

# **LUTSEL K'E DENE FIRST NATION**

**SUSTAINABLE DEVELOPMENT BASED ON DENESOLINE  
BELIEFS AND TRADITIONS**

**PUBLIC HEARING FOR THE ENVIRONMENTAL  
ASSESSMENT OF THE JAY PROJECT (EA1314-01)**

**SEPTEMBER 14-16, 2015**

## **Day 1**

- Air quality
- Socio-economic impacts and monitoring
- Use of Traditional Knowledge
- Climate change
- Comment on the regulatory process

## **Day 2**

- Caribou – cumulative effects
- Waste Rock Storage Area – caribou impacts

## **Day 3**

- Meromixis in Jay Pit
- Waste Rock Storage Area - seepage

# AIR QUALITY

## **Northwest Territories Ambient Air Quality Standards:**

- “...sets standards for the maximum concentrations of CO, PM2.5, O3, NO2, SO2, and TSP acceptable in ambient air throughout all of the Northwest Territories (NWT).”
- “The standards will be used to determine the acceptability of emissions from proposed and existing developments”

# AIR QUALITY

## **Northwest Territories Ambient Air Quality Standards:**

- The GNWT has confirmed that the NWT Ambient Air Quality Standards are specifically applicable to this project.
- The GNWT has indicated that legally binding regulations are being developed, but has not provided a timeframe.

# NORTHWEST TERRITORIES AAQS vs. WHO AIR QUALITY GUIDELINES

Parameter	NWT Ambient Air Quality Standards	World Health Organization Air Quality Guidelines
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	24 hour mean: <b>28</b>	24 hour mean: <b>25</b>
NO <sub>2</sub> (µg/m <sup>3</sup> )	Annual mean: <b>60</b> One hour mean: <b>400</b>	Annual mean: <b>40</b> One hour mean: <b>200</b>
SO <sub>2</sub> (µg/m <sup>3</sup> )	24 hour mean: <b>150</b>	24 hour mean: <b>20</b>

# AIR QUALITY

## **World Health Organization Air Quality Guidelines (2005):**

- “The WHO air quality guidelines (AQGs) are intended for worldwide use”
- “epidemiological evidence indicates that the possibility of adverse health effects remains even if the guideline value is achieved”

# AIR QUALITY

## Section 7 (Air Quality) of the DAR:

- Significant impact defined as: “Predicted concentrations are above the AAQS for the NWT and exceedances of the relevant criteria are widespread, continuous, and occur well-beyond the Project area” (DAR Section 7.6.1.2)
- Developer does not consider exceedances significant if they are “short-term or medium-term in duration” (DAR Section 7.6.1.2)

***Recommendation:*** LKDFN recommends that any exceedance of the Ambient Air Quality Guidelines be considered a significant effect.

***Recommendation:*** LKDFN recommends that the GNWT complete legally binding air quality regulations as soon as practicable.

***Recommendation:*** LKDFN recommends that the Developer prepare a dust management plan, including a comprehensive monitoring program that includes lichen sampling and details about dust suppression efforts at site.



# SOCIO-ECONOMIC IMPACTS

*“Overall, it is expected that the Project will have a net-positive effect on the socio-economic environment in the NWT, and LSA communities, maximizing economic, employment and educational benefits, while minimizing potential negative impacts on well-being, physical infrastructure and NTLU.”* - Jay Project DAR, Section 14.9

# SOCIO-ECONOMIC IMPACTS

- It is very difficult to quantify socio-economic trends within the community of Lutsel K'e due to lack of data collection
- Mining benefits are not immediately evident
- These are among the most important impacts for the community of Lutsel K'e, yet not nearly as much effort goes into monitoring them
- Residents are not convinced that conditions are improving

# SOCIO-ECONOMIC IMPACTS

## **Ekati Socio-Economic Agreement:**

- Most targets not met, drastic action required
- No direct reporting on the objectives and indicators (*Communities and Diamonds* does not address them directly)
- Meetings between the GNWT and the Developer are kept secret

***Recommendation:*** LKDFN recommends more stringent monitoring and stronger commitments to the SEA objectives.

***Recommendation:*** LKDFN recommends a comprehensive monitoring plan for SEA objectives be developed for each of the affected communities in collaboration with the leadership in each community. This plan should clearly describe the methodology used for measuring each indicator within the community, as well as explicitly assigning accountability for each monitoring activity.

