Information Requirements Table for EMA Mine Effluent Discharge Applications

Application Tracking Number: Click here to enter text.
Authorization Number: Click here to enter text.
[insert company / project name]

Applicant Summary	
Application Tracking #	
Authorization #	
Applicant / Facility Name	

Ministry of Environment and Climate Change Strategy	
Prepared by:	
Title	
Date	

The *Information Requirements Table (IRT) for Mining Effluent Discharge Applications* is a tool used by Ministry of Environment and Climate Change Strategy (ENV) staff to document specific guidance and instructions given to applicants regarding information requirements when pursuing authorization to discharge under the *Environmental Management Act* (EMA).

Note - this document was developed to capture all the items and complexities concerning mining effluent discharge permits.
Accordingly, for any given application, not all the items will apply and not all required items will warrant detailed discussion of methods and other concerns.

As part of the Preliminary Application Phase, ENV will discuss with the applicant the items listed in this table to determine what will be required in support of their final application. A tick mark beside "Required" in the "Requirements" column of the table indicates an information item to be included into the application package as agreed to by both parties or as directed by ENV. Should it be determined that specific methods are to be used to derive this information, this will be specified with a tick mark beside "Methods" in the "Requirements" column. Specific methods may not be necessary for applications that will not require a subject matter expert review. In cases where complex impact assessments are to be undertaken, agreement on the methods used will be required. For simple methods, the methods used could be discussed with the applicant in a meeting and noted as agreed to in the table. For more complex methods, the applicant may be required to submit a "Methods Package" by an agreed date for ENV review, comment and acceptance. Once methods are accepted by ENV they should be either described in the "Comments" column or a reference made to the document describing the Methods Package.

This table should be reviewed by the applicant and ENV staff before a preliminary application meeting to facilitate discussions regarding information requirements in the application.

If required, this document will form part of an Application Instruction Document (AID) which documents application submission requirements for the applicant. The AID is issued by the Director after a preliminary application meeting has occurred. The ministry will be screening the final received application against the requirements noted in the AID to ensure it is complete before resources are dedicated to a full, detailed review. When submitting the final application, the proponent should identify, where each of the items required are located in the final application ("Location in Final Application"-column).

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1 PROJECT DESCRIPTION AND OVERVIEW - This section is an introduction to the application and provides background information on the project and the proponent.			
1.1 Describe the project and application including proposed facilities and processes (including mining and milling processes, maps and flowsheets if applicable).	Required ☐ Methods ☐		
1.2 Provide company overview.	Required ☐ Methods ☐		
1.3 Identify the project location by map and describe it including site and surrounding land uses.	Required ☐ Methods ☐		
1.4 Describe relevant regulatory processes outside of EMA (Environmental Assessment, concurrent applications, Mines Act/EMA joint applications, etc.).	Required ☐ Methods ☐		
1.5 Describe the project history and list related reports.	Required ☐ Methods ☐		
1.6 Describe the products and markets.	Required ☐ Methods ☐		
1.7 Describe major activities, infrastructure and waste management, including scheduling, related to:			
1.7.1 Site preparation and construction	Required ☐ Methods ☐		
1.7.2 Operations	Required ☐ Methods ☐		
1.7.3 Closure and post-closure	Required ☐ Methods ☐		
1.8 List all applicable Environmental Assessment Certificate conditions and detail where they have been addressed in the application.	Required ☐ Methods ☐		
2 ENVIRONMENTAL SETTING – This section provides information regarding the environmental setting before proposed mining activities occur. Please review the current version of the *Water and Air Baseline Monitoring Guidance Document,* BC Ministry of Environment[1]. If environmental settings data collection design and methods differ from this Guidance, please provide a rationale and discuss with ENV staff at the pre-application stage.			
2.1 ENVIRONMENTAL SETTING: METEOROLOGY AND CLIMATE[1]			
2.1.1 Provide a detailed map showing the location of all site-specific and regional climate stations in relation to project facilities.	Required ☐ Methods ☐		
2.1.2 Describe relevant meteorological and climate information sources for parameters such as wind speed and direction, precipitation, temperature and evaporation.	Required ☐ Methods ☐		
2.1.3 Submit all climate data in an appendix (electronic preferred) including site photos, precipitation, temperature, snow water equivalent, etc. and provide monthly and annual summaries of relevant climatic parameters in this chapter.	Required ☐ Methods ☐		
2.1.4 Provide recurrence interval analysis of annual precipitation, short-term rainfall and/or snowmelt events.	Required ☐ Methods ☐		
2.1.5 Identify information gaps and describe site-specific meteorological data collection methods proposed to augment existing regional data.	Required ☐ Methods ☐		

