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Tamerlane Ventures Inc's Pine Point Pilot Project

Mackenzie Valley Environmental
Impact Review Board

EA 0607-002

October 16, 2007
Fort Resolution, NWT

EA 0607-002-DM





Presentation Overview

- How has INAC been involved in the Environmental Assessment Process?
- Technical Analysis Summary
- Response to IR # 0607-002-42: Closure and Reclamation
- Consultation
- Overall Conclusions



Photo courtesy of MVEIRB



INAC's Participation in the Tamerlane Ventures EA

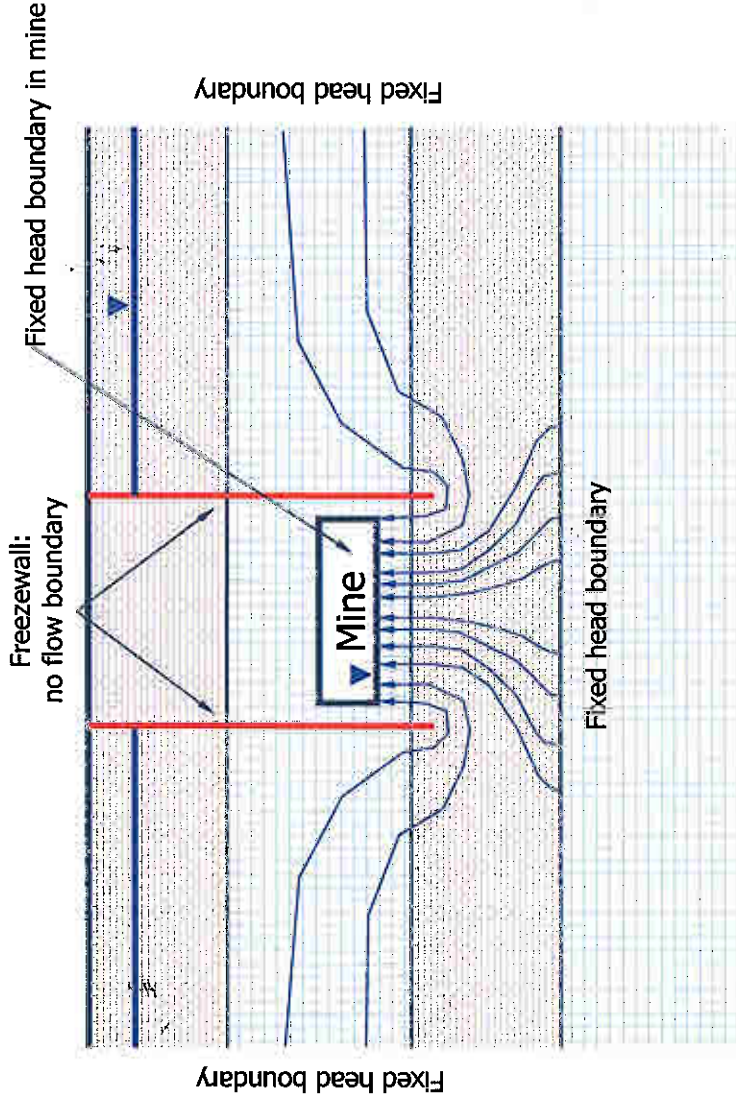
- Reviewed Developers Assessment Report (DAR) and Revisions
- Attended and participated in Technical sessions in Hay River, July 17 and 18, 2007
- Requested additional information through the Information Request process and submitted responses to IR# 0606-002-42 Closure and Reclamation Policy in the Northwest Territories
- Submitted a Technical Report on September 21, highlighting outstanding areas of concern for the proposed project



