



The Giant Mine Remediation Project... A Work In Progress

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Remtech 2017, Banff, Alberta

Giant Mine Update



1
History /
Background

2
Progress to
Date

3
What's Next



Giant Mine

900 hectare site
located 5 km
north of the City
of Yellowknife,
Northwest
Territories

Lies within city
limits and
overlapping
Aboriginal land
claims

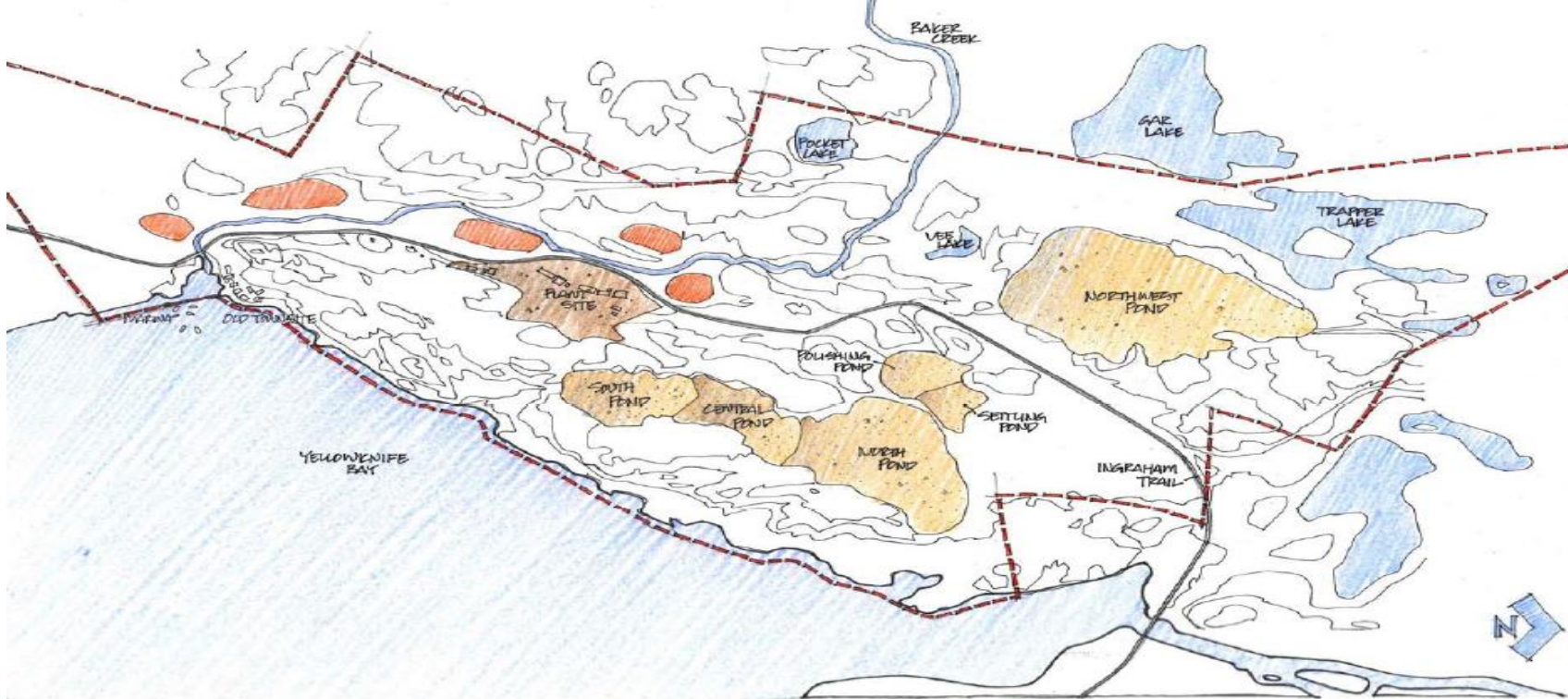
Gold mine
operated from
1944 until 1999

Roasting of ore
produced
Arsenic Trioxide
dust, a toxic
contaminant



Giant Mine was one of Canada's longest operating gold mines, producing its 10,000th brick in 1984, and generating 7 million ounces of gold during its operation.

