Alberta Energy Regulator

Rock-Hosted Mine Liability Process

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SED 005: Rock-Hosted Mine Liability Process

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Abbreviations

ACA	approval holder capability assessment
AER	Alberta Energy Regulator
BSD	base security deposit
DFB	demand forfeiture surety bond
EPEA	*Environmental Protection and Enhancement Act*
KPI	key performance indicator
MLE	mine liability estimate
MLE tool	mine liability estimation tool
RDIP	Responsible Development Incentive Program
RMLP	rock-hosted mine liability process
SED	specified enactment direction
SIR	supplemental information request

1 Introduction

1.1 Purpose

This specified enactment direction (SED) describes the rock-hosted mine liability process (RMLP) and related requirements. The Alberta Energy Regulator (AER) has developed the RMLP to achieve a balance between protecting Albertans from liabilities and rehabilitation (decommissioning, remediation, abandonment, and reclamation) costs associated with rock-hosted mineral mine operations and maximizing industry opportunities for responsible resource development.

For this document, "rehabilitation" encompasses all the activities required to return the mine site to a predefined equivalent capability.

The RMLP is one of several AER liability management programs that ensure Alberta's energy and mineral resources are developed responsibly, including rehabilitation and returning the land to an equivalent land capability.

In conjunction with this SED, the AER has developed *Manual 033: Rock-Hosted Mine Liability Estimation Tool User Guide* to assist mine operators in calculating an appropriate liability estimate for their operations.

The requirements for the duty to reclaim are set out in section 137(2) of the *Environmental Protection and Enhancement Act* (*EPEA*) and Division 2 of the *Conservation and Reclamation Regulation*. The requirement to provide security and return is set out in section 135(1) of *EPEA* and section 18 of the *Conservation and Reclamation Regulation*.

In this SED, defined terms are set in **boldface** at first use, and the definitions are provided in appendix 1. For this SED, the definition of a mine or mine site includes a quarry (see appendix 1).

1.2 AER Requirements

Following AER requirements is mandatory for the responsible applicant, licensee, operator, approval holder, or permittee as specified in legislation.

The term "must" indicates a requirement. Each AER requirement that is unique to this SED is numbered. The terms "should," "recommends," and "expects" indicate a recommended practice.

If a requirement applies at the application stage and later in a mineral development's life cycle, the requirement may refer to both the applicant and the permittee, licensee, or approval holder.

1.3 What's New in This Edition

Section 3.4.3 has been revised regarding public credit-rating agencies.

2 Rock-Hosted Mine Liability Process

2.1 Overview

The RMLP manages rock-hosted mineral mine liabilities by collecting financial security from mine applicants and *EPEA* approval holders.

The RMLP facilitates (see section 4.3)

- management of rock-hosted mineral development liabilities associated with **mines**, **mine sites**, and **mineral processing plants** by collecting financial security;
- protection of the public from paying for **rehabilitation** costs that are the responsibility of the approval holder;
- transparency concerning how rehabilitation cost estimates are to be calculated;
- reduction of the differential between the mining sector's rehabilitation liabilities and the rehabilitation securities held by the AER for existing mines; and
- progressive reclamation and proactive source control measures to reduce the need for long-term water treatment and other environmental liabilities.

The AER requires that the security deposit cover 100% of the costs of undertaking rehabilitation if the approval holder defaults on its rehabilitation obligations, minimizing potential liabilities.

The AER requirements for rock-hosted mineral mine liability management will ensure that the calculated liability encompasses removing all infrastructure from the landscape and rehabilitating all disturbed land to an equivalent land capability at the end of the mining project. This objective is accomplished by implementing the mine liability estimation tool (MLE tool). For more information, see section 2.3 and *Manual 033*.

2.2 Components

The main RMLP components include

- liability estimation,
- liability assessment,
- mine operational net assessment, and
- security collection.

2.2.1 Liability Estimation

New operators estimate their initial liability using the base security deposit (BSD) calculations (see section 3.2).

Existing operators will submit an annual RMLP submission that includes the mine liability estimate (MLE) report for the upcoming calendar year's disturbance.

2.2.2 Liability Assessment

The AER will review the approval holder's annual RMLP submission, including the MLE report and any alternative unit rates proposed by the approval holder.

2.2.3 Mine Operational Net Assessment

The AER accumulates and compiles key performance indicator (KPI) data from all mine submissions and applications. The data is used to prepare KPI reports to determine a performance rating.

The performance rating fosters progressive reclamation and land stewardship through an incentive program (see section 4.3).

2.2.4 Security Collection

The AER uses the incentive program results to determine the required security for each approval holder. The AER may continue to hold the security deposit after the expiry or cancellation of the *EPEA* mine approval if the approval holder has not fulfilled its rehabilitation obligations. The AER may take enforcement action if the approval holder fails to provide the security deposit within the required timeframe.

2.3 Mine Liability Estimation Tool

The MLE tool provides mine approval holders with a structured means to calculate an appropriate estimate of mine liability for their operations by assessing and quantifying rehabilitation risks and liabilities.

The MLE tool comprises operations and domains to address the complexity of

- different land uses across a mine site,
- the difference between underground and surface mining operations, and
- mineral processing plants.

Approval holders submit MLE tool data based on the forecast of the upcoming calendar year's proposed operations or for a potential change in mine liability during the mine's life. This data helps the AER determine the security deposit amount required for a mineral mine site.

The AER recognizes that the calculation of an appropriate MLE varies across the range of mine types and operations in Alberta. The MLE tool provides a consistent approach for all approval holders to estimate the rehabilitation costs for rock-hosted mineral resource operations in Alberta.

The MLE tool was developed with a tiered risk-based approach to calculating rehabilitation costs. Estimates are based on the operation's nature, size, scale, and complexity. It incorporates default unit rates linked to a comprehensive database of mine rehabilitation functions listed in the MLE tool cost schedule. The MLE tool cost schedule, with unit costs, will be posted on www.aer.ca at the start of each calendar year.

Appendix 2 is a version of the MLE tool cost schedule without the unit costs, listing the mine rehabilitation functions, activities, and justifications.

2.4 Review Process for Rock-Hosted Mineral Mine Liability

A liability review occurs each year or when a potential change in liability is anticipated. Figure 1 shows a simplified flowchart of the AER's liability review process.

Applications classified as "major" in accordance with section 6 of *Directive 091: Rock-Hosted Mineral Resource Development* are assigned a liability category (see section 3) to determine the required BSD that the applicant must provide before the AER will issue a disposition.

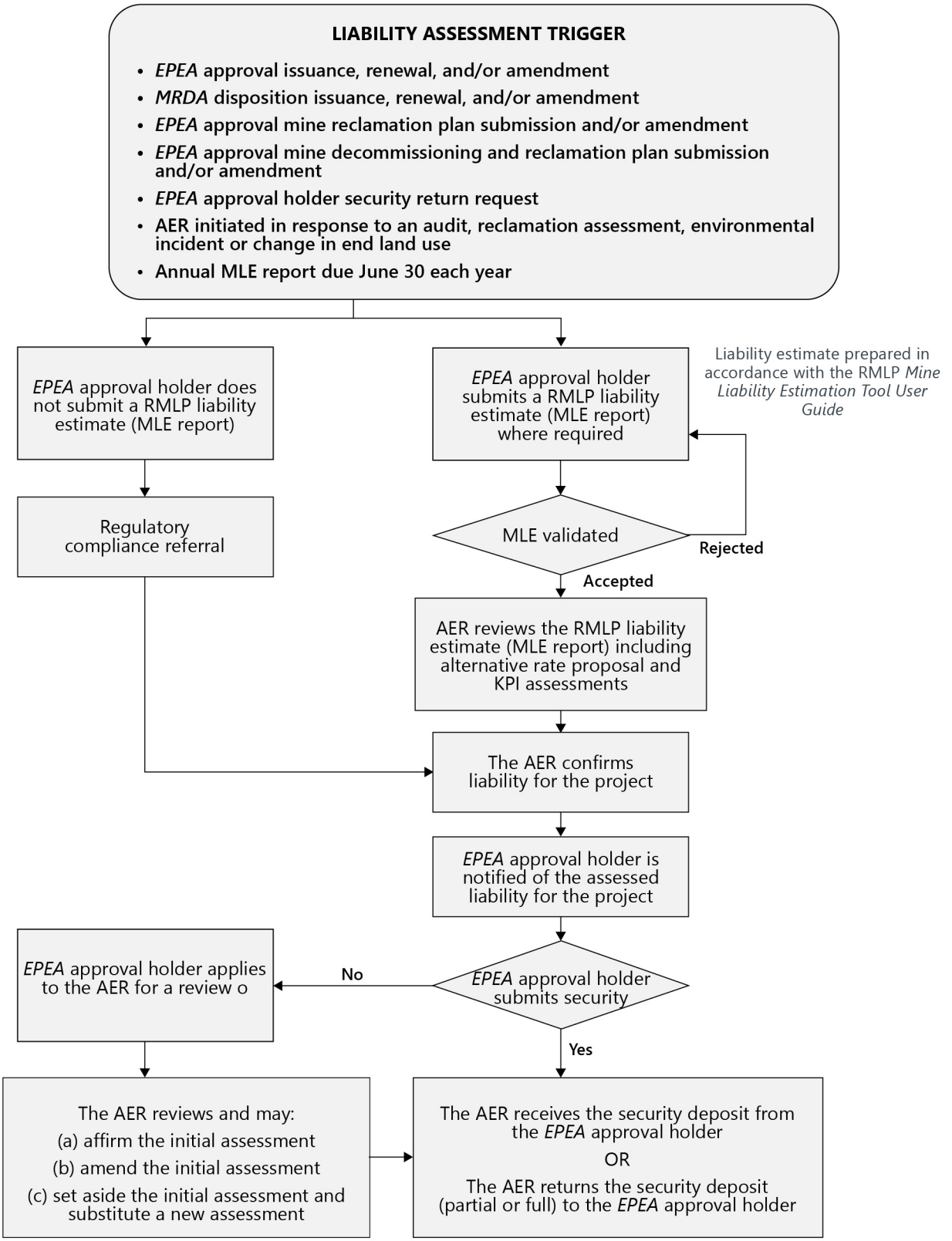

Figure 1. Simplified flowchart of the liability review process

3 Security

1) Approval holders must provide 100% security for the estimated liabilities associated with their rock-hosted mineral development project.

3.1 Security Deposits

There are two types of security deposits: BSD and annual security.

3.2 Base Security Deposit

There are four types of BSD, each with a corresponding security deposit amount for the various mine-site components and effects associated with the first year's development (i.e., disturbance).

- BSD type 1, quarry: $317 000
- BSD type 2, surface mine: $8 384 000
- BSD type 3, underground mine: $4 824 000
- BSD type 4, mineral processing plant: $5 504 000

The BSD is the initial security deposit collected as part of the application process.

As per sections 9.3.1, 9.4.1, and 12.3.1 of *Directive 091*, the applicant will provide their proposed first-year development plan. The AER will use this information to determine the applicable BSD.

2) The applicant must provide the AER with the applicable type of BSD for applications classified as "major" as per section 6 of *Directive 091* before the AER will issue a disposition.

If the approval holder defaults on its rehabilitation obligations, the funds may be used to maintain security and safety at the mine site and proceed with site rehabilitation.

3.2.1 BSD Type 1

BSD type 1 applies to a quarry without an associated mineral processing plant. It includes site infrastructure, settling ponds, shops, roads, etc.

See appendix 3 for the BSD type 1 calculation report from the MLE tool.

3.2.2 BSD Type 2

BSD type 2 applies to a surface mine without an associated mineral processing plant. It includes site infrastructure, settling ponds, shops, roads, etc.

See appendix 4 for the BSD type 2 calculation report from the MLE tool.

3.2.3 BSD Type 3

BSD type 3 applies to an underground mine without an associated mineral processing plant. It includes site infrastructure, settling ponds, shops, roads, etc.

See appendix 5 for the BSD type 3 calculation report from the MLE tool.

3.2.4 BSD Type 4

BSD type 4 applies to a mineral processing plant. It includes site infrastructure, settling ponds, shops, roads, tailings ponds, processing, refining, heap leach facilities, etc.

See appendix 6 for the BSD type 4 calculation report from the MLE tool.

3.3 Annual Security

The MLE reports provide the basis for the annual security deposit requirements.

3) Approval holders must provide the annual MLE report by June 30 each calendar year. This submission may result in a requirement for additional security, a return of any portion of the security, or the security remaining status quo.

See *Manual 033* for details on MLE report procedures.

3.4 Providing Financial Security

4) Applicants or approval holders must provide security as cash, a letter of credit, or an AER demand forfeiture surety bond (DFB).

5) The approval holder must be the applicant on the financial instrument unless otherwise directed by the AER. The AER may consider arrangements for other companies to provide some or all of the financial security.

6) The applicant or approval holder must ensure that the entire amount of any security deposit required by the RMLP is provided on time and in the correct form.

3.4.1 Cash Payment

The AER will accept any of the following as a cash payment:

- a cheque drawn on the account of the applicant or approval holder required to provide the security deposit
- a cheque drawn on a legal trust account in the name of the applicant or approval holder required to provide the security deposit
- a money order identifying the applicant or approval holder required to provide the security deposit as the payer or remitter

- a bank draft identifying the applicant or approval holder required to provide the security deposit as the payer or remitter
- an electronic funds transfer deposit emailed to SecurityDeposits@aer.ca and copied to RMLPSubmissions@aer.ca with the project's *EPEA* approval number in the remarks

The AER will establish an interest-earning trust account with a Canadian chartered bank for each applicant or approval holder that provides a cash deposit to the AER. The bank is responsible for issuing monthly account statements and annual T-5 statements to an approval holder having a cash deposit.

Approval holders may not apply the interest earned by the trust accounts against any outstanding security. The AER will refund any accumulated interest when the approval holder is eligible for a refund of its entire security deposit (upon reclamation certification).

7) The approval holder must notify the AER's Finance Branch at SecurityDeposits@aer.ca of changes to a security provider's address or other administrative changes.