Photo courtesy of MVEIRB



IR#46 - Mine Inflow Evaluation

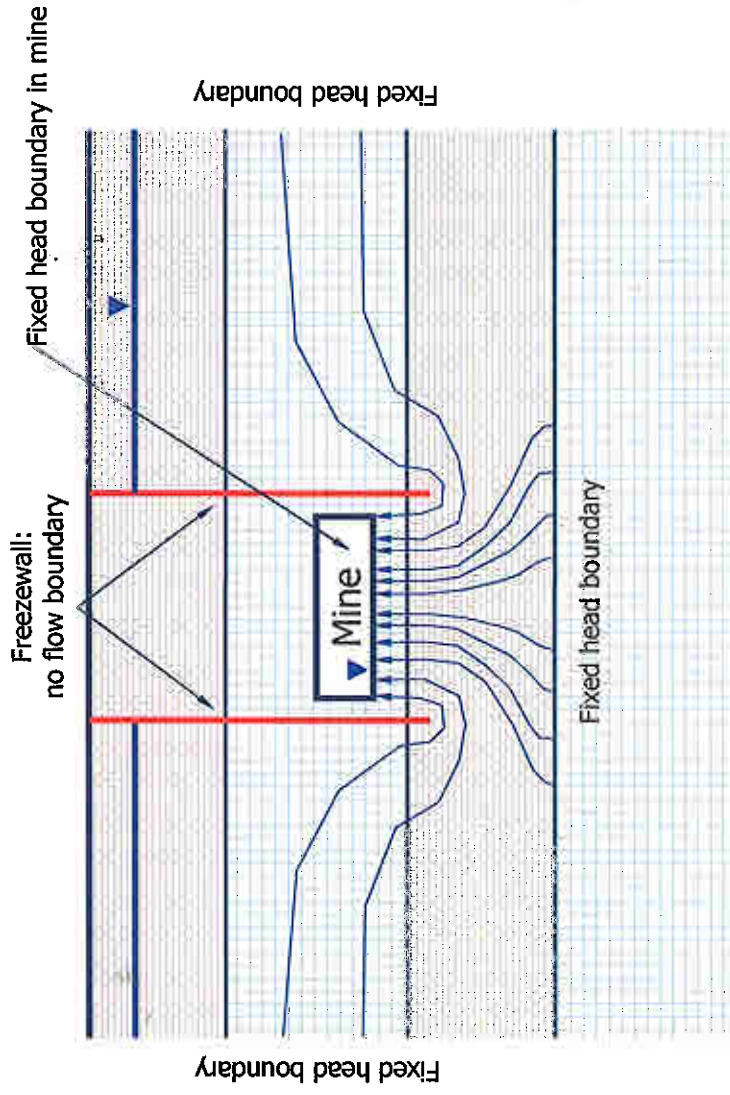


A reliable estimate of mine inflow is required to:

- Determine the amount of water that will be pumped out of the mine
- Determine the quality of water being discharged to the injection well
- Evaluate the impact of water disposal at the site



IR#46 - Mine Inflow Evaluation

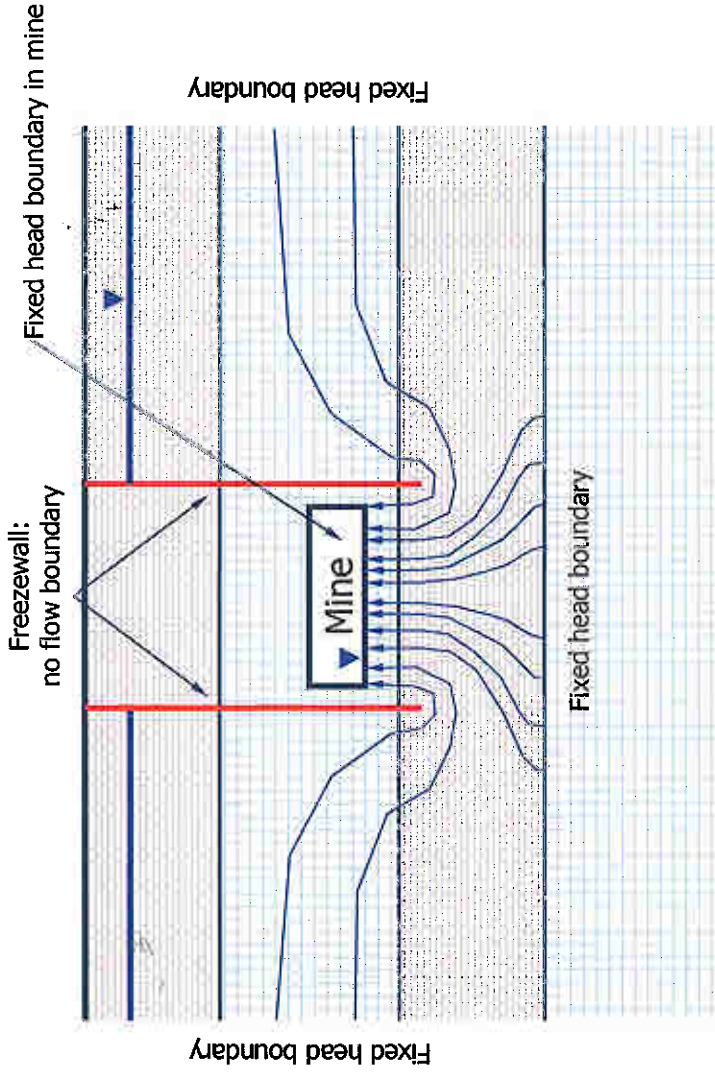


Current mine inflow analysis is incorrect because:

