

TALTSON HYDROELECTRIC EXPANSION PROJECT

Project and Environmental Overview

Prepared for:

Mackenzie Valley Environmental Impact Review Board

Technical Scoping Session – December 07, 2007



Presented by:

DEZÉ ENERGY CORPORATION

TALTSON HYDROELECTRIC EXPANSION PROJECT

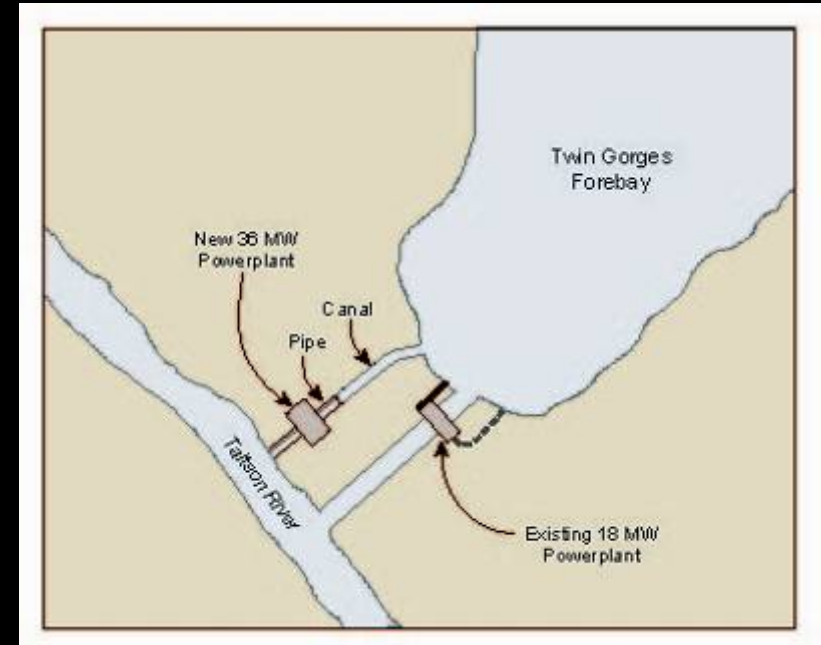
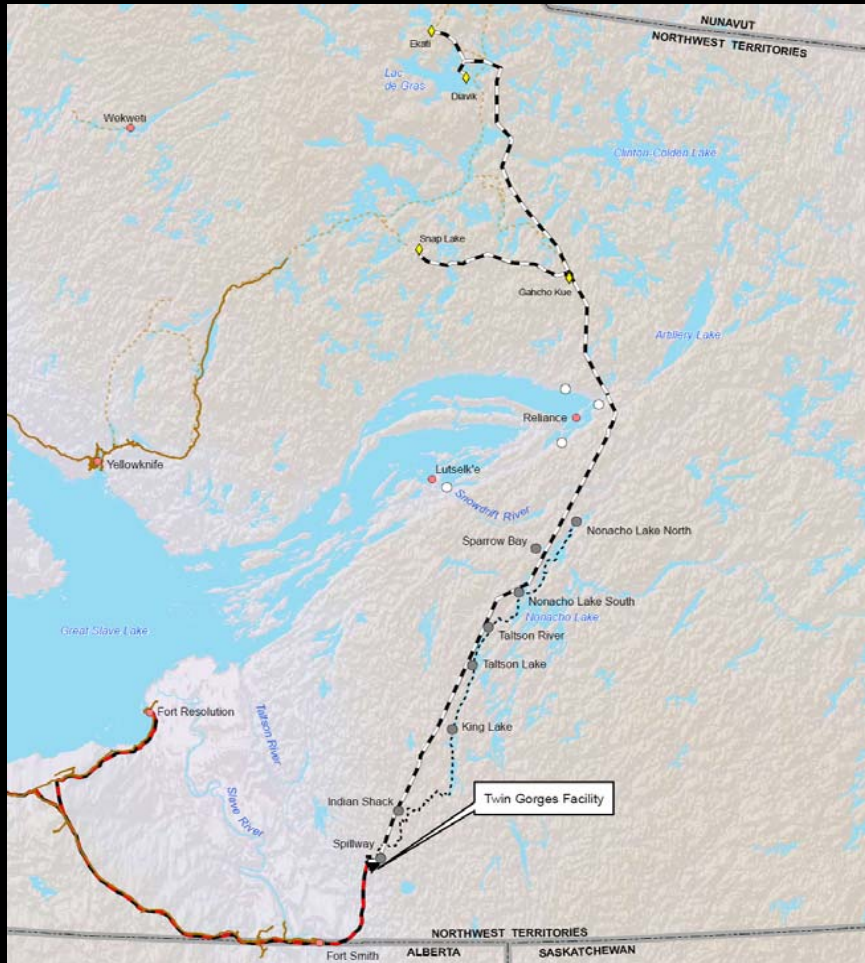
Introduction

- **Presentation information generally follows layout in Project Description**
- **Please ask questions and clarifications during presentation**
- **Adequate time for Q&A after presentation also**



INTRODUCTION AND BACKGROUND

Expansion Project Key Components and Output



36 MW new (54 MW Total) hydroelectric plant

690 km of new transmission line

420 GWh per year of renewable electricity to existing customers and proposed and existing diamond mines

No increase in flooding

CORPORATE PROFILE

Dezé Energy Corporation

The Taltson Expansion Project is proposed by the Dezé Energy Corporation.

The Dezé Energy Corporation is equally owned by the:

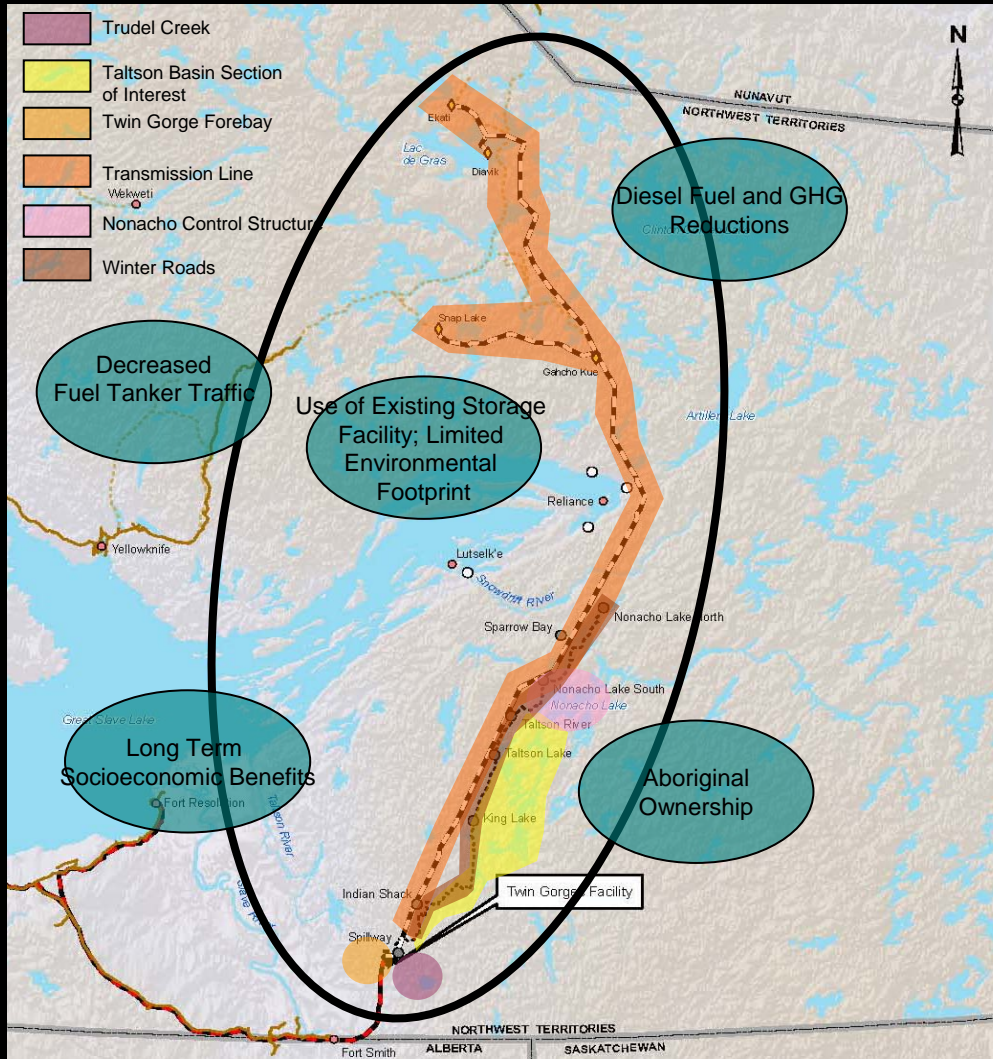
Akaitcho Energy Corporation

Métis Energy Company Ltd.

NWT Energy Corporation (03) Ltd.



PROJECT PURPOSE AND RATIONALE



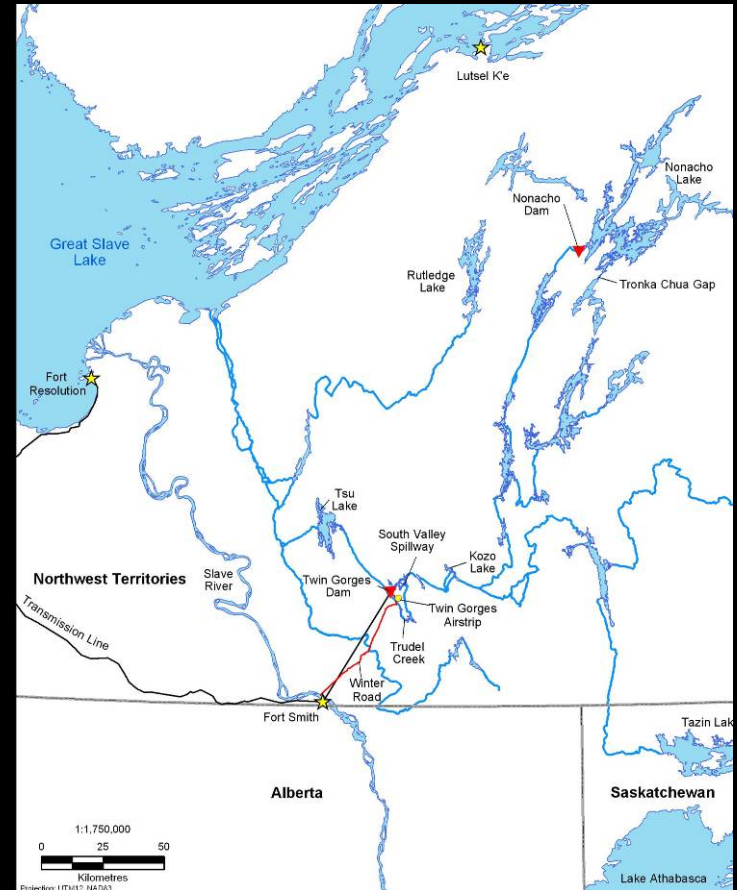
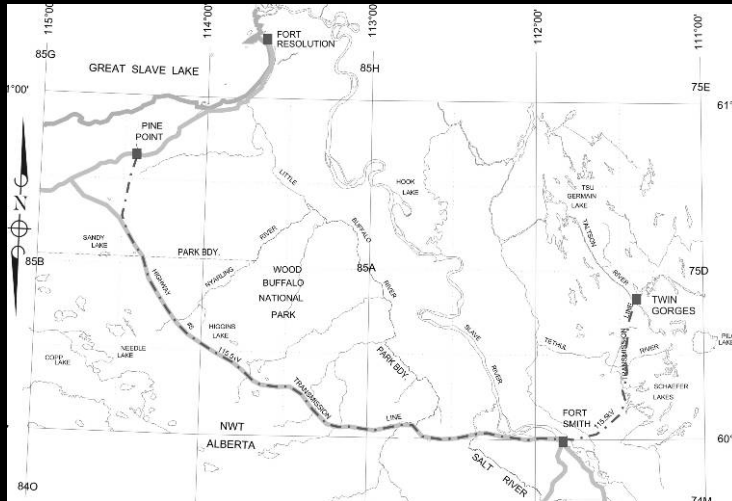
TRADITIONAL KNOWLEDGE

- Community self-directed approach to ensure studies suit the needs of individual communities.
- Specific Project requests include traditional winter travel routes, land & water uses, SARA species, etc.
- Information gathering commenced in 2006.
- Incorporate TK into project during all phases.