***Recommendation:*** LKDFN recommends a report of all meetings between the GNWT and the project proponent regarding socio-economic impacts be shared with all interested parties, omitting any proprietary information.

***Recommendation:*** LKDFN recommends a clear and explicit discussion of the SEA objectives in every edition of the Communities and Diamonds report. Where progress towards the achievement of an objective is determined to be lagging, there should be a list of clear and concrete measures being implemented to address this shortcoming.

# TRADITIONAL KNOWLEDGE

- LKDFN highly values traditional knowledge (TK)
- LKDFN would like to see TK as influential as Western science
- LKDFN values the Developer's efforts to incorporate TK, but they are not adequate
- LKDFN sees several areas for improvement

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<b>6</b>	<b><u>ENVIRONMENTAL ASSESSMENT APPROACH</u></b>	<b>6-1</b>
6.1	Introduction	6-1

### 7.2.4 Summary of Local and Traditional Knowledge

Information for five groups of Aboriginal peoples whose traditional lands overlap the Ekati claim block is provided in the Traditional Land Use and Traditional Knowledge Baseline Report (Annex XVII). Local and traditional knowledge with respect to air quality has been considered in the Traditional Land Use and Traditional Knowledge Baseline Report, as summarized in this subsection.

Important effects pathways that were identified as of concern include wildlife, vegetation, fish and water, and impacts to air quality in general.

As noted in the Traditional Land Use and Traditional Knowledge Baseline Report, concern exists that effects from the Project could include dust affecting animal migration (e.g., caribou), small furbearing animals, birds, hatching birds and birthing animals, vegetation, fish (and specifically in the Lac de Gras area), plants and water (and specifically plants and water to the east of development activity). Avoidance of the Project by local game due to dust was raised as a potential effect of the Project, as was accumulation or deposition of dust in water.

7-37



Developer's Assessment Report  
Jay Project  
Section 7, Air Quality  
October 2014

The original planning of the Project included a larger lakebed drainage area, and community concerns over possible air quality impacts from the Project at this planning stage were taken into account by Dominion Diamond in the change to make the Project footprint much smaller. Mitigations such as continuation of existing practices for dust suppressant application and speed limits on roads at the Project also take into account community concerns of possible dust emissions from the Project, and the air quality assessment included the mitigation effects of dust suppression and speed limits in the modelling.

### 7.3 Pathway Analysis



### 8.3 Water Management Summary

### 8.3.1 Introduction

- **Construction** – the period spanning a duration of approximately 3 years (2016 to 2018). Activities include construction and installation of mine facilities (e.g., the Sub-Station II Diversion Channel, the Diversion of the Tailrace of the Sub-Station II Diversion Channel, and the Diversion of the Tailrace of the Sub-Station II Diversion Channel).

***Recommendation:*** LKDFN recommends that Traditional Knowledge be integrated in all discussions of any of the valued components for the remainder of planning and the entirety of operations, monitoring and closure.

***Recommendation:*** LKDFN recommends that concrete references be made in all further documentation to the Traditional Knowledge gathered for each component as the component is discussed, rather than relegating it to a separate section or annex.

***Recommendation:*** LKDFN recommends engaging the expertise of world-class experts to develop protocols, including practical measures, for the incorporation of Traditional Knowledge.

***Recommendation:*** Where Traditional Knowledge conflicts with scientific studies, LKDFN recommends a discussion of attempts made to reconcile the two knowledge sources, and failing reconciliation, a presentation of justification for choosing one over the other.