Site Features



Project Phases

Project Assessment Phase (1999-2005)

- Beginning stages of the development of the Remediation and Development Assessment Report and application for a Water License
- Research and to understand the risks and complexities of the mine site while also identifying remediation options for Arsenic Trioxide
- Initiate Care & Maintenance of site

Definition Phase Pre-EA (2006-2012)

- 2007 Submitted application for Water License based on Remediation Plan
- 2008 Project referred to Environmental Assessment (approved in 2014)
- Site Stabilization Plan was developed to address immediate high risks such as the deconstruction of deteriorated onsite infrastructure
- A realignment/rerouting of Baker Creek

Definition Phase Post-EA (2012-2020)

Current: Focus on Design and Planning

- Site Stabilization Plan Implemented
- Addition deconstruction of major buildings ex. Roaster complex, headframes, etc.
- Continued underground and site stabilization
- Rerouting of onsite public highway
- Relationship building with Indigenous groups and
- Finalize Surface Design
- Regulatory - all conditions, permits and licences will be obtained.

Project implementation (2020-2030)

- Also known as remediation, at this stage the majority of the work will be completed to actively remediate the site resulting in the high costing phase.

Environmental Assessment Timeline

2009

MVERB releases Terms of Reference for Environmental Assessment

2010

Public meetings to discuss Remediation Plan; Remediation plan submitted to Review Board

2011

Information Requests for Environmental Assessment; Review Board technical sessions

2012

Information Requests for Environmental Assessment; Review Board public hearings; public registry closes

