

MINES ACT PERMIT

Annual Reclamation Report – General Information and Format Requirements

Updated January 2019

A. GENERAL INFORMATION

1. Public Disclosure

Annual Reclamation Reports (ARR) are public documents and are made available upon request. Annual Reclamation Reports are now posted on the [BC Mine Information website](#).

Although the ARR's are screened under the *Freedom of Information Act* harms assessment process prior to public posting, this is a reminder to please refrain from including personal information that you do not want publically released in your report.

The Province reserves the right not to accept copyrighted Annual Reclamation Reports.

2. Purpose of the Annual Reclamation Report

The Annual Reclamation Report (ARR) is a requirement of the *Health, Safety and Reclamation Code for Mines in BC* (Part 10, S10.4.4) for mines in BC. In some cases, where S10.4.4 does not apply to a particular mine, the Annual Reclamation Report is required as per conditions of the *Mines Act* permit. In these cases, submission of the Annual Reclamation Report is necessary to maintain compliance with the *Mines Act* and Code.

The Ministry of Energy, Mines and Petroleum Resources (EMPR) views the ARR submission as a synopsis of the mine site and an opportunity to demonstrate compliance with approved plans, permit conditions, and best practices. It also allows for tracking of effectiveness monitoring programs for key mitigations implemented, identification of potential future issues and liabilities that will require mitigation, and documentation of information gathered throughout life of mine. It is acceptable to provide the required information in appendices or external reports (submitted), however a summary of this information must be included within the body of the report, which demonstrates how the information addresses the requirements outlined in this document.

It is also requested that proponents include information that highlights where plans have changed in comparison with previous reports and provide commentary on lessons learned and adaptive management actions in the relevant sections.

The format requirements below are 1) intended to provide guidance to proponents on the Chief Inspector's expectations of minimum content, and 2) inclusive, so some components may not be relevant to all mine sites. Specific inquiries regarding the guidance provided here should be addressed to Jennifer McConnachie, Manager, Reclamation.

REMINDER: You are reminded that you are responsible for ensuring compliance with all conditions under the *Mines Act*, Code and your permit. Please ensure that all information required by your permit is included in your Annual Reclamation Report.

3. Changes to Mine Plan, Environmental Protection Program, or Reclamation and Closure Plan

Please refrain from using the Annual Reclamation Report for notifying the Ministry of Energy and Mines of any proposed changes to the approved Mine Plan and Reclamation Program for a permitted project. If the proponent

finds it efficient to include this information in the Annual Reclamation Report, they must also submit a formal letter to the Chief Inspector indicating the intent to depart from the approved plans. This letter can refer to the Annual Reclamation Report to provide technical details, if it is appropriate.

4. Submission Instructions

Submission of the Annual Reclamation Report is due by March 31st of the reporting year. Please submit as per the following instructions:

	Deliver To:	Comments:
1 Hard Copy	<i>Attention:</i> Jennifer McConnachie, Manager, Reclamation	Print double-sided whenever possible. Include all appendices and maps.
	<table border="1"> <tr> <td><i>By Courier:</i> 6th Floor 1810 Blanshard Street Victoria, BC</td> <td><i>By Mail:</i> PO Box 9320 Stn Prov Govt Victoria, BC V8W 9N3</td> </tr> </table>	
<i>By Courier:</i> 6 th Floor 1810 Blanshard Street Victoria, BC	<i>By Mail:</i> PO Box 9320 Stn Prov Govt Victoria, BC V8W 9N3	
1 Electronic/ Digital Copy	MEM Permitting and Reclamation (permrecl@gov.bc.ca)	Email or FTP is preferred. If submitting by other methods, please provide details via email for tracking purposes.