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2.2	**ENVIRONMENTAL SETTING: WATER QUANTITY**[1]			
2.2.1	**Surface Water - Hydrology**			
2.2.1.1	Describe pre-mine topography and surface drainage features.	Required ☐ Methods ☐		
2.2.1.2	Provide detailed maps showing all drainage basins (local and regional) that will be affected by the proposed mine, areas of groundwater discharge, wetlands and notable topographic features (e.g., glaciers).	Required ☐ Methods ☐		
2.2.1.3	Provide a detailed hydrologic analysis of key surface drainages within the project area, to define seasonal flow regimes of local drainages. Provide monthly and annual stream flow/runoff summaries and critical low flow metrics.	Required ☐ Methods ☐		
2.2.1.4	Describe and justify baseline study design, methods of hydrometric station installation, sampling methods, Quality Assurance/Quality Control (QA/QC) procedures, and assignment of data grades as described in the *Manual of British Columbia Hydrometric Standards*[2].	Required ☐ Methods ☐		
2.2.1.5	Include all hydrological data in an appendix (electronic preferred), including rating curves, manual measurements, plots of site-specific discharge, site photos, etc.	Required ☐ Methods ☐		
2.2.1.6	Identify spatial or temporal gaps in the database, and provide record periods for all gauging stations (regional and project specific).	Required ☐ Methods ☐		
2.2.1.7	Provide recurrence interval analyses of peak and low flow events (instantaneous, annual, etc. as appropriate).	Required ☐ Methods ☐		
2.2.1.8	Summarize the predicted effects of climate change on the future climate and hydrology of the project area.	Required ☐ Methods ☐		
2.2.2	**Groundwater – Hydrogeology and Hydro-stratigraphy**			
2.2.2.1	Develop a groundwater data collection and monitoring plan that includes: the number of boreholes required for hydrogeological characterization, the rationale for the placement, completion and development of boreholes/monitoring wells, and borehole/monitoring well depths required to achieve vertical characterisation.	Required ☐ Methods ☐		
2.2.2.2	Describe and justify baseline study design, methods and QA/QC procedures, with an emphasis on characterizing the pre-development groundwater flow regime.	Required ☐ Methods ☐		

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2.2.2.3 Provide temporally representative water level data from observation wells and assess all relevant parameters for aquifer characteristics (e.g. storativity, hydraulic conductivity, etc.) in all stratigraphic units that may play a role in Contaminants of Potential Concern (COPC) transport.	Required ☐ Methods ☐		
2.2.2.4 Provide all well logs, pump/slug test results, core pictures, etc. in an appendix.	Required ☐ Methods ☐		
2.3 ENVIRONMENTAL SETTING: WATER QUALITY AND ASSOCIATED RECEPTORS[1]			
2.3.1 Identify potential downstream receptor groups (including applicable aquatic life, wildlife, livestock, irrigation, humans) for surface and groundwater in relation to proposed project related activities and discharges.	Required ☐ Methods ☐		
2.3.2 Describe and justify baseline study design, methods, sampling sites and periods, analysed parameters and QA/QC procedures. Identify where it does not follow the *Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators*[1]:			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
2.3.3 Provide data summaries (using appropriate statistics) that characterize spatial and temporal variations and identify location, frequency, seasonality, duration and magnitude of applicable standards exceedances or environmental quality guideline exceedances:			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		

