

	<p style="text-align: center;">STATE OF MINNESOTA Minnesota Pollution Control Agency Industrial Division</p> <p style="text-align: center;">Fact Sheet for National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit No. MN 0046981</p>
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PERMITTEE: Northshore Mining Company; Cliffs Natural Resources

FACILITY NAME: Northshore Mining Company - Peter Mitchell Mine

RECEIVING WATERS: Unnamed Creek, Dunka River, Langley Creek, Partridge River

CITY/TOWNSHIP: Babbitt

COUNTY: St. Louis

This fact sheet outlines the principal issues related to the preparation of this draft NPDES/SDS permit.

A Public Notice of Intent to modify this permit is attached to this fact sheet. The public notice includes:

1. A brief description of the type of facility or activity covered by the draft permit.
2. A description of the type and quantity of wastewater that the Permittee proposes to discharge.
3. A description of the location of the proposed discharge(s).
4. The preliminary determination made by the Minnesota Pollution Control Agency (MPCA) Commissioner on the draft permit.
5. A description of the procedures for reaching a final decision on the draft permit.

I. FACILITY DESCRIPTION

The principal activity at this facility is the open-pit mining of taconite ore for processing into taconite pellets. The maximum capacity for production is 43 million tons per year. The facility consists of all excavation areas, waste rock, lean ore and overburden stockpile areas, plant areas, materials and equipment storage areas, haul roads, railroad yards, and wastewater disposal systems within the area on the map provided in Section III of this Fact Sheet.

The Northshore – Peter Mitchell Mine is divided up into five areas (Area 001 – Area 005). The following is a brief description of the activities taking place in each area of the mine:

Area 001: Area 001 contains three mine pit dewatering discharge points for water pumped from the eastern portion of the mine. The discharge points are known as SD-001, SD-002 and SD-003.

Area 002: Area 002 contains two mine pit dewatering discharge points for water pumped from the central portion of the mine. The discharge points are known as SD-004 and SD-005.

Area 003: Discharges from Area 003 include seven mine pit dewatering outfalls (SD-006 – SD-012) for water pumped from the western portion of the mine; treated shop drainage and runoff from Crusher No. 2 (SD-016); and sanitary sewage discharges from Crusher No. 2 (SD-013).

Area 004: Area 004 contains four discharge points from the area around Crusher No. 1. Discharges from Area 004 include two sanitary wastewater discharges (SD-014 and SD-015), filter backwash from the Crusher No. 1 potable water system (SD-018), and treated drainage from Crusher No. 1 (SD-017). The company is proposing to construct a new stabilization pond wastewater treatment system to replace the existing domestic wastewater treatment system currently serving Crusher No. 1 in Area 004. The sanitary wastewater discharges at SD-014 and SD-015 will be eliminated and replaced with a new outfall downstream of the existing discharges. The outfall point from the new proposed stabilization pond will be named SD-024 and will discharge to the same receiving water as SD-014 and SD-015.

Area 005: Area 005 contains one discharge from the West Shop at Crusher 1. The discharge is known as SD-019 and consists of runoff from a railroad yard, salvage yard, wash shop, fueling station, paint shop and associated settling pond, tire shop, fuel storage and distribution area, trailer-bucket repair shop, mine maintenance shop and a warehouse on the west side of Crusher No. 1.

II. SITE GEOLOGY

The Peter Mitchell Mine is excavated into the Biwabik Iron Formation. The Biwabik Iron Formation dips to the south-southeast at a 5-10 degree angle in the Peter Mitchell Mine and is overlain by the Virginia Formation and Duluth Complex. As the ore horizons get deeper, lean ores and rock from the Biwabik Iron Formation as well as Virginia Formation Rock must be excavated and stockpiled to allow access to the underlying ore.

Isolated zones of elevated sulfide mineralization have been known to occur in Virginia Formation (including bedded pyrrhotite zones) and Duluth Complex rock (copper-nickel sulfides). Northshore Mining Company, in cooperation with MPCA and Minnesota Department of Natural Resources (MDNR), has characterized Biwabik Iron Formation and Virginia Formation rock that must be removed and stockpiled to allow mining of the underlying ore. The results of this characterization have been included in a Virginia Formation Management Plan that proposes for MDNR and MPCA approval the management of Virginia

Formation rock prior to stockpiling. To date, these approved stockpiles containing Virginia Formation rock have been placed in the mine pit in portions of Sections 16, 17, 19, and 20, T60N, R12W in Areas 001 and 002 in accordance with the Virginia Formation Management Plan. Some Duluth Complex material was blasted by Reserve Mining and moved to an engineered stockpile in Section 16, T60N, R12W in Area 001 by Northshore Mining Company in accordance with MPCA and MDNR permit requirements.

