

Sä Dena Hes Mine Decommissioning & Reclamation

Presented by:

Gordon Shupe – Amec Foster Wheeler on
behalf of Chris Jeffrey

- Presentation Objectives
- Site Location and Background
- Closure Plan and Objectives
- Scope of Work and Implementation Strategies
- FN Engagement Strategies and Data
- Results
- Conclusions

Teck Presentation Objective

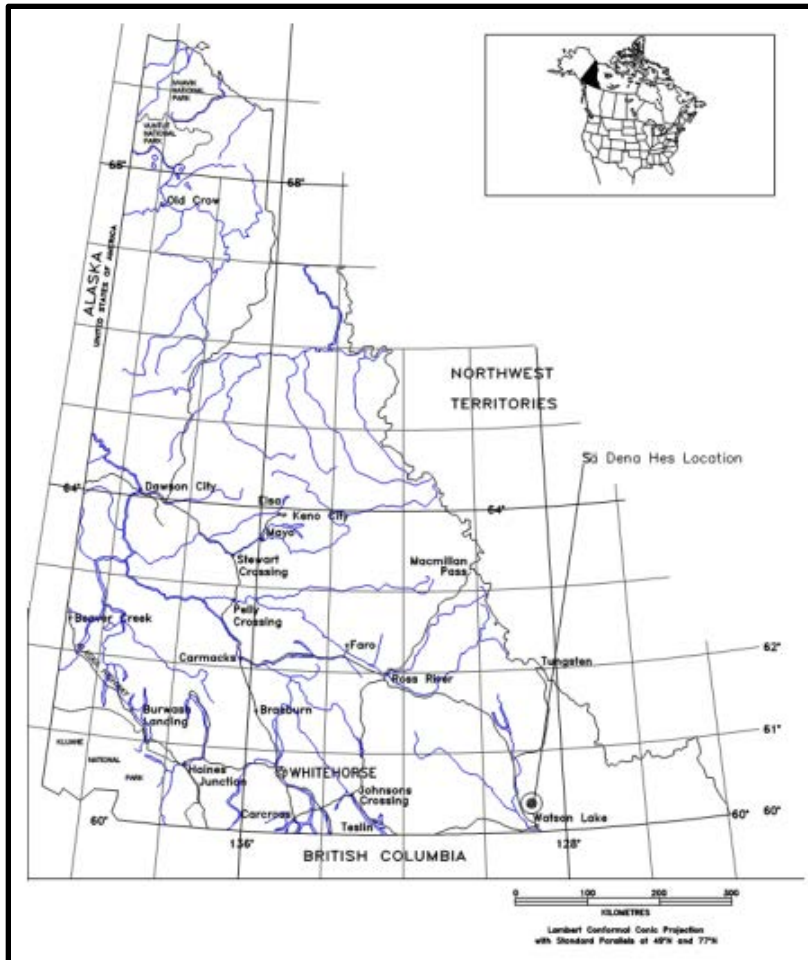


- Showcase reclamation project with many constraints
- Present major project risks and challenges encountered
- Provide example project where First Nations engagement is a project priority
 - Constraints / objectives
 - Engagement approaches / strategies
 - Results (data)
 - Potential considerations for future projects

Teck

Site Location





- 6 hour drive east of Whitehorse
- 70 km north of Town of Watson Lake
- Lies within traditional territory of Liard First Nation
- Elevation 1200 m to 1500 m above sea level

Teck Project Background

- Lead/zinc/silver mine
- Exploration:
1962 to 1991
- 16 months production:
Aug 1991 to Dec 1992
- Care and maintenance:
Dec 1992 to Aug 2013
- Closure (DDRP):
Began Sept 2013



- Decision to enter site into permanent closure made in 2012
- Detailed Decommissioning & Reclamation Plan (i.e. Closure Plan)
- Closure objectives include:
 - Completion of decommissioning and reclamation activities by December 31, 2015
 - Engagement of local / First Nations resources through the implementation of the DDRP







Features decommissioned / salvaged / reclaimed:

- Mill
 - crusher; conveyors; ore bins; warehouse; tank farm; concentrator; office complex; camp; power house;
- Tailings Management Facility
 - dams; water impoundments; diversions; tailings areas;
- Mine Areas
 - open pits; portals; ventilation shafts; waste rock dumps;
- Electrical
 - power poles and lines; transformers; electrical boxes and panels;
- Other
 - landfill; pipeline; core shacks; pumps; and pump shacks.