3.4.2 Letter of Credit Payment

8) For letters of credit, the applicant or approval holder must use the AER letter of credit form available on the AER's liability management forms webpage or by contacting RMLPSubmissions@aer.ca.

3.4.3 Demand Forfeiture Surety Bond Payment

Using a DFB is subject to the following conditions:

- Only surety providers with active operations in Canada will be accepted.
- Only surety providers with an A− or higher rating (or equivalent) from a public credit-rating agency of the AER's choosing will be accepted.

9) The applicant or approval holder must use the AER-approved DFB form available on the AER's liability management forms webpage. The AER will only accept the DFB without alteration.

3.5 Forfeiture and Use of the Security Deposit

When an approval holder is unable or unwilling to carry out any or all of its mine site suspension and rehabilitation responsibilities, the following steps may be taken:

- Appropriate enforcement actions under all available legislation.
- Work with the approval holder's partners (owners, joint venture partners, working interest participants, etc.), where applicable, and a receiver or trustee, where applicable, to find alternative solutions (e.g., a new approval holder takes over, the partners agree to do the work).
- Convert all or some of the financial security instruments to cash.
- Use the security deposit to carry out necessary suspension and rehabilitation.

4 Responsible Development Liability Assessment

4.1 General

The AER will perform an annual review of the submitted operational data to assess the approval holder's overall operational health, safety, compliance, and environmental stewardship. The assessment will inform certain regulatory decisions regarding the approval holder.

The AER uses KPIs to assess an approval holder's capabilities to meet its regulatory and liability obligations throughout the mineral development life cycle. This assessment includes the approval holder capability assessment (ACA) factors (see section 4.2.1) and any other factors the AER deems appropriate in the circumstances (see section 18(1)(d) of *Conservation and Reclamation Regulation*).

When assessing liability, the AER may consider any information that the approval holder has provided, including applications, amendments, reports, and other submissions. The annual responsible development assessment ensures the approval holder responsibly manages its site liability throughout the mineral development life cycle.

4.2 Approval Holder Capability Assessment

The ACA will determine the approval holder's capabilities to meet its regulatory and liability obligations throughout the mineral development life cycle. ACA results will feed into the broader assessment of mineral development, informing the regulatory decisions regarding the approval holder, including eligibility under *Directive 067* and decisions under the programs described in this SED.

4.2.1 ACA Factors

The ACA uses various factors to identify risks posed by an approval holder (see table 1):

- estimated liability, including abandonment, decommissioning, remediation, and reclamation
- remaining lifespan of the mineral resources (i.e., reserves) and infrastructure
- management and maintenance of regulated infrastructure and sites, including compliance with operational requirements
- rehabilitation activity rate, progressive reclamation, and the liability growth rate
- compliance with administrative regulatory requirements, including managing debts, fees, and levies

The data that feeds into the ACA are drawn from numerous sources available to the AER.

The ACA will continue to evolve as the AER enhances its business intelligence and accesses more structured data. The ACA is intended to be adaptive and remain relevant.

Each approval holder will have access to their own ACA information. The AER will keep financial and reserves information provided confidential for the period specified in section 41(2) of the *Rock-Hosted Mineral Resource Development Rules*.

10) Approval holders must provide complete and accurate information to the AER for the responsible development liability assessment. See *Manual 033* for the information to be provided.

4.2.2 Key Performance Indicators

Table 1 lists the KPIs for each ACA factor and the scoring basis the AER will use. The ACA factors and KPIs with weightings will be posted on www.aer.ca at the start of each calendar year.

Table 1. ACA factors and KPIs

ACA factor	KPI	Scoring basis
Reserves	Reserve replacement rates (the conversion rate from resources to reserves should exceed the extraction rate; can be reviewed on a corporate or site basis)	Rate of replacement: • negative replacement • neutral replacement • positive replacement
Operational health	Production variance from forecast: meeting annual production targets (waste and ore) demonstrates operational reliability and planning rigour	Attainment of a percentage of the annual production targets
	Production parameters: waste volume, ore volume, strip ratio	Same scoring as production variance
	Processing parameters: head grade, yield/recovery rates, volumes (rejects, tailings, concentrate, water usage, etc.)	Attainment of a percentage of the annual processing targets
	Geotechnical stability (pit wall, tailings dam, and waste dump stability are continually monitored, measured, and modelled to avoid failure)	Level of geotechnical monitoring and detected stability: • no geotechnical monitoring or instability detected; no stabilization initiated • established geotechnical monitoring program and geotechnical instability detected; stabilization initiated • advanced geotechnical monitoring and no geotechnical instabilities detected
	Tailings treatment: meeting annual tailings targets (tailings volumes, water balance, contaminant loading outcomes, seepage detection and collection); demonstrates operational reliability and planning rigour	Attainment of a percentage of the annual tailings targets
Environmental stewardship	Progressive reclamation (certifiable) rates: the percentage of disturbed land successfully rehabilitated and eligible for reclamation certification; indicates rehabilitation progress	Attainment of a percentage of the permanent reclamation forecast
	Water usage: amount of water used per tonne/kilogram of product (water	Attainment of a percentage of the licensed water volume used

ACA factor	KPI	Scoring basis
	conservation is especially critical in drought-prone regions)	
	Responsible waste rock deposition: reducing external discard dumps and associated surface disturbance; maximize in-pit dumps as the mine develops	Attainment of a percentage of waste disposed of in pit
	Site disturbance: reducing total land disturbed at the mine site	Change in site disturbance: • increasing site disturbance • no change in site disturbance • decreasing site disturbance
	Soil salvage: proper salvage of soils, including separation and preservation of soils; key to mine-site rehabilitation	Attainment of a percentage of salvaged soil versus the percentage of soil salvaged that includes separation of soil types into stockpiles and preservation of salvaged soils
	Soil placement: direct placement of salvaged soil	Attainment of a percentage of direct placement of salvaged soil
	Revegetation: reclaimed land is revegetated	Attainment of a percentage of reclaimed land revegetated
	Rehabilitation: timely decommissioning, abandonment, remediation, and reclamation	Rehabilitation progress: • no activities started • activities started within 12 months • activities started within 6 months and are following the schedule
Compliance and enforcement	Compliance with *Mineral Resource Development Act*, *EPEA*, *Public Lands Act*, and *Water Act* dispositions and legislation: compliance should approach 100%; violations indicate uncontrolled effects	Any enforcement action versus noncompliances but no enforcement actions
	Environmental incidents (spills, releases, and exceedances)	The number of spills, releases, or exceedances
	Grievances: public complaints, excluding spills, releases, and exceedances	Number and nature of public complaints: • multiple public complaints on separate issues • a single-issue public complaint • no public complaints
	Compliance with application requirements: achieving supplemental information requests (SIR) timelines, active involvement with AER coordinators, proactive applications, proactive and complete stakeholder engagement, no requests for deadline extensions during application processes	Level of compliance achieved: • application submitted after construction start (no compliance) • all application criteria and application/SIR deadlines met with deadline extensions • all application criteria and application/SIR deadlines met without deadline extensions
	Compliance with records and reporting: submission of all required reports and records under the *Mineral*	Level of compliance achieved:

ACA factor	KPI	Scoring basis
	Resource Development Act, *EPEA*, *Public Lands Act*, or the *Water Act*	• missed deadlines and reactive submissions after requests from the AER • all submission criteria and submission/SIR deadlines met with deadline extensions • all submission criteria and submission/SIR deadlines met without deadline extensions
	Compliance with liability requirements: submission of all required data and security required by this SED	Level of compliance achieved: • missed deadlines and reactive submissions after requests from the AER • all submission criteria and submission/SIR deadlines met with deadline extensions • all submission criteria and submission/SIR deadlines met without deadline extensions

4.3 Responsible Development Incentive Program

The Responsible Development Incentive Program (RDIP) is available to approval holders who demonstrate good corporate health and behaviour, comply with the requirements for progressive certifiable reclamation, and have an acceptable exceedance and enforcement history.

Under RDIP, an approval holder may convert up to 25% of its estimated RMLP financial security to an asset-based form (i.e., the responsible development incentive security).

Approval holders who attain a predetermined cumulative total score in the ACA are eligible for RDIP. The maximum eligible RDIP security is calculated as follows:

- remaining mine life more than 10 years: 25% of the rehabilitation liability
- remaining mine life 5 to 10 years: 15% of the rehabilitation liability

Approval holders are not eligible for RDIP during the first five years or the last five years of the mine's life. All new mines will be ineligible to participate in RDIP during the first five years of the mine's operating life. Also, all mines having less than five years of economically viable reserves remaining at the permitted production rate are ineligible for RDIP.

Mines that have been operating for more than five years and have economically viable reserves for more than the next ten years at the permitted production rate are eligible to secure up to 25% of the MLE against a portion of the mineral reserve value. The portion secured in this way will comprise the RDIP security. The remainder must be secured using acceptable financial instruments.

Mines that have been operating for more than five years and have economically viable mineral reserves for more than the next five years (but less than the next 10 years) at the permitted production rate will be eligible to secure up to 15% of the MLE against a portion of the mineral reserve value. The portion secured in this way will comprise the RDIP security. The remainder must be secured using acceptable financial instruments.

4.4 Responsible Development Incentive Program Security

Where the approval holder is eligible for RDIP security, the required MLE that must be secured by financial instruments is equal to the MLE determined liability less the RDIP security.

5 Confidentiality

The AER will maintain the confidentiality of financial and reserves information submitted to it for 5 years and 15 years, respectively. Refer to section 41 of the *Rock-Hosted Mineral Resource Development Rules*.

The AER will post the provincial aggregate of the total estimated liability and security held on www.aer.ca.

Appendix 1 Definitions

The following definitions are used in the Rock-Hosted Mineral Mine Liability Process. Additional definitions may be found in the *Environmental Protection and Enhancement Act* and the *Conservation and Reclamation Regulation*.

Term	Meaning
abandonment	As defined in the *Mineral Resource Development Act*: "abandonment means the permanent dismantlement or closure of a well, facility, well site, facility site, mine, mine site, external mine discard dump or mineral processing plant and includes any measures required to ensure that the well, facility, well site, facility site, mine, mine site, external mine discard dump or mineral processing plant is left in a permanently safe and secure condition in accordance with the rules."
decommissioning	As defined in the *Alberta Environment Glossary of Reclamation Remediation Terms Used in Alberta (2002)*: "decommissioning means the permanent closure of all or part of an industrial facility followed by removal of process equipment, buildings and other structures, and the decontamination of the surface and subsurface."
mine	As defined in the *Mineral Resource Development Act*: "mine means an opening, excavation or working developed for the purpose of recovering mineral resources and includes and any associated infrastructure, but does not include a coal or oil sands mine."
mine site	As defined in the *Mineral Resource Development Act*: "mine site means a location for extracting mineral resources and includes any mines, external mine discard dumps, mineral processing plants and associated infrastructure belonging to or used in connection with mining operations at that location."
Mineral processing plant	As defined in the *Mineral Resource Development Act*: "means a plant used for the purposes of upgrading the quality of mineral resources and includes the infrastructure used in connection with processing operations."
quarry	As defined in the *Environmental Protection and Enhancement Act*: "quarry means any opening in, excavation in or working of the surface or subsurface for the purpose of working, recovering, opening up or proving (i) any mineral other than coal, a coal-bearing substance, oil sands, or an oil sands-bearing substance, or (ii) ammonite shell, and includes any associated infrastructure."
reclamation	As defined in the *Environmental Protection and Enhancement Act*: "'reclamation' means any or all of the following: (i) the removal of equipment or buildings or other structures or appurtenances; (ii) the decontamination of buildings or other structures or other appurtenances, or land or water; (iii) the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of land; (iv) any other procedure, operation or requirement specified

	in the regulations”
rehabilitation	All closure functions (decommissioning, remediation, abandonment, and reclamation) necessary to return disturbed land to an equivalent land capability as per the *Alberta Environment Glossary of Reclamation Remediation Terms Used in Alberta (2002)*, which states rehabilitation “implies that the land will be returned to a form and productivity in conformity with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values.”
remediation	As defined in the *Remediation Regulation*: “remediation means reducing, removing or destroying substances in soil, water or groundwater through the application of physical, chemical or biological processes.”

Appendix 2 RMLP Comprehensive Database of Mine Rehabilitation Functions

Item	Activity Description	Unit	Justification and Assumptions for Proposed Rates
Termination of services and infrastructure demolition			
1.01	Disconnect and terminate all services (water, electricity, gas etc.,) at point of attachment to site	each	For disconnection of all services, at building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multiple disconnection fees.
1.02	Disconnect and terminate services at remote areas (i.e., pump stations, remote workshops, sewage treatment plant etc.)	each	Used for infrastructure remote from primary connection.
1.03	Removal of powerlines, including disconnection, rolling up the wires, and removing the poles. Does not include the removal of substations.	km	Applies to power lines on wood, laminate, or similar poles.
1.04	Removal of power lines on tower or lattice structures (includes disconnection, rolling up the wires, and removing the structures). Does not include the removal of substations.	km	Applies to power lines on steel tower and steel lattice structures assuming 3 towers/km.
1.05	Remove significant rail, road, watercourse, or overpass/bridge - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. Dispose of waste material on site/locally.	m	Major structures constructed for the purposes of mining-related works.
1.06	Demolish and/or remove enclosed substations structure/building (assumes they are in a closed building). Dispose of waste material on-site/locally	m2	Simple structure to demolish. Assumes single-story building and segregation of contents for scrap as applicable.
1.07	Demolish and remove substation /switchyard. Dispose of waste material on site/locally.	m2	Includes demolition and removal of all switchgear and transformers etc., and segregation of contents for scrap as applicable.
1.08	Demolish and remove portable structures. Assumes structures are not being reused.	m2	Temporary offices and other 'nonpermanent' structures. Does not include transport costs to disposal facility or equivalent.
1.09	Demolish and remove small buildings/tanks under 3 stories (admin buildings, single story accommodation etc.) and disposal on site/locally.	m2	Simple structure to demolish, assumes no greater than 2 stories high. Does not include transport costs to disposal facility or equivalent.