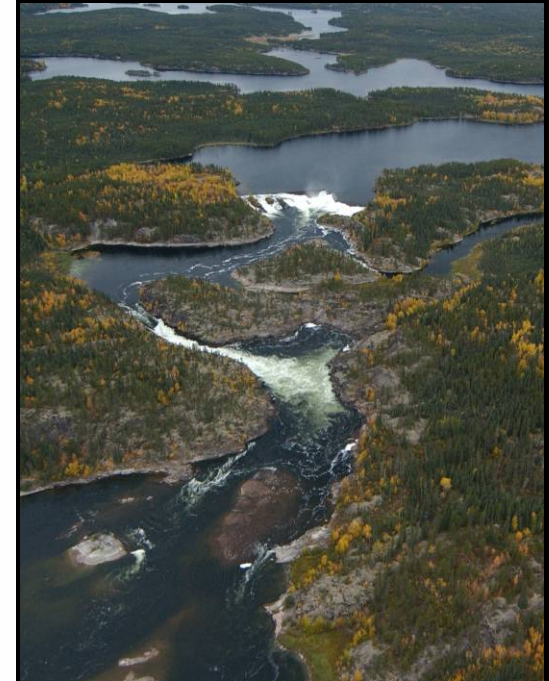
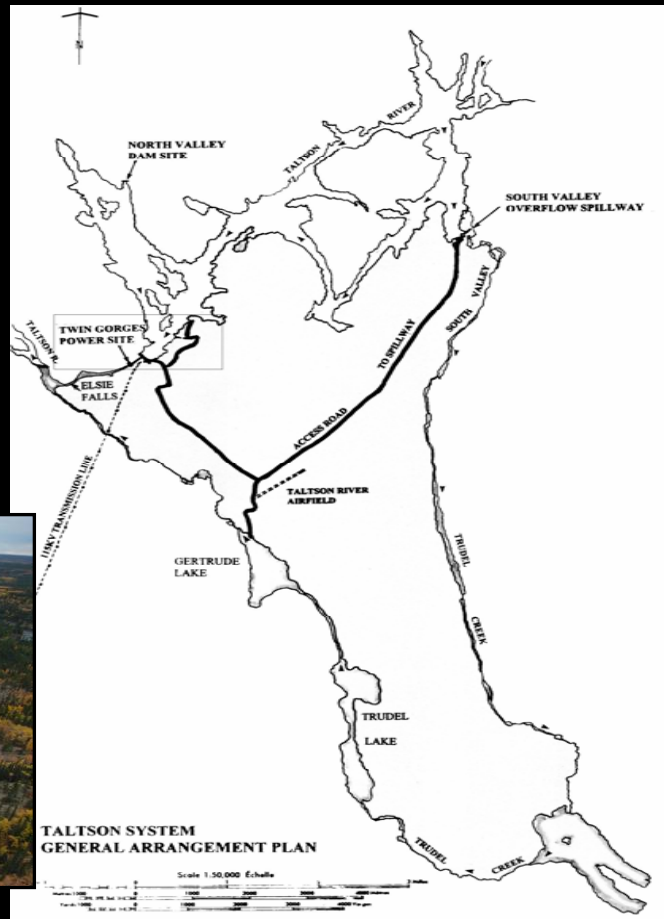
TALTSON BASIN AND EXISTING POWER PLANT

Taltson Basin and Transmission Line



TALTSON BASIN AND EXISTING POWER PLANT

