

**National Pollutant Discharge Elimination System (NPDES)/
State Disposal System (SDS) Permit Program Fact Sheet**

Permit Reissuance

MN0068241

Permittee: Mesabi Metallica Company LLC
PO Box 25
Nashwauk, Minnesota 55769-0025

Facility name: Mesabi Metallica Mine
17113 County Rd 58
Nashwauk, Minnesota 55769

Current permit expiration date: September 30, 2017

Public comment period begins: December 19, 2025

Public comment period ends: February 2, 2026

Receiving water: Sullivan Pit - Class 2B, 3, 4A, 4B, 5, 6 water; Ann Pit - Class 2B, 3, 4A, 4B, 5, 6 water

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Purpose and participation

Applicable statutes

This fact sheet has been prepared according to the 40 C.F.R. § 124.8 and 124.56 and Minn. R. 7001.0100, subp. 3, in regard to a draft National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota.

Purpose

This fact sheet outlines the principal issues related to the preparation of this draft permit and documents the decisions that were made in the determination of the effluent limitations and conditions of this permit.

The primary reason for reissuing the permit is due to permit expiration.

Public participation

You may submit written comments on the terms of the draft permit or on the Commissioner's preliminary determination. Your written comments must include the following:

1. A statement of your interest in the permit application or the draft permit.
2. A statement of the action you wish the Minnesota Pollution Control Agency (MPCA) to take, including specific references to sections of the draft permit that you believe should be changed.
3. The reasons supporting your position, stated with sufficient specificity as to allow the Commissioner to investigate the merits of your position.

The MPCA is planning to host an in-person public informational meeting. A public informational meeting is an informal meeting which the MPCA may hold to help clarify and resolve issues.

The public informational meeting will take place on January 14, 2026, from 5:00 to 6:30 p.m. at:

**Nashwauk-Keewatin K-12 School
100 Spartan Way
Nashwauk, MN 55769**

You may submit a petition for a contested case hearing. A contested case hearing is a formal hearing before an administrative law judge. Your petition requesting a contested case hearing must include a statement of reasons or proposed findings supporting the MPCA decision to hold a contested case hearing pursuant to the criteria identified in Minn. R. 7000.1900, subp. 1, and a statement of the issues proposed to be addressed by a contested case hearing and the specific relief requested. To the extent known, your petition should include a proposed list of witnesses to be presented at the hearing, a proposed list of publications, references, or studies to be introduced at the hearing, and an estimate of time required for you to present the matter at hearing.

You must submit all comments, requests, and petitions during the public comment period identified on page one of this notice. All written comments, requests, and petitions received during the public comment period will be considered in the final decisions regarding the permit. If the MPCA does not receive any written comments, requests, or petitions during the public comment period, the Commissioner or other MPCA staff as authorized by the Commissioner will make the final decision concerning the draft permit.

Comments, petitions, and/or requests must be submitted by the last day of the public comment period to:

Stephanie Handeland
Minnesota Pollution Control Agency
520 Lafayette Rd N
Saint Paul MN 551554194

The permit will be reissued if the MPCA determines that the proposed Permittee or Permittees will, with respect to the facility or activity to be permitted, comply or undertake a schedule to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the MPCA and the conditions of the permit and that all applicable requirements of Minn. Stat. ch. 116D and the rules promulgated thereunder have been fulfilled.

More detail on all requirements placed on the facility may be found in the Permit document.

General information

The permit is based on an NPDES/SDS permit application dated December 27, 2024, an updated application dated August 18, 2025, and additional documents found in the Administrative record.

Description of permitted facility

Mesabi Metallica LLC is located at Township 56 and 57 North, Range 22 and 23 West, Nashwauk, Itasca County, Minnesota.

Permit Coverage

This NPDES/SDS Permit incorporates a SDS Permit authorizing the operation of the tailings basin and an NPDES Permit authorizing a discharge of stormwater, and mine pit dewatering water to the Ann and Sullivan Pits, as well as individual coverage for industrial stormwater management. Separately, Mesabi Metallica has obtained coverage under the NPDES/SDS General Construction Stormwater Permit for construction activities.

Site and Activity Description

The principal activities at this facility will include open-pit taconite mining of the Biwabik Iron Formation, crushing, concentrating, pelletizing and direct iron reduction. The mine life is estimated to be approximately nine years, with a production rate of seven million ton per annum (MTPA) of Direct Reduced (DR) grade pellets.

Taconite ore will be mined from Pit 5 and adjacent parcels using open-pit mining methods. Overburden, hematite and waste rock will be hauled to in-pit rock stockpiles and seven out of pit stockpiles. The out of pit stockpiles include five hematite stockpiles, one waste rock stockpile, and one overburden stockpile. Waste rock will either be placed in waste rock stockpiles or used to construct dike and haul roads. Raw ore will be trucked to the ore processing facilities. The ore processing facilities will consist of a crusher, concentrator, and pellet plant. Crushed ore will be conveyed to the concentrator where the magnetic iron oxide materials (concentrate) will be separated from the nonmagnetic waste (tailings). Tailings from the concentrator will be pumped to a tailings thickener where solids will be thickened by sedimentation into tailings slurry. The tailings slurry will be pumped from the thickener to a new tailings basin to be constructed on the site of the former Butler Taconite facility tailings basin.

The facility will also include the general office building, materials and equipment storage areas, warehouses, and a mobile equipment shop building. Additionally, the property will include haul roads, pipelines, rail lines, and related appurtenances that are used to route ore to the facility, tailings to the tailings basin, clear water to the concentrator, and products to its final end use point.

The only water entering the tailings basin will be precipitation and the water used to convey tailings to the basin from the concentrator and water returned to the basin from the seepage collection system.

Once operational, the Mesabi facility will capture all runoff from the site for use in the plant or as onsite dust suppression using a series of ditches and collection ponds throughout the site. Runoff from the plant site and stockpiles will be directed to a runoff collection system where water will be routed to various collection ponds; and the Sullivan Pit and Ann Pit in extreme event situations. Collected runoff will be the primary source of water required to operate the facility. Capture of site runoff will be accomplished by constructing new ditches, collection ponds, perimeter dikes, and several lift stations. The ponding infrastructure and site storage will fully capture and contain the runoff from a 500-year 24-hour storm event. Discharge to surface waters other than the Sullivan Pit and Ann Pit is not permitted.

All water collected in floor drains and sumps in the plant area buildings, as well as the crusher and concentrator buildings, will be recycled directly into process water system. Sanitary wastewater generated at the facility will be piped to the city of Nashwauk Wastewater Treatment System for treatment prior to discharge.

Water Supply

Stormwater, stockpile runoff, and outflow from runoff collection basins to be located in the vicinity of the crusher/concentration and stockpiles will be transported via pumps through pipelines and via gravity flow through ditches to Pond 1 or Pond 8. In the 500-year event all ponds will contain runoff, except a limited amount of stormwater from Pond 2A and Pond 2C would flow via gravity to the Sullivan Mine Pit.