1.1	Demolish and remove light industrial buildings over 3 stories and disposal on site/locally.	m2/floor	Needs to be calculated per floor/level (Assume 1 floor/level = 3 to 4 m). Does not include transport costs to disposal facility or equivalent.
1.11	Demolish and remove industrial buildings, housing workshops, and servicing areas, etc. Does not include rock-hosted mineral processing plants or refinery upgrading buildings/structures. Dispose on site/locally.	m2/floor	Needs to be calculated per floor/level (Assume 1 floor/level = 3 to 4 m). Does not include transport costs to disposal facility or equivalent.
1.12	Demolish and remove rock-hosted mineral processing plants and refinery upgrading buildings/structures (include the area of each floor of the structure). Dispose on site/locally.	m2/floor	Needs to be calculated per floor/level (Assume 1 floor/level = 3 to 4 m). Does not include transport costs to disposal facility or equivalent.
1.13	Collapse, demolish, and remove equipment within the rock-hosted mineral processing plants or refinery upgrading building/structure (include the area of each floor of the structure) and dispose on site/locally.	m2/unit	Needs to be calculated per floor/level (Assume 1 floor/level = 3 to 4 m). Does not include transport costs to disposal facility or equivalent. Equipment examples include sieve bend, crushers, hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, trommels, etc.
1.14	Collapse, demolish, and remove stacker OR reclaimer (radial or luffing etc. with maneuverability for stockpile control) and disposal on site/locally.	each	Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast, etc. Does not include transport costs to disposal facility or equivalent.
1.15	Collapse, demolish, and remove dragline, bucket wheel excavator, stacker/reclaimer and disposal on site/locally.	each	Cost for just removal of the equipment. Does not include terminate services, remove rails and ballast, etc. Does not include transport costs to disposal facility or equivalent.
1.15a	Collapse, demolish and remove heavy mining mobile equipment.	each	Cost for just removal of the equipment. Does not include terminate services, remove rails and ballast, etc. Does not include transport costs to disposal facility or equivalent. Equipment examples include shovels, drills, haul trucks, dozers, etc.
1.16	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc. Disposal on site/locally.	m2	Includes both rails. Does not include the conveyor system. Does not include transport costs to disposal facility or equivalent.
1.17	Collapse, cut, and remove 5000 t ore storage silo and disposal on site/locally.	m3	Collapse structure and remove. Does not include transport costs to disposal facility or equivalent.
1.18	Collapse, cut, and remove 3000 t ore storage silo and disposal on site/locally.	m3	Collapse structure and remove. Does not include transport costs to disposal facility or equivalent.
1.19	Collapse, cut, and remove 1250 t ore storage silo and disposal on site/locally.	m3	Collapse structure and remove. Does not include transport costs to disposal facility or equivalent.
1.20	Collapse, cut, and remove rail load-out buildings/structures and disposal on site/locally.	m2	Collapse structure and remove. Does not include transport costs to disposal facility or equivalent.
1.21	Demolish and remove on-ground conveyors, transfer	km	Estimate for on-ground conveyor, including anything up to

	stations, and gantries (scrap only, does not include dismantling for reuse at another site) and disposal on site/locally.		10 m off the ground. Does not include transport costs to disposal facility or equivalent.
1.22	Demolish and remove elevated conveyors, transfer stations, and gantries (scrap only, does not include dismantling for reuse at another site) and disposal on site/locally.	each	Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport costs to disposal facility or equivalent.
1.23	Demolish and remove overhead conveyors, transfer stations, and gantries (scrap only, does not include dismantling for reuse at another site) and disposal on site/locally. This may include small-scale fixed material stacking infrastructure.	m	Estimate for overhead conveyor, including conveyors that are >10 m off the ground that require a crane to remove. Does not include transport costs to disposal facility or equivalent.
1.24	Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof).	m	Assuming no canopy or infrastructure attached.
1.25	Demolish reclaim tunnel and expose reclaim conveyor, then demolish concrete structure into the reclaim tunnel void. Does not include excavation to expose reclaim tunnel, removal of conveyor, or backfilling void.	m2	Does not include conveyor removal or backfill. If concrete removal is necessary, see Item 1.26.
1.26	Demolition of reclaim tunnel concrete. Assumes complete removal and dumping in mine pit void.	m	Assumes this area will be used for another land use that requires the structure to be dug up and reburied somewhere else.
1.27	Demolition and removal of ventilation fans, electrical substation, and hoist and disposal on site/locally.	each	Does not include abandonment and capping the shaft/portal. Does not include transport costs to disposal facility or equivalent.
1.28	Demolish and remove small tank/thickener clean (3 to 9 m diameter) and disposal on site/locally.	each	Assume tank is clean and contents removed. If tank is full, allow an extra 30% for excavator and two men to dig out and dispose. Does not include transport costs to disposal facility or equivalent.
1.29	Demolish and remove medium/thickener tank clean (10 to 15 m diameter) and disposal on site/locally.	each	Assume tank is clean and contents removed. If tank is full, allow an extra 30% for excavator and two men to dig out and dispose. Does not include transport costs to disposal facility or equivalent.
1.30	Demolish and remove large tank/thickener clean (15 to 30 m diameter) and disposal on site/locally.	each	Assume tank is clean and contents removed. If tank is full, allow an extra 30% for excavator and two men to dig out and dispose. Does not include transport costs to disposal facility or equivalent.
1.31	Demolish and remove extra-large tank/thickener clean (>30 m diameter) and disposal on site/locally.	each	Assume tank is clean and contents removed. If tank is full, allow an extra 30% for excavator and two men to dig out and dispose. Does not include transport costs to disposal facility or equivalent.
1.32	Demolish and remove supersize tank/thickener clean	each	Estimate only. May require a detailed assessment from

	(>50 m diameter) and disposal on site/locally.		demolition expert due to specialized equipment required for removal. Does not include transport costs to disposal facility or equivalent.
1.33	Removal of UG tank <5000 L, including pipes, etc. Disposal on site/locally.	each	Assume tank is clean and contents removed. Does not include transport costs to disposal facility or equivalent.
1.34	Removal of UG tank 5000 to 15000 L, including pipes, etc. Disposal on site/locally.	each	Assume tank is clean and contents removed. Does not include transport costs to disposal facility or equivalent.
1.35	Remove small underground pipe and disposal on site/locally.	m	For example: 300 mm pipes, 0.5 m deep. Does not include transport costs to disposal facility or equivalent.
1.36	Remove medium underground pipe and disposal on site/locally.	m	For example: 500 mm pipes, 1 m deep. Does not include transport costs to disposal facility or equivalent.
1.37	Remove large underground pipe and disposal on site/locally.	m	For example: 1 m pipes, 2 m deep.
1.38	Remove aboveground pipe (supported) and disposal on site/locally.	m	~300 mm pipes and assumes pipes are in close proximity to infrastructure areas. Does not include transport costs to disposal facility or equivalent.
1.39	Remove surface pipelines (unsupported) and disposal on site/locally.	m	~300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport costs to disposal facility or equivalent.
1.40	Remove pump and pontoon from a lake or dam, including pipes and electrical supply or diesel tanks and disposal on site/locally.	each	Assumes infrastructure is moored and requires barge mobilization to sever the mooring or a significant fixed structure for controlled release of water. Does not include transport costs to disposal facility or equivalent.
1.41	Remove pavement (parking lots and access roads) and dispose on site/locally.	m2	Scalp pavement and compacted material/road base. Assumes total thickness (including pavement and subgrade) of 1.0 m. Generally, haulage rates will be $0.60 to $1.20/km are in addition, depending on truck fleet, loaders etc. For off-site disposal. use alternative rate option and add $0.90/km for transport.
1.42	Remove pavement (airstrip) and dispose on site/locally.	m2	Scalp pavement and compacted material/road base. Assumes total thickness (including pavement and subgrade) of 1.0 m. Generally. haulage rates will be $0.60 to $1.20/km are in addition, depending on truck fleet, loaders etc. For off-site disposal, use alternative rate option and add $0.90/km for transport.
1.43	Remove concrete pads and footings (<300 mm thickness) and disposal on site/locally.	m2	Breaking up slab and disposal or conversion to aggregate. Generally, haulage rates will be $0.60 to $1.20/km, depending on truck fleet, loaders etc. For off-site disposal, use alternative rate option and add $0.90/km for transport.
1.44	Remove concrete pads and footings (>300 mm thickness) and disposal on site/locally.	m2	Breaking up slab and disposal or conversion to aggregate. Generally, haulage rates will be $0.60 to $1.20/km, depending on truck fleet, loaders etc. For off-site disposal, use alternative rate option and add $0.90/km for transport.

1.45	Extra row		
1.46	Extra row		
1.47	Extra row		
1.48	Remove fence (chain-link fence) and disposal on site/locally.	km	Roll up fence and remove posts.
Rail infrastructure decommissioning and abandonment			
2.01	Remove rail loop and spur, ballast etc. Disposal on site/locally.	m	Remove all materials to allow area to be reshaped and rehabilitated. Does not include transport costs to disposal facility or equivalent.
2.02	Remove train loading facilities and disposal on site/locally.	m2	Remove rail load point infrastructure, including gantries and control structures. Does not include transport costs to disposal facility or equivalent.
2.03	Reshape rail spur and load-out areas. Does not include growth media and revegetation.	ha	D10 dozer and 16H grader.
Contaminated site remediation			
3.01a	Undertake a preliminary site investigation (Phase 1 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple studies may be required.	each	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the Alberta Environmental Site Assessment Standard (Phase 1 Environmental Site Assessment) or similar approved and recognized assessment method. A site combination may include: - mine infrastructure (i.e., fuel/chemical store, workshop, vehicle washdown, sewage treatment etc.) - processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out, etc.) Remote pit-top facilities (i.e., vehicle refuel, sewage treatment, secondary workshop, chemical storage, etc.)
3.01b	Undertake an intrusive site investigation (Phase 2 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple intrusive investigations should be included.	each	The intrusive investigation would include at minimum a site walkover and field sampling as per the Alberta Environmental Site Assessment Standard (Phase 2 Environmental Site Assessment) or similar approved and recognized assessment method. An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A combined area where it is highly anticipated that contamination has occurred (i.e., underground tanks/pipes that are known to have leaked, chemical storage with earthen berms, around ineffective oil/water separators, etc.) and further fieldwork is required involving intrusive investigation.

3.02	Removal and disposal of contaminated water from tanks, bermed areas, and sumps	L	Cost includes transportation and disposal at an approved contaminated water treatment/storage facility.
3.03	Remove material (ore/waste remnants) from footprint of the process facility, including leach pads, stockpiles, roads for storage/disposal on site. (Select Haul Distance from list.)	m3	This item includes scraping and removing the volume of carbonaceous material using a dozer, grader, etc., to make safe an area and enable the establishment of rehabilitation.
3.03a	Remove material (ore/waste remnants) from footprint of the process facility, including leach pads, stockpiles, roads for storage/disposal on site (haul distance <1.5 km).	m3	Assumes Cat 349 excavator, an HM400, and a Cat D8 to rip to a depth of 150 mm deep.
3.03b	Remove material (ore/waste remnants) from footprint of the process facility, including leach pads, stockpiles, roads for storage/disposal on site (haul distance >1.5 km but <3.5 km).	m3	Assumes Cat 992 loader, a Cat 777, and a Cat D8 to rip to a depth of 150 mm deep.
3.03c	Remove material (ore/waste remnants) from footprint of the process facility, including leach pads, stockpiles, roads for storage/disposal on site (haul distance >3.5 km but <5 km).	m3	Assumes Cat 992 loader, a Cat 777, and a Cat D8 to rip to a depth of 150 mm deep.
3.03d	Remove material (ore/waste remnants) from footprint of the process facility, including leach pads, stockpiles, roads for storage/disposal on site (haul distance >5 km).	m3	As above, generally, haul rates will be $0.60 to $1.20, depending on truck fleet, loaders etc. (assumed 7.5 km). If haul distance is greater than 7.5 km, use the alternative rate option ($8.92 + additional km x $0.90).
3.04	Load, haul, and dispose of high-level contaminated material off site to a licensed landfill. Assumes haulage to a licensed landfill.	m3	Includes load, haul, and dump fees to a licensed facility.
3.05	Load, haul, and disposal of low-level contaminated material off site to a licensed landfill. Add $50/m3 for haulage to landfill.	m3	Includes load, haul, and dump fees to a licensed facility.
3.06	On-site remediation of hydrocarbon-contaminated soils employing the "*Code of Practice for Land Treatment of Soil Containing Hydrocarbons*." (Select Volume from list.)	m3	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients, and moisture to promote the aerobic degradation of organic chemicals — time.
3.06a	On-site remediation of hydrocarbon-contaminated soils (<50 m3); manual land farming.	m3	Rates may vary determined by economies of scale.
3.06b	On-site remediation of hydrocarbon-contaminated soils (>50 m3 but <100 m3); manual land farming.	m3	Rates may vary determined by economies of scale.
3.06c	On-site remediation of hydrocarbon-contaminated soils (>100 m3 but <500 m3); manual land farming.	m3	Rates may vary determined by economies of scale.
3.06d	On-site remediation of hydrocarbon-contaminated soils (>500 m3); manual land farming.	m3	Rates may vary determined by economies of scale.
3.07	Mobilization of cement stabilization plant and equipment for hydrocarbon (i.e., PAH, long-chain	item	Required if treatment of hydrocarbon contamination is required to be fast tracked.

	hydrocarbons, etc.) contaminated soil treatment.		
3.08	On-site remediation of hydrocarbon-contaminated soils using a mobile treatment unit.	m3	Additional cost as the treatment process is fast tracked.
3.09	Remove and dispose of asbestos (interior).	m2	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
3.10	Remove and dispose of asbestos (exterior).	m2	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
3.11	Remove and dispose of asbestos.	m2	6 mm asbestos sheet approx. 15 kg/m2 = ~70 m2 per tonne. Allowing $20/m2 for removal, 4 hours trucking @$125, and $100/t disposal plus 20% OHP = $2400/t.
3.12	Treatment of known sodic soils.	ha	Assumes Sodic Soil is treatable via neutralization and does not require capping and isolation.
3.13	Removal and disposal of plastic liner (i.e., dam, leach pad, sump, etc.).	m2	Provisional sum for cutting using dozer ripper teeth and on-site disposal of the liner.
3.14	Disposal of heavy equipment tires.	each	
Portals, shafts, and borehole decommissioning and abandonment			
4.01	Abandon portals/drifts (width >3 m), including bulkhead, drainage, backfill, and cover soils.	each	Abandonment requirements as per AER underground abandonment guidelines. Cost based portal plug/bulkhead placed +/- 30 m from collar, portal backfill to collar, water drainage, and surface cover soil placement. Does not include underground or surface ground rehabilitation.
4.02	Abandon small adits (width <3 m) and install 0.5 m concrete plug 3 m back from collar and backfill with appropriate material. The rate includes placement of cover soils around the entrance of the adit.	each	Rate assumes sites are accessible and additional roof and rib stabilization works, etc. are not required.
4.02a	Abandon exploration adits and install backfill and cover soils.	each	Driven for the purposes of resource exploration. Adit (width <3 m) with maximum length of 50 m and no connection to underground workings. Rate assumes sites are accessible and additional roof and rib stabilization works, etc. are not required.
4.03	Abandon and decommission mine shafts. Area =shaft + >1 m all around. Allows for works in a remote location.	m2	Rate accounts for a range of factors, including variations in depth and size, accessibility limitations, equipment transport to the shaft, etc.
4.04	Maintenance and monitoring of abandonment adits/portals and shafts (for a total of 5 years).	each	Estimate to undertake periodic inspections by a qualified person and provide a completions report for AER sign-off.
4.05	Install gate or grill over the adit. (Where site might be used by bats.)	item	Limited application solely for the purpose of bat habitat. Applicable to exploration adits only. Grate solid 3/4"steel with single 12" x 12"opening in the upper left corner. The rate accounts for a range of factors, including establishing clear access, and/or working in remote locations without services, and/or stabilization works to prevent the entry collapsing and compromising the gate, etc.