Teck Reclamation Activities



- Mill
 - Staged dismantling, salvage, and demolition of the ore concentrating mill facilities
- Tailings Management Facility
 - Dewatering 450,000 m³ from tailings impoundments (permitted discharge)
 - Removal of earthen dam structures (250,000 m³)
 - Capping of 150,000 m² of tailings
 - Restoration of natural creek alignments

Teck Reclamation Activities



- Mine Areas
 - Reshaping and stabilization of waste rock dumps
 - Closure of mine adits, portals, and ventilation shafts
 - Infilling of open pits
 - Remedial capping of reclaimed waste rock dump and open pits
 - Remedial capping of metals-impacted areas
- Other
 - Landfill operation, maintenance, and closure
 - Revegetation across all disturbed site areas (100,000 native trees planted and native seed mixture applied)

- Schedule – 3 year project
 - Completion date of Dec. 31, 2015
 - Overall: Shortened 2013 season (start-up delay), 2015 season reserved for re-vegetation and road decommissioning
 - 2014: Majority of construction to be completed with several critical path activities
- Short construction seasons
- Limited local workforce and equipment

Teck 2013 Scope of Work



Camp
facilities
(before)



Camp
facilities
(after)

- Pumping within TMF (to reduce 2014 pumping)
- Pipeline Removal
- Demolition of camp / office facilities
- Landfill maintenance
- General clean-up

Teck Engagement Strategy

- Pre-project meeting with local First Nations Contractors to discuss work & determine availability / quantity of resources
- Formal communication and engagement plan finalized
- First Aid Attendant services



Teck 2014 Scope of Work



- Mill demolition / dismantling (non Teck-controlled)*
- TMF decommissioning
- Mountain Works
- Electrical Decommissioning
- Other (road maintenance, mill capping, pipeline removal, small demo, landfill ops, etc)

Teck

Mill Dismantling



Teck

Mill Dismantling



Teck

Mill Dismantling



Teck TMF Decommissioning



Teck TMF Decommissioning



Teck

Mountain Works



Teck

Mountain Works



Teck

Mountain Works



Teck

Electrical Decom



Teck

Other Works



Teck Engagement Strategy

- Mill dismantling / demolition / salvage not Teck controlled
- Remainder of project aspects under Teck control
- Work Breakdown Strategy developed for Teck controlled work
- Schedule considerations (constraint) meant need for concurrent execution of tendered work packages
- Some work purposely left out of tendered work packages

Teck Engagement Strategy

Tendered Work Packages

- Engage general contractors who can handle scope
- Stipulations pertaining to inclusion of FN
- Letters of recommendation from FN leadership
- Contractor selection process includes:
 - Favorable consideration to Contractors whose bid include meaningful FN engagement
 - Interviews



Teck Engagement Strategy

Work left out of tendered work packages:

- Road maintenance
- Concrete breaking
- Capping of mill site
- Pipeline removal
- Helipad construction
- Landfill maintenance
- General clean-up
- Environmental Monitors
- Minor demolition works
- Decommissioning of instrumentation
- First Aid / Site Security



Teck 2015 Scope of Work



- Final remedial capping
 - Reclaimed waste rock dump surfaces
 - High metals soils
- Re-vegetation
 - Native seed application
 - Native tree planting across reclaimed TMA, mill site, landfill and borrow areas
- Road decommissioning – 32 km of road removed
- Removal of remaining infrastructure

Teck

Remedial Capping



Teck

Revegetation



Teck Road Decommissioning



Teck Engagement Strategy



- All aspects Teck-controlled
- One tender with similar stipulations as 2014 tenders
- All other work carried out by FN contractors similar to 2013 work

- Engagement defined as:

First Nation workforce hours / Total workforce hours = % First Nations engagement

- Reminder: Mill Demolition work (2014)
not Teck controlled

Project aspect	Workforce hours	First Nations engagement (%)
All 2013 work	2,548	62.9
Mill infrastructure demolition and salvage (2014) – not Teck controlled	31,632	12.8
Tailings management area decommissioning (2014)	15,028	56.9
Mountain works (2014)	5,597	30.6
Smaller site work activities and other (2014)	27,069	83.3
All 2015 work	16,018	61.2
Overall project to date (<u>including</u> mill infrastructure demolition and salvage)	97,892	37.5

Project aspect	Workforce hours	First Nations engagement (%)
All 2013 work	2,548	62.9
Mill infrastructure demolition and salvage (2014) – not Teck controlled	31,632	12.8
Tailings management area decommissioning (2014)	15,028	56.9
Mountain works (2014)	5,597	30.6
Smaller site work activities and other (2014)	27,069	83.3
All 2015 work	16,018	61.2
Overall project to date (<u>excluding</u> mill infrastructure demolition and salvage)	66,260	55.2

Understanding the Numbers

- Teck-Controlled Work vs. non-Teck-Controlled

Project aspect	First Nations engagement (%)
Mill Demolition	12.8
All Projects including Mill Demolition*	37.5
All Projects excluding Mill Demolition	55.2

*Mill Demolition accounts for large percentage of hours (32.3%)

Teck Conclusions – Overall



- Northern remote site with logistical challenges
- Short construction season
- Primary project objectives
 - Complete project by December 2015
 - Engage FN / local resources as much as possible
- Project start delayed causing compressed schedule
- Five concurrent contracts managed in 2014

Teck Conclusions – Schedule



- Tight project schedule with many critical paths
 - Detailed Work Breakdown Structure essential to project's success
 - Tendering process with stringent schedule requirements

- First Nations engagement for this project achieved through:
 - Tendering process
 - Setting aside work items
 - Consultation
- 55% engagement over project for Teck/ Amec Foster Wheeler controlled aspects.

Teck

Before and After



Teck

Before and After



Teck

Before and After



Teck Acknowledgements



- Teck Resources Limited – Legacy Properties
- SRK Consulting

Teck

Questions