- Model assumptions used in analysis do not reflect actual site conditions and lead to under-estimate of inflow
- Sensitivity analysis indicates errors, reducing confidence in reliability of results



IR#46 - Mine Inflow Evaluation



Recommendation

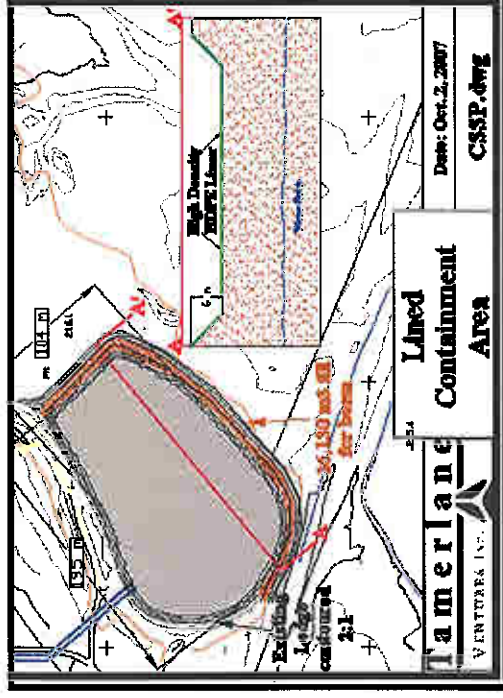
Reanalyze mine inflow to include:

- a) reasonable lateral boundaries
- b) reasonable lower boundary
- c) wider range of Pine Point hydraulic conductivities



IR#47 - Injection Well Contingency

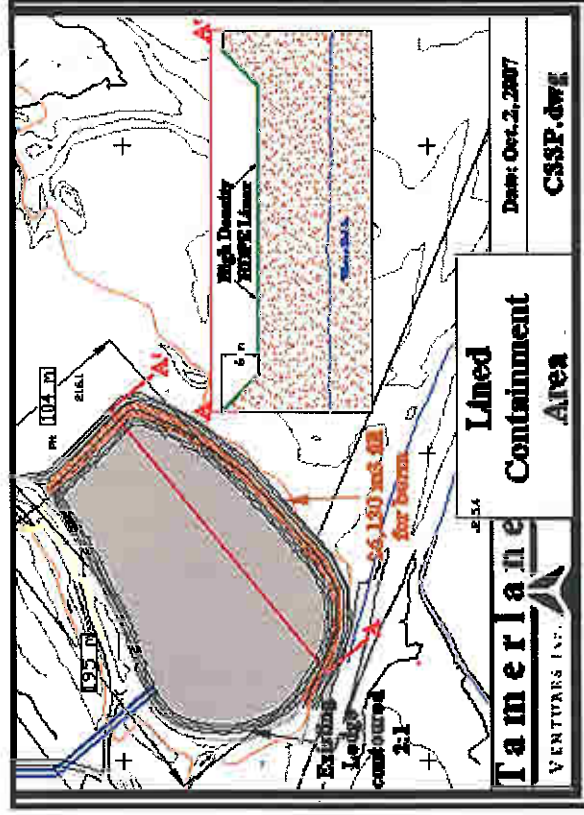
- **Tamerlane proposed a lined containment area**
 - Lined pond will contain water that exceeds discharge standards
 - Pond designed for ~ 4 day containment (less if flow is high)
 - Stored water to be treated and discharged to injection well(s)



- **Not environmentally preferred alternative**
 - Pond has insufficient capacity to allow time to respond
 - Pond may overflow or have operational problems (esp. in winter)
 - Pond adds ~1 hectare disturbance to project
 - Requires cleanup and reclamation after mining