Permitted Discharge Points

There are four surface discharge points authorized in the permit. Surface discharge SD 001 consists of maintenance mine pit dewatering flow from Pit 5 at a maximum rate of 5 million gallons per day (mgd) to Sullivan Pit. Surface discharge SD 002 consists of maintenance dewatering flow from Pit 5 at a maximum rate of 5 mgd to Ann Pit. Surface discharge SD 003 via Pond 1 includes waste rock stockpile runoff and stormwater runoff from the northeast end of the crusher/concentrator area at an average rate of 0.52 mgd to Sullivan Pit. Surface discharge SD 004 via Pond 1 includes stormwater runoff from the pellet plant area and waste rock stockpile at an average rate of 0.42 mgd to Ann Pit. The Sullivan and Ann Mine Pits are classified as 2B, 3, 4A, 4B, 5, and 6 waters of the state.

Surface Water Monitoring Points

The permit includes five surface water monitoring stations, SW 001, SW 002, SW 003, SW 004, and SW 005 located in Ox Hide Lake, Snowball Lake, and Swan Lake (2), and O'Brien Lake respectively. All four lakes are classified as 2B, 3, 4A, 4B, 5, and 6 waters of the state.

Groundwater Monitoring Points

The permit includes five groundwater monitoring well locations in the vicinity of the tailings basin. Three locations will have paired shallow and deep wells (GW 001/GW 006, GW 002/GW 007, GW 004/GW 008), while the other two (GW 003, GW 005) locations will just have shallow wells. Up-gradient monitoring wells, GW 001 and GW 003 are located north and southeast of tailings basin respectively. Down-gradient wells GW 002, GW 004, and GW 005 are located east, south, and west of the tailings basin, respectively. The down-gradient wells are located between the tailings basin and the nearest surfaces of O'Brien Lake, Swan Lake, and Pickerel Creek.

Dewatering Activities

Currently, Pit 5 is considered a water of the state. Mesabi Metallics will dewater Pit 5 before mining can begin. During construction of the production facilities and pre-stripping of the new mining areas, Pit 5 water will be transferred dewatered to Ox Hide Lake, Ann Pit, and Pit 1, also considered waters of the state. The pumps to be used during initial dewatering will be sealed so that the act of pumping will not add any lubricants to the water being pumped to Ox Hide Lake.

Mesabi Metallics will begin mining the undisturbed area of Pit 5. Upon the initiation of mining operations signified by the construction of mining roads that will add pollutants into Pit 5, all Pit 5 maintenance dewatering flows will be directed to the Concentrator or to the Ann or Sullivan Pits for use as process water as described above. At this point water within Pit 5 will no longer be considered waters of the state but subject to the Categorical Effluent Limitations for the Iron Ore Subcategory (40 CFR § 440).

Mesabi Metallics will divert stormwater from construction and operating areas away from Pits 1 & 2 and Pit 5 in order to prevent pollutants from being added to those pits from construction and mining activities during transfer dewatering. The diversion of stormwater away from Pits 1 and 2 will continue for the life of the project to preserve the availability of those pits to serve as stream augmentation water.

Water collected in the mine pit and in the runoff collection ponds throughout the site will be the primary source of process water for the plant and for dust suppression (see Process Flow Diagram). Even after large storm events, water

in Pit 5 will be collected in ponds and sumps within the pit for use as process water and will not be discharged offsite. Once industrial stormwater or wastewater enters the process as make-up water, it doesn't re-enter the runoff collection system, it remains as process water.

Pit 5 has three points where runoff collection and dewatering will be conducted. Dewatering point Pit 5.1 will be pumped to the reclaim line from the tailings basin and then to the concentrator. Dewatering points Pit 5.2 and Pit 5.3 will be pumped to Pond 8 and then to the concentrator.

The water from the site will flow into a closed loop system in the following process:

- Collected runoff from the site will be collected through a series of ponds and ditches and routed to Ponds 1 and 8. Water collected in Pond 1 and Pond 8 will be pumped to the concentrator at a combined average rate of 3,500 gpm.
- Then, the water will be pumped through the Pellet Plant and combined with tailings and pumped to the Tailings Basin at 15,000 gpm.
- Lastly, water will be pumped back into the concentrator from the Reclaim Basin at 12,600 gpm with makeup water provided from the runoff collection system when collected runoff is available or provided from Pits 1 & 2 at a maximum of 3,500 gpm in dry periods when collected runoff and Pit 5 dewatering has been fully utilized.

The water use plan for the site is to prioritize use of water stored in the runoff collection system for process water and dust suppression. When collected runoff reserves are depleted, during dry periods for example, process water will be sourced from Pits 1 & 2 (see Process Flow Diagram). The drainage area to Pits 1 & 2 is protected from mining activity to ensure a source of water to augment Ox Hide Creek.

Tailings Basin

Coarse and fine tailings separated from iron oxide materials in the concentrator will be pumped to tailings thickeners. Tailings slurry from the thickeners will be pumped approximately four miles to the tailings basin and discharged hydraulically from pipelines to be constructed around the perimeter of the basin. The tailings basin design includes two pipelines to carry tailings into the basin, one of which will operate at any given time and one of which will be on standby. Tailings slurry of approximately 35-40 percent solids will be transported to the basin at an average rate of approximately 15,000 – 19,000 gallons per minute. The coarse fraction of the tailings will settle out of the slurry near the discharge point and will be used for dike construction. The fine tailings will flow toward the center of the basin and will eventually settle out near the middle of the structure. The perimeter dam of the basin will be constructed by moving the discharge point around the basin at intervals. After the initial startup, production will increase to 24 million metric tons of mined ore (6 % dry cobber rejection and 7.0 million metric tons of low flux pellets) and tailings production will increase to approximately 15.7 million metric tons per year. The approximate distribution of tailings to be produced is 30 percent coarse and 70 percent fine tailings by volume.

Lower elevation segments of the four-mile pipeline from the tailings thickener to the basin will be equipped with drains and catchment basins. The system of drains and catchment basins will be sized to accommodate all of the tailings drained from the pipeline with sufficient remaining volume to handle precipitation runoff in the event of a heavy rain event. The preliminary design of the pipeline route indicates the need to install drain systems on the northwest side of Highway 169 at the future site of the tailings pipeline booster pump and potentially at the outer base of the tailings basin. The tailings pipeline will cross a bridge over Highway 169. The tailings pipeline crossing the bridge over highway 169 will be constructed with a secondary containment sleeve to direct tailings away from the roadway in the event of a leak in that section of the pipeline. A similar bridge or other structure will be constructed where the tailings pipeline will cross over Pickerel Creek.

The Pickerel Creek crossing will be installed with a sleeve around the pipe to prevent any leaks from the pipeline from entering Pickerel Creek. Any potential leaks from segments of the pipeline not directly adjacent to the drains and catchments will flow through constructed or natural ditches toward the nearest drain system. During routine tailings pipeline switches, clear water will be pumped through the pipeline to flush the tailings from the line into the tailings system. During freezing weather, after the line is flushed, the clear water in the line will be drained into the catchment basins and subsequently pumped back into the process water system. Similar protocol will be employed in the case of emergency tailings line shutdowns. In either case any tailings collected in the catchments will be pumped or dug out of the basin and disposed in the tailings basin. Water and/or tailings in the drain systems will be removed as soon as practicable to ensure adequate freeboard in the drain catchments for future line draining. The tailings pipelines will be equipped with instrumentation to indicate changes in flow to alert operators of possible leaks in the pipelines. The tailings pipelines will be rubber-lined or otherwise treated to prevent premature wear.