***Recommendation:*** LKDFN recommends that the mine operator make efforts to provide access to traditional knowledge holders to the land around the mine site for observations to be compared to the historical knowledge in their possession. This could take the form of a land camp or other formal arrangement.

# CLIMATE CHANGE

- Residents of Lutsel K'e are very concerned about the impacts of climate change
- Elders are remarking on observed changes
- GNWT reports that impacts would negatively affect traditional livelihoods
- LKDFN would like to see every effort made to mitigate climate change and is interested in tracking efforts

***Recommendation:*** LKDFN recommends providing as much information sharing about climate change adaptation measures as possible, and recommends that the Developer include a brief update during community visits.

***Recommendation:*** LKDFN also recommends that the Developer continue and expand efforts to reduce emissions, especially in the area of alternative energy, pursuing similar initiatives to Diavik and their use of wind turbines.

# PARTICIPATION IN REGULATORY PROCESS

- LKDFN has very little capacity for technical analysis and review
- LKDFN appreciates support provided so far, but has not been able to participate fully in all processes
- There is a need for a predictable system for participant funding

***Recommendation:*** LKDFN recommends that the Government of the Northwest Territories, the Federal Government of Canada and major mine operators in the Northwest Territories hold meetings as soon as possible with the aim of agreeing upon a formal process to support the participation of communities impacted by development in the regulatory process.

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**DAY 2 - CARIBOU**



# CARIBOU – CUMULATIVE EFFECTS

- Given the precarious position of the Bathurst herd, **ANY** impacts are significant
- 95% reduction in population, by most conservative estimates, recent studies suggest further decline
- Even if individual impacts are not considered significant, ***cumulatively*** the impacts become significant
- Reasons for collapse are unknown and this should lead to more precautions rather than more risks

# Bathurst caribou conservation plan leaves questions

*"The Bathurst herd cannot sustain any harvest"*

*"...we'll protect the herd for as long as is necessary — to when the numbers are healthy enough to sustain a harvest again"*

## Related Stories

**-CBC article quoting Minister Miltenberger, December 24, 2014**

affecting caribou

- Aboriginal wastage adds to caribou decline: BQCMB chair

- Voluntary caribou hunting limits not

tightly grouped around these cows.

"It's a good idea, but it will only work if they have manpower behind it," Whati Chief Alfonz Nitsiza says of the protective zone.

Whati currently does

■ Shell gets final permit for Arctic waters ☐ 1

■ Iqaluit changes water delivery: ☐ 1

# CARIBOU – CUMULATIVE EFFECTS

- If the Bathurst herd cannot sustain any harvest, then it cannot sustain population reductions for any other reason
- Any impact = slower population growth = significant impacts to traditional livelihoods and food security
- “self-sustaining and ecologically effective” is not a sufficient end-point in these circumstances

***Recommendation:*** LKDFN requests that the Board make a determination that the Jay Project would have significant, negative, cumulative impacts on the Bathurst caribou herd.

***Recommendation:*** LKDFN recommends that the Developer consult with affected communities and agree upon offsetting measures to mitigate the significant impacts to traditional livelihoods and the Bathurst caribou herd. This offsetting could include measures to improve conditions for caribou (for example, through improved and faster reclamation of disturbed habitat), measures to compensate for the loss of traditional livelihood opportunities and sustenance through the provision of alternate opportunities, or even direct financial compensation.

***Recommendation:*** LKDFN recommends that the Developer collaborate with impacted communities, the GNWT, and other mine operators to commission independent research into which elements of the project are having impacts upon caribou, their severity and innovative mitigation measures to reduce these impacts. This research should be comprehensive and encompass all aspects of the mine.



# Misery WRSA



# CARIBOU – WASTE ROCK STORAGE AREA

- Given that LKDFN considers all impacts on the Bathurst caribou herd to be significant, the Waste Rock Storage Area (WRSA) is expected to have a significant impact
- This is a major habitat change along a primary migration route
- The WRSA may also provide one of the best opportunities for remediation
- “Incidental” sightings as monitoring is not sufficient



***Recommendation:*** LKDFN recommends that the Developer present an enhanced monitoring plan for monitoring the use of the WRSA by caribou.