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Information	Requirements	Comments	Location in Final Application
2.3.4 For lakes, provide limnological characterizations at a representative deep station for each basin. Sampling design should be adequate to support determination of trophic status.	Required ☐ Methods ☐		
2.3.5 Provide all raw data in a tabulated form, including applicable method detection limits (in appendices – and excel compatible electronic files):			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
2.3.6 Identify certified laboratories that conducted sample analysis:			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
2.3.7 Provide a detailed figure with sampling locations in relation to proposed or existing discharge locations, areas of disturbance and distribution of receptors.			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
2.3.8 Identify and discuss QA/QC concerns related to the following data (see guidance in the current *BC Field Sampling Manual*[3]):			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		

Information	Requirements	Comments	Location in Final Application
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
2.3.9 Identify and assess spatial or temporal data gaps and uncertainties:			
a) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
b) Surface Water Quality	Required ☐ Methods ☐		
c) Sediment Quality	Required ☐ Methods ☐		
d) Receptors	Required ☐ Methods ☐		
3 METAL LEACHING/ACID ROCK DRAINAGE (ML/ARD) POTENTIAL/SOURCE TERMS[4]			
3.1 Provide and describe ML/ARD characterization results for all mine components and materials exposed and produced, ensuring that geochemical and spatial variability is captured and that test work informs and is relevant to the proposed storage environment.	Required ☐ Methods ☐		
3.2 Assess the lag times to ARD onset for all potentially acid-generating materials, and assess metal leaching potential/behaviour for all materials to be generated.	Required ☐ Methods ☐		
3.3 Develop geochemical source terms for water quality modelling purposes.	Required ☐ Methods ☐		
3.4 Describe and justify source term modelling methods and provide calculation examples.	Required ☐ Methods ☐		
3.5 Provide site-specific geochemical criteria defining potentially ML/ARD materials, as required to support waste management/handling.	Required ☐ Methods ☐		
3.6 Include all ML/ARD characterization data, analyses and interpretations.	Required ☐ Methods ☐		
3.7 Evaluate if/how the proposed mining activities will influence the geochemistry of the site and adjacent area, whether that influence will lead to the enhanced potential for the release and transport of COPCs and the potential for off-site transport of the COPCs. Provide details on the methods used for geochemical predictions (e.g. PHREEQC modeling).	Required ☐ Methods ☐		
3.8 Identify key discharges, seepages, or disturbance regimes and associated contaminants.	Required ☐ Methods ☐		

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Information	Requirements	Comments	Location in Final Application
4 EFFLUENT DISCHARGES, MITIGATION, MANAGEMENT AND/OR TREATMENT			
4.1 Describe the design and use of proposed pollution control works and management practices.	Required ☐ Methods ☐		
4.2 Provide an overview of each contaminant source on site, including but not limited to sources in: process, storm water, seepage and/or ML/ARD processes, as identified in the Environmental Effect prediction section of this IRT and where and how they will be contained collected stored and treated.	Required ☐ Methods ☐		
4.3 Provide full characterization and predictions of all treated and untreated effluent sources (quality and quantity).	Required ☐ Methods ☐		
4.4 Describe all proposed effluent discharge locations (including point sources and non-point seepage to ground, surface and/or groundwater). Provide proposed timing and frequency of discharge.	Required ☐ Methods ☐		
4.5 If untreated effluent concentrations at the source are predicted to exceed acute WQGs undertake and submit a Best Achievable Technology (BAT) review (see current *Fact Sheet Waste Discharges – Best Achievable Technology*[5]*).* *Note: Where needed, an Initial Dilution Zone (IDZ) may typically only be considered after implementation of BAT.*	Required ☐ Methods ☐		
4.6 Describe mitigation methods to be used including processes, inputs and outputs.	Required ☐ Methods ☐		
4.7 If treatment is proposed, provide the following information:			
4.7.1 Specify the treatment design criteria including treatment capacity, retention times, and input and output water quantity and quality.	Required ☐ Methods ☐		
4.7.2 Provide treatment system detailed design, power requirements, construction and commissioning schedule and projected capital and operating costs.	Required ☐ Methods ☐		
4.7.3 Provide rationale for expected treatment effectiveness (e.g. examples with similar conditions, bench scale tests, pilot tests), including an evaluation of potential variable operating conditions.	Required ☐ Methods ☐		
4.7.4 Describe all treatment process by-products (liquid, solid and gaseous), including quantity and quality, and provide a management plan for each, including sludge management plan if applicable.	Required ☐ Methods ☐		

