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Presentation to the Mackenzie Valley Environmental Impact Review Board Regarding the Thor Lake Project



**MVEIRB Public Hearings
Yellowknife NT**

**Environment Canada
February 2013**

Overview

Issues of Concern:

- Freshwater Environment
- Terrestrial Environment
- Proponents Commitments

- Closing Remarks

Freshwater Environment



Freshwater Environment

Issue 3.1: Site-Specific Water Quality Objectives (SSWQOs)

Concern/Rationale:

- Objectives for nutrients and major ions have not been presented.
- Several Drizzle Lake parameters are predicted to exceed proposed SSWQO.
- Need objectives for ammonia, nitrate, nitrite, phosphorus, and sulphate which are reflective of background conditions and CCME, keeping the approach that the CCME guidelines are not to be used as “pollute up to” numbers.

Freshwater Environment

Recommendation EC 3.1:

EC recommends that:

- Water treatment be retained as a contingency to ensure the proposed objectives can be met;
- Where proposed objectives are based on toxicological derivation, and represent increases over baseline concentrations, ongoing monitoring and periodic toxicity testing should be used to identify any potential changes to the aquatic ecosystem before they become impacts;

Freshwater Environment

Recommendation EC 3.1 (cont'd):

- SSWQO for iron be revised to reflect seasonal concentrations;
- SSWQO for zinc be revised to reflect background conditions;
- Objectives be identified for ammonia, nitrate, nitrite, phosphorus and sulphate which are based on preventing toxicity and eutrophication.

Freshwater Environment

Issue 3.2 Monitoring Surface Water

Concern/Rationale:

- Monitoring data should be used to inform management response, and set thresholds which would trigger adaptive management.
- To reliably detect change, data must be comparable over time and by location.
- Further discussion is needed on endpoints and conditions which will trigger mitigation measures.



Freshwater Environment

Recommendation EC 3.2:

EC recommends:

- That a review of baseline data and sampling methods be done prior to operations, and comparability be confirmed. If inconsistencies or gaps (e.g. baseline fish data) are identified, further sampling should be done prior to effluent discharge.
- Action levels should be tied to thresholds for biological indicators as well as water quality and quantity.

Freshwater Environment



Issue 3.3: Monitoring - Groundwater

Concern/Rationale:

- Magnesium and sulphate concentrations going into the groundwater aquifer and flowing towards Great Slave Lake have been modeled.
- Baseline or background groundwater quality will continue to be monitored.
- Delineation of the effluent plume would be aided by installation of monitoring wells adjacent to but outside the predicted plume path. A full suite of parameters should be monitored.

Freshwater Environment

Recommendation EC 3.3:

EC recommends:

- That the proposed monitoring, data comparisons to predictions, and model review and calibration be carried out.
- In addition, EC recommends that there be monitoring wells installed which will confirm the edge of the plume has been defined.
- That background groundwater quality be monitored.

Terrestrial Environment



Terrestrial Environment

Issues:

- Monitoring waterfowl and waterbird use of tailings management facilities
- Avoiding incidental take of nests and eggs of migratory birds
- Mitigation and monitoring for species at risk
- Disturbance to migratory birds, risk of spills and spill response along the barge routes in Great Slave Lake

Monitoring waterfowl and waterbird use of tailings management facilities

Concern/Rationale:

- Waterfowl and waterbirds may be exposed to contaminants if they use the tailings management facilities
- The Proponent has predicted that tailings will be non-toxic and will not pose a health risk to birds and other wildlife.
- The Proponent has committed to regular monitoring of the quality of the supernatant water in the Nechalacho Tailings Management Facility and will employ deterrent devices if monitoring demonstrates there may be a risk to birds.



Monitoring waterfowl and waterbird use of tailings management facilities

Recommendation EC 4.1(a):

EC recommends that Avalon Rare Metals Inc. monitor the concentrations of contaminants of potential concern within supernatant water in the tailings management facilities at Thor Lake and discourage birds from using these areas through regular monitoring and employment of deterrent devices until it can be demonstrated that contaminant concentrations do not pose a health risk to birds.

Avoiding incidental take of nests and eggs of migratory birds



Recommendation EC 4.2:

- Avoid clearing land during the migratory bird breeding season (May 7 – August 10);
- If clearing or disturbance cannot be scheduled outside of the nesting season, areas should be thoroughly surveyed for active nests
- Include EC's recommended setback distances for songbirds, waterfowl / waterbirds, and species at risk in the Wildlife Effects Mitigation and Management Plan
- Develop nest-specific guidelines and procedures in cases where it is not feasible to use the recommended setback distances to protect a nest
- Monitor nests to determine success of mitigation measures and provide results of monitoring in wildlife monitoring reports;

Mitigation and monitoring for species at risk

Terrestrial Species at Risk	Nechalacho (Thor Lake)	Pine Point
Whooping Crane		X
Common Nighthawk	X	X
Olive-sided Flycatcher	X	X
Yellow Rail		X
Horned Grebe (Western population)	X	
Peregrine Falcon	O	X
Short-eared Owl	O	O
Rusty Blackbird	X	X
Woodland Caribou (Boreal population)		X
Wood Bison		X
Wolverine	O	O
<i>Barn Swallow</i>	O	O
<i>Little Brown Myotis</i>		O
<i>Northern Myotis</i>		O

X = Detected during baseline surveys

O = Potentially occurring

} Recently assessed by COSEWIC

Mitigation and monitoring for species at risk – Yellow Rail

Concern/Rationale:

- Listed as a species of Special Concern Schedule 1 of the *Species at Risk Act*
- No specific surveys were conducted
- for Yellow Rail in the Pine Point LSA
- A gramminoid fen providing potentially suitable habitat occurs along the haul road
- Potential for habitat disturbance from haul road upgrades and sensory disturbance from truck traffic