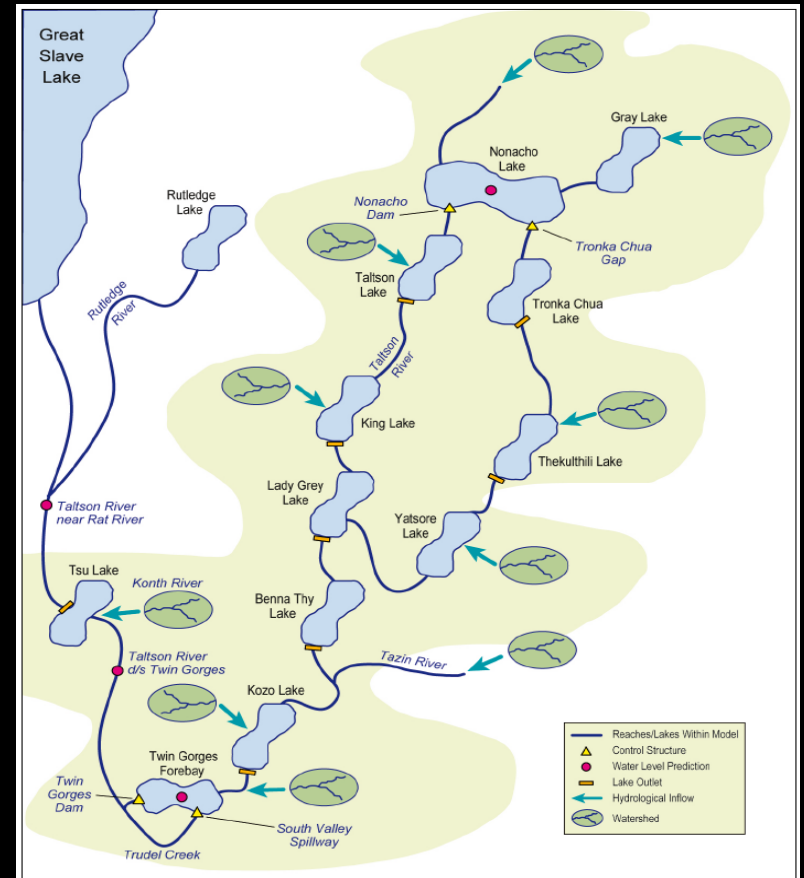
Twin Gorges and South Valley Spillway



EXPANSION PROJECT HYDROLOGICAL BASIS

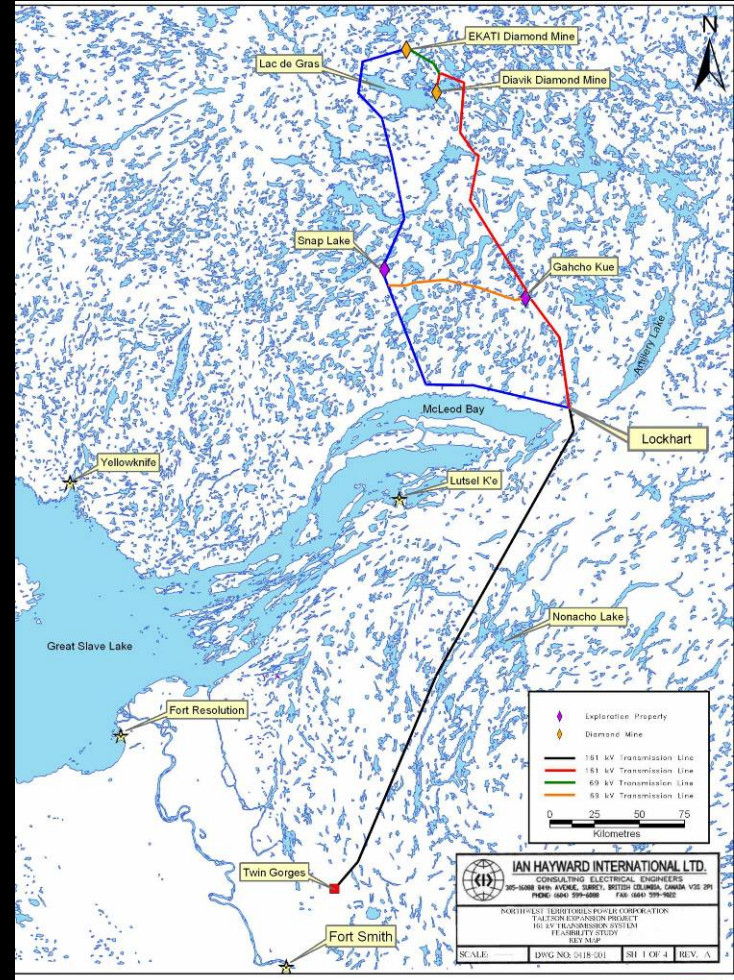
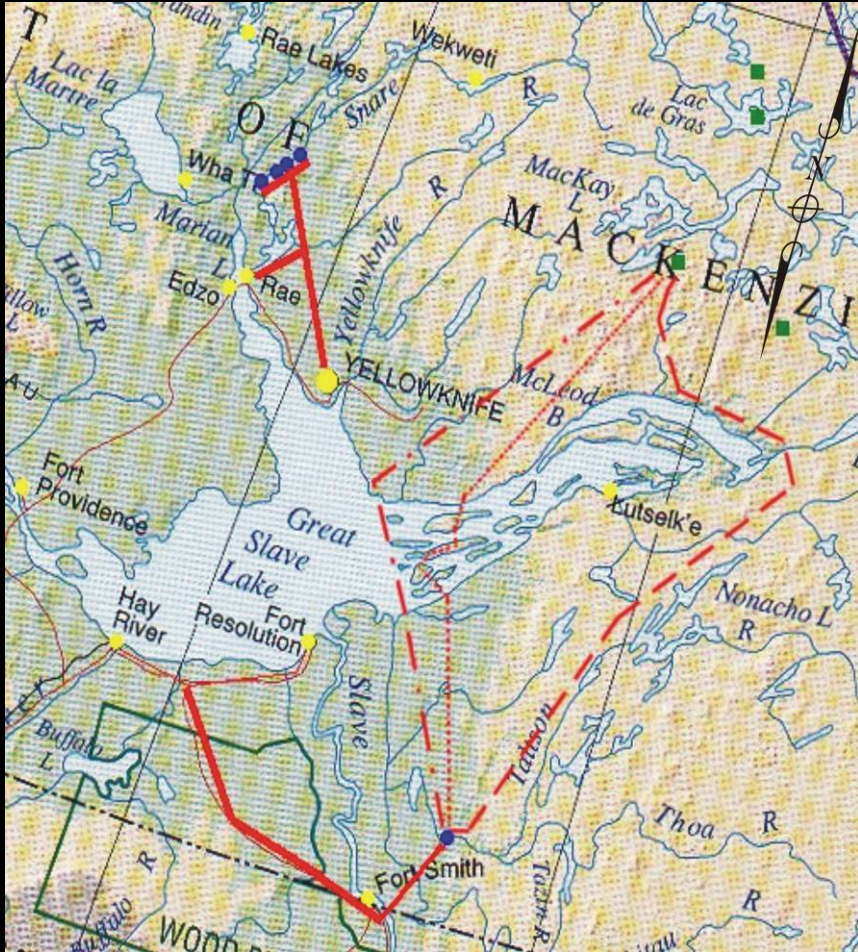
Taltson Basin Hydrology