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Information	Requirements	Comments	Location in Final Application
4.7.5 Assess all outputs and by-products and the projected volumes generated against the requirements of the Hazardous Waste Regulation.	Required ☐ Methods ☐		
4.7.6 Treatment performance monitoring and reporting plans.	Required ☐ Methods ☐		
4.7.7 Maintenance and replacement plans and emergency procedures for malfunctions for collection and treatment systems.	Required ☐ Methods ☐		
4.8 Describe the storm water management system and provide detailed design for proposed storm water works. Ensure settling ponds are appropriately designed in accordance with the *Sediment Pond Design Technical Guidance Document*[6].	Required ☐ Methods ☐		
4.9 For storm water management systems in undisturbed areas, provide detailed design for all catchments that route clean runoff around disturbed areas in accordance with the *Sediment Pond Design Technical Guidance Document*[6].	Required ☐ Methods ☐		
4.10 Propose effluent discharge limits for COPCs that can be shown to be protective of the receiving environment and its receptors.	Required ☐ Methods ☐		
5 ENVIRONMENTAL EFFECTS PREDICTION AND ASSESSMENT - This section assesses potential residual environmental effects and evaluates the risks of the mine project on human health and water users including aquatic and aquatic dependent terrestrial receptors.			
5.1 PREDICTIVE MODELLING			
5.1.1 Provide a figure, describe and justify spatial and temporal study boundaries:			
a) Groundwater Quantity	Required ☐ Methods ☐		
b) Groundwater Quality and Geochemistry[7]	Required ☐ Methods ☐		
c) Surface Water Quantity	Required ☐ Methods ☐		
d) Surface Water Quality	Required ☐ Methods ☐		
e) Initial Dilution Zone (see section 4.5)	Required ☐ Methods ☐		
f) Sediment Quality	Required ☐ Methods ☐		
g) Receptors	Required ☐ Methods ☐		
5.1.2 For the following topics, describe and justify receiving environment modelling approaches. Describe the models used, inputs and outputs. Make calculations and tabulated data available for government review:			

Information	Requirements	Comments	Location in Final Application
a) Groundwater Quantity (see section 5.1.4)	Required ☐ Methods ☐		
b) Groundwater Quality and Geochemistry[7]	Required ☐ Methods ☐		
c) Surface Water Quantity	Required ☐ Methods ☐		
d) Surface Water Quality (see section 5.1.3)	Required ☐ Methods ☐		
e) Initial Dilution Zone (see section 4.5)	Required ☐ Methods ☐		
f) Sediment Quality	Required ☐ Methods ☐		
g) Receptors	Required ☐ Methods ☐		
5.1.3 Conduct sensitivity analysis for the water quality model to identify the input parameters of most consequence to the model output. Consider the widest reasonable range of model inputs including but not limited to: a) hydro-climatic - wet and dry events representative of the streamflow variability in the project area b) hydrogeologic – groundwater inflows, seepage rates, hydraulic conductivity, etc. c) water quality - address uncertainty with regards to attenuation, water treatment, source terms, etc.	Required ☐ Methods ☐		
5.1.4 Provide calibration/validation statistics and plots for the models used.	Required ☐ Methods ☐		
5.1.5 Identify data gaps, assumptions and uncertainty in the models used, and how they will be addressed.	Required ☐ Methods ☐		
5.2 EFFECTS ASSESSMENT			
5.2.1 Identify the environmental values that may be at risk due to mine related activities.	Required ☐ Methods ☐		
5.2.2 Develop and submit a Conceptual Site Model (non numerical). Describe and illustrate graphically the contaminant transport from source to receptors via all potential pathways. Estimate probabilities of occurrence of each pathway/exposure combination, and the risk of each and develop a risk management matrix	Required ☐ Methods ☐		

