# Tamerlane Ventures Inc.

# Pine Point Pilot Project

Scoping Session Technical Presentation August 2006

#### Introduction

- Tamerlane Ventures Inc. (TAM) is a publicly traded mining company engaged in exploration and development in North America and Internationally.
  - Ross Burns President & CEO
  - David Swisher Senior Project Manager
  - Graham Eacott V.P. Investor Relations
  - Tom Thomson Manager Investor Relations
  - Dan Broast Senior Resource Geologist
  - Jerry DeMarco Public Relations



#### Introduction

- TAM proposes to construct and operate a Pb-Zn pilot plant to economically confirm:
  - Full-Scale Underground Mining Potential
  - Extraction of 1 Million Tonne Bulk Sample
  - Perimeter Ground Freezing
  - Shaft Sinking
  - Vertical Conveyance
  - Dense Media Separation (DMS)



## **Property History**

- 1898
  - Claims staked on oxidized sulfide outcrops
- 1929
  - Northern Lead Zinc Co. conducted work program
- 1948-1955
  - Cominco Ltd. conducted major exploration
- 1961-1964
  - Government constructed railway
- 1961-1964
  - Northern Canada Power builds 21 megawatt hydroelectric plant







## **Property History**

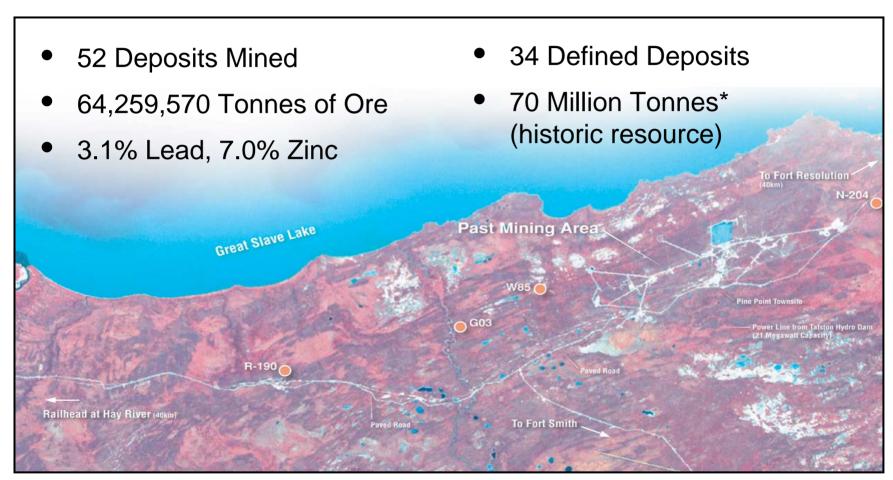
- 1964-1987
  - Cominco Ltd. conducted mining & milling
- 1991
  - Mill, town site & railroad removed
- 2001
  - Karst Investments LLC staked claims
- 2004
  - Tamerlane Ventures Inc. acquired 60% interest
- 2006
  - Tamerlane Ventures Inc. acquired remaining 40% interest