5. Cover Letter/Email

The Annual Reclamation Report submission must be accompanied by a cover letter that includes the following data entered in the tabulated format shown below:

Company:		
Mine Name:		
Mines Act Permit #:		
	Previous Report (e.g., 2017)	Current Report (e.g., 2018)
Total Disturbance Area (ha)		
Total Reclaimed Area (ha)		
Total Exempt Area (ha) (i.e., pit walls)		
Mining Production (annual total)		
Milling Production (annual total)		
Total Reclamation Liability Estimate		
Date for next Five Year Mine Plan and Reclamation Plan update (if required)		

6. Shapefiles/Digital Spatial Data

The Ministry of Energy, Mines and Petroleum Resources (EMPR) has established an initiative to develop spatial data capabilities (i.e. digital mapping) for permitting and tracking of mine activities. As part of this initiative, EMPR is requesting that digital spatial files be submitted with all Annual Reclamation Reports. EMPR expects that the spatial data submitted as part of each year's reporting will be updated to reflect any changes to new disturbance and/or reclamation activities conducted.

Please note that the areas identified in the shapefiles should correspond to the areas reported in Table 1 of the Annual Reclamation Report. Please **DO NOT** include reclamation or disturbance information that is not associated with your Mines Act Permit. As EMPR compiles the data submitted, we may contact individual sites should any questions arise. EMPR would like to receive spatial data for the following:

- disturbance areas
- revegetated areas and areas where reclamation activities are ongoing

These shapefiles must be submitted with the Annual Reclamation Report for each mine. Any changes from shapefiles submitted in previous years must be clearly explained in the Annual Reclamation Report. Please refer to the [Shapefile Data Standards Version 3.0](#), accompanying this document.

7. Standard Tables

Several tables are provided to assist mine proponents to report information required by the Chief Inspector. The following tables may be required for your project. If it is deemed not necessary to include one or more of the tables, please provide a brief rationale for the omission in the Annual Reclamation Report. Note that it may be necessary to modify the table to accommodate the specific activities conducted at your site. The following tables are required:

- Table 1: Summary of Areas Disturbed and Reclaimed
 - Ensure that the exempt area reported is not double-counted under the different classifications. In the body of the report, the exempt areas must be specified, rationale provided for the exemption, and maps included depicting the exempt areas.
- Table 2: Quantities of Waste Rock, Tailings, Low Grade Ore, Coarse Reject, and Other Mine Waste
 - Ensure that all waste types (including any water treatment wastes and contaminated soil), disposal areas and volumes are included even if waste was not added in the reporting year. Ensure maps include all waste disposal areas.
- Table 3: Monthly Mining and Milling Production
 - Ensure all areas mined are included in the table.
- Table 4: Monthly Custom Milling Production
 - Ensure that information on volumes of various ore feeds is reported in the table. Summarize the number of ore and tailings samples that have been collected to characterize the ML/ARD potential of the materials milled. Include all raw data and data interpretation in the report.
- Table 5: Quantities of Soil and Overburden Salvaged and Stockpiled for Reclamation Use
 - Ensure that characterization data are provided in the report that represent the materials salvaged and stockpiled, and maps included depicting stockpile locations.
 - Ensure that areas that could not be salvaged due to safety or other reasons are identified in the report, along with a supporting rationale.

B. REPORT FORMAT REQUIREMENTS

The Annual Reclamation Report must describe activities conducted in the previous year (or years), describe plans for activities to be conducted in the upcoming year, and follow the general format provided below.

COVER PAGE

- “Annual Reclamation Report for 2018” *Mines Act* Permit Number: _____
- Name of Property:
- Company Name:
- Names and Phone Numbers of Mine Manager AND Person Responsible for Reclamation/Environment:
- Company and Authors of Reclamation Report (if different from above):
- Date:

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EXECUTIVE SUMMARY

- Summarize the essential information in less than a page.

1.0 INTRODUCTION

- Provide a brief history of the project.
- Describe of the general location of the site and provide a location map.
- Describe baseline and/or regional environmental/ecological conditions.
- Describe regional management plans.
- Identify the goals and objectives of the reclamation program, including approved end land use(s) and land capability objectives.
- Summarize all reclamation activities conducted at the site and tabulate areas reclaimed (**Table 1**).
- Discuss how the current program fits into the concept of “progressive and ongoing reclamation”.

2.0 MINING PROGRAM

Describe:

- Surface development to date.
- Current life of mine plan.
- Surface development in the past year.
- Surface development projected over the next five years.