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5.2.3 Where appropriate as per the *Framework for the Development and Use of Freshwater Science-Based Environmental Benchmarks for Aquatic Life in Environmental Management Act Permitting for Mines*[8] and other ENV guidance, develop site specific thresholds (e.g. background water quality, Science Based Environmental Benchmarks (SBEBs)).	Required ☐ Methods ☐		
5.2.4 Provide predicted incremental changes (e.g. monthly/annually) over existing receiving environment water, sediment quality and/or tissue quality at critical points downstream (e.g. within IDZ, edge of IDZ, near field and far field, sensitive habitat) and during critical time periods (e.g. low dilution $7Q_{10}$, high flows, spawning, hatching, etc.) This should be included for all mine phases.	Required ☐ Methods ☐		
5.2.5 Identify all locations, parameters, time periods, magnitude, frequency and seasonality for which exceedances of WQGs, SQGs, SBEBs (if accepted), tissue guidelines, or applicable standards are predicted to occur in water, sediment or tissue quality.	Required ☐ Methods ☐		
5.2.6 Describe predicted effects of mine related activities, including all point and non-point effluent discharges on the water balance, flows and water levels.	Required ☐ Methods ☐		
5.2.7 Explain and justify assessment (e.g., drinking water quality, recreation, aquatic life, wildlife, livestock, irrigation) and measurement endpoints (chemical, toxicological or biological) to identify expected and realistic worst case seasonal effects and trends:	Required ☐ Methods ☐		
a) Groundwater Quantity	Required ☐ Methods ☐		
b) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
c) Surface Water Quantity	Required ☐ Methods ☐		
d) Surface Water Quality	Required ☐ Methods ☐		
e) Sediment Quality	Required ☐ Methods ☐		
f) Receptors	Required ☐ Methods ☐		
5.2.8 Identify by location and receptor group, potential for effects as well as frequency, seasonality, magnitude and reversibility of the effects. Provide rationale for the effects assessment. Demonstrate through a weight of evidence approach that effluent and non-point source discharges will not cause toxicity within the IDZ (acute) and outside of the IDZ (acute or chronic):			

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a) Groundwater Quantity	Required ☐ Methods ☐		
b) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
c) Surface Water Quantity	Required ☐ Methods ☐		
d) Surface Water Quality	Required ☐ Methods ☐		
e) Sediment Quality	Required ☐ Methods ☐		
f) Receptors	Required ☐ Methods ☐		
5.2.9 Identify whether current regional trends in stream flow or projected climate change could potentially affect dilution, water management infrastructure, ability to provide sufficient water cover (e.g. tailings facility) where required, during and after the life of the project.	Required ☐ Methods ☐		
5.2.10 Describe and discuss the potential for bioaccumulation or bioconcentration of contaminants, and the associated risk to assessment endpoints (i.e., fish health, fish reproduction, consumers of fish, etc.).	Required ☐ Methods ☐		
5.2.11 Predict changes in aquatic receptors at species, community and/or ecosystem levels as appropriate due to water quality and water quantity changes caused by the mine.	Required ☐ Methods ☐		
5.2.12 Identify risks to non-aquatic receptors, including wildlife, livestock and human health.	Required ☐ Methods ☐		
5.2.13 Discuss risk reduction options and adaptive management strategies to be employed.	Required ☐ Methods ☐		
6 PLANNING FOR DISCHARGES OUT OF THE NORMAL COURSE OF EVENTS			
6.1 Provide a preparedness plan for Out of the Normal Course of Events, including identification of, contingency and mitigation procedures for, any event capable of affecting discharge quality or quantity such that they no longer comply with the EMA authorization conditions. The plan shall include implementation timelines.	Required ☐ Methods ☐		
6.2 Assess potential for residual environmental risk once the preparedness plan has been implemented.	Required ☐ Methods ☐		
7 DISCHARGE AND ENVIRONMENTAL MONITORING REQUIREMENTS - This section provides a proposal for a monitoring program to evaluate waste management performance, receiving environment conditions, mine activity effects on the receiving environment, and to verify and adapt predictions. This information will be used to develop monitoring requirements under the EMA effluent permit.			
7.1 Discharge Monitoring - Describe and justify the proposed monitoring study design/program.	Required ☐ Methods ☐		