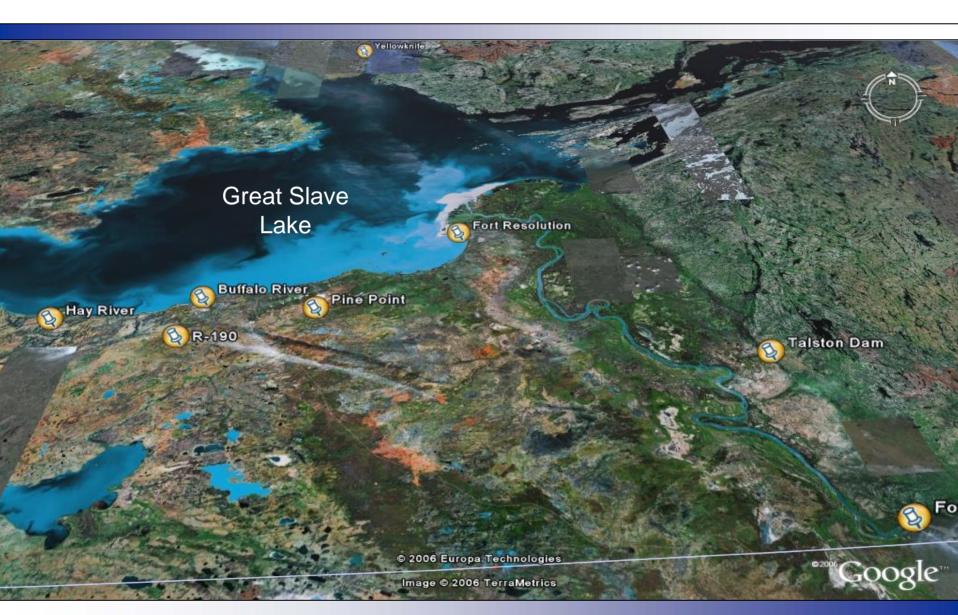
## **Property History-Present**



<sup>\*</sup>Taken from historic records believed to be accurate. No current NI 43-101 compliant resource calculation has been completed on these deposits.



## **Location Map**



## **Key Pilot Project Components**

- No camp
- No winter road
- Temporary waste rock storage area
- Infiltration basin
  - Proposed as nearby quarry
- Freeze perimeter
- Dense Media Separation & Additives
- Sewage Treatment
- Water Quality from Backfill & Explosives
- Hazardous Wastes



## Pilot Project Site Plan





## Waste Rock Storage

- All volumes returned U/G
- No historical Acid Rock Drainage (ARD) issues
- Limestone and dolomitedominated geology mitigate potential ARD

Waste Generation	Estimated Tonnage
Shaft Sinking	16,300
Development	32,430
Raisebore	2,000
SUBTOTAL	50,730
Bulk Sample Extracted	1,000,000
DMS Recovery @ 60%	600,000
DMS Gangue Reject @ 40%	400,000
SUBTOTAL	400,000
TOTAL	450,730
Assume 100% swell factor	450,730
Total Waste Returned U/G	901,460
Total Waste Required for fill	1,000,000
Δ	(98,540)



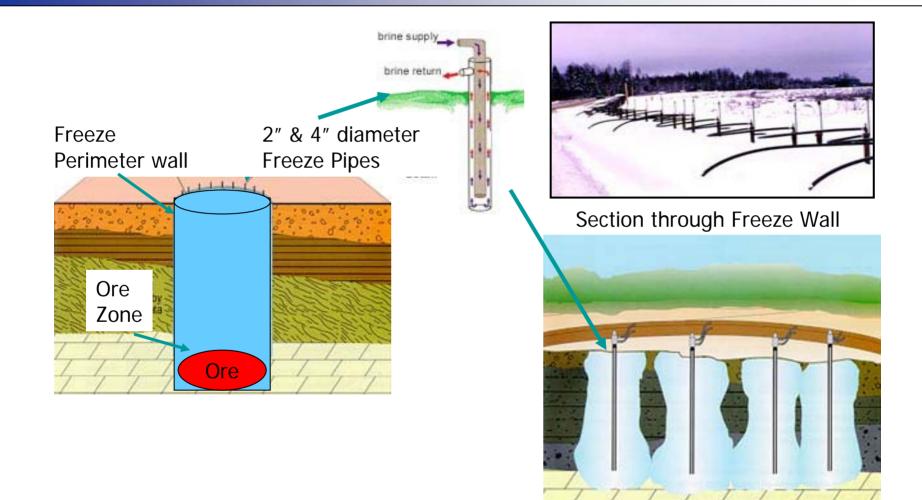
#### **Infiltration Basin**

- Shallow Impoundment
- Natural filtering
- Gradual exfiltration
- Groundwater recharge