- Taltson River is a managed system
- Nonacho Lake connected to the north end of the Taltson River through a slow moving system of river reaches and lakes.
- At existing Twin Gorges generating facility, Taltson River flows through the generating plant and excess water is spilled to Trudel Creek.
- Trudel Creek (33 km) joins the Taltson River immediately upstream of the generating plant tailrace.



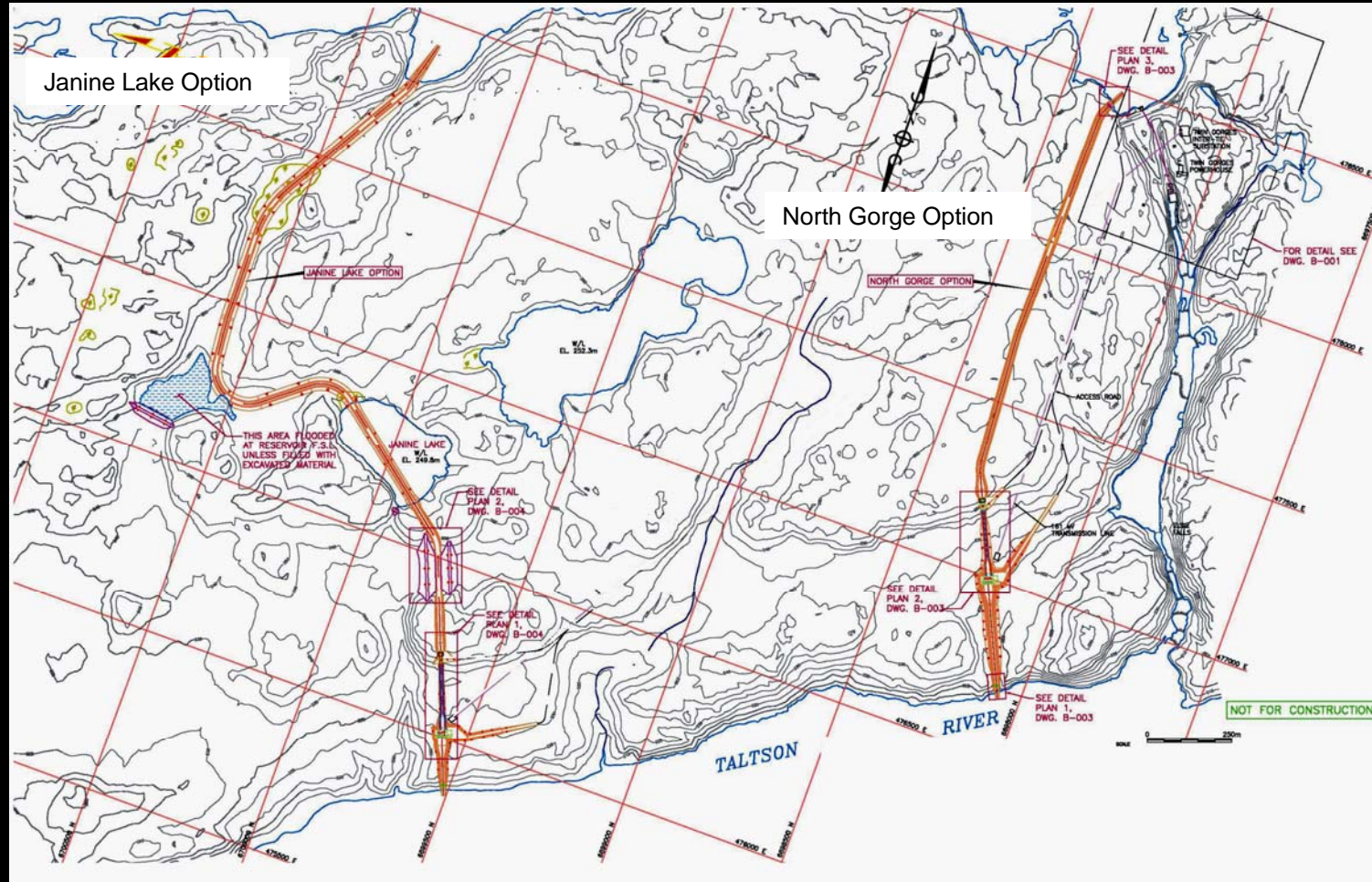