In addition to the two tailings slurry pipelines described above, the tailings basin design includes one clear water pipeline to return water to the concentrator head tank from the tailings basin. The clear water return line will be buried below the bed of Pickerel Creek and under Highway 169.

A seepage collection and return system will be constructed at the tailings basin to collect any potential seepage and return it back to the tailings basin to ensure there is no discharge to surface waters from the tailings basin.

The only water entering the tailings basin will be precipitation and the water used to convey tailings to the basin from the concentrator and water returned to the basin from the seepage collection system.

Internal Monitoring Locations

The permit includes three internal waste stream monitoring stations. Waste stream monitoring station WS 001 which represents the tailings discharge to the basin. This will be monitored by sampling the return water. The permit requires the Permittee to monitor the total mass of tailings transported to the basin each month along with the surface water elevation in the tailings basin. If more than one discharge point is used in any given month data collected shall be representative of the total mass of tailings transported to the basin in any given month. The reference elevation point for measuring the water level shall be mean sea level. The contents of the runoff collection Pond 1 and Pond 8 will be monitored at internal waste stream monitoring stations WS 002 and WS 003. These stations will represent the water quality in Pond 1 and Pond 8 respectively.

Functional Equivalent

A 2020 Supreme Court decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020), (Maui) requires that regulators consider whether discharges of wastewater from a facility to groundwater are functionally equivalent to direct discharges of the wastewater to surface water. At this time, there is not sufficient information to make a functional equivalent determination at the Mesabi Metallics tailings basin. This permit requires the Permittee to conduct additional sampling of the groundwater, surface water and internal waste stream monitoring locations to determine whether or not there is a functionally equivalent discharge from the tailings basin. This permit does not authorize a functionally equivalent discharge from the tailings basin seepage to surface water. If it is determined a functionally equivalent discharge from the tailings basin exists, the permit will be modified or reissued and the functionally equivalent discharge will be regulated under the modified or reissued permit.

Facility location

The facility is located in Township 56 and 57 North, Range 22 and 23 west, Nashwauk, Itasca County Minnesota (Latitude 47.38010101, Longitude -93.22370662). The address for the facility is 17113 County Rd 58 Nashwauk, MN 55769

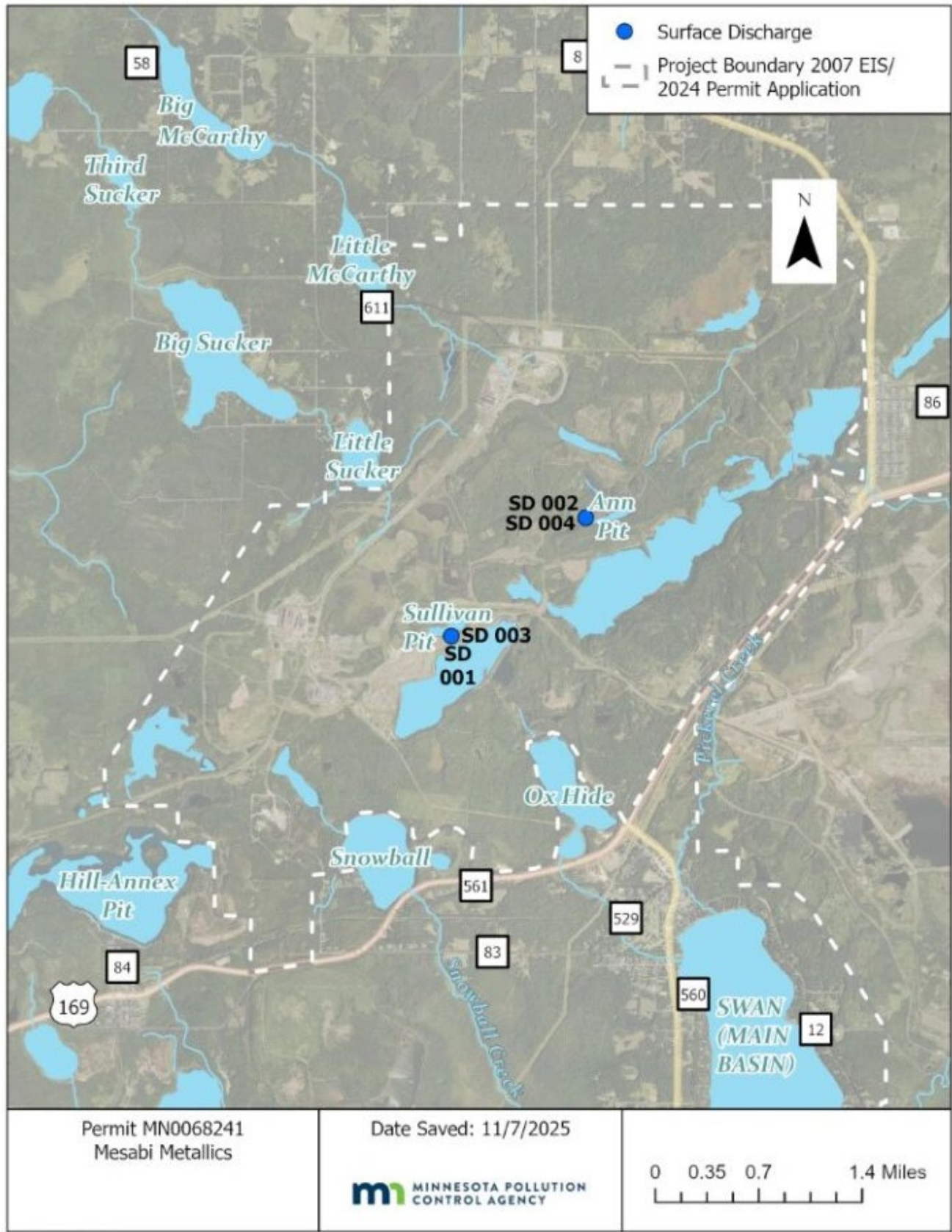
Outfall location

The Mesabi Metallica Mine has four permitted outfalls for discharges to the Sullivan Pit (Class 2B, 3, 4A, 4B, 5, 6 water) and the Ann Pit (Class 2B, 3, 4A, 4B, 5, 6, water. Mine pit dewatering from Pit 5 is authorized to discharge at either the Sullivan Pit (SD 001) or the Ann Pit (SD 002). Industrial stormwater and stockpile runoff is permitted to discharge at either the Sullivan Pit (SD 003) or the Ann Pit (SD 004). There are no authorized discharges from the tailings basin. Discharges to any other locations are prohibited.