Any future blasting of and stockpiling of the Virginia Formation must be done in accordance with the updated Virginia Formation Management Plan. Duluth Complex rock or materials shall not be disturbed without written approval from the MPCA of a Duluth Complex Management Plan.

IV. LOCATION OF DISCHARGE MONITORING ACTIVITY

Area	Outfall	Type of Discharge	Average Daily Flow (million gallons)	Maximum Daily Flow (million gallons)	Discharge Frequency	Receiving Water*	PLS Coordinates
001	SD-001	Mine Pit Dewatering	2.4	21.6	Intermittent	Dunka River via Unnamed Creek	East 1/2 of Section 16, T60N, R12W
001	SD-002	Mine Pit Dewatering	2.4	21.6	Intermittent	Dunka River via Unnamed Creek	West 1/2 of Section 16, T60N, R12W
001	SD-003	Mine Pit Dewatering	2.4	21.6	Intermittent	Dunka River via Unnamed Creek	SE 1/4 of Section 17, T60N, R12W
002	SD-004	Mine Pit Dewatering	4.7	Combined flow of SD-004 & 005 is 15.2 MG	Intermittent	Unnamed Creek to Langley Creek to Dunka River	NW 1/4 of Section 19, T60N, R12W
002	SD-005	Mine Pit Dewatering	4.7		Intermittent	Unnamed Creek to Langley Creek to Dunka River	NE 1/4 of Section 25, T60N, R13W
003	SD-006	Mine Pit Dewatering	Inactive	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Partridge River	NW 1/4 of Section 25, T60N, R13W
003	SD-007	Mine Pit Dewatering	Inactive	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Partridge River	SE 1/4 of Section 26, T60N, R13W
003	SD-008	Mine Pit Dewatering	Inactive	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Partridge River	NE 1/4 of Section 34, T60N, R13W
003	SD-009	Mine Pit Dewatering	7.4	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Yelp Creek to Partridge River	NW 1/4 of Section 34, T60N, R13W
003	SD-010	Mine Pit Dewatering	0.17	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Mud Lake	SW 1/4 of Section 33, T60N, R13W
003	SD-011	Mine Pit Dewatering	Inactive	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Yelp Creek to Partridge River	NE 1/4 of Section 5, T59N, R13W
003	SD-012	Mine Pit Dewatering	Inactive	32.8	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Yelp Creek to Partridge River	NE 1/4 of Section 6, T59N, R13W
003	SD-013	Crusher 2 Sanitary Outfall	Inactive	0.044	Continuous when active	Unnamed Creek to One Hundred Mile Swamp to Partridge River	NE 1/4 of Section 34, T60N, R13W
003	SD-016	Crusher 2 Settling Pond Discharge	0.0085	0.09	Intermittent	Unnamed Creek to One Hundred Mile Swamp to Partridge River	NW 1/4 of Section 34, T60N, R13W
004	SD-014	Crusher 1 East Sanitary Outfall	Inactive	0.044	Continuous when active	Unnamed Creek to Langley Creek to Dunka River	NW 1/4 of Section 21, T60N, R12W
004	SD-015	Crusher 1 West Sanitary Outfall	0.004	0.044	Continuous	Unnamed Creek to Langley Creek to Dunka River	SW 1/4 of Section 21, T60N, R12W
004	SD-017	Crusher 1 East Shop Discharge	0.02	0.09	Continuous	Unnamed Creek to Langley Creek to Dunka River	SW 1/4 of Section 21, T60N, R12W
004	SD-018	Crusher 1 Potable Water System Discharge	0.01	0.07	Intermittent	Unnamed Creek to Langley Creek to Dunka River	NW 1/4 of Section 21, T60N, R12W
004	SD-024	Crusher 1 Sanitary Outfall	0.008	0.008	Controlled	Unnamed Creek to Langley Creek to Dunka River	NE1/4 of Section 20, T60N, R12W
005	SD-019	Crusher 1 West Shop Discharge	0.04	0.09	Continuous	Unnamed Creek to Langley Creek to Dunka River	SW 1/4 of Section 20, T60N, R12W

*Receiving water use classes: Unnamed Creek, Langley Creek, Yelp Creek, Dunka River, Partridge River and Mud Lake are Class 2B, 3C, 4A, 4B, 5, 6, Waters. One Hundred Mile Swamp is a Class 2D, 3D, 4C, 5, 6 Water.