4.06a	Exploration wells and drillholes. Abandon well and drillholes as per the *Metallic and Industrial Minerals Exploration Regulations* (*MIMER*) as required.	each	Where multiple occurrences exist, this is the rate for the total cumulative depth of all wells and drillholes (e.g., two drillholes at 100 m depth each = 200 m). Assumes a per metre rate, which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back filling, grout preparation, grouting, and capping).
4.06b	Exploration wells and drillholes. Reclamation of drill/well pad.	ha	Reclamation as per *EPEA* and *Public Lands Act* requirements.
Roads and parking area decommissioning and abandonment			
5.01	Unsealed roads/vehicle parking lot areas (minor works, including deep rip and trim).	ha	Assumes ~6 m road width and 16H grader.
5.02	Unsealed roads/access roads/vehicle parking lot areas with windrows and/or small earthen berms. Minor earthworks and deep rip and trim).	ha	Assumes ~20 m road width and D10 dozer.
5.03	Unsealed roads/vehicle parking lot areas. Minor earthworks, final trim and deep rip, and revegetate (pasture grass).	ha	D10 dozer and 16H grader; pasture grass seed.
5.04	Unsealed roads/vehicle park lot areas. Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass).	ha	D10 dozer and 16H grader; tree/shrub seed.
5.05	Unsealed roads, haul roads, vehicle parking lot areas with windrows and/or small earthen berms. Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass).	ha	D10 dozer and 16H grader; pasture grass seed.
5.06	Unsealed roads, haul roads, vehicle parking lot areas with windrows and/or small earthen berms. Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	ha	D10 dozer and 16H grader; tree/shrub seed.
5.07	Remove stabilized material (aggregate etc.) from roadways and disposal on site/locally. (Select Haul Distance from list.)	m3	This item includes scraping and removing the volume of stabilized material from the road, laydown, or other surface using an excavator, dozer, and grader to enable the establishment of rehabilitation.
5.07a	Remove stabilized material (aggregate etc.) from roadways and disposal on site/locally (haul distance <1km).	m3	D10 rip and push into void at 0.2 ha/hr, 150 mm deep. 657 scrapers cut to spoil at 1150 BCM/hr/machine, water truck, and grader.
5.07b	Remove stabilized material (aggregate etc.) from roadways and disposal on site/locally (haul distance >1 km but <2 km).	m3	D10 rip and push into void at 0.2 ha/hr, 150 mm deep. 657 scrapers cut to spoil at 130 BCM/hr/machine, water truck, and grader.
5.07c	Remove stabilized material (aggregate etc.) from roadways and disposal on site/locally (haul distance >2 km but <5 km).	m3	D10 rip and push into stockpile at 0.2 ha/hr, 150 mm deep. Excavator haul trucks.
5.07d	Remove stabilized material (aggregate etc.) from roadways and dump in a void on site (haul distance	m3	Generally, overhaul rates will be $0.60 to $1.20, depending on truck fleet, loaders etc., assumed 7.5 km. If haul distance

	>5 km).		is greater than 7.5 km, alternative rate option should be used ($9.45 + additional km x $0.90).
Active surface mine decommissioning and abandonment			
6.01	Active pit area; benches blasted and levelled/resloped to acceptable grades.	Lm	Blasting, D11 push.
6.02	Reslope working bench faces to acceptable grades.	m3	Drilling 8 m by 7 m pattern with a bench height of 12 m, hole diameter 22.8 cm, powder factor 0.7 will allow drilling and blasting.
6.03	High-wall mitigation (water diversion and safety berm development).	ha	3 passes with 16H grader.
Terrain contouring			
7.01	Major levelling/resloping to achieve approved reclaim grades. (Select Push Length.)	m3	Major levelling/resloping to achieve approved reclaim grades.
7.01a	Major levelling/resloping to achieve approved reclaim grades; 50 m push length	m3	D10 push and 512 bcm/hr.
7.01b	Major levelling/resloping to achieve approved reclaim grades; 50 m to 75 m push length.	m3	D10 push and 353 bcm/hr.
7.01c	Major levelling/resloping to achieve approved reclaim grades; 75 m-100 m push length.	m3	D10 push and 270 bcm/hr.
7.01d	Major levelling/resloping to achieve approved reclaim grades; 150 m push length.	m3	D10 push and186 bcm/hr.
7.02	Minor reshaping and pushing; >50 m push length and >10 m in height. This includes ditch removal.	ha	D10 dozer/hr; hard to cut material; average operator; no rehandle; slot dozing.
7.03	Major surface water mitigation. Construction of structural works, banks, waterways; contour banks, drainage channels, and other soil conservation measures.	ha	Combination of dozer, excavator, and grader work. Small dozer (D6 or similar) plus grader for ~4 hours each per ha.
7.04	Minor surface water mitigation. Construction of drains/drop structures and/or stabilizing water course entry points; required for large catchments.	m2	Installation of on-site rock material (riprap) where managing water runoff from disturbed land and/or upon entry to water courses; prevents erosion of gully head (assumes competent material is locally available).
7.05	Haul road recontouring (switchback removal, cut fill reslope, runout ramp reslope, etc.).	m3	D10 push and 270 bcm/hr with a push distance of 75 to 100 m; grade is -30%; material is not hauled away; pushed into void/levelled.
Contaminated mine waste dump, tailings, and heap leach facility mitigation			
8.01	Reshaping, capping of a tailings impoundment facility unlikely to present difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) and physical properties (i.e., shear strength, etc.), where the mine waste stream is geochemically benign and/or the strength condition within the upper 4 to 6 m meets the target shear	ha	This includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 1 m, including growth media. Water quality from runoff, seepage, etc., meets site-specific environment water quality

	strength profile and acceptable trafficability.		values.
8.01a	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale, clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.01b	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale, clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining etc.).
8.02	Reshaping, capping/sealing of a tailings impoundment facility likely to present moderate difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) or physical properties (not significantly hydrophilic, shear strength, etc.), limiting equipment choice and acceptable trafficability.	ha	This item includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume of material to cap/cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small crusher/screener. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 2 m, including growth media. This may require additional materials (such as capillary breaks, geofabric, etc.), specific material types (e.g., acid neutralizing, consuming materials, competent rock, etc.), and associated activities (i.e., load, haul, place, crush, screen, borrow, etc.). Costs for haulage of specialized materials must be added separately if required.
8.02a	Additional materials required for reshaping, capping/sealing of a structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining. etc.).
8.02b	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc. meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials. etc.) and/or additional requirements (i.e., geofabric, composite lining. etc.).
8.03	Reshaping, capping/sealing of a tailings impoundment facility likely to present considerable difficulties due to reactive materials (selenium, acid rock drainage (ARD), acid mine drainage (AMD), potentially acid-forming material (PAF), neutral mine drainage (NMD), carbonaceous, saline), and/or physical properties (low shear strength greatly limiting equipment selection for material placement etc.).	ha	This item includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume of material to cap/cover facilities of high geochemical risk and/or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping materials are available on site within 10 km and an average cap thickness of approximately 2.5 m, including growth media. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g., acid neutralizing, consuming materials, competent rock, etc.) and associated activities (i.e., load, haul, place, crush, screen,

			borrow, etc.). Costs for haulage of specialized materials must be added separately if required.
8.03a	Additional materials required for reshaping, capping/sealing of a structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.03b	Additional materials required for reshaping, capping/sealing of a structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.04	Reshaping, capping of a heap leach pad/facility unlikely to present difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) and physical properties (i.e., shear strength, etc.), where the mine waste stream is geochemically benign and/or the strength condition within the upper 4 to 6 m meets the target shear strength profile and an acceptable trafficability.	ha	This includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 1 m, including growth media. Water quality from runoff, seepage, etc., meeting site-specific environment water quality values.
8.04a	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.04b	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage, etc. meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.05	Reshaping, capping/sealing of heap leach pad/facility likely to present moderate difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) or physical properties (not significantly hydrophilic, shear strength, etc.), limiting equipment choice and an acceptable trafficability.	ha	This item includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume of material to cap/cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small crusher/screener. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 2 m, including growth media. This may require additional materials (such as capillary breaks, geofabric, etc.), specific material types (e.g., acid neutralizing/consuming materials, competent rock, etc.), and associated activities (i.e., load, haul, place, crush, screen, borrow, etc.). Costs for haulage of specialized materials must be added separately if required.
8.05a	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional

	from runoff, seepage, etc., meeting site-specific environment water quality values.		requirements (i.e., geofabric, composite lining, etc.).
8.05b	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.06	Reshaping, capping/sealing of heap leach pad facility likely to present considerable difficulties due to reactive materials (selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) and/or physical properties (low shear strength greatly limiting equipment selection for material placement, etc.)	ha	This includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 1 m, including growth media. Water quality from runoff, seepage, etc., meets site-specific environment water quality values.
8.06a	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.06b	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.07	Reshaping, capping/sealing of waste rock dump facility likely to present moderate difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) or physical properties (not significantly hydrophilic, shear strength, etc.), limiting equipment choice.	ha	This includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km and an average cap thickness of approximately 1 m, including growth media. Water quality from runoff, seepage, etc., meets site-specific environment water quality values.
8.07a	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.07b	Additional materials required for reshaping, capping/sealing of impoundment/structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.08	Reshaping, capping/sealing of waste rock dump facility likely to present moderate difficulties due to chemistry (reactive materials: selenium, ARD, AMD, PAF, NMD, carbonaceous, saline) or physical properties (not significantly hydrophilic, shear strength, etc.), limiting equipment choice.	ha	This item includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume of material to cap/cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small crusher/screener. This rate assumes suitable capping material is available on site within

			10 km and an average cap thickness of approximately 2 m, including growth media. This may require additional materials (such as capillary breaks, geofabric, etc.) specific material types (e.g., acid neutralizing, consuming materials, competent rock, etc.) and associated activities (i.e., load, haul, place, crush, screen, borrow, etc.). Costs for haulage of specialized materials must be added separately if required.
8.08a	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.08b	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.09	Reshaping, capping/sealing of waste rock dump facility likely to present considerable difficulties due to reactive materials (selenium, ARD, AMD, PAF,NMD, carbonaceous, saline), and/or physical properties (low shear strength greatly limiting equipment selection for material placement, etc.).	ha	This item includes sourcing, hauling, spreading, moisture conditioning, and compaction of a suitable volume of material to cap/cover facilities of high geochemical risk and/or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping materials are available on site within 10 km and an average cap thickness of approximately 2.5 m, including growth media. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g., acid neutralizing, consuming materials, competent rock, etc.), and associated activities (i.e., load, haul, place, crush, screen, borrow, etc.). Costs for haulage of specialized materials must be added separately if required.
8.09a	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
8.09b	Additional materials required for reshaping, capping/sealing of structure to facilitate water quality from runoff, seepage, etc., meeting site-specific environment water quality values.	each	Include additional cost to import materials (i.e., shale/clay, competent drainage materials, etc.) and/or additional requirements (i.e., geofabric, composite lining, etc.).
Reclamation activities			
9.01	Source, haul, and spread soils. (Select Haul Distance from list.)	m3	If topsoil/subsoil are not available on site, then they may need to be externally sourced.