Discuss:

- Areas disturbed (location, aspect, and size in hectares).
- Disposal/storage locations and volumes of tailings, waste rock, coarse rejects, ore, low grade ore, overburden, water treatment wastes, and other (**Table 2**).
- Mining and milling production (**Table 3**).
- Custom Milling production (**Table 4**).
- Stockpiling of surface soil materials (location, volume, and characteristics) (**Table 5**).

3.0 ENVIRONMENTAL PROTECTION PROGRAM

Describe the Environmental Protection Program over the past year and next year (in detail) and projected for the next 5 years (in summary), including the following (where applicable):

Environmental Protection Program:	Report Requirement:
Environmental Management Systems/Plans/Audit	<ul style="list-style-type: none"> - Summarize the environmental management plans implemented. - Summarize the audit undertaken to review the EMS, EMPs, and SOPs. - Document and provide a schedule for the revisions necessary to address the audit findings.
ML/ARD Characterization and Mine Waste Management	<ul style="list-style-type: none"> - Describe static and kinetic testing programs. - Provide raw, cumulative, summary data and interpretation (e.g., acid base accounting, mineralogical, and elemental composition). - Provide an inventory of volumes of all materials excavated, exposed, created or disturbed during mining (e.g., waste rock, tailings, ore, low grade ore, coarse reject and other) by ML/ARD classification (Table 2). - Summarize the effectiveness of mine waste handling and management programs. Identify any issues encountered or expected and actions that have or will be undertaken to address.
Surface Water Quality and Quantity	<ul style="list-style-type: none"> - Summarize the drainage monitoring program, including flows and water quality at monitoring locations both on and off of the mine property. - Include data range and central tendencies for data summaries. - Include maps depicting hydrologic features and monitoring locations. - Include figures illustrating time series of parameters including pH, sulphate, alkalinity, acidity, base cations, major metals, trace elements, and major nutrients. - Identify any water quality trends or issues and any actions that have or will be undertaken to address.
Groundwater Quality and Quantity	<ul style="list-style-type: none"> - As above under Surface Water Quality and Quantity.
Water Quality Prediction, Mitigation, and Treatment	<ul style="list-style-type: none"> - Include a comparison of predicted water quality versus measured water quality, including key source terms used in predictions. - Summarize and assess effectiveness of water quality protection and mitigation measures for the mine, including ML/ARD. Identify any issues encountered or expected and actions that have been or will be undertaken to address.
Water Management	<ul style="list-style-type: none"> - Describe and map pre-mining drainages/watersheds. - Describe and map current configuration of water management features and infrastructure, and changes to natural drainages/watersheds.
Erosion and Sediment Control	<ul style="list-style-type: none"> - Describe erosion and sediment control activities (project-specific, routine, seasonal/event-based). - Describe ESC effectiveness monitoring programs (and summarize results).
Soil Salvage and Stockpiling	<ul style="list-style-type: none"> - Map of soil and overburden stockpiles. - Tabulate volumes of soil and overburden stockpiled and identify sources of origin (i.e., salvage locations) Table 5. - Describe soil characteristics and suitability for reclamation. - Describe activities conducted to protect soil stockpiles.
Landfarm Management	<ul style="list-style-type: none"> - Describe landfarming activities (material volumes, contaminants, treatment, monitoring, use/disposal), if applicable.
Vegetation Management	<ul style="list-style-type: none"> - Describe vegetation monitoring and management (e.g., construction clearing, invasive plant species, and metal uptake).
Wildlife Protection	<ul style="list-style-type: none"> - Summarize programs for preventing wildlife-human interactions and wildlife monitoring. - Provide results were applicable (including summary of incidental observations).
Archaeological Resources	<ul style="list-style-type: none"> - Describe archaeological and heritage sites identified.