2013

Report of Environmental Assessment issued by Review Board, with 26 Measures

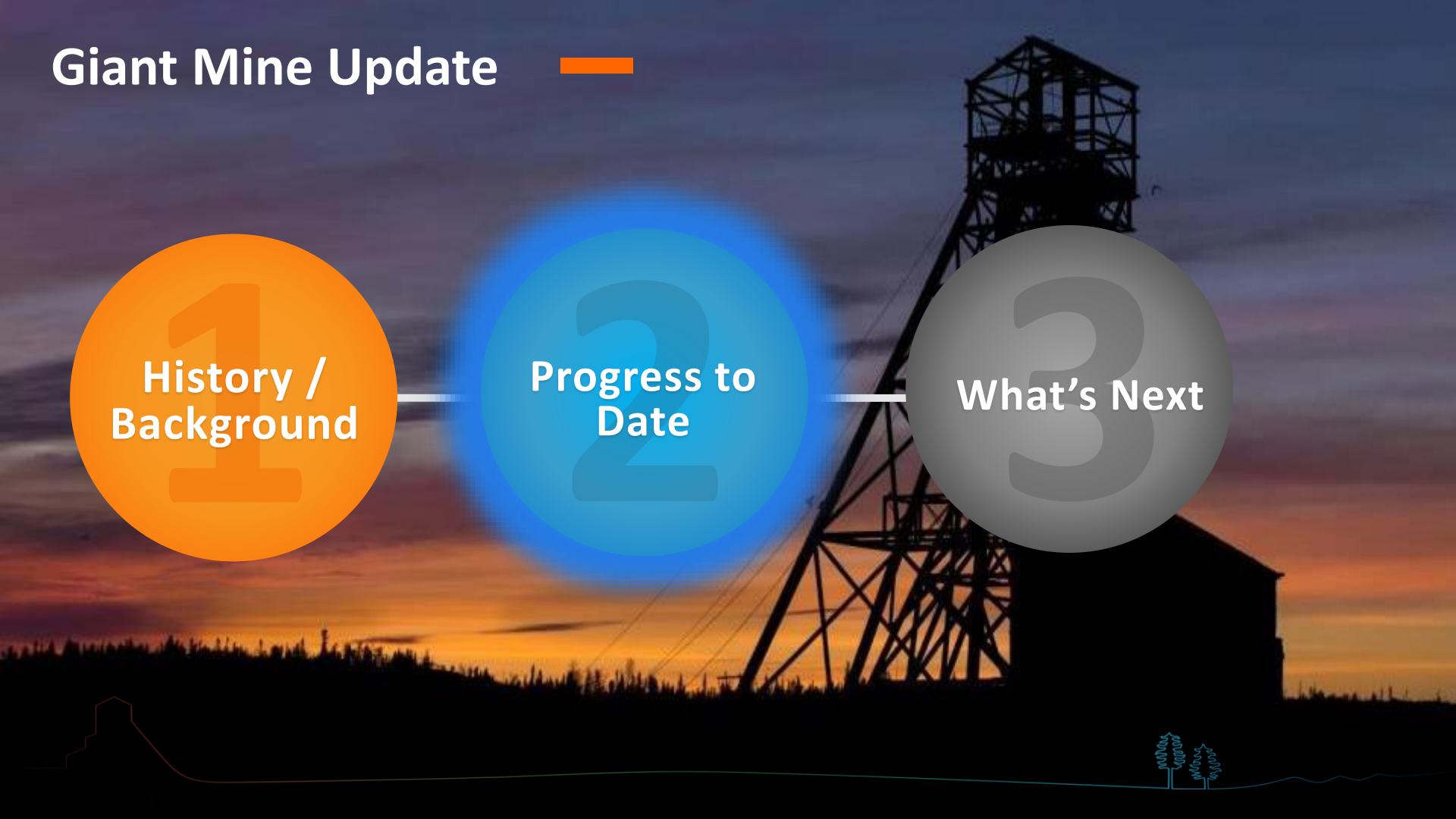
2014

Responsible Ministers approve Final Report of Environmental Assessment, accepting all 26 Measures, 9 with modifications

Legally-binding Measures deal with various topics:

- Environmental Agreement for Project Oversight and Ongoing Research (*Measures 1, 2, 3, 4, 6, 7, 8, and 23*)
- Risk Assessments including: additional Human Health (*Measures 9, 10, 25, 26*); Quantitative (*Measure 5*); and Mine Abandonment Health and Safety (*Measures 20, 21, 22, 23, 24*)
- Baker Creek (*Measures 11, 12, 13*)
- Treatment Plant Effluent and Water Quality (*Measures 14, 15, 16, 17*)
- Containment of Arsenic Trioxide (*Measures 18 and 19*)

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Immediate Risk Mitigation

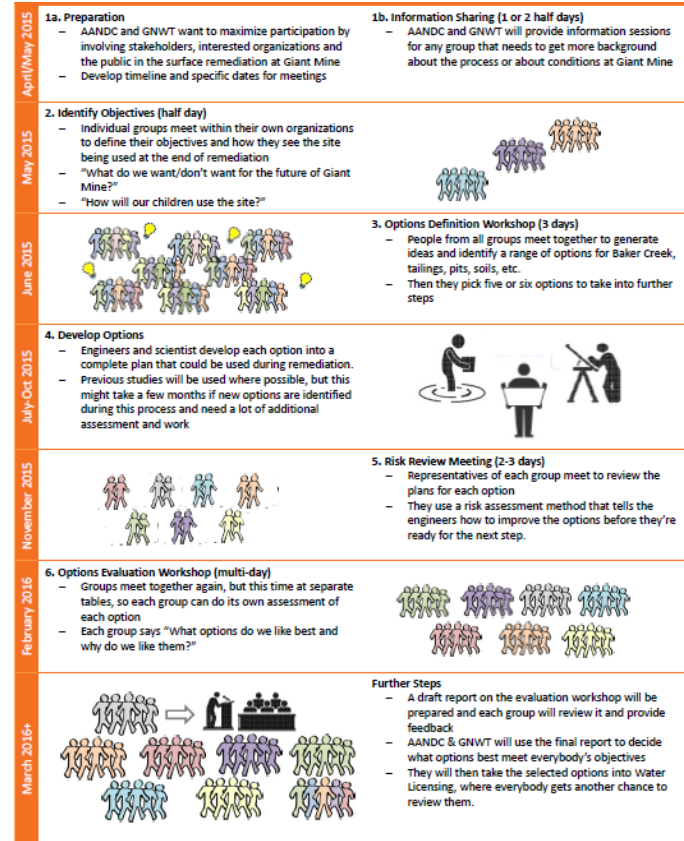


Site Stabilization



Surface Design Engagement

- Stakeholder Input
- Range of options
- Comprehensive feedback
- Understand various points of view
- Input to Project Team decisions