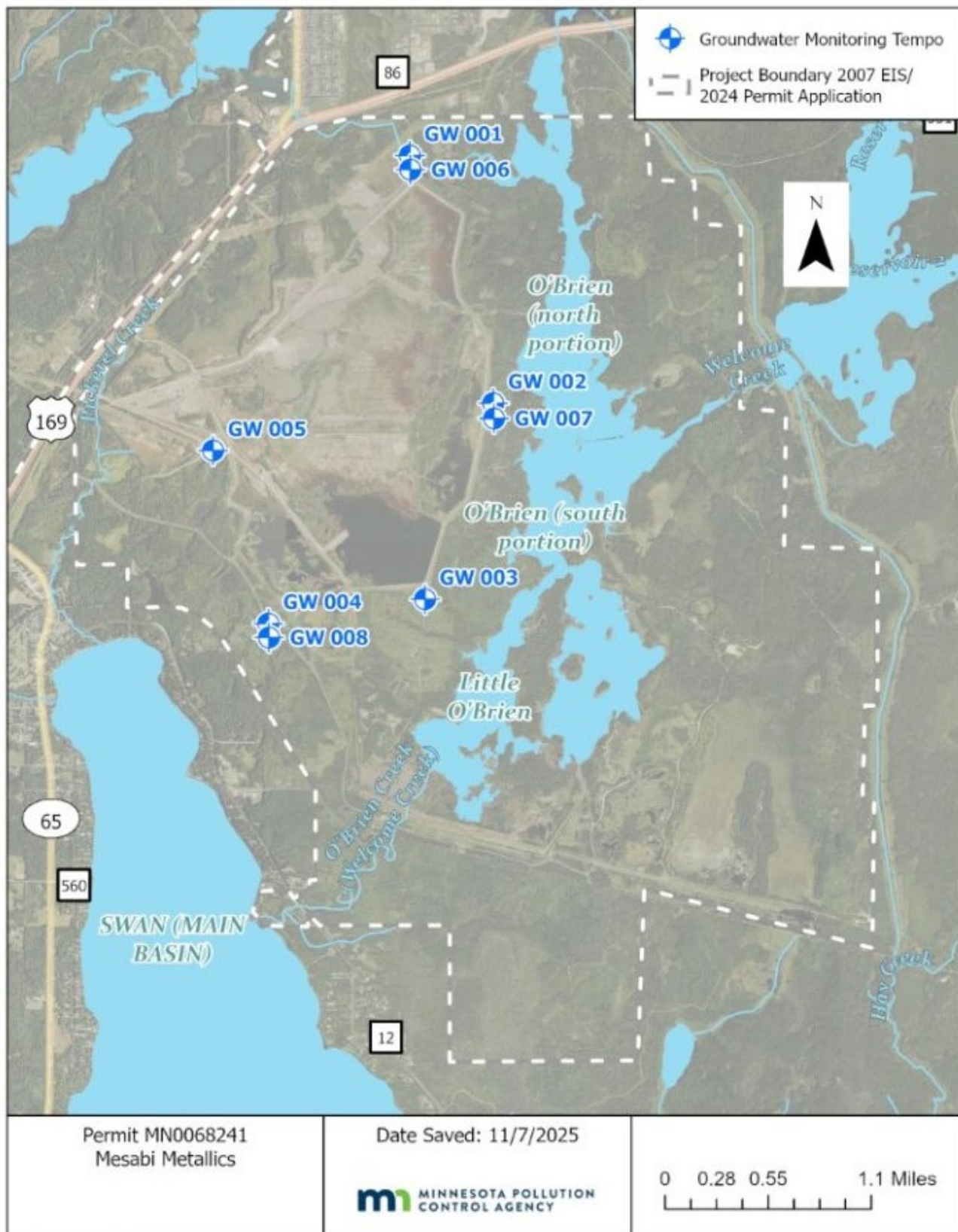
Table 1: Outfall Summary

Station ID	Local Name	PLS Location	GPS Coordinates (Latitude, Longitude)	Receiving Water	Receiving Water Use Class
SD 001	Maintenance mine pit dewatering to Sullivan Mine Pit	T56N, R23W, S02, SW Quarter of the SW Quarter	47.357215 -93.22902	Sullivan Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 002	Maintenance mine pit dewatering to Ann Pit	T56N, R23W, S01, NE Quarter of the NW Quarter	47.368828 -93.209659	Ann Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 003	Pond 1 - Industrial stormwater and stockpile runoff to Sullivan Pit	T56N, R23W, S02, SW Quarter of the SW Quarter	47.357215 -93.22902	Sullivan Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 004	Pond 1 - Industrial stormwater and stockpile runoff to Ann Pit	T56N, R23W, S01, NE Quarter of the NW Quarter	47.368828 -93.209659	Ann Pit	Class 2B, 3, 4A, 4B, 5, 6 Water