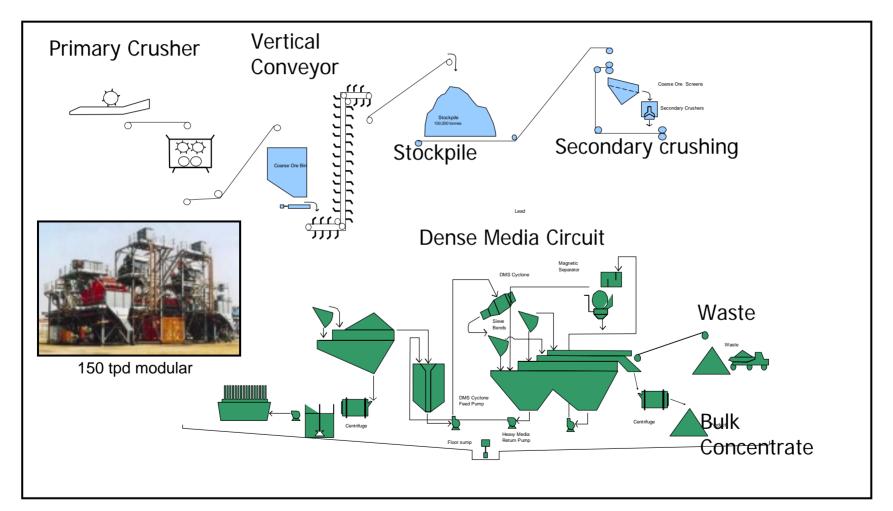


## Freezing



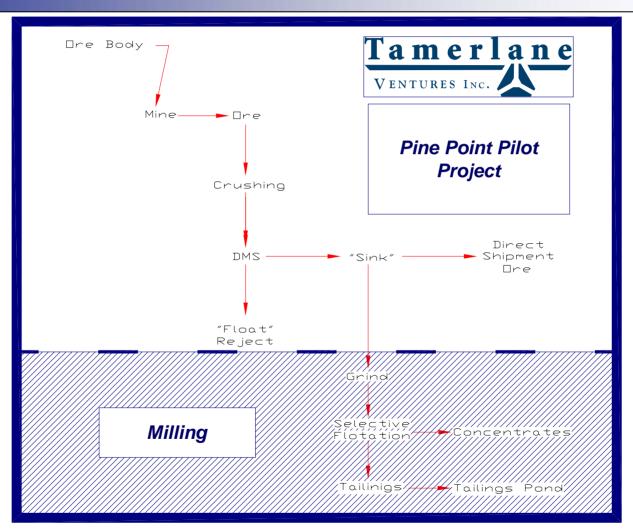


## **DMS Preliminary Layout**





## **DMS Defined**





#### **DMS Additives**

#### Ferrosilicon

- —Only known additive (Inert)
- Derived from natural ores (MSDS)
- -No known adverse environmental effects (MSDS)
- Recycled through the DMS circuit

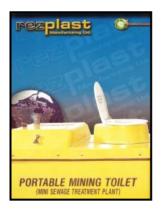


## **Sewage Treatment**

#### **Options Considered**

- RBC sewage treatment facility
  - Biodisk Corporation
  - Used throughout Canada
    - Snap Lake, Travco, NWT
    - Diamond Mine, BHP, NWT
    - CNR, Alberta
    - Yellowknife, Barrick, NWT
- Self-contained mini-sewage treatment toilets U/G
- Port-a-Potties









## **Water Quality**

- Underground water will be monitored at the infiltration basin throughout the life of the project
- Historical groundwater reports and assays completed
- Existing groundwater quality strongly influenced by local geological conditions
  - sulfurous springs
  - salts-enriched hard water
- Tamerlane Ventures Inc. will continue groundwater monitoring until Regulators are satisfied



#### **Hazardous Wastes**

- Hazardous Wastes and Disposal
  - Fuels (diesel and diesel additives)
    - Will be consumed.
  - Used oils (motor and hydraulic)
    - Reuse in oil heaters.
  - Used Batteries
    - Dispose at Hay River hazardous waste disposal area.
  - Stored fuels and lubricants
    - Contain in separate catchments.
- Spills
  - Containment and Clean-Up Process
    - Hazardous Materials Spill Contingency Plan
    - Appendix D in Project Description Report.



### **Estimated Schedule**

Task	2007	2008	2009
	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Jan Feb Mar Apr May
Freeze Perimeter Drilling			
Power Infrastructure			
Freeze Infrastructure			
Freeze Operation			
Main Infrastructure			
Shaft Infrastructure			
Shaft Sinking			
U/G Drift Development			
Vertical Conveyor Installation			
U/G Ramp Development			
Raisbor Development			
U/G Utilities			
DMS & Support Infrastructure			
Backfill Plant			
U/G Stope Development			
Bulk Sample Extraction			





# Tamerlane Ventures Inc.

# Pine Point Pilot Project

**Environmental Assessment** 

August 2006

#### **Environmental Assessment**





#### **Environmental Baseline Work**

#### **Initial EBA Baseline Studies**

- Wildlife
  - Conducted: September, 2005
- Stream Assessment and Water Quality
  - Conducted: September, 2005
- Vegetation
  - Conducted: September, 2005