PROJECT CONCEPTS AND ALTERNATIVES

Transmission Line Alternatives



PROJECT CONCEPTS AND ALTERNATIVES

Power Generation Concepts and Alternatives



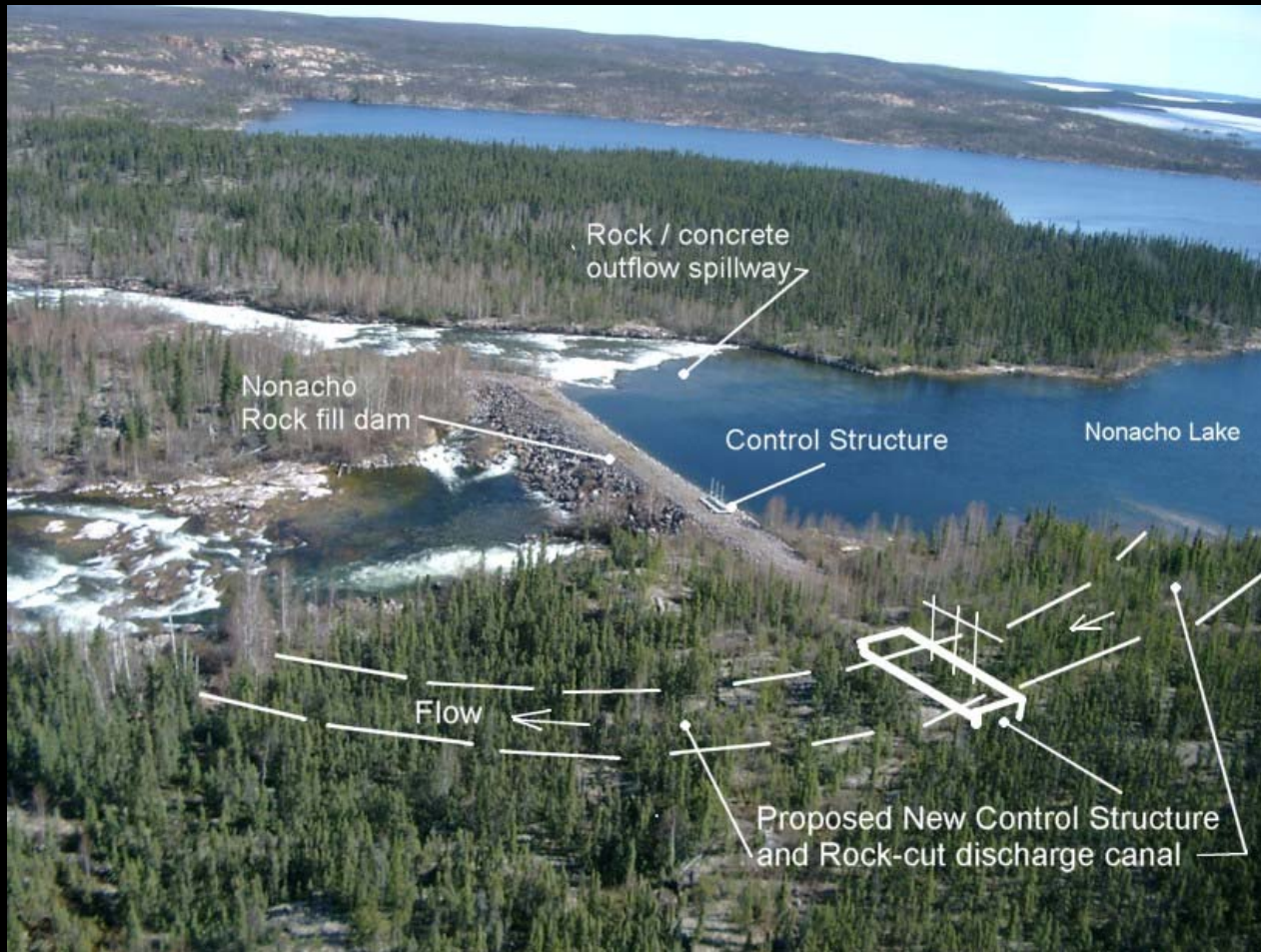
PROJECT COMPONENTS

North Gorge Schematic



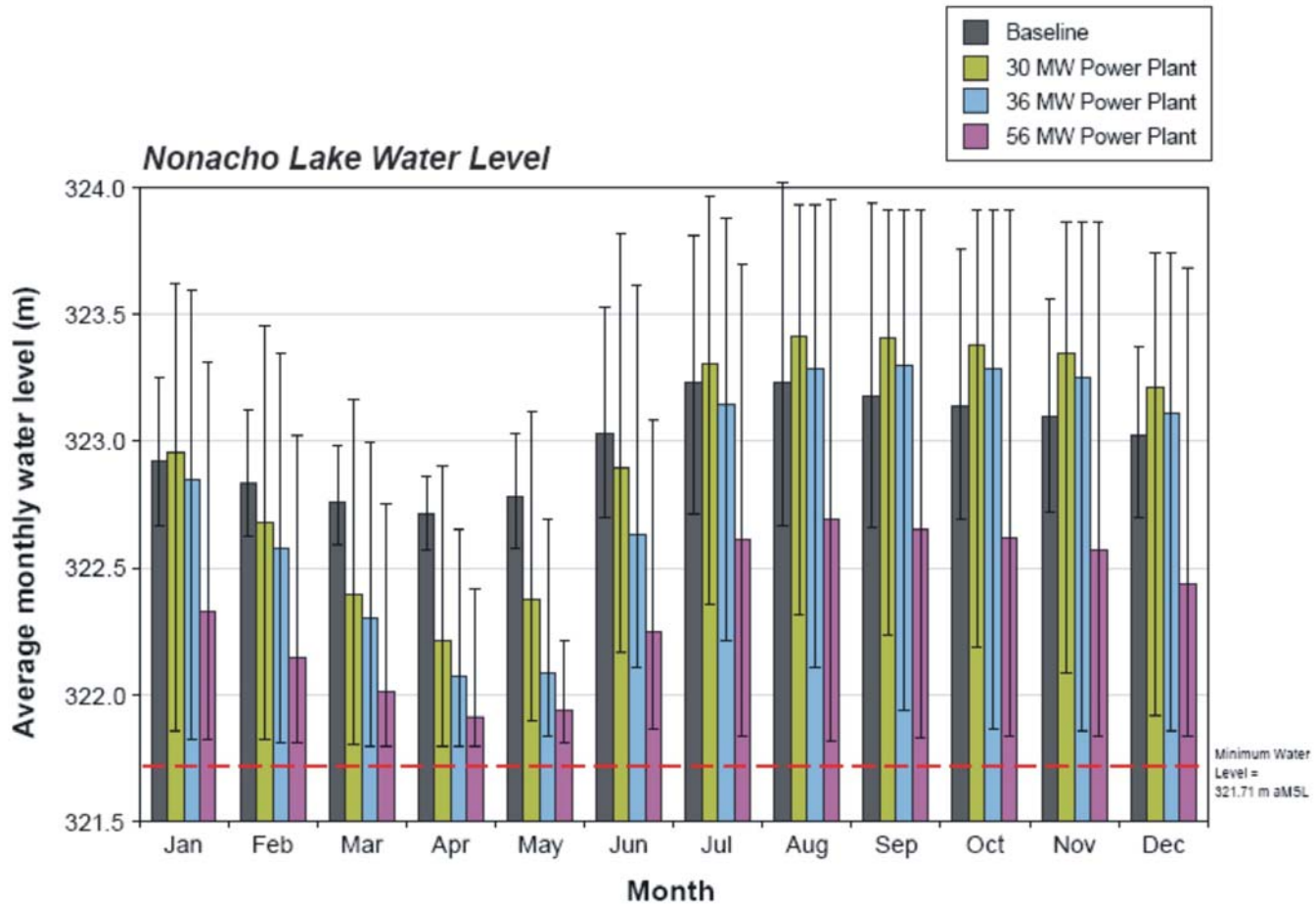
PROJECT COMPONENTS

Nonacho Control Structure



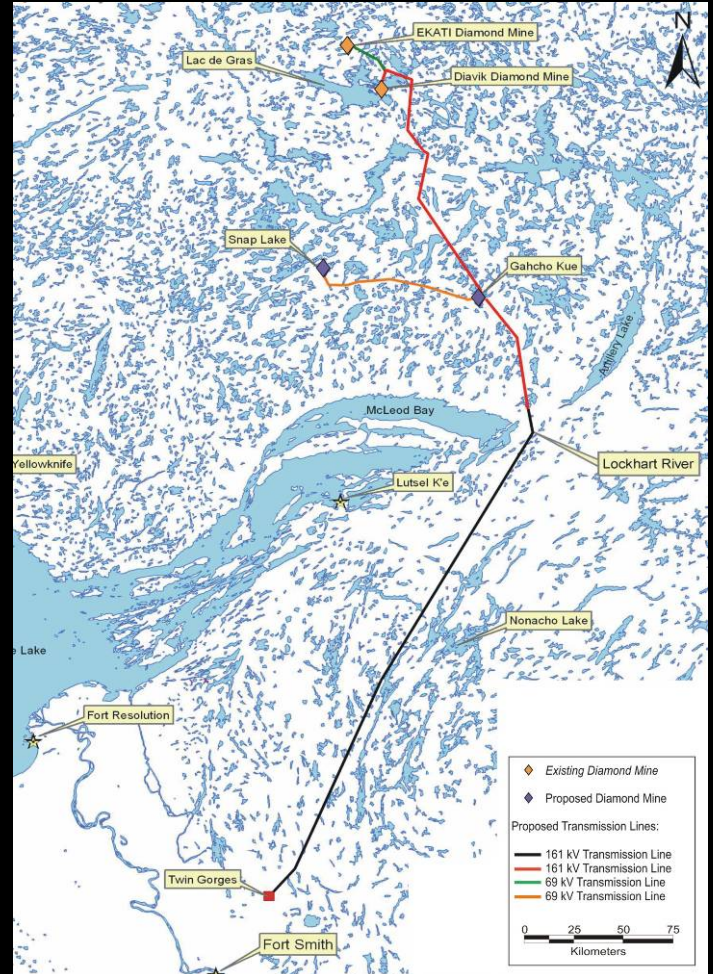
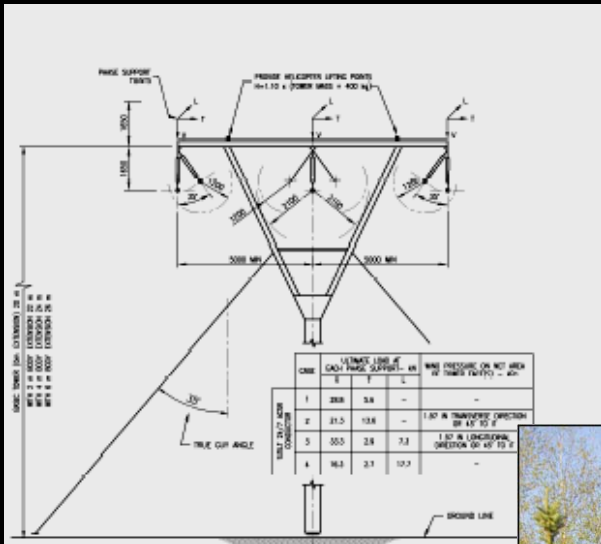
PROJECT COMPONENTS