V. LOCATION OF ADDITIONAL MONITORING STATIONS

Effluent Monitoring Station	Type of Station	Local Name	PLS Location
SD-020	Composite Flow Monitoring	Flow-weighted composite of B106-B112, B301	Not applicable. Flow weighted composite sample of outfalls SD-006 – SD-012 and SD-016.
SD-022	Composite Flow Monitoring	Flow weighted composite of B100-B105, B302-B304	Not applicable. Flow-weighted composite sample of outfalls SD-001 – SD-005, and SD-017 – SD-019

Surface Water Monitoring Station	Type of Station	Local Name	PLS Location
SW-002	Lake/Reservoir Monitoring	Untreated Hoyt Lakes Municipal Water Station B700	NE 1/4 of Section 8, T58N, R14W
SW-003	Stream/River/Ditch, Downstream Monitoring	Outlet of Birch Lake at MN Hwy 1 B703	NE 1/4 of Section 31, T62N, R11W
SW-004	Stream/River/Ditch, Downstream Monitoring	Partridge R at Co Rd 666 E of Hoyt Lakes B710	SW 1/4 of Section 9, T58N, R14W

VI. RECEIVING WATER CLASSIFICATION

The receiving waters from the discharge points at the Peter Mitchell mine are Class 2B, 3C, 4A, 4B, 5, 6 waters.

The quality of Class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water sport or commercial fish and associated aquatic life, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable.

VII. PROPOSED PERMIT LIMIT AND MONITORING CONDITIONS

The discharge limits in the draft permit are based on a combination of Minnesota state water quality standards including Minnesota Rules Chapter 7050, 7052, and 7053 Waters of the State, Federal standards and best professional judgment. Federal standards used are based on 40 CFR pt. 440 for the mining of iron ore as promulgated by the U.S. Environmental Protection Agency (EPA). Best Practicable Control Technology (BPT) currently available, Best Available Technology (BAT), and Best Professional Judgment guidelines were applied for the draft permit discharge limitations for dissolved iron and total suspended solids.

The MPCA may use standards based on Minnesota state water quality standards, federal categorical standards applicable to specific industrial categories, or a combination of these standards to derive the discharge limitations. In addition, the MPCA may also derive standards, which are site specific to a particular discharge. These standards may be based on toxicity studies, professional judgment analysis, technology based standards, and in some instances, standards developed by other U.S. states or other governments. Minnesota Rules and the U.S. Code of Federal Regulations require that the MPCA

categorize industrial dischargers consistent with the EPA federal categorical standards, and state standards if appropriate.

In accordance with Minn. R. 7050.0212, subp. 1, the MPCA is required to apply federal categorical standards or effluent standards to specific industrial categories. The rule states that any person discharging industrial or other wastes shall comply with all applicable federal standards promulgated by the EPA under sections 301, 306, and 307 of the Clean Water Act, United States Code, title 33 sections 1131, 1316, and 1317. 40 CFR pts. 401 through 469 are incorporated by reference.

The basis of derivation of the discharge limitations for mine-pit dewatering, shop discharges, sanitary wastewater discharges, crusher and shop area discharges is discussed in greater detail below.

Effluent Limitations and Monitoring Requirements for Mine-Pit Dewatering Discharges (SD-001 – SD-012):

Water Quality Based Effluent Limitations

The effluent limitations of 6.5 to 8.5 for pH are based on state water quality standards for Class 2B (aquatic resources) and 4A (agriculture and wildlife) waters, in accordance with Minn. R. 7050.0222 and Minn. R. 7050.0224, for effluent, which is the principal source contributing flow to the immediate receiving waters. The state water quality based effluent limitation is more stringent than the technology based effluent limitations of 6.0 to 9.0 for pH set forth in 40 CFR § 440.12 and 40 CFR § 440.13, therefore, it is included as limits in the draft permit for the mine pit dewatering discharges.

