

APPENDIX I.G - Storm Water Discharges Associated with Industrial Activity from Metal Mining (Ore Mining and Dressing) Facilities

A. Coverage of This Section.

1. Discharges Covered Under This Section. The requirements listed under this Part shall apply to storm water discharges from the following activities:

Table I.G.1 – Sector G: Metal Mining (Ore Mining and Dressing) Facilities

SIC Code	Activity Represented
1011	Iron Ores
1021	Cooper Ore and Mining Dressing Facilities
1031	Lead and Zinc Ores
1041, 1044	Gold and Silver Ores
1061	Ferroalloy Ores, Except Vanadium
1081	Metal Mining Services
1094, 1099	Miscellaneous Metal Ores

The operator of an existing or new discharge composed entirely of storm water from a mining operation is not required to submit a permit application unless the discharge has come into contact with any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations.

- a. Covered Discharges from Inactive Facilities. All stormwater discharges.
- b. Covered Discharges from Active and Temporarily Inactive Facilities. Only the stormwater discharges from the following areas are covered:
 - 1) Waste rock and overburden piles if composed entirely of stormwater and not combined with mine drainage;
 - 2) Topsoil piles;
 - 3) Offsite haul and access roads;
 - 4) Onsite haul and access roads constructed of waste rock, overburden or spent ore if composed entirely of stormwater and not combining with mine drainage;
 - 5) Onsite haul and access roads not constructed of waste rock, overburden or spent ore except if mine drainage is used for dust control;
 - 6) Discharges from tailings dams or dikes when not constructed of waste rock or tailings and no process fluids are present;
 - 7) Discharges from tailings dams or dikes when constructed of waste rock or tailings and no process fluids are present, if composed entirely of stormwater and not combining with mine drainage;
 - 8) Concentration building if no contact with material piles;

- 9) Mill site if no contact with material piles;
 - 10) Office or administrative building and housing if mixed with stormwater from industrial area;
 - 11) Chemical storage area;
 - 12) Docking facility if no excessive contact with waste product that would otherwise constitute mine drainage;
 - 13) Explosive storage;
 - 14) Fuel storage;
 - 15) Vehicle and equipment maintenance area and building;
 - 16) Parking areas (if necessary);
 - 17) Power plant;
 - 18) Truck wash areas if no excessive contact with waste product that would otherwise constitute mine drainage;
 - 19) Unreclaimed, disturbed areas outside of active mining area;
 - 20) Reclaimed areas released from reclamation requirements prior to December 17, 1990;
 - 21) Partially or inadequately reclaimed areas or areas not released from reclamation requirements.
- c. Covered Discharges from Facilities Undergoing Reclamation. All stormwater discharges.
2. Sector Specific Limitations on Coverage. In addition to the limitations on coverage listed in *Part I.C*, the following storm water discharges associated with industrial activity are **not** authorized by this permit:
- a. Discharges from active metal mining facilities that are subject to effluent limitation guidelines for the Ore Mining and Dressing Point Source Category in *40 CFR Part 440*. Storm water runoff from these sources are subject to *40 CFR Part 440* if they are mixed with other discharges subject to *40 CFR Part 440*. In this case, they are not eligible for coverage under this permit. Discharges from overburden/waste rock and related areas are not subject to *40 CFR Part 440* unless they:
 - 1) Drain naturally, or are intentionally diverted, to a point source; and
 - 2) Combine with “mine drainage” that is otherwise regulated under the *40 CFR Part 440* regulations.
 - b. Storm water discharges associated with industrial activity from inactive mining operations occurring on Federal lands where an operator cannot be identified; and
 - c. Storm water discharges from earth-disturbing activities conducted prior to active mining activities. These are considered construction activities and must be covered under the Construction General Permit.
3. Sector Specific Prohibition of Non-Stormwater Discharges. In addition to those non-storm water discharges prohibited under *Part I.D*, this permit does not authorize the discharge of:
- a. Adit drainage, and contaminated springs or seeps discharging from waste rock dumps that do not directly result from precipitation.