#### **Environmental Baseline Work**

#### EBA R190 Follow-Up Studies

- Owl Surveys
  - Conducted: April, May, 2006
- Amphibian Surveys
  - Conducted: May & June, 2006
- Breeding Bird Surveys
  - Conducted: June, 2006
- Rare Plant Surveys
  - Conducted: Late June/July & Early/Mid-August, 2006
- Water Quality Surveys
  - Conducted: May, June, July & August, 2006



## **Tamerlane Study Area**





## **Valued Ecosystem Components**

VEC Grouping	VEC's
Air Quality	Air Quality (indicators)
Water Quality	Surface / Groundwater Quality (indicators)
Terrestrial Vegetation	Traditional Use Plants / Rare Plants
Wildlife (SARA listed species)	Whooping Crane
	Peregrine Falcon
	Short-Eared Owl
	Wood Bison
	Woodland Caribou



## **Impact Matrix**

Project Component	Air Quality	Water Quality	Wildlife	Vegetation
Site Preparation and Construction	Х	X	X	X
Pilot Plant Site	Х	X	Х	Х
Process Waste Storage (Temp)		X		
Underground Mining	Х	X		



## **Air Quality**





## **Air Quality**

Project Component	Potential Impact	Mitigation
Site Preparation and Construction	Temporary localized dust generation from clearing /surface construction activities	Dust suppression GNWT Guideline for Dust Suppression
Underground Mining	Limited air emissions CO, SO <sub>2</sub> and NOx, particulates	GNWT, WCB standards for mine air quality
Processing	Negligible particulate emissions	Guideline for Ambient Air Quality Standards in the Northwest Territories
Other Infrastructure (e.g. access road)	Temporary localized dust generation	GNWT Guideline for Dust Suppression