9.01a	Source, haul, and spread soils (includes organics): haul distance <1 km.	m3	610 m3/hr with 4 x 657 scrapers, D10 trimming at 3 ha/day at 150 mm depth.
9.01b	Source, haul, and spread soils (includes organics): haul distance >1 km but <2 km.	m3	550 m3/hr with 4 x 657 scrapers, D10 trimming at 3 ha/day at 150 mm depth
9.01c	Source, haul, and spread soils (includes organics): haul distance >2 km but <5 km.	m3	D10 (2 ha/day) pushing from stockpiled material from 80 t excavator and haul trucks.
9.01d	Source, haul, and spread soils (includes organics): haul distance >5 km.	m3	Plus 90 c/km (assumed 7.5 km). If haul distance is greater than 7.5 km, use the alternative rate option ($9.50 + additional km x $0.90).
9.02	Fill impoundments, voids, etc. Source local material, haul and spread to cap or backfill, cap thickness determined by approval. (Select Haul Distance from list.)	m3	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
9.02a	Fill impoundments, voids, etc. Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance <1 km),	m3	D10 push over soft material, 657 scrapers cut to spoil, water truck and grader at
9.02b	Fill impoundments, voids, etc. Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance >1 km but <2 km).	m3	D10 push over soft material, 657 scrapers cut to spoil, water truck and grader at
9.02c	Fill impoundments, voids, etc. Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance >2 km but <5 km).	m3	D10 rip and push into stockpile 0.2 ha/hr, 150 mm deep. Excavator load haul trucks.
9.02d	Fill impoundments, voids, etc. Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance >5 km).	m3	Generally, overhaul rates will be $0.60 to $1.20, depending on truck fleet, loaders, etc. If haul distance is greater than 7.5 km, alternative rate option should be used ($9.13 + additional km x $0.90).
9.03	Mitigation of road cuts and high wall slopes.	m2	This rate is used to rehabilitate steep slopes of weathered rock, roadway cuts, etc., that cannot be cut back and stabilized. Such as scaling, bolting, drainage, etc.
9.04	Trim, rock rake and deep rip (includes levelling, landscaping, and rip in one direction).	ha	16H grader ripping in one direction only.
9.05	Deep rip hard stand / laydown areas.	ha	D10 dozer deep rip in two directions at 5 m spacing ~3 hr per ha.
9.06	Planting mature trees (>15 cm).	each	4 m centres.
9.07	Live staking (2 to 5 cm. diameter).	ha	Sourced locally.
9.08	Planting seedlings (<15 cm).	ha	2000 stems/ha; 4 m centres.
9.09	Direct seeding and fertilizer (pasture grass species).	ha	Rate can fluctuate; however, this is a suitable standard rate.
9.10	Direct seeding and fertilizer (tree or native grass species).	ha	Rate can fluctuate; however, this is a suitable standard rate.

9.11	Hydro-seeding with straw mulching and bitumen tack.	m2	Rate can fluctuate; however, this is a suitable standard rate.
9.12	Single application of fertilizer (pasture).	ha	Assumes 250 kg/ha.
9.13	Single application of fertilizer (trees).	ha	Rate can fluctuate; however, this is a suitable standard rate.
9.14	Spoil amelioration (adding lime, gypsum, etc.).	ha	Assumes 2.5 t/ha as an average application rate.
9.15	Growth media amelioration with biosolids.	ha	Recent experience with agronomy projects.
9.16	Security fence. Installed as a temporary measure to secure dangerous or sensitive reclamation areas.	m	Chain-link (or similar) security fence @ 2.1 m with 3 to 4 m post spacing. Chain-link fabric security fences and gates.
9.17	Construct no-climb stock fence around rehabilitated areas.	m	Standard rate for no-climb stock fencing.
9.18	Construct standard stock fence around rehabilitated areas.	m	Standard rate for standard stock fencing.
9.19	Purchase and erect warning signs.	each	Site appropriate signage.
9.20	Externally source subsoil/topsoil.	m3	D7 to spread material. Excavator load haul trucks from imported stockpile; allow nominal rate of $70/m3 for imported fill material.
9.21	Externally source a combination of subsoil/topsoil and spoil from borrow pit for filling voids and/or capping, etc.	m3	D10 push into void. Excavator load haul trucks from imported stockpile; allow nominal rate of $60/m3 for imported fill material.
Water management			
10.01	On-site treatment of contaminated water due to high salt (includes removal of metals, etc., brine disposal, and cost of mobile water treatment unit),	m3	Rate can fluctuate depending on treatment type; however, this is a suitable standard rate for current programs at mining operations.
10.02	On-site treatment of contaminated water due to **selenium** (incudes treatments and cost of mobile water treatment unit).	m3	Rate can fluctuate depending on treatment type; however, this is a suitable standard rate for current programs at mining operations.
10.03	Clean water impoundments to be retained after decommissioning (make safe and minor earthworks).	ha	Provisional sum for earthworks and revegetation required to rehabilitate dam structures, etc., suitable for reuse by an alternate land user. D6 dozer (or similar) and pasture grass.
10.04	Remove contained sediments to enable it to be converted into clean water structure. (Select Haul Distance from list.)	m3	This item includes the volume of sediment requiring removal using an excavator, truck, and dozer to clean out the reservoir area behind the dam.
10.04a	Remove contained sediments to enable it to be converted into clean water structure (haul distance <1 km).	m3	80 t excavator and $0.90/m3 haul with haul trucks, 220 m3/hr, two trucks required for short distance + $0.75 ancillary; excludes any stockpile treatment: no dozer (add $0.90/m3 if required).
10.04b	Remove contained sediments to enable it to be converted into clean water structure (haul distance >1 km but <2 km).	m3	80 t excavator and $0.90/m3 haul with haul trucks, 220 m3/hr, three trucks required for short distance + $0.75 ancillary; excludes any stockpile treatment: no dozer (add $0.90/m3 if required).

10.04c	Remove contained sediments to enable it to be converted into clean water structure (haul distance >2 km but <5 km).	m3	80 t excavator and $0.90/m3 haul with haul trucks, 220 m3/hr, five trucks required for short distance + $0.75 ancillary; excludes any stockpile treatment: no dozer (add $0.90/m3 if required).
10.04d	Remove contained sediments to enable it to be converted into clean water structure (haul distance >5 km).	m3	If haul distance is greater than 7.5 km, alternative rate option should be used ($9.47 + additional km x $0.90).
Watercourse diversion			
11.01	Repairs and/or stabilization of new or compromised water course diversion.	m	Assumes material is suitable for revegetating and has a reasonable chance of stabilizing.
11.02	Long-term maintenance of watercourse diversion. Channel constructed through backfilled material.	m	Assumes maintenance has been kept up and significant works are not required.
11.03	Long-term maintenance of watercourse diversion. Channel constructed through competent material.	m	Assumes maintenance has been kept up and significant works are not required.
11.04	Installation of rock armouring.	m3	Assumes competent material is locally available (multiply costs by 2 for sourcing and transporting from off-site location).
Maintenance of reclaimed areas			
12.01	Maintenance of areas that have been shaped and seeded and revegetation has been successful.	ha	Rehabilitation maintenance might include reseeding, watering, fertilizing, minor reshaping, erosion control, and inspections/audits. Does not include major repair works.
12.02	Invasive plant management on buffer lands, undisturbed, and rehabilitated areas.	ha	Invasive plant monitoring and removal programs if required for prohibitive noxious weeds and noxious weed control.
12.03	Land management of undisturbed areas (rehabilitation, weeds, erosion and sediment control works).	ha	Undisturbed areas within the lease boundary that require land management activities.
12.04a	Minor stabilization works and maintenance of mine subsidence areas (ripping, etc.).	ha	D8 dozer and/or grader.
12.04b	Crack filling to repair subsidence impacts.	m	Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with mulch prior to grouting, grouting, etc.).
12.05a	Watercourse restoration to repair subsidence impacts.	each	Undertake more substantial works to remediate watercourses (e.g., channel bed repairs, rock bar repairs, swamp stabilization, etc.).
12.05b	Re-establish natural watercourses and drainage channels following subsidence.	each	Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
12.06	Existing rehabilitation repair: minor.	ha	Areas requiring minor repair (rills, minor growth media replacement).
12.07	Existing rehabilitation repair: moderate.	ha	Areas requiring moderate repair (rills, significant growth media replacement).
12.08	Existing rehabilitation repair: major.	ha	Areas requiring major repair (rills, gullies, growth media replacement, some level of additional surface water

			management).
12.09	Existing rehabilitation repair: total failure of landform.	ha	Areas that require extensive rehabilitation repair, redesign, and reconstruction of landform.
Preservation of heritage and cultural sites			
13.01	The restoration and care and maintenance of items that have heritage and cultural significance.	each	Preservation of heritage and cultural artefacts and sites.
Miscellaneous costs			
14.01	Development of a conceptual rehabilitation plan for either rock-hosted mineral quarry operation or mine operations.	each	Provisional sum to be used to refine the conceptual rehabilitation plan into a detailed rehabilitation plan with execution strategies for rehabilitation activities.
14.01a	Development of a conceptual rehabilitation plan for quarry operations	each	Provisional sum to be used to refine the conceptual rehabilitation plan into a detailed rehabilitation plan with execution strategies for rehabilitation activities.
14.01b	Development of a conceptual rehabilitation plan for mine operations.	each	Provisional sum to be used to refine the conceptual rehabilitation plan into a detailed rehabilitation plan with execution strategies for rehabilitation activities.
14.02	AER tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management.	each	Provisional sum for the AER to prepare tender documentation (i.e., demolition, waste disposal, earthworks, environmental management, etc.), manage stakeholders, and establish permitting and compliance requirements for closure.
14.03	Site security during closure due to default.	yr	Provisional sum for site security measures required during closure due to default. This includes nightly patrols and first response in the event of an incident.
14.04	HAZMAT clean-up. Cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work, etc.	each	Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
14.05	Removal and disposal of radiation devices.	each	Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., americium-241, plutonium-238, cesium-137, etc.).
Third-party management and contingencies			
15.00a	Mobilization and demobilization for small mine or quarry.	item	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.01	Mobilization and demobilization. (Distance to site <150 km.)	item	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.02	Mobilization and demobilization. (Distance to site >150 km but <500 km.)	item	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.03	Mobilization and demobilization. (Distance to site >500 km but <1000 km.)	item	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.04	Mobilization and demobilization. (Distance to site >1000 km.)	item	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.

15.05	Contingency	total	A contingent amount to account for unknown unknowns and areas where data and details of rehabilitation methods are uncertain.
15.06	Post-closure environmental monitoring following default.	total	Includes all monitoring post-closure execution works and compilation of all monitoring and maintenance data into a final rehabilitation report and submission for regulatory sign-off.
15.07	Project management and surveying following default.	total	Includes all costs for project management of the closure execution works and post-closure management requirements until land and/or tenure relinquishment.

Appendix 3 Type 1 BSD Calculation MLE Report

Site Registration

Date October 2025

Complete the following fields prior to calculating the RMLP Liability.

Mine Name:	BSD TYPE 1 (Quarry)
Mine Owner:	Example Company
Mine Operator:	Example Company
EPEA Approval No.:	999999
EPEA Approval Expiry:	July 14, 2026
MRDA Mine Permit No.:	M2024-95
MRDA Mine Licence No.:	M2024-96
MRDA Dump Licence No.:	M2024-97
MPP Approval No.:	N/A
Mineral Tenure Lease No.:	1234567
WA Disposition No.:	9999
PLA Disposition No.:	DMS200099
Current RMLP Security:	$0
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Site Description

The following site specific information is requested to provide background information in the context of calculating the RMLP Liabilty Estimate.

Summary of Mine Activities

Product Mined: Limestone

Total annual concentrate production (KG) or Total Annual Mineral /Stone Production (Tonne):	125,000
Total annual metal production (KG):	125,000
PLA Area (ha):	55
Mine Permit Area (ha):	55
Mine Licence Area (ha):	40
Area of disturbance (ha):	5.44
Reclamation in progress (ha):	0
Reclamation certifiable (ha): Achieved ecosystem sustainability	0
Reclamation Certified (ha): Reference Rec Cert no. and date	0
Tailings Disturbance Area (ha):	N/A
Heap Leach Disturbance Area (ha):	N/A
In Situ Leach Disturbance Area (ha):	N/A
External Dump Distrubance Area (ha):	N/A

☑ GIS shapefile(s) attached

Reference Amendment version and date

NOTE:
Ensure rehabilitation cost estimation reflects all environmental issues affecting the site approvals. Contingencies should be allocated where costs have not been incorporated elswhere in the estimation.

Environmental Sensitivities:

Reclaimed Land Use:
(select all that apply)

- ☐ agriculture
- ☐ rangeland
- ☐ municipality development
- ☑ forestry
- ☐ cultural
- ☐ transportation
- ☐ utilities
- ☐ recreational
- ☑ natural area / wildlife habitat

Environmental Issues affecting site
(select all that apply)

- ☐ threatened flora
- ☐ threatened fauna
- ☐ cultural heritage items
- ☐ natural heritage features
- ☐ surface water pollution
- ☐ ground water pollution
- ☐ hydrocarbon contamination
- ☐ methane drainage / venting
- ☐ spontaneous combustion
- ☐ acid mine drainage
- ☑ within drinking water catchment

Other Relavent Issues:

Alberta Energy Regulator

Mine Liability Estimation

Note: Sections of this page are automatically filled in from the registration page

Mine Name:	BSD TYPE 1 (Quarry)
Mine Operator:	Example Company
EPEA Approvals:	999999
EPEA Approval Expiry:	2026-07-14
MRDA Mine Permit #:	M2024-95
MRDA Mine Licence #s:	M2024-96
MRDA Dump Licence #s:	M2024-97
MRDA MPP Approval #s:	N/A
WA Disposition #s:	9999
PLA Disposition #s:	DMS200099
Current RMLP Security:	$ -
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Domain		Security Deposit
Domain 1: Infrastructure		$235,718
Domain 3: Overburden & Waste		
Domain 4: Active Mine & Voids		
Domain 5: Management Activities		$40,000
Subtotal (Domains and Miscellaneous Items)		**$275,718**
Contingency	**15%**	$41,358
Post Closure Environmental Monitoring		
Project Management and Surveying		
Total Security Deposit for the Mining Project (excl. of GST)		**$317,076**

Note: GST is not included in the above calculation or as part of MLE security deposits required by the AER.

☐ Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

☑ The proposed rehabilitation design is generally consistent with the site approval for the project.

This Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix to the RMLP MLE submission.