The effluent limit of 0.04 mg/L for unionized ammonia is based on state water quality standards (Minn. R. ch. 7050.0222 subp. 4). The chronic standard for un-ionized ammonia for Class 2B waters is 40 µg/L.

The ammonia limits are based on the ratio of un-ionized ammonia to total ammonia, which is dependent upon pH and temperature. Monitoring for total ammonia, pH, and temperature will be required twice per month. An effluent limit of 0.04 mg/L is required for all mine pit dewatering outfalls (SD-001 – SD-012).

Monitoring for ammonia nitrogen at Stations SD-001 through SD-005 shall be taken at a point representative of the mine pit dewatering discharge. The downstream temperature and pH monitoring for these Stations shall be located in the DNR “permit to mine” area at a point in the channel of the discharging pump-out pipe prior to mixing with other discharge or receiving waters. The downstream monitoring points for temperature and pH must be designated prior to sampling and approved by the MPCA.

Technology Based Effluent Limitations

The EPA technology-based effluent limitations for discharges from mine operated to obtain iron ore apply to this facility (40 CFR pt. 440 subp. A). Specifically, BPT and BAT effluent limits for dissolved iron and total suspended solids apply (40 CFR § 440.12 and 40 CFR § 440.13). The maximum daily limit assigned for dissolved iron is 2.0 mg/L. The average daily limit assigned for dissolved iron is 1.0 mg/L. The maximum daily limit assigned for total suspended solids is 30 mg/L. The average daily effluent limit for total suspended solids is 20 mg/L.

Other Pollutants of Concern (SD-001 – SD-012)

Monitoring will continue at SD-001 – SD-012 for the following pollutants of concern listed below to ensure that Minnesota water quality standards are not exceeded.

Reasonable Potential for chemical Specific Pollutants (40 CFR § 122.44 (d)(1))

“Reasonable potential is a procedure specified by EPA regulation that compares preliminary effluent limits for a pollutant with effluent monitoring data to determine the need for an effluent limitation. Federal regulations at 40 CFR § 122.44(d)(1) require that pollutants be evaluated for the potential to cause or contribute to an excursion of water quality standards (“Reasonable Potential”) using acceptable technical procedures accounting for variability in the effluent. Reasonable potential analysis was done for turbidity, copper, nickel, mercury, Diesel Range Organics (DRO) and specific conductance. Sulfate data was also reviewed.

Turbidity

Reasonable potential analyses were done for turbidity for SD-001 – SD-012. The analyses performed found no reasonable potential to cause or contribute to an excursion of water quality standards for turbidity at SD-001 – SD-005, SD-007 and SD-010. No data was available to review for SD-006, SD-008, SD-009, SD-011 and SD-012; however, it is expected that these discharges would have similar concentrations to those for which the data was available. Based on the reasonable potential analysis, no limit for turbidity has been assigned in the draft permit. Monitoring is required twice per month from all mine pit dewatering outfalls.

Copper & Nickel

A reasonable potential analysis was conducted for copper at outfalls SD-001 – SD-005. The results of the analysis showed there was no reasonable potential to cause or contribute to an excursion of water quality standards for copper at SD-001 and SD-003. All the copper data reviewed for SD-002, SD-004 and SD-005 showed monitoring results at less than detection levels and thus, no reasonable potential analysis could be done.

A reasonable potential analysis was conducted for nickel at outfalls SD-001 – SD-005. The results of the analysis showed there was no reasonable potential to cause or contribute to an excursion of water quality standards for nickel at SD-001 and SD-002. All the nickel data reviewed for SD-003, SD-004 and SD-005 showed monitoring results at less than detection levels and thus, no reasonable potential analysis could be conducted.

Monitoring for copper and nickel is being required due to the presence of Duluth Complex rock near the outfalls located in Area 001 (SD-001 – SD-003). The monitoring is necessary to determine effects (if any) of any slow-rate chemical reactions in the engineered stockpiles in the area. Monitoring for copper and nickel is also being requested for the outfalls located in Area 002 (SD-004 and SD-005) due to the mining and stockpiling of Virginia Formation rock in this mining area.