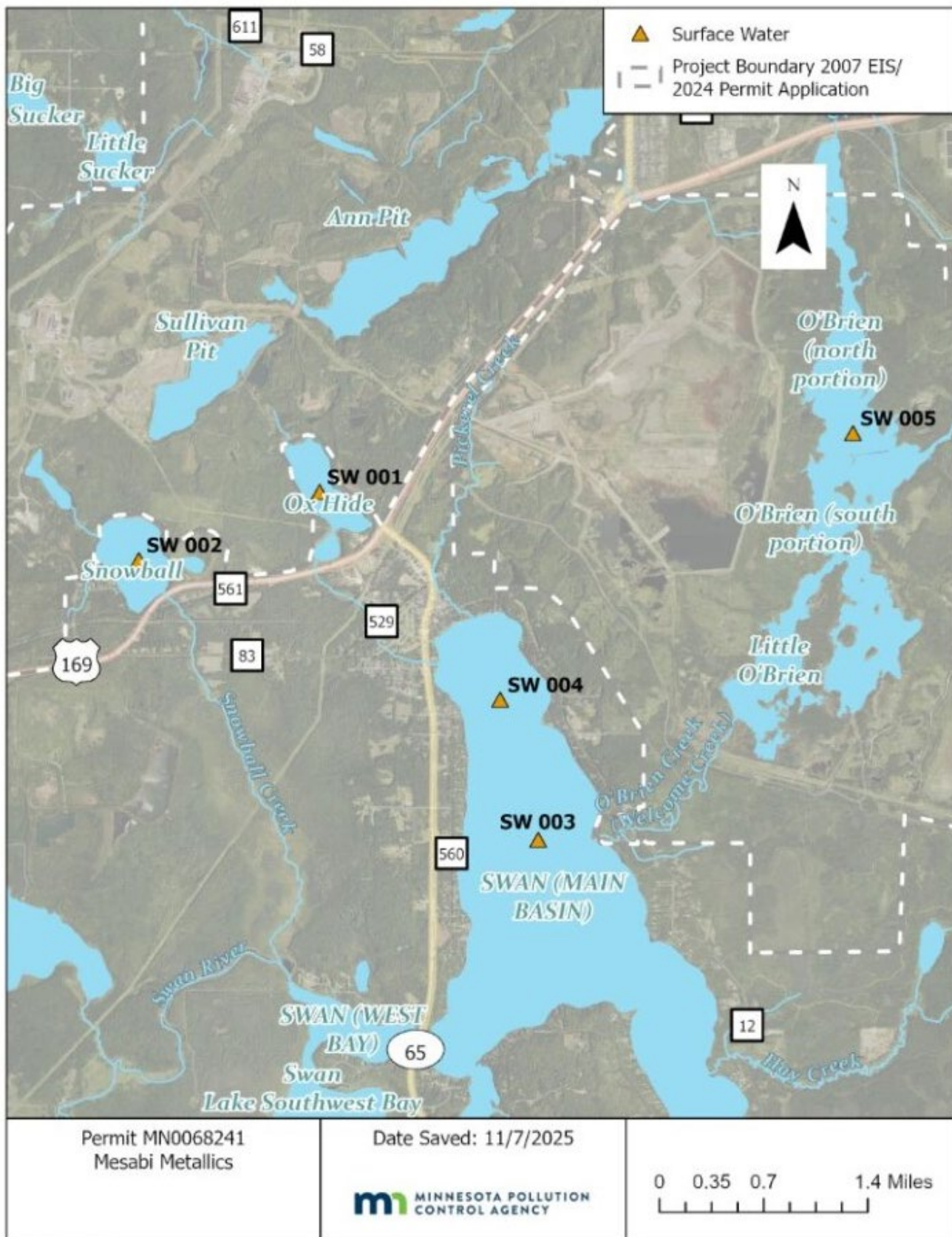
Map of permitted outfalls



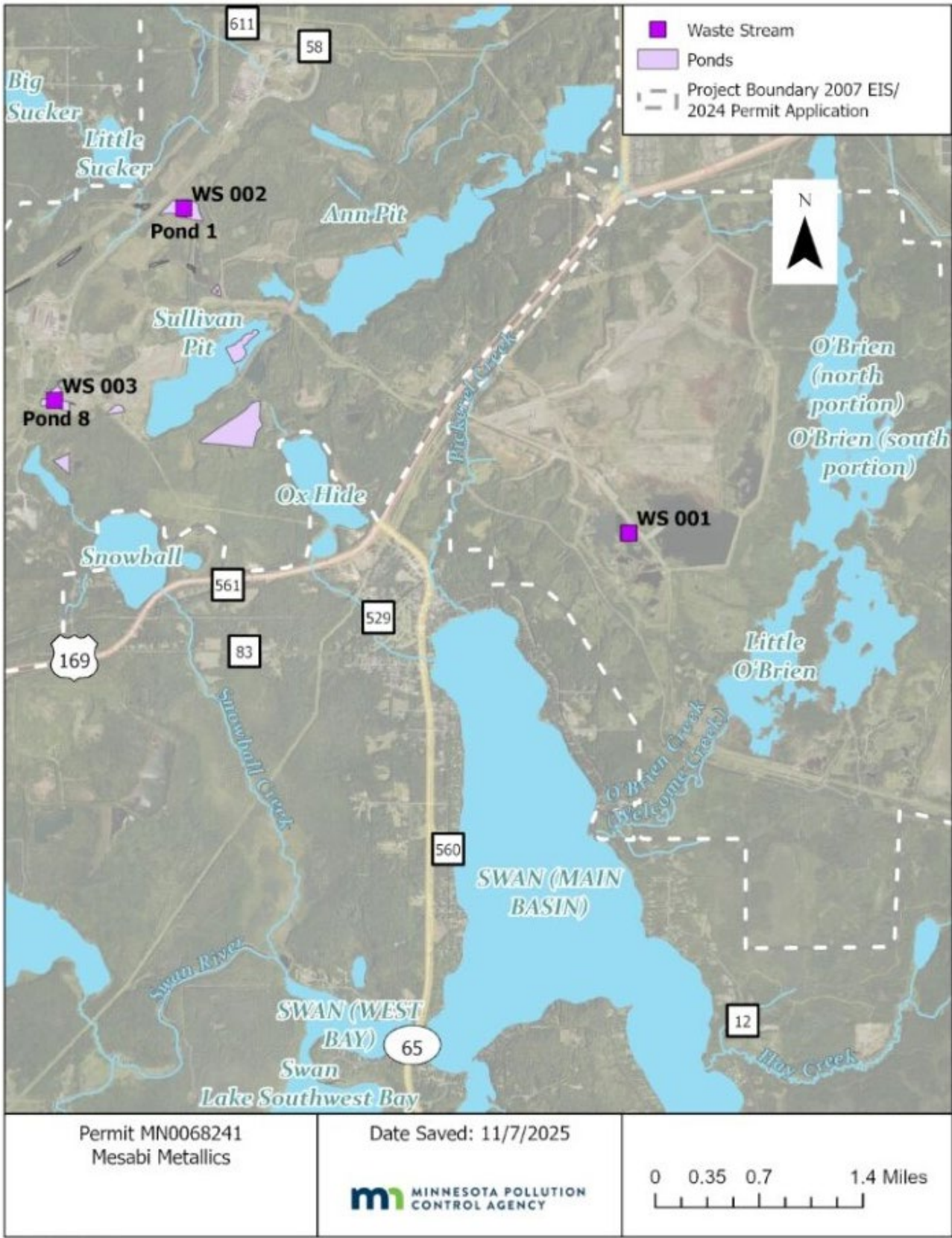
Groundwater Monitoring Locations (Tailings Basin)



Surface Water Monitoring Locations



Internal Waste Stream Monitoring Locations



Components and treatment technology

Mine Pit Dewatering

Mine pit dewatering is authorized from Pit 5 at a maximum rate of 5.0 mgd to either the Sullivan Pit or the Ann Pit via SD 001 or SD 002 respectively. Water from Pit 5 is also intended to be reused in the processing plant and will be routed to Pond 8 of the stormwater pond system to be stored prior to use in processing.

Tailings Basin

The Mesabi Metallica tailings basin currently under construction and will store and manage tailings material and associated process wastewater that is generated from the processing of ore.

The tailings basin design includes two pipelines to carry tailings into the basin, one of which will operate at any given time and one of which will be on standby. Tailings slurry of approximately 35-40 percent solids will be transported to the basin at an average rate of approximately 15,000 – 19,000 gallons per minute. The coarse fraction of the tailings will settle out of the slurry near the discharge point and will be used for dike construction. The fine tailings will flow toward the center of the basin and will eventually settle out near the middle of the structure. The perimeter dam of the basin will be constructed by moving the discharge point around the basin at intervals.