This mine liability calculation has been estimated using the best available information at the time.
It is a true and accurate reflection of the total rehabilitation liability in relation to the site EPEA approval.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Surface Operations 1

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $235,718

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	5.44
Total Reclamation in Progress (ha)	0
Total Reclamation Certifiable (ha)	0
Total Reclamation Certified (ha)	0

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
Contaminated Site Remediation	Undertake a preliminary site investigation (Phase 1 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple studies may be required.	y	1	each	$ 15,000.00		$15,000		The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the Alberta Environmental Site Assessment Standard (Phase 1 Environmental Site Assessment) or similar approved and recognised assessment method. A site combination may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
						Contaminated Site Remediation Subtotal	$15,000		
						Drillholes and Wells Subtotal	$0		
Roads and Parking Areas Decommissioning and Abandonment	Unsealed roads / access roads / vehicle parking lot areas with windrows and/or small earthen berms – minor earthworks and deep rip and trim	y	5.44	ha	$ 3,695.26		$20,102		Assumes average push distance of 15m on level ground; D8 Dozer @ $368/hr and productivity of 338 BCM/hr
	Subsoil Leveling	y	5	ha	$ 1,811.00		$9,852		D10 Dozer @ $368/hr
	Topsoil Leveling - using grader 16M to level top soil over subsoil	y	5	ha	$ 7,183.50		$39,078		D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$69,032		
Terrain Recontouring	Minor reshaping and pushing - >50m push length and >10m in height.	y	5	ha	$ 9,872.82		$53,708		D10 Dozer @ $368 per hour; hard to cut material; average operator; no rehandle; slot dozing
						Terrain Recontouring Subtotal	$53,708		
Reclamation Activities	Source, haul, pile and spread soils (includes organics) - haul distance <1 km	y	10,880	m3	$ 4.69		$51,040	< =1km assumes depth of 20cm	610 m3/hr with 4 x 657 scrapers at $430/hr, D10 trimming at $270/hr 3ha/day at 150mm depth
	Live staking (2 to 5 cm. diam) - 2000 stakes/ha	y	5	ha	$ 3,320.00		$18,061		Sourced locally
	Direct seeding / fertilizer (tree or native grass species) or on sloped areas - 55kg/ha - helicopter	y	5	ha	$ 4,032.71		$21,938		Rate can fluctuate however this is a suitable standard rate.
	Single application of fertilizer - 400kg/ha - helicopter	y	5	ha	$ 595.46		$3,239		Assumes 250 kg / ha.
	Single application of fertilizer (trees)	y	5	ha	$ 140.00		$762		Rate can fluctuate however this is a suitable standard rate.
						Reclamation Activities Subtotal	$95,040		
						Water Management Subtotal	$0		
Maintenance of Reclaimed Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	y	5	ha	$ 300.00		$1,632		Rehabilitation maintenance might include re-seeding, watering, fertilizing, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	y	1	ha	$ 1,200.00		$1,306		Areas requiring minor repair - rills, minor growth media replacement.
						Maintenance of Reclaimed Areas Subtotal	$2,938		
						Additional Items Subtotal	$0		
Total Cost for Infrastructure Domain							**$235,718**		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisiioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Overburden & Waste Domain		**$0**	

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
Total Cost for Active Mine & Voids Domain							$0		

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $40,000

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		
						Water Course Diversions Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Preservation of Heritage, Cultural sites Subtotal	$0		
						Miscellaneous Items Subtotal	$0		#N/A
Mobilization and Demobilization	Mobilization & Demobilization for small mine or quarry	y	1	item	$ 40,000.00		$40,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
						Mobilization and Demobilization Subtotal	$40,000		
						Additional Items Subtotal	$0		
Total Cost for Management Activities							**$40,000**		

Surface Operations 2

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	Manually Enter Data
Total Reclamation in Progress (ha)	Manually Enter Data
Total Reclamation Certifiable (ha)	Manually Enter Data
Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
						Contaminated Site Remediation Subtotal	$0		
						Drillholes and Wells Subtotal	$0		
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
Total Cost for Infrastructure Domain							$0		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisliioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Active Mine & Voids Domain	**$0**	

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		
						Water Course Diversions Subtotal	$0		

Surface Operations 3

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	Manually Enter Data
Total Reclamation in Progress (ha)	Manually Enter Data
Total Reclamation Certifiable (ha)	Manually Enter Data
Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
						Contaminated Site Remediation Subtotal	$0		
						Drillholes and Wells Subtotal	$0		
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Infrastructure Domain	**$0**		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisliioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Active Mine & Voids Domain	**$0**	

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		

Assumptions and rehabilitation requirements

List or record any assumptions made when completing this tool:

Justification for Change of Rates in the AER's Rock-Hosted Mine Liability Estimator

Domain	Activity	AER unit/rate	Adopted Rates	Justification

In completing the RMLP Liability Estimation Tool, we are seeking an adjustment to the rates currently utilised in the RMLP Estimator. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the RMLP.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Appendix 4 Type 2 BSD Calculation MLE Report

Site Registration

Date October 2025

Complete the following fields prior to calculating the RMLP Liability.

Mine Name:	BSD TYPE 2 (Open Pit)
Mine Owner:	Example Company
Mine Operator:	Example Company
EPEA Approval No.:	999999
EPEA Approval Expiry:	July 14, 2026
MRDA Mine Permit No.:	M2024-95
MRDA Mine Licence No.:	M2024-96
MRDA Dump Licence No.:	M2024-97
MPP Approval No.:	N/A
Mineral Tenure Lease No.:	1234567
WA Disposition No.:	9999
PLA Disposition No.:	DMS200099
Current RMLP Security:	$0
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Site Description

The following site specific information is requested to provide background information in the context of calculating the RMLP Liabilty Estimate.

Summary of Mine Activities

Product Mined: Copper

Total annual concentrate production (KG) or Total Annual Mineral /Stone Production (Tonne):	7,500,000
Total annual metal production (KG):	125,000
PLA Area (ha):	1500
Mine Permit Area (ha):	2500
Mine Licence Area (ha):	850
Area of disturbance (ha):	644.11
Reclamation in progress (ha):	0
Reclamation certifiable (ha): Achieved ecosystem sustainability	0
Reclamation Certified (ha): Reference Rec Cert no. and date	0
Tailings Disturbance Area (ha):	N/A
Heap Leach Disturbance Area (ha):	N/A
In Situ Leach Disturbance Area (ha):	N/A
External Dump Distrubance Area (ha):	N/A

☑ GIS shapefile(s) attached

Reference Amendment version and date

NOTE:
Ensure rehabilitation cost estimation reflects all environmental issues affecting the site approvals. Contingencies should be allocated where costs have not been incorporated elswhere in the estimation.

Environmental Sensitivities:

Reclaimed Land Use:
(select all that apply)

- ☐ agriculture
- ☐ rangeland
- ☐ municipality development
- ☑ forestry
- ☐ cultural
- ☐ transportation
- ☐ utilities
- ☐ recreational
- ☑ natural area / wildlife habitat

Environmental Issues affecting site
(select all that apply)

- ☐ threatened flora
- ☐ threatened fauna
- ☑ cultural heritage items
- ☐ natural heritage features
- ☑ surface water pollution
- ☑ ground water pollution
- ☑ hydrocarbon contamination
- ☐ methane drainage / venting
- ☐ spontaneous combustion
- ☑ acid mine drainage
- ☐ within drinking water catchment

Other Relavent Issues:

Alberta Energy Regulator

Mine Liability Estimation

Note: Sections of this page are automatically filled in from the registration page

Mine Name:	BSD TYPE 2 (Open Pit)
Mine Operator:	Example Company
EPEA Approvals:	999999
EPEA Approval Expiry:	2026-07-14
MRDA Mine Permit #:	M2024-95
MRDA Mine Licence #s:	M2024-96
MRDA Dump Licence #s:	M2024-97
MRDA MPP Approval #s:	N/A
WA Disposition #s:	9999
PLA Disposition #s:	DMS200099
Current RMLP Security:	$ -
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Domain		Security Deposit
Domain 1: Infrastructure		$7,384,916
Domain 3: Overburden & Waste		
Domain 4: Active Mine & Voids		
Domain 5: Management Activities		$600,000
Subtotal (Domains and Miscellaneous Items)		**$7,984,916**
Contingency	**5%**	$399,246
Post Closure Environmental Monitoring		
Project Management and Surveying		
Total Security Deposit for the Mining Project (excl. of GST)		**$8,384,162**

Note: GST is not included in the above calculation or as part of MLE security deposits required by the AER.

☐ Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

☑ The proposed rehabilitation design is generally consistent with the site approval for the project.

This Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix to the RMLP MLE submission.

This mine liability calculation has been estimated using the best available information at the time.
It is a true and accurate reflection of the total rehabilitation liability in relation to the site EPEA approval.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Surface Operations 1

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $7,384,916

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	644.11
Total Reclamation in Progress (ha)	0.00
Total Reclamation Certifiable (ha)	0.00
Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	y	1	each	$ 5,500.00		$5,500		Used for infrastructure remote from primary connection. Can also be used for operations that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Remove significant rail, road, water course, or overpass / bridge - manage potential interuptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	y	60	m	$ 2,365.78		$141,947	one access road with a single lane water course crossing	Major structures constructed for the purposes of mining related works. Single lane bridge: 10m wide by 30 m long
	Demolish and remove industrial buildings housing workshops and servicing areas etc. (does not include rock-hosted mineral processing plants, or refinery upgrading buildings/structures) and disposal on-site/locally	y	2,495	m2	$ 137.53		$343,129	includes lube and fuel facilities; maintenance and admin/dry/warehouse	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport costs to disposal facility or equivalent.
	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	y	2,495	m2	$ 140.43		$350,373		Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be $0.60 - $1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add $0.90 / km for transport.
						Termination of Services and Demolition Works Subtotal	$840,949		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
Contaminated Site Remediation	Undertake a preliminary site investigation (Phase 1 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple studies may be required.	y	1	each	$ 15,000.00		$15,000		The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the Alberta Environmental Site Assessment Standard (Phase 1 Environmental Site Assessment) or similar approved and recognised assessment method. A site combination may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	y	36,742	m2	$ 1.00		$36,742		Provisional sum for cutting using dozer ripper teeth and on-site disposal of the liner.
						Contaminated Site Remediation Subtotal	$51,742		
						Drillholes and Wells Subtotal	$0		
Roads and Parking Areas Decommissioning and Abandonment	Unsealed roads / access roads / vehicle parking lot areas with windrows and/or small earthen berms – minor earthworks and deep rip and trim	y	103.27	ha	$ 3,695.26		$381,609	covers high traffic areas requiring ripping	Assumes average push distance of 15m on level ground; D8 Dozer @ $368/hr and productivity of 338 BCM/hr
	Subsoil Leveling	y	644	ha	$ 1,811.00		$1,166,284	assumes single soil horizon; materials proximal to placement / levelling	D10 Dozer @ $368/hr
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$1,547,893		
Terrain Recontouring	Fill impoundments, voids etc. - Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance <1 km)	y	110,226	m3	$ 5.16		$569,039	< =1km assumes pond is 3 m deep	D10 push over soft material at $270/hr 657 Scrapers cut to spoil at $430/hr, 150BCM/hr/machine, water truck and grader at $0.75c/m3
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	y	541	ha	$ 2,150.00		$1,163,150		16H Grader @ $212 per hour - ripping in 1 direction only.
						Terrain Recontouring Subtotal	$1,732,189		
Reclamation Activities	Direct seeding / fertilizer (tree or native grass species) or on sloped areas - 55kg/ha - helicopter	y	644	ha	$ 4,032.71		$2,597,068		Rate can fluctuate however this is a suitable standard rate.
	Single application of fertilizer - 400kg/ha - helicopter	y	644	ha	$ 595.46		$383,474		Assumes 250 kg / ha.
						Reclamation Activities Subtotal	$2,980,542		
						Water Management Subtotal	$0		
Maintenance of Reclaimed Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	y	644	ha	$ 300.00		$193,200		Rehabilitation maintenance might include re-seeding, watering, fertilizing, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	y	32	ha	$ 1,200.00		$38,400	assumes 5% of area will need some repairs	Areas requiring minor repair - rills, minor growth media replacement.
						Maintenance of Reclaimed Areas Subtotal	$231,600		
						Additional Items Subtotal	$0		
Total Cost for Infrastructure Domain							**$7,384,916**		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	644.11
	Total Landform Establishment:	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem Establishment:	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisiioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
Total Cost for Overburden & Waste Domain							$0		

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	644.11
	Total Landform Establishment:	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem Establishment:	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
Total Cost for Active Mine & Voids Domain							$0		

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $600,000

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		
						Water Course Diversions Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Preservation of Heritage, Cultural sites Subtotal	$0		
Miscellaneous Items	Development of an 'Unplanned' Project Closure Plan - Mine Operations	y	1	each	$ 500,000.00		$500,000	Mine	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
						Miscellaneous Items Subtotal	$500,000		#N/A
Mobilization and Demobilization	Mobilization & Demobilization (Distance to site <150 km)	y	1	item	$ 100,000.00		$100,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
						Mobilization and Demobilization Subtotal	$100,000		
						Additional Items Subtotal	$0		
Total Cost for Management Activities							**$600,000**		

Surface Operations 2

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	Manually Enter Data
Total Reclamation in Progress (ha)	Manually Enter Data
Total Reclamation Certifiable (ha)	Manually Enter Data
Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
						Contaminated Site Remediation Subtotal	$0		
						Drillholes and Wells Subtotal	$0		
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
Total Cost for Infrastructure Domain							$0		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisliioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Active Mine & Voids Domain	**$0**	

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		
						Water Course Diversions Subtotal	$0		

Surface Operations 3

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	Manually Enter Data
Total Reclamation in Progress (ha)	Manually Enter Data
Total Reclamation Certifiable (ha)	Manually Enter Data
Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
						Contaminated Site Remediation Subtotal	$0		
						Drillholes and Wells Subtotal	$0		
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Infrastructure Domain	**$0**		

Surface Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads and Parking Areas Decommisliioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Contaminated Mine Waste Mitigation Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Surface 1 Operations

Domain 4a: Active Mine & Voids

Total Cost for Active Mine & Voids Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
						Terrain Recontouring Subtotal	$0		

Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Active Mine & Voids Domain	**$0**	

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		

Assumptions and rehabilitation requirements

List or record any assumptions made when completing this tool:

Justification for Change of Rates in the AER's Rock-Hosted Mine Liability Estimator

Domain	Activity	AER unit/rate	Adopted Rates	Justification

In completing the RMLP Liability Estimation Tool, we are seeking an adjustment to the rates currently utilised in the RMLP Estimator. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the RMLP.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Appendix 5 Type 3 BSD Calculation MLE Report

Site Registration

Date October 2025

Complete the following fields prior to calculating the RMLP Liability.