IR#47 - Injection Well Contingency

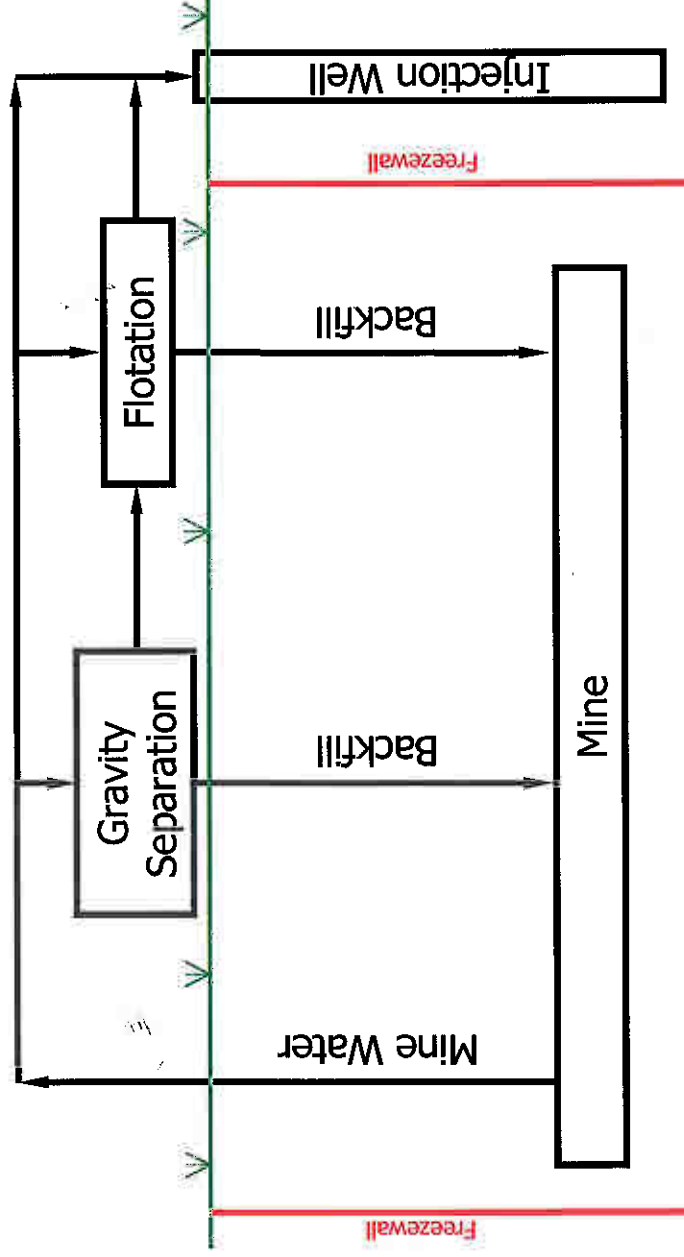


Recommendation

- a) INAC is not convinced that a sediment pond is necessary. Tamerlane should present rationale and necessity for using sediment pond
- b) Investigate the option of using an in-line de-silting and in-line water management system (if needed)