B. Sector Specific Control Measures and Effluent Limits.

In addition to the control measures and effluent limits in *Part III*, the permittee shall implement the following to minimize pollutant discharges, as applicable:

1. Stormwater Control Measures. In addition to the control measures identified in *Part III.A*, the following control measures shall be implemented at the facility, where applicable:
 - a. Stormwater Diversions: Divert stormwater away from potential pollutant sources through implementation of control measures, such as the following, where feasible:
 - 1) Interceptor or diversion controls (i.e. dikes, swales, curbs, berms);
 - 2) Pipe slope drains;
 - 3) Subsurface drains;
 - 4) Conveyance systems (i.e. channels or gutters, open-top box culverts, and waterbars; rolling dips and road sloping; roadway surface water deflector and culverts); or
 - 5) Other equivalent measures (i.e. check dams, rock outlet protection, level spreaders, gradient terraces, straw bale barriers, silt fences, gravel or stone filter berms, brush barriers, sediment traps, grass swales, pipe slope drains, earth dikes, site entrance stabilization, waterway crossings or wind breaks).
 - b. Capping. Where capping is necessary, the source being capped and materials and procedures used to cap the contaminant source shall be identified. In some cases, the elimination of a pollution source through capping contaminant sources may be the most effective control measure for discharges from inactive ore mining and dressing facilities.
 - c. Treatment: If treatment of stormwater is necessary to protect water quality, the permittee shall identify and implement the type and location of treatment needed. Stormwater treatments may include the following, where applicable:
 - 1) Chemical or physical treatment systems;
 - 2) Oil/water separators; and
 - 3) Artificial wetlands.
2. Dewatering Practices. In addition to the control measures identified in *Part III*, the permittee shall meet the following requirements for dewatering activities, if conducted, where applicable:
 - a. The discharge is composed entirely of stormwater or uncontaminated ground water seepage from mining facilities;
 - b. No discharging visible floating solids or foam;
 - c. Remove oil, grease and other pollutants from dewatering water via an oil-water separator or suitable filtration device;
 - d. Utilize vegetated upland areas of the site, to the extent feasible, to infiltrate dewatering water before discharge. In no case shall waters of the state be considered part of the treatment area;
 - e. Implement velocity dissipation devices at all points where dewatering water is discharged; and
 - f. Haul backwash water away for disposal or return it to the beginning of the treatment process.

C. Sector Specific Inspection Requirements.

There are no additional inspection requirements beyond those in *Part IV.A* of this permit.

D. Sector Specific Plan Requirements.

1. Description of Activities at the Facility. In addition to the requirements in *Part VII.D.2*, the Plan shall provide a brief description of the mining and associated activities at the site that affect or may affect stormwater runoff intended to be covered by the permit. The description shall include, at a minimum:
 - a. The total acreage within the mine site;
 - b. An estimate of the number of acres of disturbed land;
 - c. An estimate of the total amount of land proposed to be disturbed throughout the life of the mine; and
 - d. A general description of the location of the mining site relative to major transportation routes and communities.
2. Site Map. In addition to the requirements in *Part VII.D.3*, the site map shall also include the location of the following, if applicable:
 - a. Access and haul roads;
 - b. Material handling areas;
 - c. Outdoor chemicals and explosives storage areas;
 - d. Overburden, materials, soils, or waste storage areas;
 - e. Location of mine drainage (where water leaves mine) or other process water;
 - f. Tailings piles and ponds, including proposed ones;
 - g. Heap leach pads; and
 - h. Locations of reclaimed areas.
3. Summary of Potential Pollutant Sources. In addition to the requirements in *Part VII.D.4*, the Plan summary of potential pollutant sources inventory shall also include the following, as applicable:
 - a. The types of pollutants (i.e. heavy metals, sediment) likely to be present in significant amounts. The inventory shall include things such as:
 - 1) The mineralogy of the ore and waste rock (i.e. if the mineral is acid forming);
 - 2) Toxicity and quantity of chemicals used, produced, or discharged;
 - 3) The likelihood of contact with stormwater;
 - 4) The vegetation of the site, if any; and
 - 5) Any history of significant leaks or spills of toxic or hazardous pollutants.
 - b. A summary of any existing ore or waste rock/overburden characterization data, including results of any testing for the potential for the generation of acid rock.