Mine Name:	BSD TYPE 3 (Underground)
Mine Owner:	Example Company
Mine Operator:	Example Company
EPEA Approval No.:	999999
EPEA Approval Expiry:	July 14, 2026
MRDA Mine Permit No.:	M2024-95
MRDA Mine Licence No.:	M2024-96
MRDA Dump Licence No.:	M2024-97
MPP Approval No.:	M2024-98
Mineral Tenure Lease No.:	1234567
WA Disposition No.:	9999
PLA Disposition No.:	DMS200099
Current RMLP Security:	$0
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Site Description

The following site specific information is requested to provide background information in the context of calculating the RMLP Liabilty Estimate.

Summary of Mine Activities

Product Mined: Copper

Total annual concentrate production (KG) or Total Annual Mineral /Stone Production (Tonne):	750,000
Total annual metal production (KG):	75,000
PLA Area (ha):	50
Mine Permit Area (ha):	100
Mine Licence Area (ha):	80
Area of disturbance (ha):	70.15
Reclamation in progress (ha):	0
Reclamation certifiable (ha): Achieved ecosystem sustainability	0
Reclamation Certified (ha): Reference Rec Cert no. and date	0
Tailings Disturbance Area (ha):	0
Heap Leach Disturbance Area (ha):	0
In Situ Leach Disturbance Area (ha):	0
External Dump Distrubance Area (ha):	0

☑ GIS shapefile(s) attached

Reference Amendment version and date

NOTE:
Ensure rehabilitation cost estimation reflects all environmental issues affecting the site approvals. Contingencies should be allocated where costs have not been incorporated elswhere in the estimation.

Environmental Sensitivities:

Reclaimed Land Use:
(select all that apply)

- ☐ agriculture
- ☐ rangeland
- ☐ municipality development
- ☑ forestry
- ☐ cultural
- ☐ transportation
- ☐ utilities
- ☐ recreational
- ☑ natural area / wildlife habitat

Environmental Issues affecting site
(select all that apply)

- ☐ threatened flora
- ☐ threatened fauna
- ☐ cultural heritage items
- ☐ natural heritage features
- ☐ surface water pollution
- ☐ ground water pollution
- ☐ hydrocarbon contamination
- ☐ methane drainage / venting
- ☐ spontaneous combustion
- ☐ acid mine drainage
- ☑ within drinking water catchment

Other Relavent Issues:

Alberta Energy Regulator

Mine Liability Estimation

Note: Sections of this page are automatically filled in from the registration page

Mine Name:	BSD TYPE 3 (Underground)
Mine Operator:	Example Company
EPEA Approvals:	Example Company
EPEA Approval Expiry:	999999
EPEA Approval Holder:	14-Jul-26
MRDA Mine Permit #:	M2024-95
MRDA Mine Licence #s:	M2024-96
MRDA Dump Licence #s:	M2024-97
WA Disposition #s:	9999
PLA Disposition #s:	DMS200099
Current RMLP Security:	
Date of last MLE Report Submission	N/A
Mine Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Domain		Security Deposit
Domain 1: Infrastructure		3,994,700.41
Domain 3: Overburden & Waste		
Domain 4: Subsidence & Management		600,000.00
Subtotal (Domains and Sundry Items)		**$4,594,700.41**
Contingency	**5%**	**$229,735.02**
Post Closure Environmental Monitoring		
Project Management and Surveying		
Total Security Deposit for the Mining Project (excl. of GST)		**$4,824,435.43**

Note: GST is not included in the above calculation or as part of MLE security deposits required by the AER.

☐ Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

☑ The proposed rehabilitation design is generally consistent with the site approval for the project.

This Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix the RMLP MLE submission.

This mine security calculation has been estimated using the best available information at the time.
It is a true and accurate reflection of the total rehabilitation liability in relation to the site EPEA approval.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Underground Operations 1

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $3,994,700

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	70.15
Total Reclamation in Progress (ha)	0.00
Total Reclamation Certifiable (ha)	0.00
Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	y	1	each	$ 5,500.00		$5,500		Used for infrastructure remote from primary connection. Can also be used for operations that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Remove significant rail, road, water course, or overpass / bridge - manage potential interuptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	y	60	m	$ 2,365.78		$141,947	assumes one overpass bridge on access route	Major structures constructed for the purposes of mining related works. Single lane bridge: 10m wide by 30 m long
	Demolish and remove industrial buildings housing workshops and servicing areas etc. (does not include rock-hosted mineral processing plants, or refinery upgrading buildings/structures) and disposal on-site/locally	y	2495	m2	$ 137.53		$343,129	assumes a maintenance shop and an admin/dry/warehouse building	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport costs to disposal facility or equivalent.
	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	y	2495	m2	$ 140.43		$350,373	assumes a maintenance shop and an admin/dry/warehouse building	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be $0.60 - $1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add $0.90 / km for transport.
	Demolition and removal of ventilation fans, electrical substation and hoist and disposal on-site/locally	y	1	each	$ 25,000.00		$25,000	assumes one vent fan has been installed	Does not include abandonment and capping the shaft/portal.Does not include transport costs to disposal facility or equivalent.
						Termination of Services and Demolition Works Subtotal	$865,949		
						Rail Infrastructure Subtotal	$0		
Contaminated Materials	Undertake a preliminary site investigation (Phase 1 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple studies may be required.	y	1	each	$ 15,000.00		$15,000		The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the Alberta Environmental Site Assessment Standard (Phase 1 Environmental Site Assessment) or similar approved and recognised assessment method. A site combination may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	y	34885	m2	$ 1.00		$34,885	area of sump	Provisional sum for cutting using dozer ripper teeth and on-site disposal of the liner.
						Contaminated Materials Subtotal	$49,885		
Vents, Shafts and Boreholes	Abandon portals / drifts (width >3 m) – including bulkhead, drainage, backfill, and cover soils. Installed pressure plug	y	1080	m3	$ 1,200.00		$1,296,000	assumes a 6m * 6m * 30m portal plug/bulkhead	Abandonment requirements as per AER underground abandonment guidelines. Cost based portal plug/bulkhead placed +/- 30m from collar, portal backfill to collar, water drainage and surface cover soil placement. Does not include underground or surface ground rehabilitation.
						Vents, Shafts and Boreholes Subtotal	$1,296,000		
Roads and Parking lots	Unsealed roads / access roads / vehicle parking lot areas with windrows and/or small earthen berms – minor earthworks and deep rip and trim	y	7.8	ha	$ 3,695.26		$28,823	assumes an access road 2.6km road (30m wide)	Assumes average push distance of 15m on level ground; D8 Dozer @ $368/hr and productivity of 338 BCM/hr
	Unsealed roads / vehicle parking lot areas – Minor earthworks, final trim and deep rip	y	62.35	ha	$ 4,012.52		$250,181	covers the disturbed area excluding the access road	D8 Dozer @ $368/hr push distance less than 20m on level ground; subsoil

	Subsoil Leveling	y	70.15	ha	$ 1,811.00		$127,042	assumed to cover the entire disturbed area	D10 Dozer @ $368/hr
	Topsoil Leveling - using grader 16M to level top soil over subsoil	y	70.15	ha	$ 7,183.50		$503,923	assumed to cover the entire disturbed area	D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
						Roads and Parking lots Subtotal	$909,968		
Earthworks / Structural Works (Landform Establishment)	Fill impoundments, voids etc. - Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance <1 km)	y	104565	m3	$ 5.16		$539,814	< =1km assumes a 3m deep pond	D10 push over soft material at $270/hr 657 Scrapers cut to spoil at $430/hr, 150BCM/hr/machine, water truck and grader at $0.75c/m3
						Earthworks / Structural Works (Landform Establishment) Subtotal	$539,814		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Direct seeding / fertilizer (tree or native grass species) or on sloped areas - 55kg/ha - helicopter	y	70.15	ha	$ 4,032.71		$282,895		Rate can fluctuate however this is a suitable standard rate.
	Single application of fertilizer - 400kg/ha - helicopter	y	70.15	ha	$ 595.46		$41,771	assumes one additional application of fertilizer	Assumes 250 kg / ha.
						Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$324,666		
						Water Management Subtotal	$0		
Maintenance of Rehabilitated Areas	Existing rehabilitation repair - minor	y	7.015	ha	$ 1,200.00		$8,418	assumes 10% of area requires repairs	Areas requiring minor repair - rills, minor growth media replacement.
						Maintenance of Rehabilitated Areas Subtotal	$8,418		
						Additional Items Subtotal	$0		
Total Cost for Infrastructure Domain							**$3,994,700**		

Underground Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain **$0**

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	**70.15**
	Total Landform Establishment:	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem Establishment:	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	**$0**		
						Roads, and Parking lots Subtotal	**$0**		
Earthworks / Structural Works (Landform Establishment)	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	**y**		ha	**$ 2,150.00**		**$0**		16H Grader @ $212 per hour - ripping in 1 direction only.
						Earthworks / Structural Works (Landform Establishment) Subtotal	**$0**		
						Mine Waste Subtotal	**$0**		
						Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	**$0**		
						Water Management Subtotal	**$0**		
						Maintenance of Rehabilitated Areas Subtotal	**$0**		
						Additional Items Subtotal	**$0**		
Total Cost for Overburden & Waste Domain							**$0**		

Underground Operations 1

Domain 4a: Subsidence and Management

Total Cost for Subsidence and Management Activities $600,000

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	70.15
	Total Landform Establishment:	0.00
	Total Growth Media Development:	0.00
	Total Ecosystem Establishment:	0.00
	0	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Subsidence Repairs Subtotal	$0		
						Vents, Shafts and Boreholes Subtotal	$0		
						Water Management Subtotal	$0		
						Creek Diversions Subtotal	$0		
						Land Management Subtotal	$0		
						Heritage Items Subtotal	$0		
Miscellaneous Items	Development of an 'Unplanned' Project Closure Plan - Mine Operations	y	1	each	$ 500,000.00		$500,000	Mine	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
						Miscellaneous Items Subtotal	$500,000		
Mobilization and Demobilization	Mobilization & Demobilization (Distance to site <150 km)	y	1	item	$ 100,000.00		$100,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
						Mobilization and Demobilization Subtotal	$100,000		
						Additional Items Subtotal	$0		
Total Cost for Subsidence and Management Activities							**$600,000**		

Underground Operations 2

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Total Disturbance Area for Domain (ha):	Manually Enter Data
	Total Reclamation in Progress (ha)	Manually Enter Data
	Total Reclamation Certifiable (ha)	Manually Enter Data
	Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Subtotal	$0		
						Contaminated Materials Subtotal	$0		
						Vents, Shafts and Boreholes Subtotal	$0		

							Roads and Parking lots Subtotal	$0	
							Earthworks / Structural Works (Landform Establishment) Subtotal	$0	
Land Preparation and Revegetation (Growth Media Development and	Construct no-climb stock fence around rehabilitated areas	y		m	$	15.17		$0	Standard rate for no-climb stock fencing.
							Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$0	
							Water Management Subtotal	$0	
							Maintenance of Rehabilitated Areas Subtotal	$0	

Additional Items Subtotal	$0	
Total Cost for Infrastructure Domain	**$0**	

Underground Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads, and Parking lots Subtotal	$0		
						Earthworks / Structural Works (Landform Establishment) Subtotal	$0		

Mine Waste Subtotal	$0	
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Rehabilitated Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Underground Operations 1

Domain 4a: Subsidence and Management

Total Cost for Subsidence and Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Subsidence Repairs Subtotal	$0		
						Vents, Shafts and Boreholes Subtotal	$0		
						Water Management Subtotal	$0		
						Creek Diversions Subtotal	$0		
						Land Management Subtotal	$0		
						Heritage Items Subtotal	$0		
						Miscellaneous Items Subtotal	$0		
						Mobilization and Demobilization Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Subsidence and Management Activities		**$0**	

Underground Operations 3

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Total Disturbance Area for Domain (ha):	Manually Enter Data
	Total Reclamation in Progress (ha)	Manually Enter Data
	Total Reclamation Certifiable (ha)	Manually Enter Data
	Total Reclamation Certified (ha)	Manually Enter Data

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Termination of Services and Demolition Works Subtotal	$0		
						Rail Infrastructure Subtotal	$0		
						Contaminated Materials Subtotal	$0		
						Vents, Shafts and Boreholes Subtotal	$0		

Roads and Parking lots Subtotal	$0	
Earthworks / Structural Works (Landform Establishment) Subtotal	$0	
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Rehabilitated Areas Subtotal	$0	

Additional Items Subtotal	$0	
Total Cost for Infrastructure Domain	**$0**	

Underground Operations 1

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Materials Subtotal	$0		
						Roads, and Parking lots Subtotal	$0		
						Earthworks / Structural Works (Landform Establishment) Subtotal	$0		

Mine Waste Subtotal	$0	
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Rehabilitated Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Overburden & Waste Domain	**$0**	

Underground Operations 1

Domain 4a: Subsidence and Management

Total Cost for Subsidence and Management Activities $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Subsidence Repairs Subtotal	$0		
						Vents, Shafts and Boreholes Subtotal	$0		
						Water Management Subtotal	$0		
						Creek Diversions Subtotal	$0		
						Land Management Subtotal	$0		
						Heritage Items Subtotal	$0		
						Miscellaneous Items Subtotal	$0		
						Mobilization and Demobilization Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Subsidence and Management Activities		**$0**	

Assumptions and rehabilitation requirements

List or record any assumptions made when completing this tool:

Justification for Change of Rates in the AER's Rock-Hosted Mine Liability Estimator

Domain	Activity	AER unit/rate	Adopted Rates	Justification

In completing the RMLP Liability Estimation Tool, we are seeking an adjustment to the rates currently utilised in the RMLP Estimator. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the RMLP.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**

Appendix 6 Type 4 BSD Calculation MLE Report

Site Registration

Date October 2025

Complete the following fields prior to calculating the RMLP Liability.