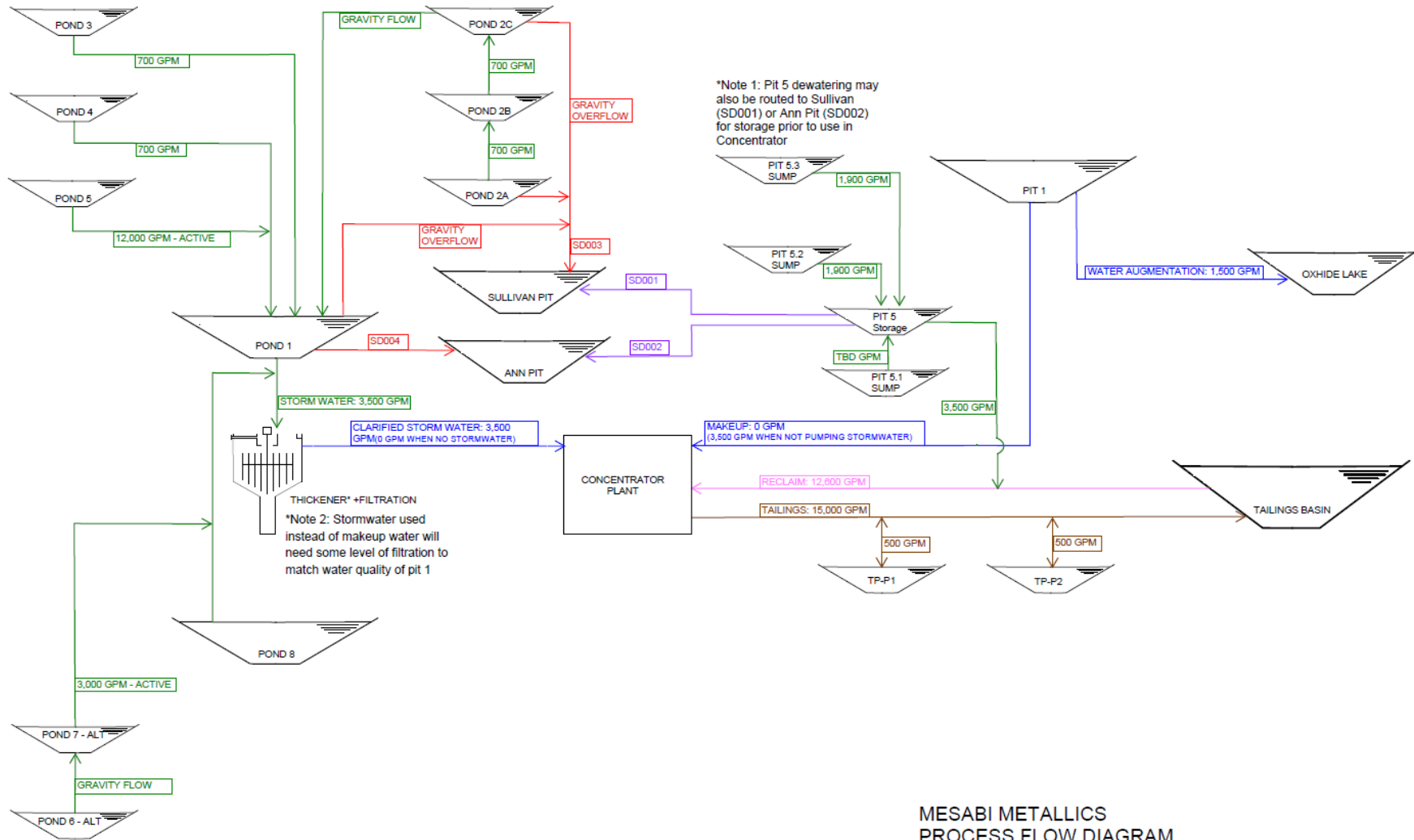
In addition to the two tailings slurry pipelines, the tailings basin design includes one clear water pipeline to return water to the concentrator head tank from the tailings basin. A seepage collection and return system will be constructed at the tailings basin to collect any potential seepage and return it back to the tailings basin to ensure there is no discharge to surface waters from the tailings basin.

The only water entering the tailings basin will be precipitation, collected seepage from the seepage collection and return system, and the water used to convey tailings to the basin from the concentrator.

Stormwater/Settling Basins

A series of runoff collection ponds will be constructed to collect runoff and stormwater generated at the plant site. Runoff from the plant site and stockpiles will be directed to a runoff collection system where water will be routed to various collection ponds (Ponds 1, 2A, 2B, 2C, 3, 4, 5, 6-ALT, 7-ALT, and 8) where it will be routed to the processing plant for use in the process. Excess water from the runoff ponds will be routed to the Sullivan Pit and Ann Pit in extreme event situations. Collected runoff will be the primary source of water required to operate the facility. Capture of site runoff will be accomplished by constructing new ditches, collection ponds, perimeter dikes, and several lift stations. The ponding infrastructure will fully capture and contain the runoff from a 100-year 24-hour event and will contain the majority of the 500-year 24-hour storm event. Discharge outside of the project boundary is not permitted.

Flow schematic



MESABI METALLICS
PROCESS FLOW DIAGRAM
PUMPING FROM STORMWATER PONDS AND PITS

Historical changes to facility or operation

The project was originally permitted to Minnesota Steel in 2007 and Essar Steel Minnesota in 2012. The facility has been intermittently under construction since 2007. The project has changed its name to Mesabi Metallica LLC and is still in the process of constructing the facilities. Mining activities are anticipated to begin in 2026.

Due to proposed production changes and access changes to mineral leases, revisions to the originally proposed project have occurred. The production change includes changes to the mine plan and does not include steel making capabilities. The company is also proposing water management changes at the site which includes the revision of the construction plans for several industrial stormwater and stockpile runoff collection ponds. The proposed operational and water management changes do not affect the volume or locations of the previously permitted discharges of mine pit dewatering water, stockpile runoff and industrial stormwater.

Significant changes from the previous permit

The draft permit contains the following changes from the last issued permit:

- Facility Description
 - The facility description of the permit has been updated to reflect planned operational changes and changes in water management on site
 - There is no increase in the proposed discharge volumes from Pit 5 or the stormwater pond system to the Sullivan Pit or the Ann Pit.
- Groundwater Monitoring (GW 001 – GW 008)
 - Added requirement for company to install three new deep groundwater monitoring wells (GW 006 – GW 008).
 - Updated monitoring parameters to aid in the functional equivalency determination.
 - Added intervention limits of 62.5 mg/L for sulfate in the downgradient wells.
- Surface Discharge Station Monitoring – Mine Pit Dewatering Stations (SD 001 – SD 002)
 - Added annual monitoring for nitrite + nitrate nitrogen, total Kjeldahl nitrogen, total nitrogen, and total phosphorus in accordance with the MPCA's Nutrient Strategy.
 - Added quarterly monitoring for dissolved mercury and total suspended solids (grab) when quarterly mercury monitoring is conducted in accordance with the MPCA's Mercury Strategy.
- Surface Discharge Station Monitoring – Stormwater/Stockpile Runoff Stations (SD 003 – SD 004)
 - Added quarterly monitoring for sulfate, specific conductance, and total dissolved solids.
- Surface Water Monitoring (SW 001 – SW 005)
 - Added monthly monitoring at SW 001- SW 005 for calcium, total iron, magnesium, potassium, sodium, manganese, chloride, alkalinity, sulfate, fluoride, total dissolved solids, specific conductance and oxidation reduction potential to aid in the functional equivalency of a direct discharge determination.
- Internal Waste Stream Monitoring (WS 001 – WS 003)
 - Updated monitoring parameters at the tailings basin pool (WS 001) to aid in the functional equivalency of a direct discharge determination.
 - Added new internal monitoring locations for monitoring of proposed Pond 1 (WS 002) and proposed Pond 8 (WS 003).
 - Monthly monitoring at the new internal monitoring stations is required for Industrial Stormwater Sector G benchmark monitoring parameters.
- Per-and Polyfluoroalkyl Substances (PFAS) Inventory
 - Permittee is required to conduct a PFAS Inventory to establish whether PFAS containing materials have been or are used at the facility and if they have been discharged or are being discharged to the environment.

- Functional Equivalency
 - Requirements have been added to the permit to determine if there are effects from the seepage of the tailings basin facility to surface waters via the functional equivalent of a direct discharge.
 - The permit includes a requirement to submit an evaluation prior to permit expiration with the facility's determination of functional equivalency of a direct discharge to a surface water from a discharge to groundwater.
- Annual Meeting
 - The Permittee shall conduct a public meeting annually to disclose factual information to the community regarding facility operations, changes made or planned to reduce pollutants in its mining related discharge and compliance with environmental permits and regulations.
- Industrial Pond
 - An Industrial Pond chapter has been added to the permit. This language contains requirements for the construction, operation and maintenance of the various wastewater ponds proposed at the site.
- Industrial Stormwater
 - Language in the Industrial Stormwater chapter has been updated.