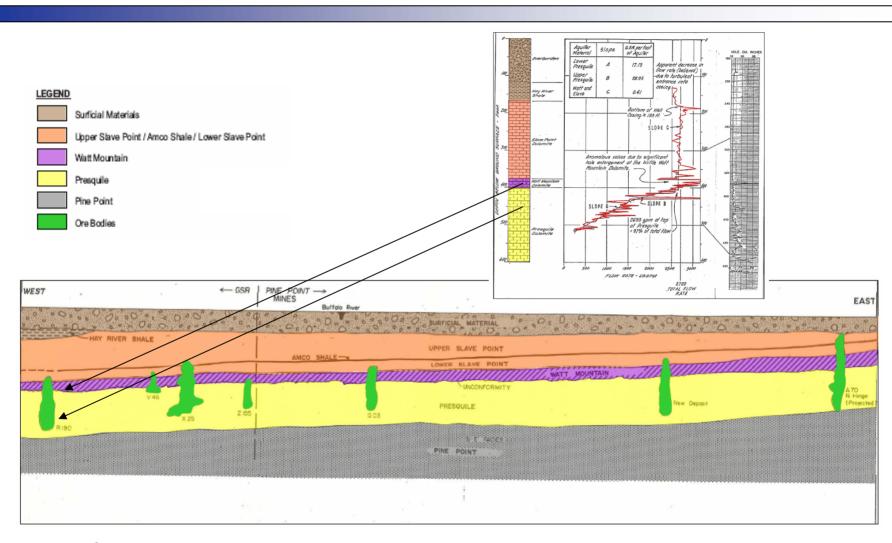


## **Water Quality**





### **Groundwater Flow**





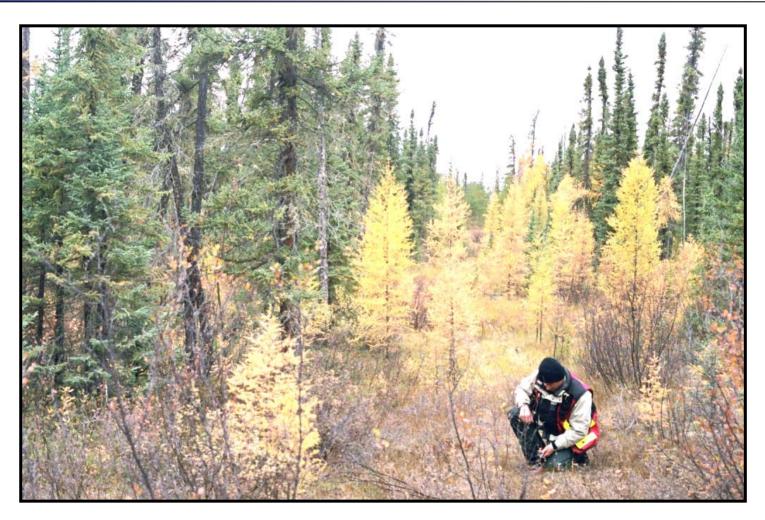
## **Water Quality**

<b>Project Component</b>	Potential Impact	Mitigation
Site Preparation and Construction	Localized sedimentation	Silt barriers in construction activities – no streams or lakes present in local study area
Underground Mining	Discharged mine water	Mine water used in DMS plant directed to infiltration basin
Processed Waste Water	Suspended solids	Inert process waste water directed to former gravel quarry (infiltration basin)
Sewage	Nutrients and bacteria to groundwater	Treated using a packaged RBC plant or port-a- potties. RBC will meet the Camp Sanitation Regulations, R.R. N.W.T. 1990, c. P-12, Public Health Act, R.S.N.W.T. 1998, c. P-12
Water Consumption	Process water sourced from groundwater. Potable water transported to site	Excess water directed to infiltration basin, returned to groundwater
Hazardous Materials	Impacts on water quality	Management Plan covering the transportation, use, disposal, and emergency response



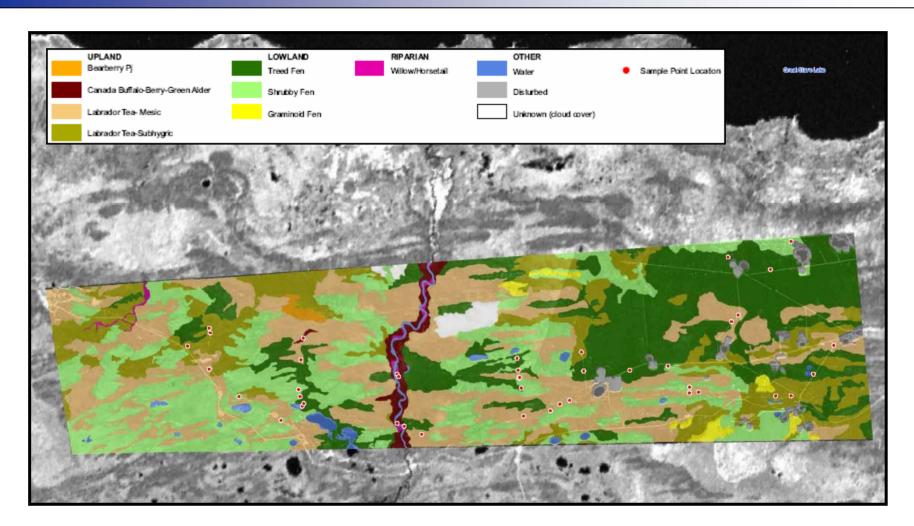


## Vegetation





## Vegetation





# Vegetation

Project Component	Potential Impact	Mitigation
Site Preparation and Construction Plant Site & associated infrastructure	Minor loss of vegetation; increase in ecosystem fragmentation; Localized soil compaction	Minimize footprint – maximize use of existing disturbed terrain  Minimize off-site activities; implement erosion control measures  Use of dust suppressants;  Dispose of all hazardous wastes in approved manner.  Progressive site reclamation