4.0 RECLAMATION PROGRAM

Describe the Reclamation Program over the past year and next year (in detail) and projected for the next 5 years (in summary), including the following (where applicable):

Reclamation Standard/Activity:	Report Requirement:
End Land Use	- Document/map the end land use plan over the site based on pre-mining uses and ecosystem targets.
Land Capability	- Document/map the land capability pre-mining versus the predicted post-mining land capability over the site based on biogeoclimatic site series.
Long-Term Stability	- Stability of waste dumps, dams, impoundments, pits, borrows, roads, and watercourses.
Revegetation	- Describe revegetation treatments, application area, species selection, application specifications, amendments/fertilizers, locations, objectives (such as trials, erosion control, and final reclamation for specified end land use). - Provide a map identifying the location of revegetation activities. - Describe the revegetation evaluation/effectiveness program(s) for revegetation treatments.
Growth Medium	- Describe soil replacement depth/volumes, locations, application area, surface preparation, decompaction, and drainage/erosion control. - Provide a map identifying the location of soil replacement activities - Describe the soil monitoring program.
Landforms	- Describe landscaping, contouring, and resloping previously conducted (specify application area). - Provide a map identifying the location of surface preparation activities.
Structures and Equipment	- Describe removal of equipment, scrap/recyclables, and treatment of foundations.
Waste Dump Reclamation	- Describe progressive and final reclamation on waste dumps (include details such as material characteristics, locations, elevations/heights, size of areas, slope angles, and aspects).
Watercourse Reclamation	- Describe progressive and final reclamation for watercourses.
Open Pit Reclamation	- Describe progressive and final reclamation for open pits.
Tailings Storage Facility and/or Impoundment Reclamation	- Describe progressive and final reclamation for impoundments.
Road Reclamation	- Describe progressive and final reclamation for access and mine haul roads.
Infrastructure Decommissioning/Reclamation	- Describe decommissioning/reclamation of infrastructure (e.g., buildings, power distribution and transmission lines, fuel farms, etc).
Securing Openings	- Describe activities conducted to secure potentially dangerous surface areas and underground openings.
Disposal of Hazardous Materials, Chemicals and Reagents	- Describe removal and disposal activities for hazardous materials. - Describe programs for investigating contaminated sites, remediation of contaminated media, and hazardous materials and chemical management and disposal.
Reclamation Research	- Describe research activities, for example, plant species selection, optimal soil depths for specified end land uses, surface preparation/erosion control/compaction treatment techniques, native species collection, propagation, transplanting, landforming, drainage modeling, and water body reclamation. - Describe research collaborations and outreach. - Detailed research programs documented in standalone reports may be submitted separately.
5 Year Reclamation Plan	- Describe the nature and scope of reclamation and research programs for the next 5 years.

5.0 RECLAMATION LIABILITY COST ESTIMATES

Provide a detailed estimate of the total expected costs of outstanding reclamation obligations of the mine, including all long-term costs for monitoring, maintenance, and water treatment (if required). This may be submitted using the EMPR's **Excel Costing Spreadsheet (Version 3.5.1)**, however other formats are also acceptable.

If the detailed cost estimates are expected to be filed as a separate confidential report, please clearly specify in the report cover letter. The total reclamation liability estimated for the site should still be provided in the Cover Letter Summary Table.

Please note that the reclamation liability cost estimate may not be the same as the reclamation security held under the *Mines Act* permit, and the detailed cost estimates are required to be reported annually to reflect the outstanding liabilities.

6.0 MAPS AND PHOTOS

Maps and photos should be included within the body of the text where possible. Large maps and photo series can be included in appendices, however page references or hyperlinks should be provided to help reviewers locate the information.

In addition to the shapefiles required, maps must also be provided within the report document, such as:

- Maps of the current *Mines Act* permit boundary, including disturbed areas, mine components/facilities, waste disposal locations, and soil stockpiles depicted graphically on contour maps, ortho-photo mosaic overlays, or other similar methods, at a scale of 1:10,000 or better. Clearly indicate the map projection used.
- Reclamation areas must be shown on contour maps or ortho-photo mosaic overlays at the same scale as the surface development map. If it is not possible to provide maps in the body of the report, please ensure that the specific location maps is provided and that Appendices are clearly identified.
- Representative and annotated photos should be included that complement the written descriptions of activities conducted on-site.