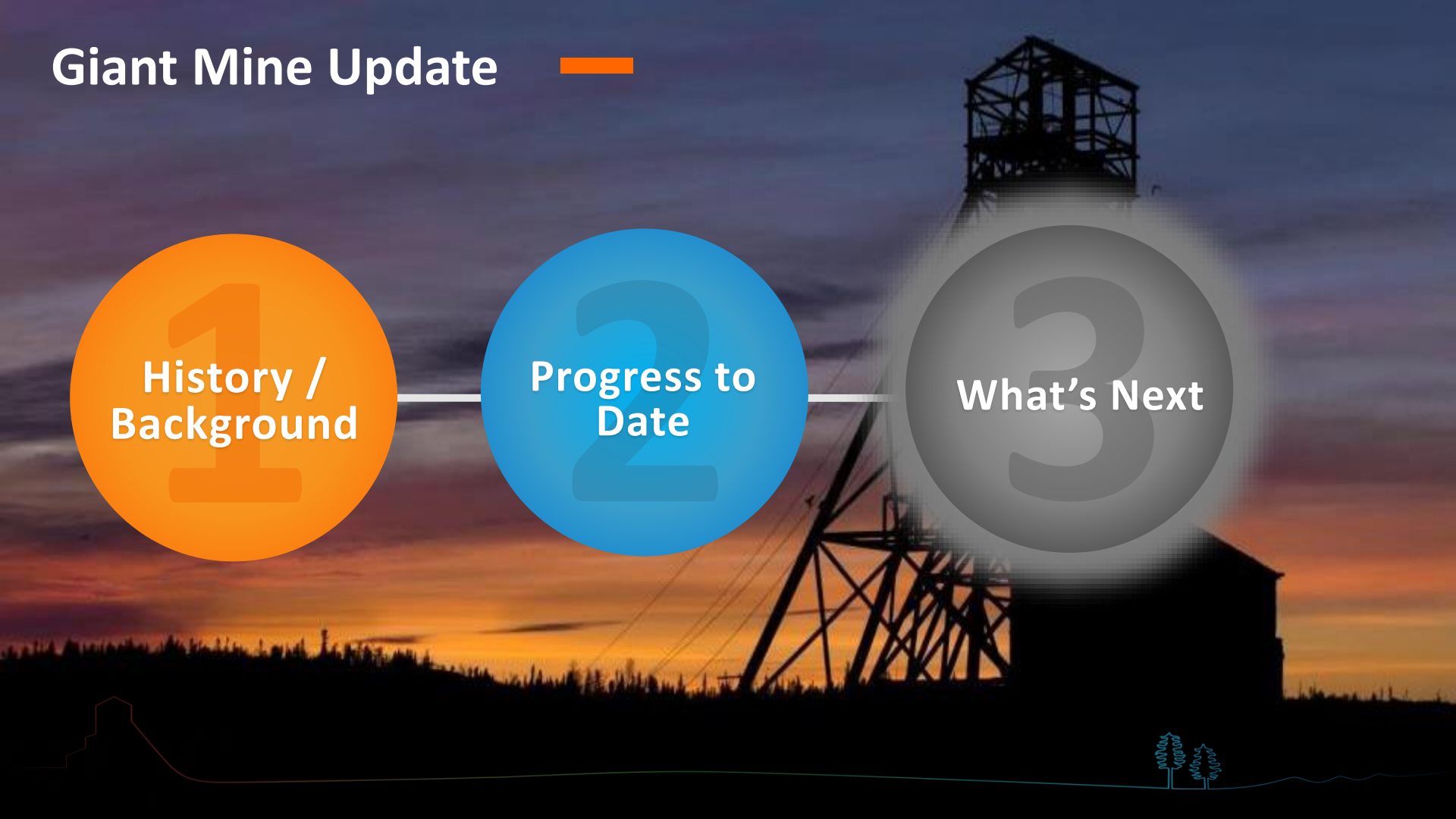


Care, Maintenance, & Monitoring

- Air quality monitoring
- Employee health monitoring
- Dust management
- Infrastructure repairs and upgrades
- Water treatment



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Current Focus

- Design of various remediation components
- Preparation of Closure & Reclamation Plan and Water Licence submission package
- Health-studies – design and establishing baseline



Main Construction Manager

Construction Management Contract

- Small core team to advise and support project team, and manage sub-contracts
- All work is tendered in packages to subcontractors
- Bid price for core team and % to manage each package

Term 1 (2017-2022)

- Advisory
- Site Control/Mine Manager
- Risk mitigation and remediation planning



Main Construction Manager

Term 2 (2022~2030)