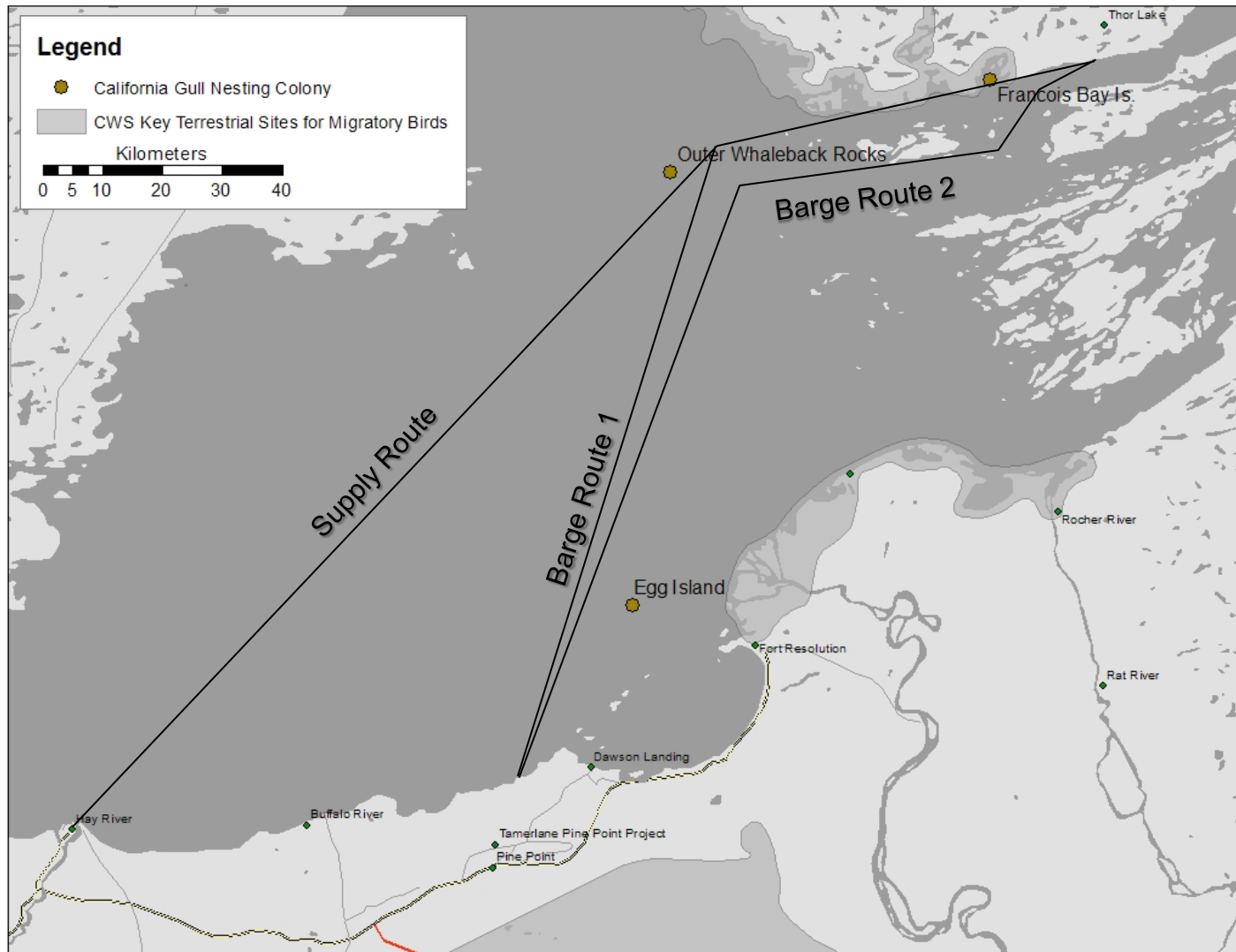
Mitigation and monitoring for species at risk – Yellow Rail



Recommendation EC 4.3(d):

- Additional Yellow Rail surveys should be carried out at the Gramminoid Fen along the haul road between Great Slave Lake and the Hydrometallurgical Plant prior to upgrading the road.
- Surveys should be carried out using established protocols for this species
- If Yellow Rails are detected, the Proponent should work with EC to determine appropriate mitigation and monitoring measures.

Disturbance, risk of spills and spill response along the barge routes in Great Slave Lake



Disturbance, risk of spills and spill response along the barge routes in Great Slave Lake

Recommendation EC 4.5:

- Avalon Rare Metals Inc. advise barge operators of the location of known California Gull nesting colonies along the proposed barge routes in order to avoid disturbance to nesting birds and to prioritize these areas for protection in the event of a fuel spill.



Proponent Commitments



Proponents Commitments

Issue 5.1: Commitments for Management Plans

Concern/Rationale:

- Avalon has committed to developing and implementing Air Quality and Emissions Monitoring and Management Plan and Incineration Management Plan in consultation with Environment Canada and the GNWT.
- To formalize these commitments, Environment Canada requests that the Board include the development and implementation of these Management Plans as a measure.

Proponents Commitments

Recommendation EC-5.1:

- EC recommends that the Board include of all the commitments made by Avalon, including the incineration management plan and the air quality monitoring and management plan, as a Board measure.

Closing Remarks

- EC is of the opinion that the conclusions drawn by Avalon are, in general, supported by the analysis. As well, EC acknowledges and appreciates the effort that Avalon has, and will continue to, invest in monitoring.
- Furthermore, the additional monitoring requested will ensure that project related impacts can be detected and adaptive management decisions are based on accurate baseline information.

THANK YOU