If the ore or waste rock/overburden characterization data is updated due to a change in the ore type being mined, the Plan shall be updated with the new data.
4. Measures and Controls. In addition to the requirements in *Part VII.D.5*, the Plan measures and controls shall include the following, as applicable:

- a. All control measures implemented at the facility to include those identified in *Part B.1 of Appendix I.G.*

E. Monitoring Requirements.

1. Analytical Benchmark Monitoring. The following analytical benchmark monitoring parameters shall apply specifically to sector G facilities. Parameters found in this Part apply to both primary industrial activities and any co-located industrial activities.

- a. When the average concentration for a pollutant, calculated from all monitoring data collected from a discharge point during the first (2024) calendar year, is less than the corresponding limit for that pollutant listed in *Table I.G.2, Table I.G.3, or Table I.G.4* a facility shall be exempt from the monitoring requirements for the fourth (2027) calendar year for those parameters that did not exceed the limit. If the facility meets the criteria for this exemption, the permittee shall submit the annual report, in accordance with *Part V.E*, and indicate the reasoning no data was available for the given parameter (i.e. meeting the criteria for the parameter(s) exemption in *Appendix I.G.*)

The exemption shall only apply to those parameters that have an average concentration below the limit set in *Table I.G.2* and the permittee is still required to monitor for all other parameters required in this Part. If there is no data submitted for all quarters where monitoring is required in the first (2024) calendar year of the permit, the facility shall not qualify for this exemption.

Table I.G.2 – Analytical Benchmark Monitoring Parameters for Active Cooper Ore Mining and Dressing Facilities (SIC 1021)

Parameter	Benchmark Monitoring Concentration
Total Suspended Solids ¹	100 mg/L
Nitrate Plus Nitrogen	0.68 mg/L
Chemical Oxygen Demand	120 mg/L

¹ Sampling for TSS is not required for storm water discharges that are infiltrating to groundwater.

Table I.G.3 – Analytical Benchmark Monitoring Parameters for Iron Ores; Copper Ores; Lead and Zinc Ores; Gold and Silver Ores; Ferroalloy Ores, Except Vanadium; and Miscellaneous Metal Ores (SIC Codes 1011, 1021, 1031, 1041, 1044, 1061, 1081, 1094, 1099)

Parameter	Benchmark Monitoring Concentration
Total Suspended Solids ²	100 mg/L
Turbidity	50 NTU
pH	6.0 – 9.0 s.u.
Hardness (as CaCO ₃ ; calculated from Ca, Mg)	No Benchmark Value
Total Recoverable Antimony	0.640 mg/L

Total Recoverable Arsenic (freshwater)	0.150 mg/L
Total Recoverable Arsenic (saltwater) ³	0.069 mg/L
Total Recoverable Beryllium	0.130 mg/L
Total Recoverable Cadmium (freshwater)	Hardness Dependent ⁴
Total Recoverable Cadmium (saltwater) ³	0.033 mg/L
Total Recoverable Copper (freshwater)	0.00519 mg/L
Total Recoverable Copper (saltwater) ³	0.0048 mg/L
Total Recoverable Lead (freshwater)	Hardness Dependent ⁴
Total Recoverable Lead (saltwater) ³	0.210 mg/L
Total Recoverable Mercury (freshwater)	0.0014 mg/L
Total Recoverable Mercury (saltwater) ³	0.0018 mg/L
Total Recoverable Nickel (freshwater)	Hardness Dependent ⁴
Total Recoverable Nickel (saltwater) ³	0.074 mg/L
Total Recoverable Selenium (freshwater)	0.0015 mg/L, for still/standing (lentic) waters 0.0031 mg/L, for flowing (lotic) waters
Total Recoverable Selenium (saltwater) ³	0.290 mg/L
Total Recoverable Silver (freshwater)	Hardness Dependent ⁴
Total Recoverable Silver (saltwater) ³	0.0019 mg/L
Total Recoverable Zinc (freshwater)	Hardness Dependent ⁴
Total Recoverable Zinc (saltwater) ³	0.090 mg/L

¹. When analyzing hardness for a suite of metals, it is more cost effective to add analysis of calcium and magnesium, and have hardness calculated than to require hardness analysis separately.