***Recommendation:*** Given that LKDFN considers all impacts to caribou significant and has asked for enhanced reclamation measures to accommodate caribou, LKDFN recommends that the Developer present options for enhanced reclamation of the WRSA to improve it as habitat for caribou to the extent possible.

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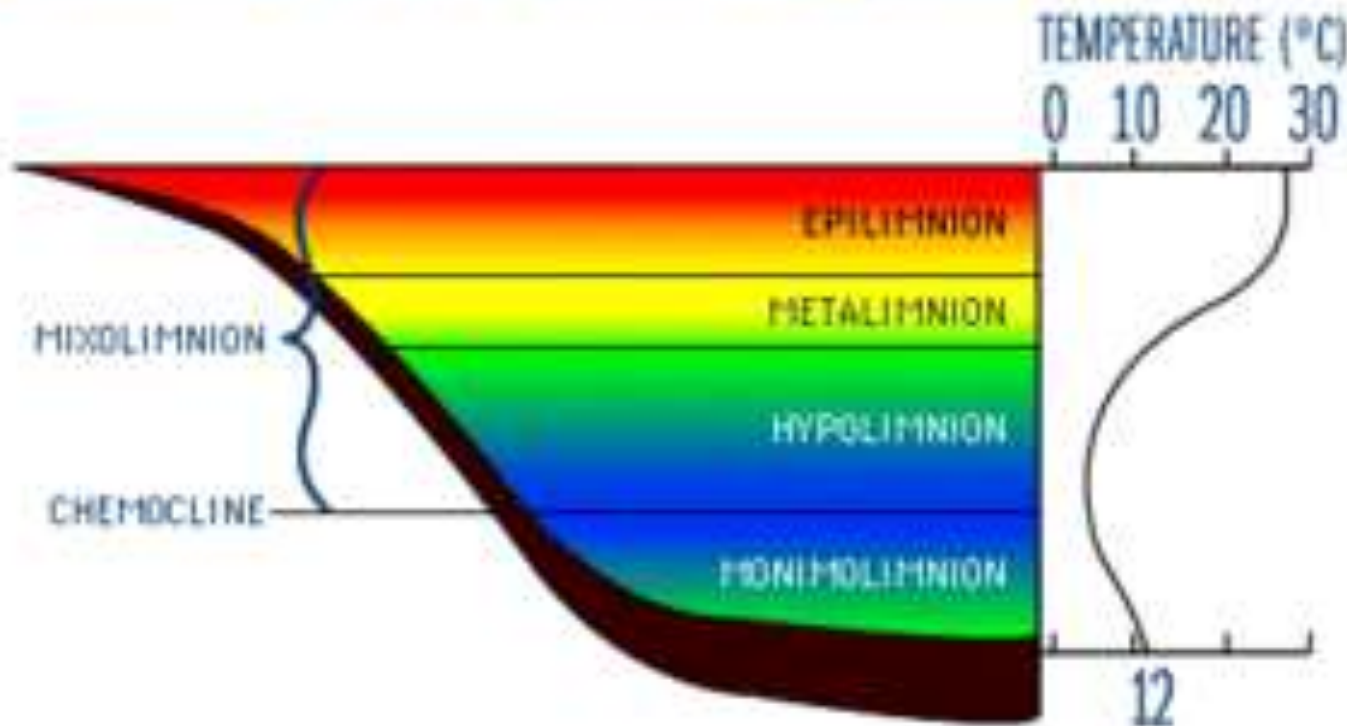
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**DAY 3 – WATER AND AQUATIC LIFE**