IR#53 – Froth Flotation Impact

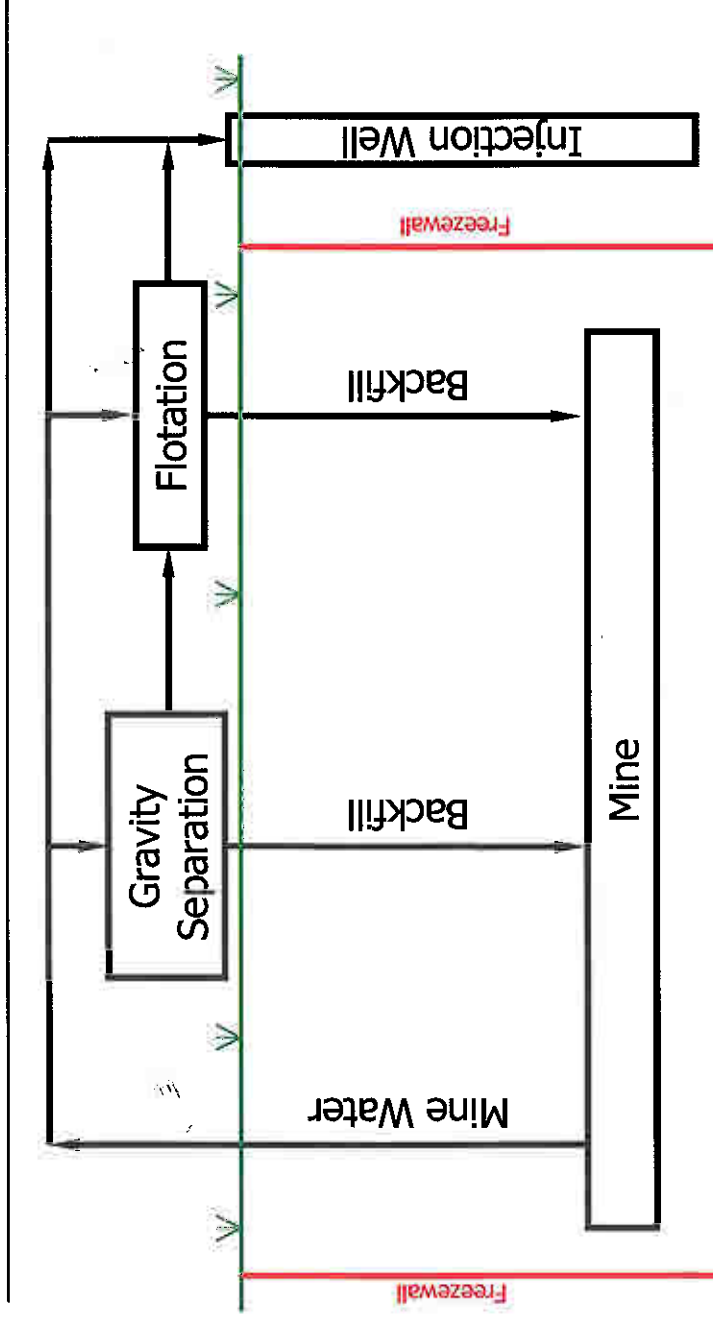


Froth flotation

- Improves metal recovery by “floating” desired minerals out of ore
- Adds ~22 tons per day of reagents, chemicals, and metals to process
- Some of these reagents and chemicals will be discharged into the injection well.



IR#53 – Froth Flotation Impact

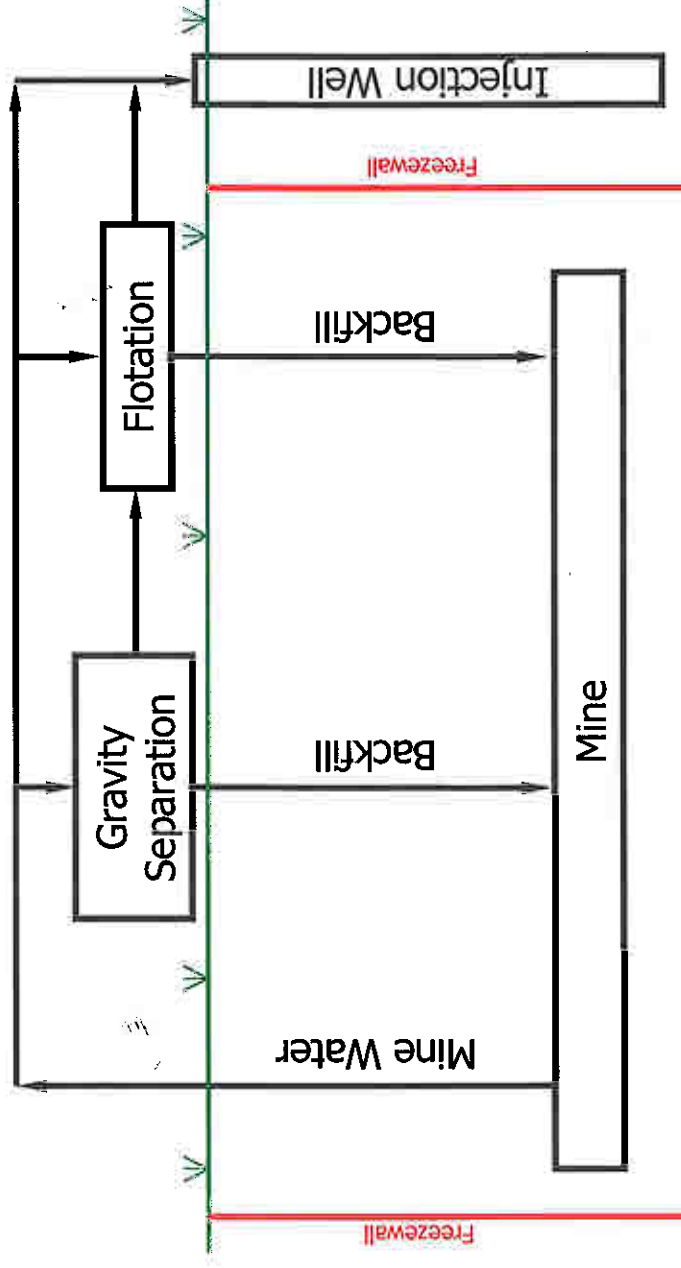


Impact of using these reagents on the discharge water quality has not been properly assessed