The proposed sampling frequency for the copper and nickel monitoring at SD-001 – SD-005 is three times per year (April, July, and October). The monitoring results for copper and nickel will be evaluated at the end of the permit cycle to determine if monitoring should continue or if a reduction in monitoring is possible.

Mercury

Reasonable potential analysis was conducted for mercury data at all the mine pit dewatering outfalls. There was no reasonable potential to cause or contribute to an excursion above a water quality standard for mercury; therefore, a permit limit is not necessary. Based on this information, mercury monitoring will be reduced to a frequency of twice per year at SD-001 – SD-005 in order to verify future levels of mercury remain below levels of concern.

No data was available to review for SD-006, SD-008, SD-009, SD-011 and SD-012, therefore, staff recommend maintaining mercury monitoring in the permit at a frequency of once per quarter in the event that mine pit dewatering occurs at these outfalls

Diesel Range Organics (DRO)

Reasonable potential analysis was conducted on the active mine pit dewatering outfalls for DRO. The analysis performed found no reasonable potential to cause or contribute to an excursion above water quality standards for DRO. Based on these results, monitoring for DRO is no longer required for the mine pit dewatering outfalls.

Class 3 & 4 Water Quality Standards Monitoring

As part of the MPCA's Strategy for Class 3 & 4 Waters, the Permittee is required to monitor the mine pit dewatering discharges for the following parameters: Bicarbonates, Total Chloride, Hardness (Calcium & Magnesium Calculated [as CaCO_3]), Sulfate and Specific Conductance. The monitoring for these parameters is temporary for a period of two years.

The Permittee is required to submit a "Class 3 & 4 Water Quality Standards Report" following completion of the two year monitoring period. The report is required to include complete monitoring results as well as a detailed discussion regarding the significance of the results in relation to state water quality standards. Additional monitoring may be required if the monitoring results show elevated levels of the above listed parameters. This monitoring was completed and due to database constraints, the temporary monitoring requirement in the Limits & Monitoring Section of the permit was removed from this major permit modification. The data will be evaluated and used to determine whether limits are necessary or not during the next permit reissuance.

Sulfate monitoring is required at all of the mine pit dewatering outfalls once per month for the life of the permit due to concerns with potential sulfate levels in downstream waters, mercury methylation, the presence of sulfide mineralization in some areas, and the presence of sulfate in similar discharges at other facilities.

Sampling Requirements at SD-010

Mine pit dewatering at SD-010 is inactive at this time, however, there is a passive discharge due to the pit overflowing. Sampling at SD-010 shall be conducted quarterly for the following parameters: Flow, dissolved iron, mercury, pH, total suspended solids, temperature, and turbidity. Sampling for total sulfate is required twice per year. However, if mining activity or any other activity that could introduce pollutants is resumed in the portion of the mining area reporting to SD-010, monitoring requirements at SD-010 will increase to the parameters and frequencies specified for discharge point SD-009.

Effluent Limitations and Monitoring Requirements for Sanitary Wastewater Discharges (SD-013 – SD-015 and SD-024)

The effluent limitations of 25 mg/L for Five-Day Carbonaceous Biochemical Oxygen Demand (CBOD₅), 45 mg/L for total suspended solids (TSS), and a range of 6.0-9.0 for pH, for all the sanitary wastewater discharges listed above are technology based effluent limits developed for achieving secondary standards. These limits are specified in Minn. R. 7053.0215.

The effluent limit for fecal coliform for all discharges is a state discharge restriction based on Minn. R. 7053.0215. The fecal coliform effluent limit for all the sanitary wastewater discharges is 200 organisms/100 mL.

The chlorine residual effluent limit of 0.038 mg/L is applicable to SD-013, SD-014 and SD-015 is a water quality based effluent limit. The residual chlorine limit is the final acute value for chlorine found in Minn. R. 7050.0222. The proposed discharge at SD-024 does not use chlorine for disinfection and therefore is not subject to a chlorine residual effluent limit.

The effluent limit of 1.0 mg/L for total phosphorus for discharge SD-013 is a state discharge restriction based on Minn. R. 7053.0255. The 1.0 mg/L total phosphorus effluent applies to all interstate waters lying within the Lake Superior Basin. Discharge SD-013 is located in the Lake Superior Basin and therefore has a phosphorus limit. The phosphorus limit does not apply to discharges SD-014, SD-015 and SD-024 as these discharge points are located in the Rainy River Basin. A phosphorus management plan is required for outfall SD-024.