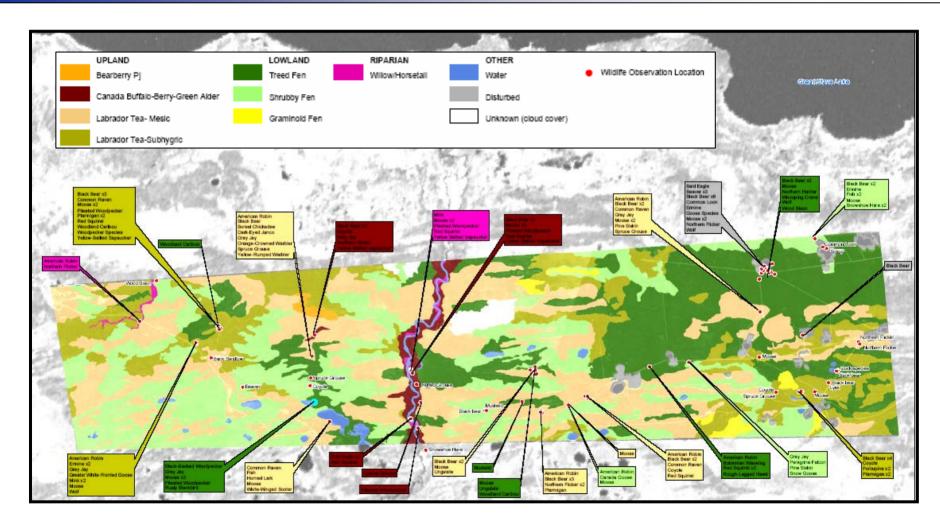


### Wildlife



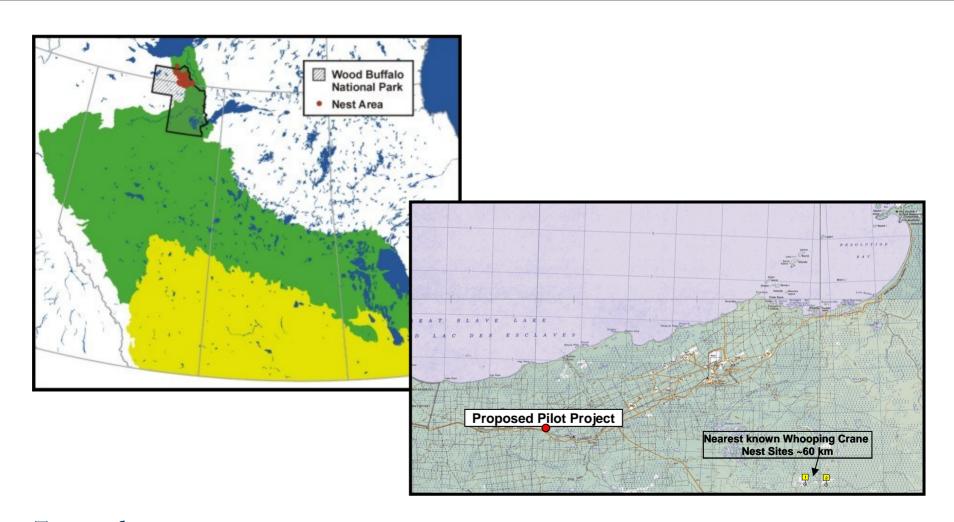


### Wildlife



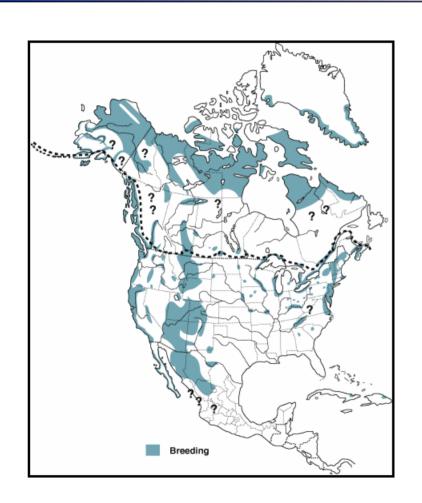


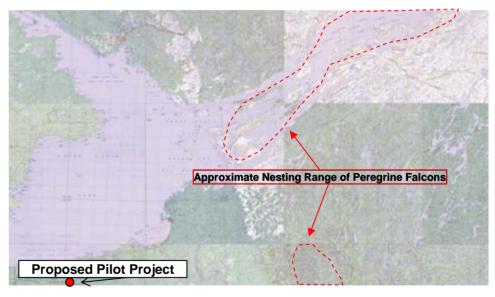
# Wildlife: Whooping Crane





# Wildlife: Peregrine Falcon

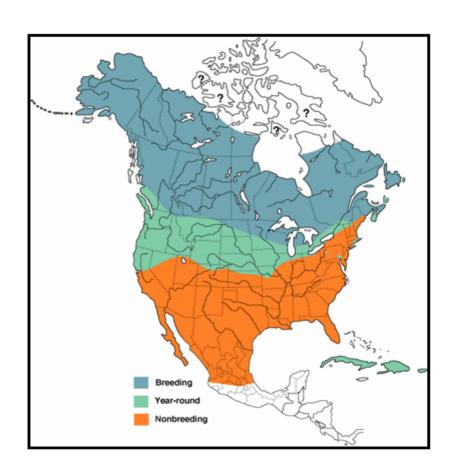






#### Wildlife: Short-Eared Owl

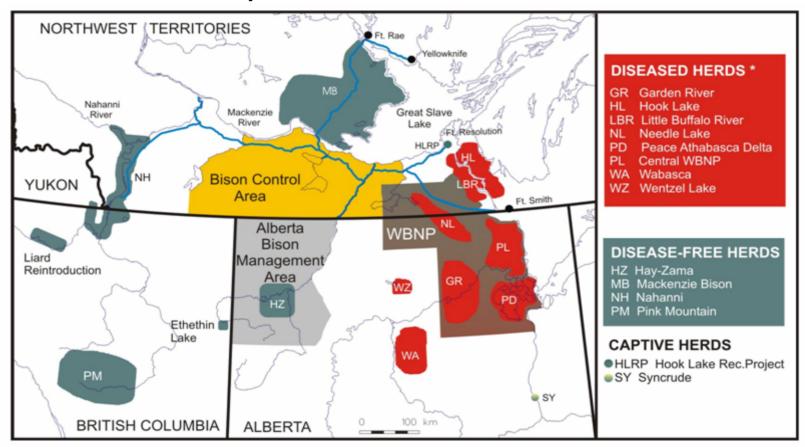
- No suitable habitat in local study area
- None found in local study area
- Nearest suitable habitat for nesting ~3km south of highway





### Wildlife: Wood Bison

#### Project Located in Bison Control Area





### Wildlife: Woodland Caribou

- Woodland Caribou occur in low numbers in Project area year-round
- Calve in upland wooded areas not present in Project area



### Wildlife

Project Component	Potential Impact	Mitigation
Site Preparation and Construction	Disturbance and removal of wildlife habitat	Minimize footprint, maximize use of existing disturbed terrain, avoid sensitive areas
Plant Site	Disturbance and removal of wildlife habitat	Minimize footprint, maximize use of existing disturbed terrain, avoid sensitive areas
Underground Mining	No impacts anticipated	None required
Process Waste Water	Potential consumption by local wildlife	Inert process waste water directed to former gravel quarry (infiltration basin)
Domestic Wastes	Domestic waste can attract wildlife, and become a safety hazard	Domestic will be temporarily contained on site & disposed of in an approved local area landfill
Other Infrastructure	Temporary, rapidly reversible disturbance	Traffic controls – wildlife has the right-of-way





#### **Environmental Considerations**

- The general area has experienced major exploration and mining activities for more than 100 years.