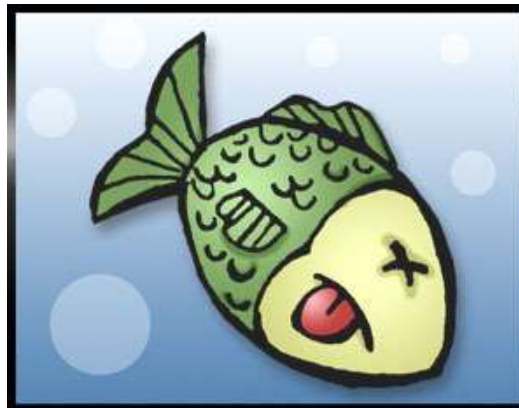
# MEROMIXIS IN JAY PIT

## STRATIFICATION OF A MEROMICTIC LAKE



# MEROMIXIS IN JAY PIT

- LKDFN is concerned about the potential impacts should Jay Pit should any mixing occur
- Jay Pit would be connected to an extensive water system, and impacts from mixing would be significant
- Impacts would include damage to aquatic life



# MEROMIXIS IN JAY PIT

- Indirect impacts on traditional livelihoods and terrestrial life
- LKDFN cannot find examples of stratified lakes under these specific conditions
- LKDFN is not convinced of the permanence of meromixis
- Risks include storms, earthquakes, and human error

# Gunnar Pit



Gunnar Mine  
Site



Main Tailings

Acid Plant

Haul Road

Waste  
Rock  
Pile

Mill

Powerhouse

Men's  
Dorms

Flooded  
Pit

Sports  
Field

Shop

Office

Waste  
Rock  
Pile

Headframe

"Mall"