Special conditions

- Install three new deep groundwater monitoring wells by within one year of permit issuance.
- Submit a Comprehensive Groundwater Evaluation Report due 12-months prior to permit expiration.
- Functional Equivalent Evaluation due 180 days prior to permit expiration.
- Per- and Polyfluoroalkyl Substances Inventory due 18 months after permit issuance.
- Submit a Stormwater Annual Report by March 31 of each year following permit issuance.
- Submit a Piping Integrity Plan due 90 days after permit issuance.
- Submit an annual Piping Report
- Submit an annual Dike Seepage Survey Report
- Submit an Idle and Closure Plan 180 days after permit issuance.
- Submit Pond Certification Report 180 days prior to permit expiration.
- Submit results of the Pond Water Balance Test prior to operation of each new wastewater pond.

Recent compliance history

Since the facility is under construction and is not operating, a desktop review for compliance was conducted by the MPCA. Based on the results of the desktop review, there were no violations of the terms and conditions set forth in the NPDES/SDS permit and no significant concerns for permit reissuance.

Recent monitoring history

The facility is not operational and has been intermittently under construction since 2007. There have been no discharges to the Sullivan Pit or the Ann Pit since the permit was originally issued. In preparation for permit reissuance, the MPCA requested the company to sample the water from Pit 5, Sullivan Pit and Ann Pit. Sample results for Pit 5 are representative of anticipated mine pit dewatering water quality. Sample results from the Sullivan Pit and Ann Pit are representative of anticipated industrial stormwater and stockpile runoff water quality for when the facility begins operation. The monitoring results in Table 2 were submitted on December 23, 2024.

Table 2: Water Quality Sample Results: Pit 5, Sullivan Pit and Ann Pit

Pollutant	Pit 5 Water Concentration	Anticipated Runoff WQ – to Sullivan Pit	Anticipated Runoff WQ to Ann Pit
Biochemical oxygen demand (BOD ₅)	< 3.00 mg/L		
Chemical oxygen demand (COD)	< 25.0 mg/L		
Total organic carbon (TOC)	1.71 mg/L		
Total suspended solids (TSS)	< 5.00 mg/L	9.33 mg/L	< 5.00 mg/L
Ammonia (as N)	< 0.500 mg/L		
Temperature (summer)	14.2 °C		
pH	8.4 SU	8.3 SU	7.8 SU
Antimony, total	< 0.100 mg/L	< 0.100 mg/L	< 0.100 mg/L
Arsenic, total	< 0.800 mg/L	< 0.800 mg/L	< 0.800 mg/L
Beryllium, total	< 0.100 mg/L		
Cadmium, total	< 0.0200 mg/L	< 0.0200 mg/L	< 0.0200 mg/L
Chromium, total	< 0.0200 mg/L		
Copper, total	< 0.0200 mg/L	< 0.0200 mg/L	< 0.0200 mg/L
Lead, total	< 0.100 mg/L	< 0.100 mg/L	< 0.0200 mg/L
Mercury, total	0.55 mg/L		
Nickel, total	0.0500 mg/L	0.0500 mg/L	0.0500 mg/L
Selenium, total	< 0.100 mg/L	< 0.100 mg/L	< 0.100 mg/L
Silver, total	< 0.0200 mg/L	< 0.0200 mg/L	< 0.0200 mg/L
Thallium, total	< 0.100 mg/L		
Zinc, total	< 0.0400 mg/L	< 0.0400 mg/L	< 0.0400 mg/L
Cyanide, total	< 0.0100 mg/L		
Phenols, total	< 0.0200 mg/L		
Fluoride, total	< 0.38 mg/L	< 0.38 mg/L	< 0.38 mg/L
Oil & grease	< 5.0 mg/L		
Phosphorus (as P), total	< 0.100 mg/L		
Sulfate (as SO ₄)	25.1 mg/L	12.0 mg/L	6.3 mg/L
Aluminum, total	< 0.025 mg/L	< 0.100 mg/L	< 0.100 mg/L
Boron, total	< 0.061 mg/L	< 0.061 mg/L	< 0.061 mg/L
Cobalt, total	< 0.0035 mg/L	< 0.0035 mg/L	< 0.0035 mg/L
Iron, total	< 0.500 mg/L	< 0.500 mg/L	< 0.500 mg/L
Magnesium, total	19 mg/L	16 mg/L	8.1 mg/L
Molybdenum, total	< 0.012 mg/L	< 0.012 mg/L	< 0.012 mg/L
Manganese, total	0.055 mg/L	0.026 mg/L	0.012 mg/L
Tin, total	< 0.015 mg/L	< 0.015 mg/L	< 0.015 mg/L

Receiving water(s)

Use classification

The facility is proposing to reuse its mine pit dewatering water as well as collected stormwater and stockpile runoff for use in its processing plant. The draft permit has four permitted discharge outfalls which discharge intermittently to either the Sullivan Pit or Ann Pit which are managed as waters of the state. All waters of the state of Minnesota must be classified based on considerations of best usage in the interest of the public and in conformance with the requirements of the applicable statutes, as described in Minn. R. 7050.0140. Based on these considerations, the receiving waters are classified as listed in the table below:

Table 3: Discharge Summary

Discharge	Discharge Type	Receiving Water	Receiving Water Use Classification
SD 001	Mine Pit Dewatering	Sullivan Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 002	Mine Pit Dewatering	Ann Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 003	Collected industrial stormwater/stockpile runoff (Pond 1 Discharge)	Sullivan Pit	Class 2B, 3, 4A, 4B, 5, 6 Water
SD 004	Collected industrial stormwater/stockpile runoff (Pond 1 Discharge)	Ann Pit	Class 2B, 3, 4A, 4B, 5, 6 Water

Class 2 waters, aquatic life and recreation. Aquatic life and recreation includes all waters of the state that support or may support aquatic biota, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare.

Class 3 water, industrial consumption. Industrial consumption includes all waters of the state that are or may be used as a source of supply for industrial process or cooling water, or any other industrial or commercial purposes, and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 4 waters, agriculture and wildlife. Agriculture and wildlife includes all waters of the state that are or may be used for any agricultural purposes, including stock watering and irrigation, or by waterfowl or other wildlife and for which quality control is or may be necessary to protect terrestrial life and its habitat or the public health, safety, or welfare.

Class 5 waters, aesthetic enjoyment and navigation. Aesthetic enjoyment and navigation includes all waters of the state that are or may be used for any form of water transportation or navigation or fire prevention and for which quality control is or may be necessary to protect the public health, safety, or welfare.

Class 6 waters, other uses and protection of border wars. Other uses includes all waters of the state that serve or may serve the uses in subparts 2 to 6 or any other beneficial uses not listed in this part, including without limitation any such uses in this or any other state, province, or nation of any waters flowing through or originating in this state, and for which quality control is or may be necessary for the declared purposes in this part, to conform with the requirements of the legally constituted state or national agencies having jurisdiction over such waters, or for any other considerations the agency may deem proper.

There are no endangered or threatened species living in the receiving water.

More information on the classification of waters can be found in [Minn. R. 7050.0140](#).

Impairments

There are no listed impairments for the Sullivan Pit or the Ann Pit.

Summary of existing permit limits and monitoring requirements

The following tables summarize the final limits and monitoring requirements of the most recently issued permit dated October 1, 2012.