². Sampling for TSS is not required for storm water discharges that are infiltrating to groundwater.

³. Saltwater benchmark values apply to stormwater discharges into saline waters where indicated.

⁴. The freshwater analytical benchmark monitoring values of some metals are dependent on water hardness. For these parameters, permittees must determine the hardness of the receiving water to identify the applicable 'hardness range' for determining the analytical benchmark monitoring value applicable to the facility. Hardness dependent analytical benchmark monitoring shall follow the table below:

Freshwater Hardness Range	Cadmium (mg/L)	Lead (mg/L)	Nickel (mg/L)	Silver (mg/L)	Zinc (mg/L)
0.00 – 24.99 mg/L	0.00049	0.014	0.145	0.00037	0.037
25 – 24.99 mg/L	0.00073	0.024	0.203	0.00080	0.052
50 – 74.99 mg/L	0.0012	0.045	0.314	0.0019	0.080
75 – 99.99 mg/L	0.0017	0.069	0.418	0.0033	0.107
100 – 124.99 mg/L	0.0021	0.095	0.518	0.0050	0.132
125 – 149.99 mg/L	0.0026	0.123	0.614	0.0071	0.157
150 – 174.99 mg/L	0.0031	0.152	0.707	0.0094	0.181
175 – 199.99 mg/L	0.0035	0.182	0.798	0.012	0.204
200 – 224.99 mg/L	0.0040	0.213	0.888	0.015	0.227
225 – 249.99 mg/L	0.0044	0.246	0.975	0.018	0.249
250+ mg/L	0.0047	0.262	1.019	0.020	0.260

If hardness cannot be determined (groundwater or inaccessible waterbodies), use the most conservative values (0 - 24.99 mg/L range).

Table I.G.4 – Additional Monitoring Requirements for Discharges from Waste Rock and Overburden Piles

Type of Ore Mined	Pollutants of Concern ¹		
	Total Suspended Solids (TSS) ²	pH	Metals, Total ³
Tungsten Ore	X	X	Arsenic Cadmium (H) ⁴ Copper Lead (H) Zinc (H)
Nickel Ore	X	X	Arsenic Cadmium (H) Copper Lead (H) Zinc (H)
Aluminum Ore	X	X	Iron
Mercury Ore	X	X	Nickel (H)
Iron Ore	X	X	Iron, Dissolved
Platinum Ore			Cadmium (H) Copper Mercury Lead (H) Zinc (H)
Titanium Ore	X	X	Iron Nickel (H) Zinc (H)

Vanadium Ore	X	X	Arsenic Cadmium (H) Copper Lead (H) Zinc (H)
Molybdenum	X	X	Arsenic Cadmium (H) Copper Lead (H) Mercury Zinc (H)
Uranium, Radium, and Vanadium Ore	X	X	Chemical Oxygen Demand Arsenic Radium, Dissolved Radium, Total Zinc (H)

- ¹. An “X” indicated for TSS and/or pH means the permittee is required to monitor for those parameters. (H) Indicates that hardness must also be measured when this pollutant is measured. Hardness values for the required metals monitoring can be found in footnote 4 in *Table I.G.3*
- ². Sampling for TSS is not required for storm water discharges that are infiltrating to groundwater.
- ³. Benchmark values provided in *Table I.G.3* shall be used for parameters that are required to be sampled as part of this table. If a parameter is required in *Table I.G.4* and the permittee is already sampling that same parameter as part of *Table I.G.3*, the monitoring results from *Table I.G.3* may be used to satisfy the requirement for that parameter in *Table I.G.4*.

2. **Numeric Effluent Limitation Monitoring.** There are no numeric effluent limitation parameters for Sector G facilities in this permit. Any additional monitoring and reporting requirements shall be based on the nature of activities at the facility and the facility stormwater discharges, in accordance with *Part V.D.2*.