- HSE Coordinator	Main Office	(867) 777 6005 or (867) 678 5224 cell
Willie Moore- Marine Operations	Main office	(867) 777 6012 or (867) 678 0050 cell
Deb Karst – Office Manager	Main office	(867) 777 6000 or (867) 678 0469

Tuk Emergency Service Contacts

Tuk Nursing Station	Tuktoyaktuk	(867) 977 2321
Tuk RCMP	Tuktoyaktuk	(867) 977 1111
Tuk Fire Department	Tuktoyaktuk	(867) 977 2222
EGT Camp manager and Logistics	Doug Saunders	(867) 977 7017 or (867) 678 0045 cell

Hay River Emergency Service Contacts

H.H. Williams Memorial Hospital	Hay River	(867) 874 7100
Hay River RCMP	Hay River	(867) 874 1111
Hay River Fire Dept.	Hay River	(867) 874 2222

Fuel Spill Emergency Response Contacts

Willie Moore–Marine operations	Inuvik	(867) 777 6012 or (867) 678 0050 cell
Paul Winje – HSE Coordinator	Inuvik	(867) 777 6005 or (867) 678 5224 cell

APPENDIX C

APPENDIX C EMAIL RECORDS WITH TRANSPORT CANADA AND ENVIRONMENT CANADA

Rick Hoos

From: Topping, Paul [paul.topping@tc.gc.ca]
Sent: Friday, June 04, 2010 1:33 PM
To: Rick Hoos
Cc: Dahl,Mark [Wpg]; Warren Murray
Subject: RE: Proposed Treated Sewage Discharge from Horizon North barges in Roberts Bay, Nunavut

Hi Rick

Thank you for providing me this information.

For sewage discharges, the location of these camps places them under the Arctic Waters Pollution Prevention Act.

The systems you describe below do not use chemical biocidal treatment, rather this would be filtered sewage water, as such they exceed (perform better than) the discharge quality allowed for sewage under the Arctic Waters Polution Prevention Act.

We are satisfied with the arrangements you have described. Again for your information, text of the Arctic Waters Pollution Prevention Act may be found at http://laws.justice.gc.ca/eng/A-12/index.html

Kind regards,

Paul Topping

From: Rick Hoos [mailto:rhoos@eba.ca]
Sent: Friday, June 04, 2010 3:10 PM
To: Topping, Paul
Cc: Dahl,Mark [Wpg]; Warren Murray
Subject: Proposed Treated Sewage Discharge from Horizon North barges in Roberts Bay, Nunavut

Paul:

Further to our recent discussions on this matter, for Transport Canada's consideration, attached please find an information package regarding the proposed discharge of treated sewage effluent from two floating barge camps to be moored in Roberts Bay of the Arctic Ocean later this summer for approximately one year.

Horizon North proposes to treat and process all sewage and grey water using a state-of-the-art Membrane Bioreactor (MBR) Sewage Treatment Plant (STP) housed in a single container, for the effective removal of BOD, TSS and other constituents to exceed all applicable regulatory discharge limits.

On behalf of Horizon North, we would greatly appreciate Transport Canada's views on the acceptability of the proposed plan for treatment and discharge of the treated sewage effluent into the sea at Roberts Bay, Nunavut.

We look forward to hearing from you in the near future and please advise if you have any questions,

Thanks,

Rick

Rick Hoos

From: Dahl,Mark [Wpg] [Mark.Dahl@EC.GC.CA]
Sent: Friday, May 28, 2010 10:48 AM
To: Topping, Paul; Rick Hoos
Subject: RE: Question

Rick,
From what I can determine the activity you describe would be regulated through the Canada Shipping Act 2001 and the Arctic Waters Pollution Prevention Act which are both administered by Transport Canada. A good contact for questions regarding shipping is Paul Topping at Transport Canada. I have provided his contact info below but note the best way to get in touch with him is via email.

Paul Topping
Manager, Environmental Protection
Transport Canada
Telephone: 613-991-3168
Email: paul.topping@tc.gc.ca

Good luck

Mark Dahl
Environment Canada
Tel - 204 983 4815
Fax - 204 983 0960

From: Topping, Paul [mailto:paul.topping@tc.gc.ca]
Sent: Friday, May 28, 2010 12:23 PM
To: Dahl,Mark [Wpg]
Subject: RE: Question

Hi Mark,

Generally for sewage discharges, rules would fall under CSA 2001 if they are south of 60°N. North of 60°N, a mix of CSA2001 and AWPPA apply.

CSA 2001 pollution prevention regulations provides for conditions on the discharge of sewage and if treated it can be discharged at dock. If untreated must be distances from shore. If the dock is located in a designated sewage area, the sewage must be treated to more advanced standards under the regulations.

The CSA 2001 regulations do not apply to ship safety control zones under the AWPPA, which have a southern limit that follows generally 60°N in Quebec and the Arctic Circle (~67°N) for the Nunavut, NWT, and Yukon.

The new AWPPA has extended its application to all waters north of 60°N, but did not expand ship safety control zones. Meanwhile, the CSA 2001 Pollution Prevention Regulations continue to apply to waters in the territorities south of the Arctic Circle.

AWPPA allows the discharge of raw sawege.

Cheers,

Paul

From: Dahl,Mark [Wpg] [mailto:Mark.Dahl@EC.GC.CA]
Sent: Friday, May 28, 2010 11:17 AM
To: Topping,Paul [NCR]
Subject: Question

Hey,

Activity:
Operators want to discharge treated sewage effluent from a barge tied to a marine dock - Discharge effluent will likely meet 36(3).

Question:
This is not DAS since it constitutes normal operations of a vessel and there is no loading for disposal so who would regulate this activity?

My assumption is that it would be TC either through CSA or AWPPA.
Having said that I think AWPPA specifies that sewage has to be released a certain distance from land ..?

Would AWPPA put restrictions on it if the effluent meets Fisheries Act requirements?

Would CSA apply?

Thanks

Mark Dahl
Ocean Disposal Specialist | Specialist du Programme d'immersion de mer
Environmental Protection Operations | Activités de protection de l'environnement
Environmental Stewardship Branch | Direction générale de l'intendance environnementale
Environment Canada | Environnement Canada
150 -123 Main St. | 123 Rue Main, piéce 150 Winnipeg (Manitoba) R3C 4W2
mark.dahl@ec.gc.ca
Telephone | Téléphone - 204 983 4815
Facsimile | Télécopieur - 204 983 0960
Government of Canada | Gouvernement du Canada
Website | Site Web www.ec.gc.ca