This permit requires biosolids to be treated to meet specific standards and specifies monitoring, recordkeeping, reporting and general requirements for biosolids, which are applied to the land. Unless they are Exceptional Quality Biosolids, sites to which biosolids are applied are approved by the MPCA by the procedures found in Minn. R. 7041.0800.

Effluent Limitations and Monitoring Requirements for Crusher and Shop Area Discharges (SD-016 – SD-019):

Crusher No. 2 Settling Pond Discharge (SD-016)

Monitoring at Station SD-023 is no longer accessible as it is covered by water and therefore, monitoring at SD-023 has been eliminated. Monitoring at SD-016 has been re-instated and will take the place of monitoring at SD-023. SD-016 is considered to be a more conservative location and is more representative of activities taking place in the area since it is located upstream of SD-023. All effluent data from SD-023 was reviewed as a basis for setting limits and monitoring requirements for SD-016.

Water Quality Based Effluent Limitations at SD-016

The residual chlorine limit is the final acute value for chlorine found in Minn. R. 7050.0222.

EPA Categorical Technology Based Effluent Limitations at SD-016

The EPA technology-based effluent limitations for discharges from mine facilities operated to obtain iron ore apply to this facility (40 CFR pt. 440 subp. A). Specifically, BPT and BAT effluent limits for dissolved iron and total suspended solids apply (40 CFR § 440.12 and 40 CFR § 440.13). The

maximum daily limit assigned for dissolved iron is 2.0 mg/L. The average daily limit assigned for dissolved iron is 1.0 mg/L. The maximum daily limit assigned for total suspended solids is 30 mg/L. The average daily effluent limit for total suspended solids is 20 mg/L.

Effluent limitation for CBOD₅ is a technology based effluent limit carried forward from the previous permit and was developed using Table 5-3 of EPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505-2-90-001). The permit contains a calendar month average limit of 25 mg/L and a calendar month maximum limit of 50 mg/L for CBOD₅.

Other Pollutants of Concern (SD-016)

Monitoring will continue at SD-016 for the following pollutants of concern listed below to ensure that Minnesota water quality standards are not exceeded.

pH

The effluent limit for pH is a technology based effluent limit developed for achieving secondary standards. Monitoring for pH will be required once per quarter.

Reasonable Potential for chemical Specific Pollutants (40 CFR § 122.44 (d)(1))

"Reasonable potential is a procedure specified by EPA regulation that compares preliminary effluent limits for a pollutant with effluent monitoring data to determine the need for an effluent limitation. Federal regulations at 40 CFR § 122.44(d)(1) require that pollutants be evaluated for the potential to cause or contribute to an excursion of water quality standards ("Reasonable Potential") using acceptable technical procedures accounting for variability in the effluent. Reasonable potential analysis was done for specific conductivity. Reasonable potential analysis could not be done for cadmium, copper, lead, zinc, or DRO since all concentrations for these parameters were less than detection.

Based on the reasonable potential analysis, monitoring will continue at a frequency of twice per year for cadmium, copper, lead, and zinc. Monitoring will continue at a frequency of once per quarter for DRO, and specific conductance

Since the outfall at SD-016 is being re-instated, MPCA staff recommends quarterly monitoring for mercury.

Crusher No. 1 Shop Area Discharges (SD-017 and SD-019)

Water Quality Based Effluent Limitations at SD-017 & SD-019

7053.0255 - Phosphorus monitoring is required once per quarter at SD-017.

EPA Categorical Technology Based Effluent Limitations at SD-017 & SD-019

Effluent limitations for CBOD₅ and TSS are a technology based effluent limits carried forward from the previous permit and was developed using Table 5-3 of EPA Technical Support Document for Water Quality-Based Toxics Control (EPA/505-2-90-001). The permit contains a calendar month average limit of 25 mg/L and a calendar month maximum limit of 50 mg/L for CBOD₅. The permit contains a calendar month average effluent limit of 30 mg/L and a calendar month maximum limit of 60 mg/L for TSS.