Nonacho Lake and Taltson River



PROJECT COMPONENTS

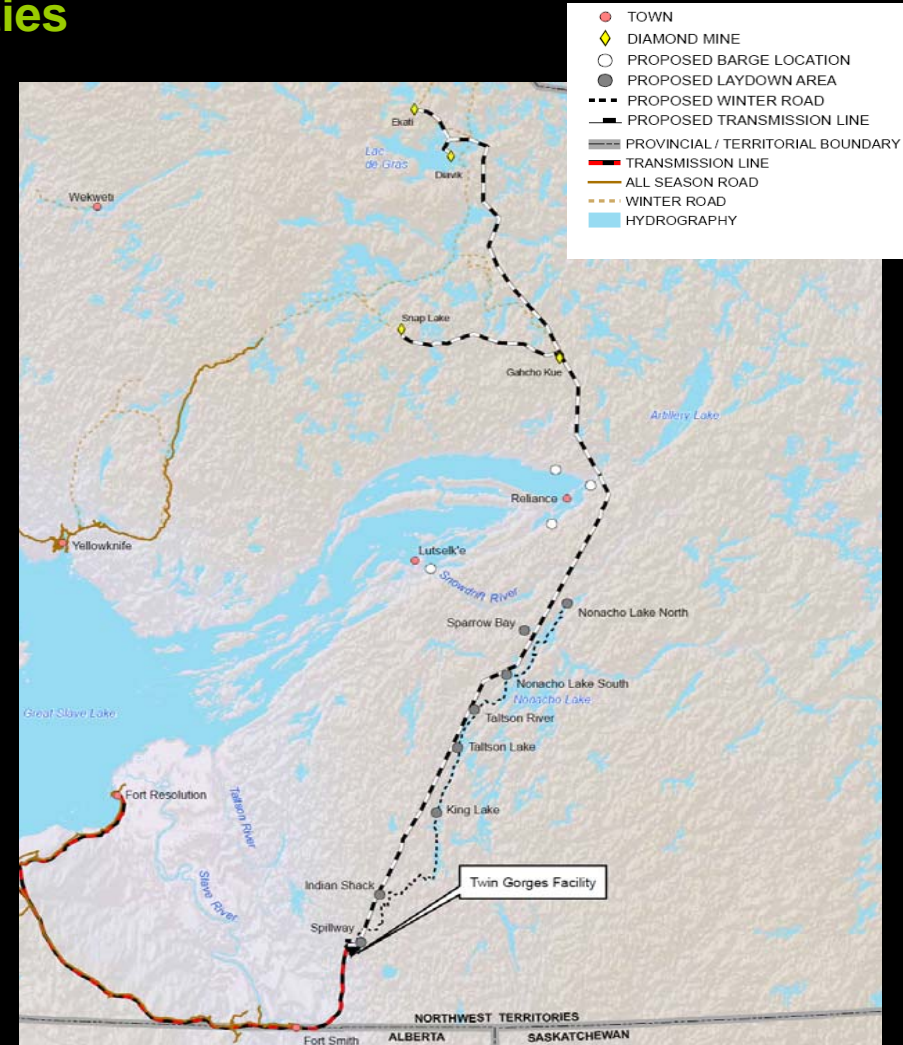
Transmission Line



CONSTRUCTION COMPONENTS

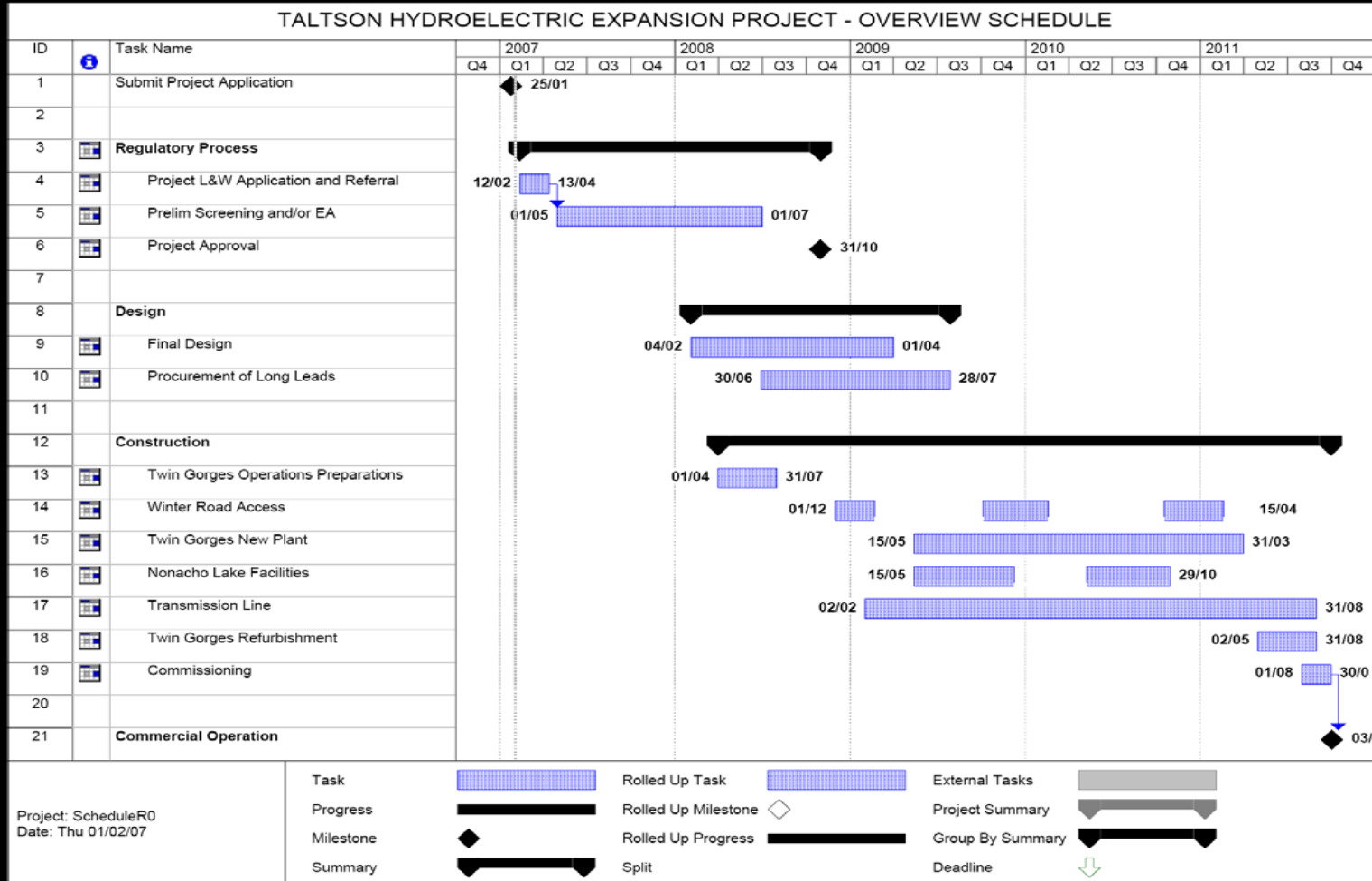
Activities

- Re-open temporary winter road from Ft. Smith to Twin Gorges
- New temporary winter road Twin Gorges to Nonacho Lake
- 8 staging areas along new winter road
- 4 barge landings and staging areas
- New temporary camp at Nonacho Lake; expanded camp at TG; and 2 floating camps at barge landings
- Transmission line helicopter construction
- Drilling & blasting of North Gorge and Nonacho Control Structure



CONSTRUCTION SCHEDULE

Schedule



RESOURCES

Construction Resources (skilled & unskilled):

- Twin Gorges Power Plant ~150 positions
- Nonacho Lake ~65 positions
- Transmission Line ~140 positions
- Substations ~45 positions

Operational Resources:

Long-term Operations/Maintenance ~10 positions

Indirect Employment:

- Supply and service industries
- Freight and fuel trucking
- Aerial transportation
- Logistical support

ENVIRONMENTAL MANAGEMENT SYSTEM

Potential Environmental Management Plans

- Operational Water Management
- Material and Waste Management
- Helicopter Protocols to Protect Wildlife
- Human-Wildlife Conflict Resolution
- Vegetation Management
- Erosion and Sediment Control
- Health and Safety
- Spill Contingency
- Emergency Response

ENVIRONMENTAL COMPONENTS

Environmental Components

Air Quality

Aquatic Environment and Fisheries Resources

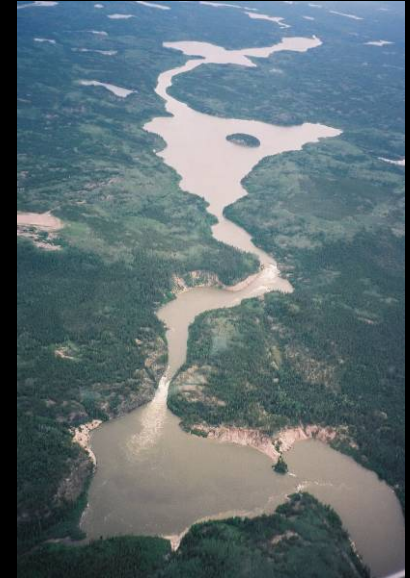
Soil and Vegetation

Wildlife and Habitat

Heritage Resources

Socio-Economics

Land and Resources



ENVIRONMENTAL COMPONENTS

Air Quality

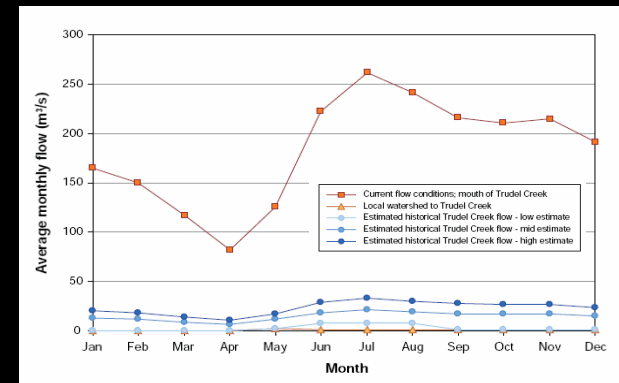
- Meteorological station at Ft. Smith Airport
- Baseline anthropogenic emissions within Project area associated with diamond mines in northern sector of transmission line
- Direct Project related effect: air emissions during construction from earth moving equipment at Nonacho and North Gorge, helicopter use, camp incinerators;
- Indirect effects: reduction of GHG & particulate matter from diesel generators at mines
- Mitigation: limited idling time, appropriate emission control features