Plant Name:	BSD Type 4 (Plant)
EPEA Approval Nos:	9999999
EPEA Approval Holder	Example Company
EPEA Approval Expiry	14-Jul-26
MRDA Plant Approval No.	M2024-99
WA Dispositions	99999
PLA Dispositions	DMS200099
Current RMLP Security:	$0
Date of last MLE Report Submission	N/A
Plant Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW
	Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Site Description

The following site specific information is requested to provide background information in the context of calculating the RMLP Liabilty Estimate.

Summary of Mineral Processing Activities

Total annual concentrate production (KG):	5,000,000
Total annual metal production (KG):	
PLA Area (ha):	101
Plant Approval Area (ha):	100
Area of disturbance (ha):	100
Reclamation in progress (ha):	0
Reclamation certifiable (ha):	0
Reclamation certified (ha):	0

Environmental Sensitivities

Surrounding land use:

(select all that apply)

- ☐ agriculture
- ☐ rangeland
- ☐ municipality development
- ☑ forestry
- ☐ cultural
- ☐ transportation
- ☐ utilities
- ☐ recreational
- ☐ natural area / wildlife habitat

Environmental issues affecting site

(select all that apply)

- ☐ threatened fauna
- ☐ cultural heritage items

Alberta Energy Regulator

Mine Liability Estimation

Note: Sections of this page are automatically filled in from the registration page

Plant Name:	BSD Type 4 (Plant)
EPEA Approval:	9999999
Approval Holder	Example Company
Plant Operator:	Example Company
Expiry of EPEA Approval:	14-7-2026
Current RMLP Security:	$ -
Date of last MLE Report Submission	N/A
Plant Contact:	John Doe
Position:	Chief Executive Officer
Address:	Suite 1, 123 Any Street SW Anywhere, Alberta T4R 0R4
Phone:	403-555-1212
Email:	inquiries@example.ca

Domain		Security Deposit
Domain 1: Mineral Processing		$4,403,874
Domain 2: Tailings and Rejects		
Domain 3: Heap Leaching		
Domain 4: In Situ Leaching		
Domain 5: Management Activities		$600,000
Subtotal		**$5,003,874**
Contingency	**10%**	$500,387
Post Closure Environmental Monitoring		
Project Management and Surveying		
Total Security Deposit (excl. of GST)		**$5,504,262**

Note: GST is not included in the above calculation or as part of MLE security deposits required by the AER.

☐ Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

☑ The proposed rehabilitation design is generally consistent with the approval for the project.

This Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix to the RMLP MLE submission.

This security calculation has been estimated using the best available information at the time.
It is a true and accurate reflection of the total rehabilitation liability in relation to the site EPEA approval.

Company Representative Name **Date**

Processing Plant Operations

Domain 1a: Plant Infrastructure

Total Cost for Plant Infrastructure Domain $4,403,874

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	100.5
Total Reclamation in Progress (ha)	0.00
Total Reclamation Certifiable (ha)	0.00
Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	y	1	each	$ 5,500.00		$5,500		Used for infrastructure remote from primary connection. Can also be used for operations that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Remove significant rail, road, water course, or overpass / bridge - manage potential interuptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	y	60	m	$ 2,365.78		$141,947		Major structures constructed for the purposes of mining related works. Single lane bridge: 10m wide by 30 m long
	Demolish and remove rock-hosted mineral processing plants, and refinery upgrading buildings/structures (include the area of each floor of the structure) and disposal on-site/locally	y	12,750	m2/floor	$ 58.60		$747,087	assumes the building is incomplete (i.e. 50% constructed)	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport costs to disposal facility or equivalent.
	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	y	8,500	m2	$ 149.74		$1,272,790		Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be $0.60 - $1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add $0.90 / km for transport.
						Termination of Services and Demolition Works Subtotal	$2,167,324		
						Rail Infrastructure Decommissioning and Abandonment Subtotal	$0		
Contaminated Site Remediation	Undertake a preliminary site investigation (Phase 1 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple studies may be required.	y	1	each	$ 15,000.00		$15,000		The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the Alberta Environmental Site Assessment Standard (Phase 1 Environmental Site Assessment) or similar approved and recognised assessment method. A site combination may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation (Phase 2 Environmental Site Assessment). This accounts for current and historical locations where areas of disturbance are combined. If there are multiple combined areas on site, multiple intrusive investigations should be included.	y		each	$ 100,000.00		$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the Alberta Environmental Site Assessment Standard (Phase 2 Environmental Site Assessment) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A combined area where it is highly anticipated that contamination has occurred (i.e. underground tanks / pipes that are known to have leaked, chemical storage with earthen berms, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	y	5,000	m2	$ 1.00		$5,000		Provisional sum for cutting using dozer ripper teeth and on-site disposal of the liner.
						Contaminated Site Remediation Subtotal	$20,000		
						Drillholes and Wells Subtotal	$0		
Roads and Parking Areas Decommissioning and Abandonment	Subsoil Leveling	y	101	ha	$ 1,811.00		$182,006		D10 Dozer @ $368/hr
	Topsoil Leveling - using grader 16M to level top soil over subsoil	y	101	ha	$ 7,183.50		$721,942		D10 Dozer @ $332 per hour and 16H Grader @ $212 per hour (50% utilisation) - tree/shrub seed.
						Roads and Parking Areas Decommissioning and Abandonment Subtotal	$903,947		
Terrain Recontouring	Fill impoundments, voids etc. - Source local material, haul and spread to cap or backfill, cap thickness determined by approval (haul distance <1 km)	y	15,000	m3	$ 5.16		$77,437	< =1km assumes 3.0 metre pond depth	D10 push over soft material at $270/hr 657 Scrapers cut to spoil at $430/hr, 150BCM/hr/machine, water truck and grader at $0.75c/m3
	Deep rip hard stand / lay down areas	y	101	ha	$ 4,300.00		$432,150		D10 dozer @ $332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
						Terrain Recontouring Subtotal	$509,587		
Reclamation Activities	Planting seedlings (<15 cm) - 2000 stem/ha	y	101	ha	$ 3,222.04		$323,815		2000 stems / ha; 4 m centres.
	Direct seeding / fertilizer (tree or native grass species) or on sloped areas - 55kg/ha - helicopter	y	101	ha	$ 4,032.71		$405,288		Rate can fluctuate however this is a suitable standard rate.
	Single application of fertilizer - 400kg/ha - helicopter	y	101	ha	$ 595.46		$59,843		Assumes 250 kg / ha.
	Single application of fertilizer (trees)	y	101	ha	$ 140.00		$14,070		Rate can fluctuate however this is a suitable standard rate.
						Reclamation Activities Subtotal	$803,016		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Plant Infrastructure Domain	**$4,403,874**		

Processing Plant Operations

Domain 2a: Tailings & Rejects

Total Cost for Tailings & Rejects Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

Total Disturbance Area for Domain (ha):	100.5
Total Reclamation in Progress (ha)	0.00
Total Reclamation Certifiable (ha)	0.00
Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Site Remediation Subtotal	$0		
						Roads and Parking Areas Decommitioning and Abandonment Subtotal	$0		

Terrain Recontouring Subtotal	$0	
Contaminated Mine Tailings, Rejects and Slag Pile Mitigation Subtotal	$0	
Reclamation Activities Subtotal	$0	
Water Management Subtotal	$0	
Maintenance of Reclaimed Areas Subtotal	$0	
Additional Items Subtotal	$0	
Total Cost for Tailings & Rejects Domain	**$0**	

Processing Plant Operations

Domain 3a: Heap Leaching

Total Cost for Heap Leaching Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Total Disturbance Area for Domain (ha):	100.5
	Total Reclamation in Progress (ha)	0.00
	Total Reclamation Certifiable (ha)	0.00
	Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Contaminated Site Remediation Subtotal	$0		
						Roads and Parking Areas Decommisioning and Abandonment Subtotal	$0		
						Terrain Recontouring Subtotal	$0		
						Heap Leach Facility Mitigation Subtotal	$0		
						Reclamation Activities Subtotal	$0		
						Water Management Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for Heap Leaching Domain	**$0**		

Processing Plant Operations

Domain 4a: In Situ Leaching

Total Cost for In Situ Leaching Domain $0

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Total Disturbance Area for Domain (ha):	100.5
	Total Reclamation in Progress (ha)	0.00
	Total Reclamation Certifiable (ha)	0.00
	Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Surface Subtotal	$0		
Terrain Recontouring	Major levelling / resloping to achieve approved reclaim grades – Select Push Length	y		m3	Select from List			Select Push Length Here	Major levelling/resloping to achieve approved reclaim grades.
	Minor reshaping and pushing - >50m push length and >10m in height.	y		ha	$ 9,872.82		$0		D10 Dozer @ $368 per hour; hard to cut material; average operator; no rehandle; slot dozing
	Fill impoundments, voids etc. - Source local material, haul and spread to cap or backfill, cap thickness determined by approval. (Select Haul Distance from List)	y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Mitigation of road cuts and highwall slopes	y		m2	$ 185.00		$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuts, etc that cannot be cut back and stabilized. Such as scaling, bolting, drainage etc. Screening of the slope not accepted means of stabilization.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	y		ha	$ 2,150.00		$0		16H Grader @ $212 per hour - ripping in 1 direction only.
	Major surface water mitigation. Construction of Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	y		ha	$ 32,094.40		$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~$200 per hour plus grader @ $212 per hour for ~4 hours each per ha.
	Minor surface water mitigation. Construction of drains / drop structures and/or stabilizing water course entry points - required for large catchments	y		m2	$ 9.73		$0		Installation of on-site rock material (rip-rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available).
						Terrain Recontouring Subtotal	$0		
Reclamation Activities	Source, haul and spread soils (Select Haul Distance from List)	y		m3	Select from List			Select Haul Distance Here	If topsoil/subsoil are not available on-site, then they may need to be externally sourced.
	Planting mature trees (>15 cm)	y		each	$ 20.00		$0		4 m centres.
	Live staking (2 to 5 cm. diam) - 2000 stakes/ha	y		ha	$ 3,320.00		$0		Sourced locally
	Planting seedlings (<15 cm) - 2000 stem/ha	y		ha	$ 3,222.04		$0		2000 stems / ha; 4 m centres.
	Direct seeding / fertilizer (pasture grass species) on flat areas	y		ha	$ 1,121.47		$0		Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertilizer (tree or native grass species) or on sloped areas - 55kg/ha - helicopter	y		ha	$ 4,032.71		$0		Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack / vegetation blanket or erosion mat	y		m2	$ 3.71		$0		Rate can fluctuate however this is a suitable standard rate.
	Single application of fertilizer - 400kg/ha - helicopter	y		ha	$ 595.46		$0		Assumes 250 kg / ha.
	Single application of fertilizer (trees)	y		ha	$ 140.00		$0		Rate can fluctuate however this is a suitable standard rate.
	Soil amelioration (humalite)	y		ha	$ 532.50		$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	y		ha	$ 6,465.00		$0		Recent experience with agronomy projects.
	Construct standard stock fence around rehabilitated areas	y		m	$ 33.74		$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	y		each	$ 472.89		$0		Site appropriate signage.
	Externally source subsoil/topsoil.	y		m3	$ 22.63		$0		D7 to spread material at $205/hr, Excavator ($220/hr) load haul trucks (90c/km) from imported stockpile - allow nominal rate of $70/m3 for imported fill material.
						Reclamation Activities Subtotal	$0		
Water Management	Leachate Neutralization and Flushing - In Situ	y		ML	$ 2,500.00		$0		Leachate neutralization and flushing - In Situ
	Clean water impoundments to be retained after decommissioning – make safe and minor earthworks	y		each	$ 2,500.00		$0		Provisional sum for earthworks and revegetation required to rehabilitate dam structures etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~$200 per hour and pasture grass.
	Remove contained sediments to enable it to be							Select Haul Distance Here	This item includes the volume of sediment

	Remove contained sediments to enable it to be converted into clean water structure (Select Haul Distance from list)	y		m3	Select from List				This item includes the volume of sediment requiring removal using an excavator, truck and dozer to clean out the dam.
						Water Management Subtotal	$0		
Maintenance of Reclaimed Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	y		ha	$ 300.00		$0		Rehabilitation maintenance might include re-seeding, watering, fertilizing, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	y		ha	$ 1,200.00		$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	y		ha	$ 1,700.00		$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	y		ha	$ 2,500.00		$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	y		ha	$ 40,000.00		$0		Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
						Maintenance of Reclaimed Areas Subtotal	$0		
						Additional Items Subtotal	$0		
						Total Cost for In Situ Leaching Domain	**$0**		

Surface 1 Operations

Domain 5a: Management Activities

Total Cost for Management Activities $600,000

Additional Assumptions: *Record any relevant assumptions to this domain below:*

	Total Disturbance Area for Domain (ha):	100.5
	Total Reclamation in Progress (ha)	0.00
	Total Reclamation Certifiable (ha)	0.00
	Total Reclamation Certified (ha)	0.00

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
						Water Management Subtotal	$0		
						Water Course Diversions Subtotal	$0		
						Maintenance of Reclaimed Areas Subtotal	$0		
						Preservation of Heritage, Cultural sites Subtotal	$0		
Miscellaneous Items	Development of an 'Unplanned' Project Closure Plan - Mine Operations	y	1	each	$ 500,000.00		$500,000	Mine	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
						Miscellaneous Items Subtotal	$500,000		
Mobilization and Demobilization	Mobilization & Demobilization (Distance to site <150 km)	y	1	item	$ 100,000.00		$100,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
						Mobilization and Demobilization Subtotal	$100,000		
						Additional Items Subtotal	$0		
						Total Cost for Management Activities	**$600,000**		

Assumptions and rehabilitation requirements

List or record any assumptions made when completing this tool:

Justification for Change of Rates in the AER's Rock-Hosted Mine Liability Estimator

Domain	Activity	AER unit/rate	Adopted Rates	Justification

In completing the RMLP Liability Estimation Tool, we are seeking an adjustment to the rates currently utilised in the RMLP Estimator. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the RMLP.

Company Representative Name **Date**

Company Representative Role / Responsibility **Signature**