# WHALE TAIL PIT WHALE TAIL POLIC ASSOCIATION THE FUTURE OF THE MEADOWBANK MINE TO STANLE OF THE MEAD





# PART vi- MARINE ENVIRONMENT るかりっちとしていってんしくくののいし

TECHNICAL MEETINGS – DAY 1 – APRIL 28, 2017 Λ ⊂ ヘ < ( ト ら ) ら ( ト ら ) ト

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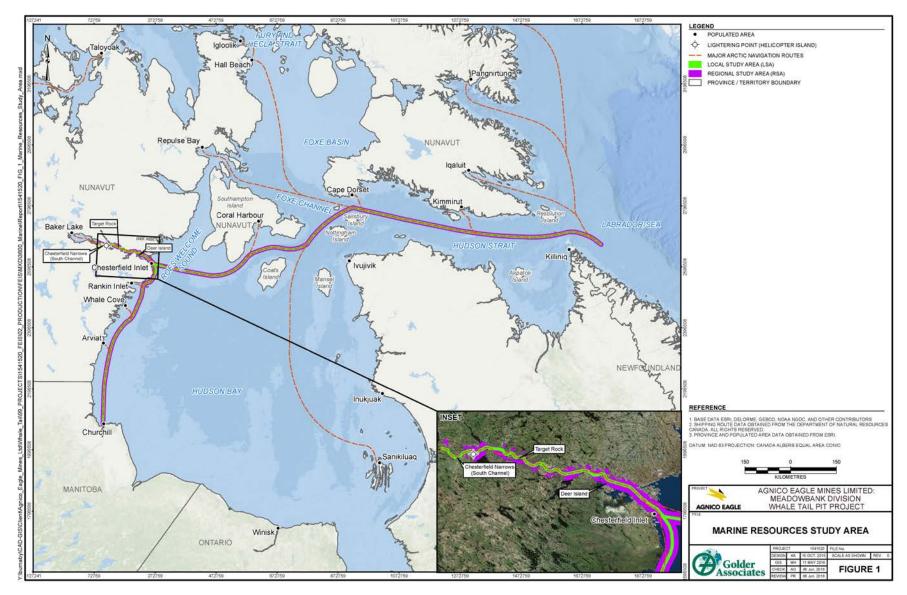
Whale Tail - NIRB Project Certificate and NWB Type A Water Licence Amendments

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Appendix 8-ht

Site-specific Water Quality Objective - Arsenic







- Valued Components and Other components assessed:
  - Marine Water Quality
  - Marine Fish
  - Marine Mammals
  - Marine Birds
- Inuit concerns:
  - Marine wildlife abundance and distribution, migration patterns
  - Breeding areas
  - Critical habitat features (e.g., walrus haulout locations)
  - Harvesting patterns
  - Effects of climate change on marine wildlife populations and on harvesting activities
  - Effects of shipping on marine wildlife

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- Potential effects assed were those associated with marine shipping activities
  - Vessel transportation in the shipping corridor within the assessment boundaries (Hudson Bay, Hudson Strait and the channel of Chesterfield Inlet);
  - Ship lightering activities (ship-to-ship transfer / loading).
- Shipping between July and early October
- Majority of dry cargo delivered to Baker Lake from Becancour, Quebec (3 to 6 cargo shipments/year)
- Up to three cargo shipments per year also occurs between the Port of Churchill and Baker Lake
- Volume of cargo is anticipated to remain consistent with current shipping requirements

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#### **Summary of FEIS Results:**

Potential effects assessed:

- potential mortality/reduced health due to exposure to accidental fuel spills (all VCs)
- loss/degradation of habitat due to altered water quality from potential accidental fuel spills (all VCs)
- mortality and injury risk due to collisions with vessels (marine mammals)
- change in behaviour due to underwater noise from Project vessels (marine mammals)
- potential mortality/injury risk from collision with vessels due to sensory disturbance from ship lighting (marine birds)
- change in behaviour due to sensory disturbance from in-air noise and ship lighting (marine birds)
- cumulative scenarios of above effects

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#### **Summary of FEIS Results:**

#### Mitigation:

- Shipping Management Plan
  - full-time MMSO onboard Project vessels
  - speed restrictions (<14 knots)</li>
  - safe approach distances from marine mammals
  - wildlife sightings record-keeping, ship lighting modifications
  - adherence to ballast water regulations
- Shipboard Oil Pollution Emergency Plan (SOPEP) or Shipboard Marine Pollution Emergency Plan
- Shipping route was selected to avoid key marine habitat areas for migratory birds, migratory bird sanctuaries, and known important bird areas

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#### **Summary of FEIS Results:**

#### **Accidental Spills**

- Minor diesel spill:
  - Result in temporary localized exceedances of CCME water quality guidelines
  - Potential acute or chronic effects within immediate area of the spill
- Major diesel spill:
  - Measurable effects in excess of water quality standards
  - Potential mortality
- Likelihood is considered low (unlikely) for both minor and major scenarios provided prescribed industry-standard prevention and response measures are in place
- Oil spill modelling in the area provides a maximum conservative period of up to 48 h after which 99% of spilled fuel would have dissipated

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#### **Summary of FEIS Results:**

Collisions with vessels (marine mammals)

- Shipping route overlaps with summer habitat for killer whale, beluga whale, and narwhal
- Core summer concentration areas for beluga whale and narwhal are outside the local study area and regional study area
- To date, no vessel strikes on marine mammals have been recorded since the start of the Meadowbank Mine
- The low vessel speeds that prevail during operations will greatly reduce the likelihood of ship strikes on marine mammals

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# MARINE ENVIRONMENT



## **Summary of FEIS Results:**

Underwater noise from Project vessels (marine mammals)

- Based on available literature, marine mammals will either:
  - habituate to vessel sounds and remain in area, or
  - leave temporality and return once the noise has subsided.
- Changes in behavior are considered temporary and reversible with no effects at the population level anticipated

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#### **Summary of FEIS Results:**

Collision with vessels and behavioural disturbance from in-air noise and ship lighting (marine birds)

- Mitigation is expected to be effective (e.g., shielded lights)
- Probability of a fatality or injury from a collision with vessels due to lighting is considered unlikely
- Lightering operations area is located away from important birds' nesting and breeding areas
- No considerable aggregations of birds in this area have been observed
- Day-light hours operations and reducing illumination during non-operation hours

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#### **Summary of FEIS Results:**

- No significant impacts on marine fisheries productivity, or structure and function of self-sustaining and ecologically effective marine wildlife populations relative to natural factors occurring over the same period of time and space
- Scale of combined impacts from the Project pathways, independently or cumulatively with other Reasonably Foreseeable Future Development (RFFDs), will not be large enough to result in irreversible changes at the population level
- The Project should not have a significant adverse impact on the continued opportunity for traditional and nontraditional use of marine resources in the region

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