Pollutants of Concern at SD-017 & SD-019

Reasonable potential analyses were conducted for SD-017 and SD-019 for copper, lead, zinc, mercury, DRO. A reasonable potential analysis could not be done for cadmium because all the cadmium concentrations were less than detection. The analyses performed found no reasonable potential to cause or contribute to an excursion of water quality standards for copper, lead, zinc, specific conductivity and mercury. As a result of the reasonable potential analysis, the MPCA recommends monitoring of the effluent at SD-017 and SD-019 twice per year for cadmium, copper, lead, and zinc. Monitoring for specific conductance will be required once per month.

Reasonable potential analyses were conducted for DRO at SD-017 and SD-019. The data collected was found to be inaccurate due to errors in rounding by the laboratory to the nearest 100 µg/L. The analysis was inconclusive due to the lack of resolution of the data submitted. MPCA staff recommends monitoring for DRO continue at a quarterly rate at SD-017 and SD-019 using proper quality assurance/quality control procedures for sampling, analyzing and reporting of DRO.

Reasonable potential analysis was conducted for mercury at SD-017. Based on this analysis, there is no reasonable potential to cause or contribute to an excursion above a water quality standard for mercury; therefore, no limit is needed. Because the projected effluent quality is less than ½ of the chronic standard, MPCA staff recommend reducing mercury monitoring to twice per year.

Reasonable potential analysis was conducted for mercury at SD-019. Based on this analysis, there is no reasonable potential to cause or contribute to an excursion above a water quality standard for mercury; therefore, no limit is needed. Because the projected effluent quality for mercury is more than ½ of the chronic standard and there were few data points to do the evaluation, MPCA staff recommend maintaining quarterly sampling

Crusher No. 1 Potable Water Treatment Plant Discharge (SD-018)

The residual chlorine limit is a water quality based effluent limit and is the final acute value for chlorine found in Minn. R. 7050.0222.

The limits for TSS, and pH are technology based effluent limits developed for achieving secondary standards. These limits are specified in Minn. R. 7053.0215.

Flow Weighted Composite Monitoring (SD-020 and SD-022) & Surface Water Monitoring Requirements (SW-002 – SW-004)

The monitoring frequency for fibers is required to assess levels at low and high flow times of the year, according to a MPCA memorandum dated June 13, 1991. The monitoring frequency for the surface water stations SW-002, SW-003 and SW-004 is designed to coincide with that for stations SD-020 and SD-022, which is scheduled twice annually for spring and winter to measure both the typical peak and minimum annual loading rates of fibers in downstream waters.

The Agency has reviewed fiber data from the two composite sampling stations (SD-020 and SD-022) as well as fiber data from the surface water sampling stations (SW-002, SW-003 and SW-004). Table 1 below is a summary of amphibole fiber data (million fibers/liter).

Table 1 – Amphibole fiber data (MF/L)

	SD-020	SD-022	SW-002	SW-003	SW-004
April 2002	No discharge		0.56		0
November 2002		444.4	0	0	2.22
April 2003	18.9	952	0	0	1.11
November 2003	0	1260	0	0	0
April 2004			0	0	4.44
November 2004	3.7	0	0	0	0
April 2005	404	0	0	0	0
November 2005	0	434	0	11	0
April 2006	0	0	0	6.3	2.52
November 2006	0	0	0	0	2
April 2007	8.42	84.2	0	0	2.11
November 2007	0	92.8	0	2.09	0
April 2008	12.56	175.87	0	0	8.79
November 2008	No discharge	No discharge	Data not available	Data not available	Data not available

There is currently no basis to develop a technology-based effluent limit for amphibole fibers at the SD stations. The only other facility with a fiber limit is Northshore Mining's Silver Bay Tailings Basin. BAT for that facility is based on treatment through tailings basin operations, chemical flocculation, and dual media filtration. It is currently not feasible or desirable to construct such a treatment system (especially a tailings basin) at the Peter Mitchell facility.

There are currently no applicable water quality standards for fibers less than 10 microns. [Note: The primary drinking water standard for asbestos (fibers greater than 10 micrometers) is 7 MFL.] However, given the unique nature of the pollutant and the downstream drinking water supply for the city of Hoyt Lakes, it is appropriate to continue the discharge and surface water monitoring to maintain an ongoing data set from which future problems may be investigated. As with other provisions of the permit, the MPCA reserves the right to reopen the permit to address changes in pollutant levels or in response to other information. It is important to note that since November 2002, zero amphibole fibers have been detected at SW-002, which represents the intake to the Hoyt Lakes Municipal Water Station.