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7.2 Identify the objectives and describe and justify the proposed receiving environment and aquatic effects monitoring program and weight of evidence assessment. Include cumulative effects monitoring in areas that may potentially be affected by mining activities as well as other anthropogenic activities:			
a) Groundwater Quantity	Required ☐ Methods ☐		
b) Groundwater Quality and Geochemistry	Required ☐ Methods ☐		
c) Surface Water Quantity	Required ☐ Methods ☐		
d) Surface Water Quality	Required ☐ Methods ☐		
e) Sediment Quality	Required ☐ Methods ☐		
f) Receptors	Required ☐ Methods ☐		
7.3 Quality Assurance Requirements - Describe and justify proposed quality assurance/quality control procedures.	Required ☐ Methods ☐		
7.4 Describe and justify proposed data assessment techniques and reporting, including reporting frequency and content.	Required ☐ Methods ☐		
8 SEWAGE DISPOSAL (not required if a Municipal Waste Regulation (MWR) registration is being pursued. May ONLY be included in the effluent permit, if the sewage discharge is combined with other mine effluent and is <10% of that combined flow as per Section 5 (1)(b) of MWR prior to discharge)			
8.1 Describe the treatment & disposal plan for sewage generated on-site.	Required ☐ Methods ☐		
8.2 Provide Registration, Technical Information, Site plans etc., as per MWR Sections 11, 12 & 13 as well as the Qualified Professional (QP) required documentation as per sections 13 & 15.	Required ☐ Methods ☐		
8.3 Receiving Environment Impact Assessment (EIS) as per MWR Section 13 if sewage contaminants are not fully accounted for previously within this IRT.	Required ☐ Methods ☐		
8.4 Commissioning, Operating and Contingency Plans in full compliance with MWR 13, 23-26 and other appurtenant sections of MWR.	Required ☐ Methods ☐		
8.5 Provide operator qualifications and certification - Environmental Operators Certification Program (EOPC) (Section 47 MWR)	Required ☐ Methods ☐		
8.6 Monitoring program to verify plant performance, effluent quality and environmental impacts.	Required ☐ Methods ☐		

Guidance Documents to be considered when determining Information Items. Required and appropriate Methods to be used:

- All guidance documents listed on the following web-page: http://www2.gov.bc.ca/gov/content/environment/waste-management/industrial-waste/mining-smelting/guidance-documents
- *Technical Guidance 6: Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators*, BC Ministry of Environment, Version 2.0, June 2016[1]
- *Manual of British Columbia Hydrometric Standards,* BC Ministry of Environment, Version 1.0, March 12, 2009[2]
- *British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples*, BC Ministry of Water, Land and Air Protection, 2013 Edition[3]
- Metal Leaching and Acid Rock Drainage Guidelines and Policy[4]
- *Fact Sheet Waste Discharges – Best Achievable Technology*, March 2015[5]
- *Technical Guidance 7: Assessing the Design, Size, and Operation of Sediment Ponds Used in Mining,* BC Ministry of Environment, 2015[6]
- *Guidelines for Groundwater Modelling to Assess Impacts of Proposed Natural Resource Development Activities*, BC Ministry of Environment, April 2012[7]
- *Technical Guidance 8: Framework for Development and Use of Freshwater Science-Based Environmental Benchmarks for Mines*[8]
- *Guidance on Applications for Permits Under the Environmental Management Act – Technical Assessment*, BC Ministry of Environment, September 25, 2010[9]
- *Technical Guidance 6 on Contaminated Sites – Water Use Determination*, BC Ministry of Environment, Version 3.0, December 2015[10]

[1] http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/water_air_baseline_monitoring.pdf
[2] https://www.for.gov.bc.ca/hts/risc/pubs/aquatic/hydrometric/man_BC_hydrometric_stand_V1.0.pdf
[3] http://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/field_sample_man2013.pdf
[4] http://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/permitting/ml-ard
[5] http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/pulp-paper-wood/best_achievable_control_tech.pdf
[6] http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/erosion_sediment_control_plan_guide.pdf
[7] http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/groundwater_modelling_guidelines_final-2012.pdf
[8] http://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/mining-smelt-energy/guidance-documents/tg8_framework_for_sbebs.pdf
[9] http://www2.gov.bc.ca/assets/gov/environment/waste-management/waste-discharge-authorization/guides/assessment.pdf
[10] http://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/technical-guidance/tg06.pdf