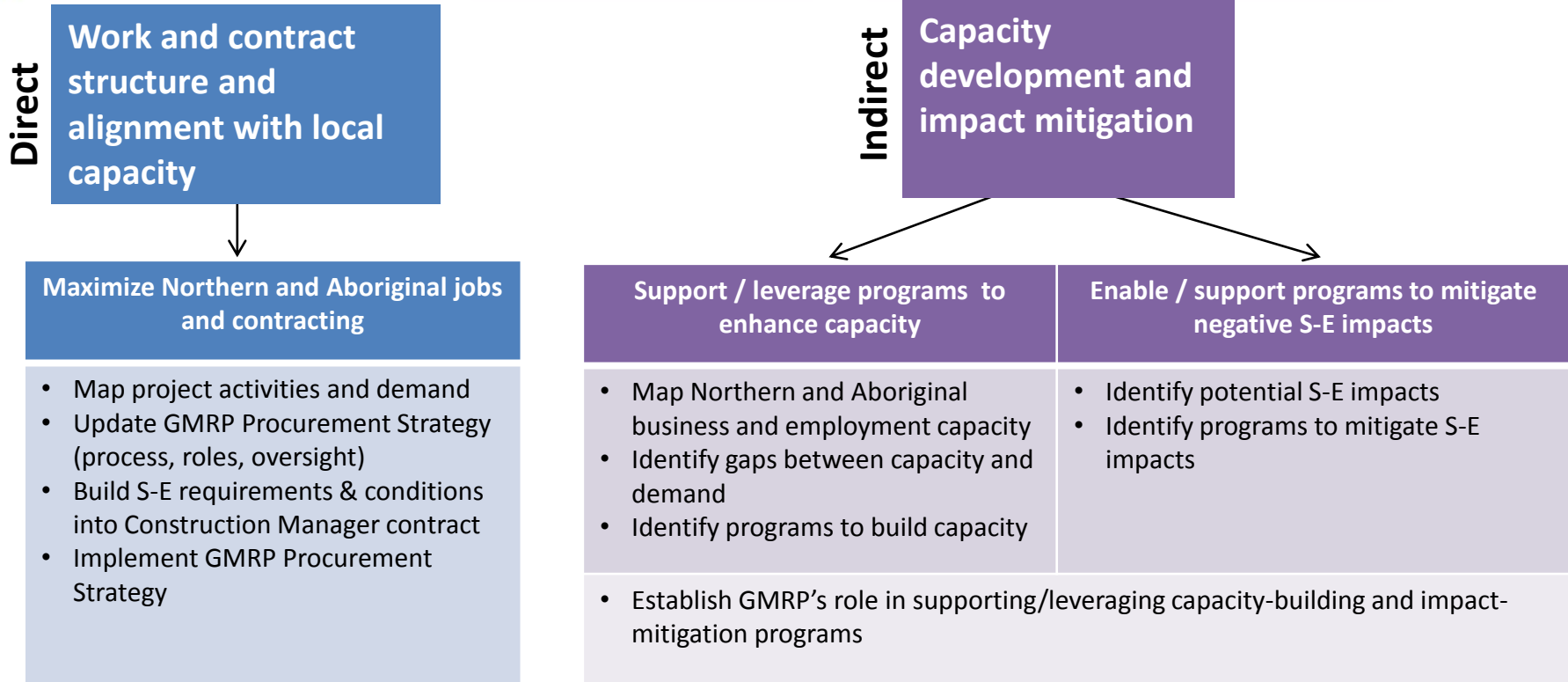
- General Contractor
- Site Control/Mine Manager
- Implementation of Remediation Project (each work package to include AOC criteria)

Off-ramps:

- No commitment beyond Term 1
- Any other termination of the contract would have to be performance related



Socio-Economic Strategy



Remediation & Reclamation Activities

Infrastructure deconstruction and disposal

Surface water management

Tailings rehabilitation

Borrow/Quarry development

Underground stabilization

Freezing of Arsenic Chambers

Closing mine openings to surface

Open Pit Management

Contaminated soil management

Baker Creek realignment

New effluent treatment plant

Optimize site infrastructure

Regulatory Approval for Remediation

- Project Must Submit a Post-EA Information Package
- An updated Project Description that informs the water licence
- Water licence based on preliminary designs and management plans
- As individual management plans are finalized, they will be submitted for approval under the overall water licence





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Thank-you... any Questions?