VIII SPECIAL REQUIREMENTS

Virginia Formation / Duluth Complex Requirements

The Permittee is not permitted to fragment, excavate, remove, relocate, or otherwise disturb Duluth Complex rock or materials without written approval from the MPCA of a Duluth Complex Management Plan that addresses water quality issues associated with stockpile containment.

The Permittee is not permitted to fragment, excavate or remove the bedded pyrrhotite unit of the Virginia Formation; or other portions of the Virginia Formation and associated dikes and sills containing sulfide mineralization unless an updated Virginia Formation Management Plan addressing the management, disposal and reclamation of such material has been approved by the MPCA.

If the bedded pyrrhotite unit or other rock containing elevated sulfide mineralization that has not been specifically characterized and addressed in the approved Virginia Formation Management Plan is encountered during drilling, blasting or excavation of Virginia Formation material, the Permittee shall immediately cease mining activity related to this material and notify the MPCA. Before mining activities related to this material may proceed, the Permittee shall submit and receive MPCA approval of a Supplement to the Virginia Formation Management Plan that details how the management of this material will be addressed.

Additional Monitoring (SD-001 – SD-012)

The Permittee is required to sample the mine pit water (sump) in April, July, and October for a period of three years (2009 – 2011) from Area 001 (SD-001 – SD-003), Area 002, (SD-004-SD-005) and Area 003 (SD-006 – SD-012). The Permittee shall also sample the potable water supply located at southeast of the mining area prior to treatment in April, July, and October for a period of three years (2009 – 2011). Samples shall be taken in April, July, and October of each year at each of the above locations for the following parameters: Arsenic, Boron, Chloride Cobalt, Fluoride, Iron, Manganese, Molybdenum, Sulfate, and Total Dissolved Solids. The Permittee is required to prepare and submit a final report due June 30, 2012, comparing the sample results to the drinking water standards.

The MPCA recognizes the samples taken from the mine pit sumps are groundwater combined with surface water runoff and are not truly representative of groundwater conditions in the area. Sample results from the mine pit that exceed drinking water standards shall not be considered a violation of this permit. The purpose of this monitoring is to provide a preliminary indication of current mine pit/groundwater quality with respect to drinking water standards and to help determine the extent of future groundwater monitoring, particularly at mine closure.

Nitrogen Management

The Permittee has had several violations of its unionized ammonia effluent limit over the past few years. In order to address these violations, a nitrogen mitigation plan is required to be developed. The Permittee is required to evaluate sources of ammonia to mine pit water and to identify and implement measures to reduce sources of ammonia to those waters. The nitrogen mitigation plan is required to be submitted one year after permit issuance

Construction of Stabilization Pond System

The Permittee is proposing to construct a new stabilization pond wastewater treatment system to replace the existing sanitary wastewater treatment systems serving the Crusher in Area 004. The Permittee is required to properly abandon the existing sanitary wastewater treatment systems within 90 days of initiation of operation of the new stabilization pond system. Access for future discharges to the existing domestic sanitary wastewater treatment system must be permanently denied.

IX. NONDEGRADATION

In accordance with MPCA rules regarding nondegradation for all waters (that are not Outstanding Resource Value Waters), nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is (1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day or (2) an expanded discharge that expands by greater than 200,000 gallons per day that discharges to any non-ORVW water other than a Class 7 water or (3) a new or expanded discharge containing any toxic pollutant at a mass

loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality.

The Peter Mitchell Mine facility is not new or expanding and therefore is not subject to nondegradation review. In accordance with MPCA rules regarding nondegradation for all waters, the design maximum daily flow of the facility as of January 1, 1988, and associated mass loading are the baseline design flow and mass loading. This baseline flow and mass loading will be used to determine whether nondegradation review is required for any change in the discharge. Any change that results in an increase in design flow greater than 0.2 mgd and an increased loading of one or more pollutants, or any change in a discharge containing a toxic pollutant that results in a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality, is subject to nondegradation review in accordance with Minn. R. 7050.0185.

X. CONTACT INFORMATION

Please contact Stephanie Handeland of the MPCA at 651-757-2405, and at the address below, for additional information, or to submit comments:

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