- Will change process and disposal water quality
- Metal scavenging proposed, but not demonstrated
- Process water quality (TDS, sulfate, metal) not correctly computed



IR#53 – Froth Flotation Impact



Recommendation

- a) Reanalyze release rate of metals (esp. zinc, copper and lead)
- b) Reanalyze release rate of dissolved major species (esp. TDS, sulphate, sulphide)



IR#49 - Discharge Water Quality

Discharge water quality

- Needed for evaluation of impact of discharge water from the project on the environment
- Necessary to evaluate need for treatment

Current discharge quality estimate incorrect

- Water supply (groundwater) is not properly considered
- Flotation process water quality is not properly considered
- Effect of mine inflow range is not properly considered

Recommendation

- Re-evaluate the end-of-pipe concentrations of all constituents from all inflows or support geochemical interactions to reduce metals**
- Include detailed computational support for results**



IR #51 Closure and Reclamation

Closure and Reclamation Plan (CRP)

- Tamerlane should work towards developing a specified end land use
- The plan should include specific and measurable closure criteria

Recommendation

- Injection wells should be capped and plugged with low permeability slurry, freeze pipes should be removed where possible**
- Include and define measurable criteria for revegetation and groundwater monitoring**
- Consult INAC 2007 Mine Site Reclamation Guidelines**



Information requested from INAC by MVEIRB during EA process

IR #0607-002-42

regarding

Closure and Reclamation Policy in NWT

Identify provisions in the current reclamation bonding policy that protect the people of the Mackenzie Valley from cases where a sudden and unforeseen closure occurs (whether that be due to lower ore values, economic or technical failure of a mine, or fiscal insolvency of the parent corporation).



Closure and Reclamation Policy in the NWT

- Mine site reclamation should reflect the collective desire and commitment to operate under principles of sustainable development, including the “polluter pays” principle.
- Every new mining operation should be able to support the cost of reclamation.
- Adequate security should be provided to ensure the cost of reclamation, shutdown, closure and post-closure, is born by the operator of the mine rather than the Crown.
- Estimates of reclamation costs, for the purposes of financial security should be based on the cost of reclamation work done by a third party contractor if the operator defaults.



Summary – Technical Analysis

What will the discharge water quality be at the site?

Dependant on:

- Mine inflow prediction
- Injection well water disposal
- Froth Flotation
- Discharge water quality prediction



Summary - Technical Analysis

- INAC is satisfied with the developers responses and commitments to technical report topics not mentioned in this presentation. Additional detail will be required in the regulatory phase.
- Based on INAC's review of information provided to date, we have not identified any potential adverse impacts that cannot be properly mitigated through the land use permit and water license conditions set by the Mackenzie Valley Land and Water Board.



Consultation

- INAC views consultation that occurs during the EA process as procedural aspects of Crown consultation.
- Consultation undertaken by MVEIRB can form part of, and be taken into account for, the purposes of Crown consultation.
- INAC, as part of the Crown, is committed to ensuring that duty to consult, and where appropriate accommodate, is met.



Consultation cont.,

- INAC and the other Responsible Ministers review the specific EA process and the Report of EA to determine whether additional consultation is required by the Responsible Ministers prior to making their decision regarding the particular recommendations contained in the Report of EA
- INAC-NWT Region continues to work with Aboriginal groups on its interim approach to Crown consultation



Concluding remarks

- INAC will provide a security estimate of the reclamation costs for the project to the MVLWB if the project proceeds to the permitting phase.
- The MVLWB will then determine the size of security deposit to be posted by the developer and will include the appropriate conditions in the land use permit and water licence.
- INAC is satisfied with developers responses and commitments to technical report topics not mentioned in this presentation. Additional details will be required at the regulatory phase.