ENVIRONMENTAL COMPONENTS

Aquatic and Fisheries Resources

- Water Effects Monitoring Program – Taltson Basin
- Transmission Line and winter road water body crossing database
- Trudel Creek Fish and Habitat Assessment
- Software modeling (HEC-RasSims and HEC-Ras) of Taltson & Trudel for baseline & forecasts
- Instream work plans
- Ice formation monitoring program conducted by local users



ENVIRONMENTAL COMPONENTS

Aquatic and Fisheries Resources continued

- Taltson Basin
 - Changes in water levels within existing permit limits and annual ranges
 - Potential effects: aquatic species and shoreline users (fish, waterfowl, muskrat, beaver, lodge owners)
 - Mitigation: critical life-stage needs, operational water management plan, communication policy
- Transmission Line
 - No planned instream works; minimal riparian brushing
 - Potential effects: reduced riparian vegetation
 - Mitigation: avoid waterbodies, DFO Operational Statement, maximize vegetation retention

ENVIRONMENTAL COMPONENTS

Aquatic and Fisheries Resources continued

- Trudel Creek Fish and Habitat Assessment
 - Changes in current flow regime
 - Effect: change in fish and aquatic habitats
 - Mitigation: critical life stage needs, minimum flow release
- Instream Works (Twin Gorges & Nonacho)
 - In and near stream blasting & earth works; change in habitats
 - Effect: change in fish and aquatic habitats
 - Mitigation: timing windows, sediment & erosion control plan, isolated work sites, DFO explosives guidelines

ENVIRONMENTAL COMPONENTS

Aquatic and Fisheries Resources continued

- Winter Road
 - Winter road river crossings and overland construction
 - Effects: Sedimentation, flow blockage
 - Mitigation: DFO guidelines for ice & snow bridges, sediment & erosion control plan
- Barge Landings, Camps & Staging Areas
 - Effects: change to fish habitat, sedimentation
 - Mitigation: site selection at or near low-risk sites (stable soils, avoidance of sensitive habitats, sediment & erosion control plan)

ENVIRONMENTAL COMPONENTS

Soil and Vegetation

- Identify soils types at site disturbances
 - Quantify vegetation types within Project footprint
- Approximately 55% of land cover contains vegetation that can grow greater than 3m in height
- Map areas of interest (i.e. eskers; cliffs; burns)

Land Cover Type	Hectares	
	TG to LR	LR to GK (Option 1)
Cloud or rock shadow	0.9	2.1
Clouds or smoke or ice	0.0	0.0
Deciduous	11.5	0.0
Fire regeneration/low shrubland open	136.5	13.3
Fire regeneration/sparsely vegetated	0.0	0.0
Herbaceous	9.5	0.0
Jackpine	62.6	0.0
Lichen dominant	44.9	27.0
Low shrubland	40.6	26.8
Mixed forest	12.6	0.0
Non-vegetated	0.9	0.0
Scattered conifers on bedrock	57.0	0.0
Sphagnum moss	1.6	0.0
Spruce-lichen boreal forest	215.8	29.6
Tall shrubland open/immature deciduous and/or immature conifers open	230.0	14.0
Water	84.0	19.2
Wetlands	0.2	0.0
White spruce	5.0	0.0
Total	913.3	132.0
Unclassified	0.5	23.6

Note: TG = Twin Gorges
 LR = Lockhart River
 GK = Gahcho Kue

ENVIRONMENTAL COMPONENTS

Soil and Vegetation continued

- Effects: Soil disturbances associated with infrastructure footprint, cleared vegetation under transmission line, cleared vegetation at staging areas, camps, barge landings, Twin Gorges & Nonacho construction sites, and winter roads
- Mitigation: Locate towers on rock, temporary disturbances in areas of least sensitivity, reclamation and revegetation plans, retain vegetation under t-line, hand clearing under t-line, helicopter construction of t-line



ENVIRONMENTAL COMPONENTS

Wildlife and Habitat

- Caribou life-stage uses along transmission line corridor
- Aerial wildlife and track surveys along transmission line
- Bird nesting habitat
- SARA listed species
- Effects: noise and disturbance associated construction activities, change in habitat, bird strikes or electrocution on t-line.



ENVIRONMENTAL COMPONENTS

Wildlife and Habitat continued

- Mitigation: vegetation retention under t-line; timing windows around migratory species and sensitive life-stages, avoidance of specific habitat, waterbodies & wetlands, management plans



ENVIRONMENTAL COMPONENTS

Heritage Resources

- Existing databases of known sites
- Identification of high potential areas
- Community interviews
- Field assessments of known and potential sites
- Effects: Potential disturbance of heritage resource
- Mitigation: Site avoidance, construction monitoring

ENVIRONMENTAL COMPONENTS

Socio-Economic

Socio-economics associated with the Project is a priority item for Dezé Energy Corporation

Focused on harvesting sustainable long term development through:

- Economic vitality
- Environmental integrity
- Social/Cultural well being
- Equity
- Control over natural resources

ENVIRONMENTAL COMPONENTS

Socio-Economic

- Statistical information on Socio Economic indicators
- Community engagement
- Input-output modeling of economic conditions and cost-benefits
- Qualitative and quantitative data for holistic effects assessment
- Effects:
 - Main geographic area of effect is the South Slave Region and East Arm Region of NWT
 - Different socio-economic effects during construction and operational periods
 - Potential for Individual and community fabric changes
- Mitigation measures: Business development assistance; training programs, de-bundling contracts, identifying community responsibilities of Dezé and of the owner's groups, community liaison and representation

ENVIRONMENTAL COMPONENT

Land and Resources

- Traditional & non-traditional harvesting
- Proposed East Arm National Park
- Travel routes (summer/winter)
- Resource developments
- Commercial hunting & fishing
- Tourism & recreation
- Effect: Disruption or loss of traditional and non-traditional land and resource uses
- Mitigation: stakeholder identified park crossing location, timing windows, tower & line locations, ice monitoring and communication policy



NEXT STEPS

- Continue with baseline studies
- Participate with agencies and stakeholders to scope issues and develop Terms of Reference, review details of studies to date, identify areas of interest, and confirm study programs
- On-going participation with engineering and design team to identify and incorporate impact mitigation measures, where feasible
- Conduct environmental impact assessment



THANK YOU!
QUESTIONS AND COMMENTS!!