- The R-190 area has already been disturbed by historical exploration activities.
- The R-190 area is located immediately adjacent to an existing highway and power line infrastructure.
- The R-190 area has already and continues to experience quarrying activities.
- No significant effects on wildlife, including SARA-listed species are expected to occur.



## **Mitigation Measures**

- Application of Least Intrusive Method for Stabilizing Wet Ground
  - Freeze Curtain
  - Primarily Underground Operation
- Project Footprint Minimization
  - Installation of Project Infrastructure on Previously Altered Terrain
- No Streams or Lakes in Immediate Project Area
  - No Potential to Affect Streams, Lakes or Fisheries Resources
- Compliance with Water License Criteria
  - Process Waste Water Recycling, Treatment (if necessary) and Discharge to Ground / Groundwater



## Mitigation Measures Cont.

- Airborne Noise Minimization
  - Minimal Airborne Noise Due to Primarily Underground Operation
- Access Road Dust Suppression
- Access Road Traffic Controls
  - Wildlife will have the Right-of-Way
- Effective Waste Management and Spill Prevention / Response



## **Cumulative Impacts**

#### No Significant Cumulative Impacts Expected to Occur\*

- Pine Point 1965 1987
- Limited Scope and Scale
- Current Operating Quarries
- Minimal Intervention Freeze Curtain Underground
- No Nearby Waterways
- Progressive Reclamation

\*Review sections 5.0 & 6.0 pgs 65-66, project description report



## Summary

- Confirm Viability and Economics for Underground Mining
- Obtain Bulk Sample
- Adhere to High Level of Environmental and Safety Standards
- Compliance with Regulatory Requirements and Conditions
- Create Jobs and Business Opportunities
- Improve Local Economy