Rink

Marina

School

Tank  
Farm

Dock

Lake Athabasca

100 50 0 100 Meters







Grum Pit

Grum Pit





Vangorda Pit

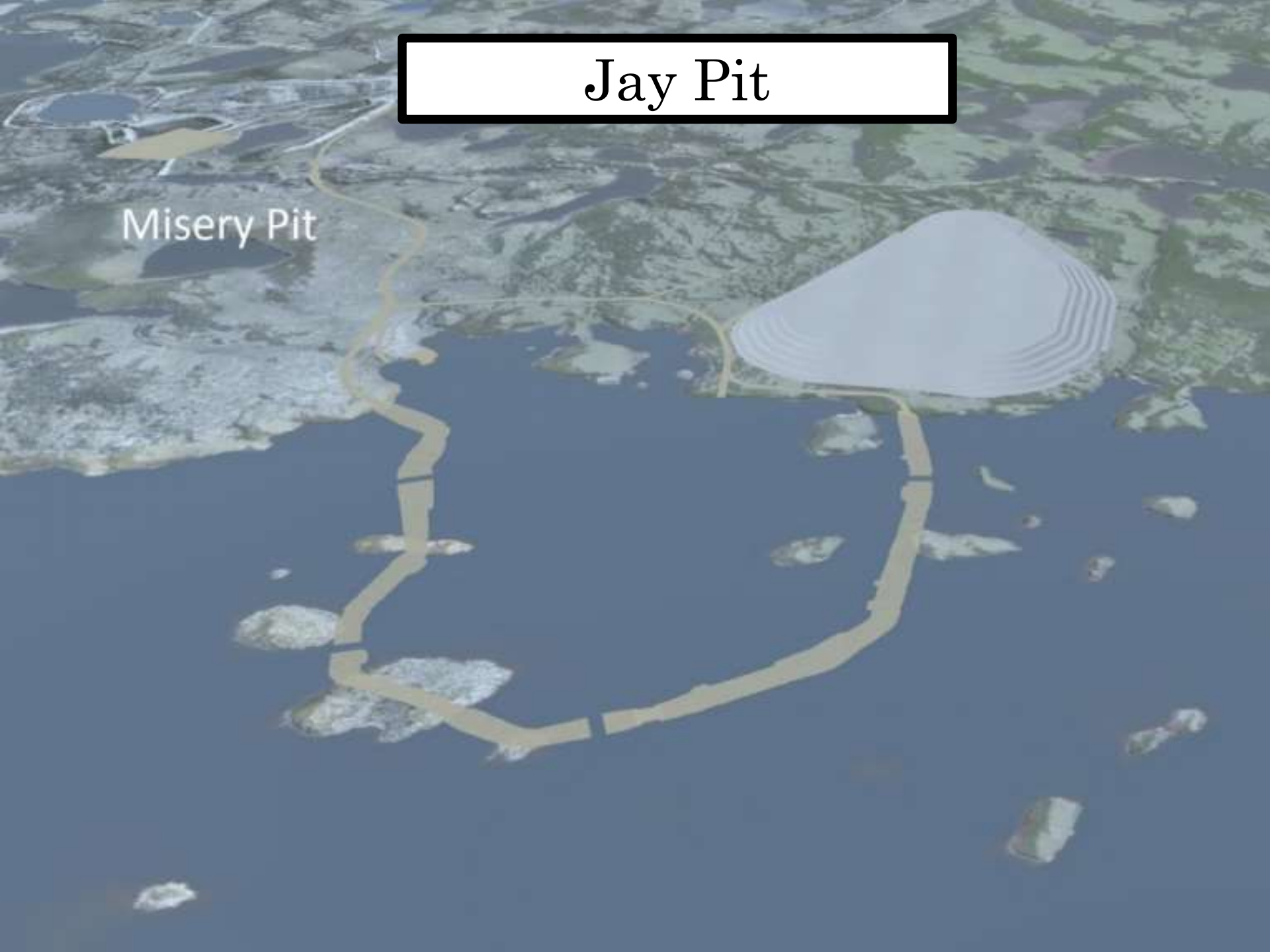
Creek  
Diversion

Vangorda  
Pit

Vangorda Pit

# Jay Pit

Misery Pit



# MEROMIXIS IN JAY PIT

- LKDFN maintains a long-term perspective and sees mixing even centuries in the future as a significant impact (ex. 100 year storm)
- Risk of significant impacts with no proposed adaptive management
- If there is any real probability of mixing, it is no longer “if,” but “when”

***Recommendation:*** LKDFN recommends that an independent review panel be established to thoroughly analyse:

- the probability of meromixis being established;
- the probability of meromixis being maintained in perpetuity;
- the significance of impacts, both direct and indirect, if mixing were to occur;
- the geographic extent of impacts, should mixing occur;
- the likelihood of meromixis being re-established after mixing, should it occur, and estimates as to how much time would be required for this re-establishment, should re-establishment of meromixis be deemed possible.

LKDFN would like this panel to then present its findings as well as recommendations on:

- adaptive management measures should it become evident that meromixis will not be established, these should include early warning systems to allow for identification of the issue as early as practicable, a fully fleshed out contingency plan for disposal of the minewater should disposal in the Jay Pit not be feasible due to mixing, and clear recommendations as to which organization would be accountable for these measures;
- similar adaptive management measures should a disturbance cause mixing during DDRC's operations in the Northwest Territories;



LKDFN would like this panel to then present its findings as well as recommendations on:

- options for minimizing the risk of mixing after DDRC can no longer practicably be held accountable for mine effects;
- options for adaptive management by the GNWT and other implicated parties for minimizing impacts should mixing occur in the distant future;

LKDFN envisions this panel to be similar to existing dyke review panels.

# SEEPAGE FROM WASTE ROCK STORAGE AREA

- Waste Rock Storage Area (WRSA) is planned to be relatively close to water bodies (30m)
- LKDFN is concerned about the long-term risk of seepage
- LKDFN is especially concerned about mercury contamination, a sensitive issue for the community
- Risks include climate change and physical disturbances
- LKDFN is not aware of long-term adaptive management measures

***Recommendation:*** LKDFN recommends a revised WRSA management plan that includes adaptive management measures during mine operations and closure, but also options for longer-term adaptive management should seepage occur at any time post-closure.

***Recommendation:*** LKDFN requests specific details for the management of sediments contaminated with mercury, along with specific measures to prevent mercury from entering any water bodies.



Thank you