Table 4: Limits and Monitoring Summary for SD 001 and SD 002

Pollutant, units	Calendar month average	Calendar month maximum	Calendar month minimum	Calendar Month Total	Daily maximum	Calendar quarter maximum	Frequency	Which months
Flow	Monitor only			Monitor only			1 x week	Jan-Dec
Hardness, Calcium and Magnesium Calculated (as CaCO ₃)						Monitor only	1 x quarter	Jan-Dec
Iron, Total (as Fe)	1.0 mg/L				2.0 mg/L		1 x week	Jan-Dec
Mercury, Total (as Hg)						Monitor only	1 x quarter	Jan-Dec
Oil & Grease, Total	Monitor only						1 x week	Jan-Dec
pH		9.0 SU	6.0 SU				1 x week	Jan-Dec
Phosphorus, Total (as P)	Monitor only						1 x week	Jan-Dec
Solids, Total Dissolved (TDS)		Monitor Only				Monitor only	1 x quarter	Jan-Dec
Solids, Total Suspended (TSS)	20.0 mg/L	Monitor Only			30.0 mg/L		1 x week	Jan-Dec
Specific Conductance, Field		Monitor Only				Monitor only	1 x quarter	Jan-Dec
Sulfate, Total		Monitor Only				Monitor only	1 x quarter	Jan-Dec

Table 5: Limits and Monitoring Summary for SD 003 and SD 004

Pollutant, units	*Calendar Year Average Intervention - Qtr	Calendar Year Maximum Intervention - Qtr	Calendar Year Minimum Intervention - Qtr	Calendar month average	Daily maximum	Frequency	Which months
Aluminum, Total (as Al)	1.5 mg/L					1 x year	Jan-Dec
Antimony, Total (as Sb)	0.18 mg/L					1 x year	Jan-Dec
Arsenic, Total (as As)	0.680 mg/L					1 x year	Jan-Dec
Cadmium, Total (as Cd)	0.0078 mg/L					1 x year	Jan-Dec
Copper, Total (as Cu)	0.028 mg/L					1 x year	Jan-Dec
Flow				Monitor only	Monitor only	1 x month	Jan-Dec
Iron, Total (as Fe)	1.0 mg/L					1 x year	Jan-Dec
Lead, Total (as Pb)	0.164 mg/L					1 x year	Jan-Dec
Nickel, Total (as Ni)	0.938 mg/L					1 x year	Jan-Dec
pH		9.0 SU	6.0 SU			1 x year	Jan-Dec
Selenium, Total (as Se)	0.040 mg/L					1 x year	Jan-Dec
Silver, Total (as Ag)	0.0041 mg/L					1 x year	Jan-Dec
Solids, Total Suspended (TSS)	100 mg/L					1 x year	Jan-Dec
Zinc, Total (as Zn)	0.234 mg/L					1 x year	Jan-Dec

*Samples are taken quarterly, and reported once per year.

Proposed permit effluent limits

Surface water discharge stations

Limits and monitoring requirements for surface water discharges are set in consideration of Minnesota state water discharge criteria, also known as SDRs. SDRs are based on Minn. R. ch. 7053, Minnesota state WQBELs for the receiving water use classification, federal TBEL limits applicable to specific discharge types, or a combination of these limits to regulate the discharge of wastewater. When limits overlap for a particular pollutant, the most protective limit is applied. In addition, the Minnesota Pollution Control Agency (MPCA) may derive limits that are specific to a particular discharge. These limits may be based on toxicity studies, professional judgment analysis, technology-based standards, and in some instances, standards developed by other U.S. states or regulatory agencies.

The monitoring frequency at surface discharging outfalls is based on MPCA guidelines. The monitoring frequencies are set to achieve sufficient data to determine the compliance with limits established for iron ore mining facilities.

Technology-based Effluent Limits (TBEL)

EPA promulgated the Ore Mining and Dressing Effluent Guidelines and Standards (40 CFR 440) in 1975, and amended the regulation in 1978, 1979, 1982 and 1988. The regulations under 40 CFR 440 Subpart A cover wastewater discharges from ore mines and processing operations. This effluent limit guideline (ELG) has been incorporated into the NPDES/SDS permit for the discharges at the Mesabi Metalics mine pit dewatering discharge at Pit 5 and is applicable at SD 001 and SD 002.

Technology based effluent limitations for pH, total suspended solids and dissolved iron at SD 001 and SD 002 are based on federal technology-based treatment standards for the iron ore subcategory of the ore mining and dressing point source category (40 CFR 440 – Subpart A) new source performance standards (NSPS).

The permit was first issued in 2007 according to our records.

Table 6: TBELs – SD 001 and SD 002

Pollutant	Calendar month average	Daily Maximum	Range	Basis
Iron (dissolved)	1.0 mg/L	2.0 mg/L		40 CFR 440.14(a)
Total suspended solids (TSS)	20 mg/L	30 mg/L		40 CFR 440.14(a)
pH			6.0 – 9.0 SU	40 CFR 440.14(a)

Water Quality-based Effluent Limits (WQBEL)

Minn. R. 7053.0205, subp. 8, authorizes the MPCA to develop WQBELs for point source discharges to waters of the state of Minnesota to protect receiving waters for the applicable use classifications.

Minn. R. 7050.0155 requires that all waters must maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters, including the waters of another state.

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 aquatic biota, and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water (Minn. R. 7050.0222, subp. 4).

There are no water-quality based effluent limits assigned to the discharges to the Sullivan Pit or the Ann Pit.

Reasonable Potential for Chemical Specific Pollutants [40 C.F.R. § 122.44 (d)(1)]

Background for reasonable potential review

Federal regulations (40 C.F.R. § 122.44(d)(1)) require the MPCA to evaluate the discharge to determine whether the discharge has the reasonable potential (RP) to cause or contribute to a violation of WQS. The MPCA must use acceptable technical procedures, accounting for variability (coefficient of variation, or CV), when determining whether the effluent causes, has the reasonable potential to cause, or contribute to an excursion of an applicable WQS. Projected effluent quality (PEQ) derived from effluent monitoring data is compared to Preliminary Effluent Limits (PELs) determined from mass balance inputs. Both determinations account for effluent variability. Where PEQ exceeds the PEL, there is RP to cause or contribute to a WQS excursion. When RP is indicated, the permit must contain a WQBEL for that pollutant.

No surface discharge station has reported a discharge in the past ten years and since no discharge has occurred there is no available data to make a reasonable decision on the need to include water quality based effluent limits.

However, the water quality in Pit 5 can be used as a surrogate for the quality of the discharge to Ann Pit and Sullivan Pit. In Mesabi Metalics permit application, water quality in Pit 5 was analyzed and reported to the MPCA. All reported values for heavy metals were either non-detect or below the applicable water quality standard (mercury was at 0.5 ng/L). The organic content of the water was also very low. The water quality in Pit 5 does not have the reasonable potential to cause or contribute to the exceedance of any metals, organic or toxicity based standard.

A sulfate concentration of 25 mg/L was reported in Pit 5 which is below applicable class 4B 600 mg/L water quality standard. There is no wild rice water downstream of the discharge where the class 4A 10 mg/L wild rice sulfate standard applies and therefore no effluent limit is needed to protect the 10 mg/L sulfate water quality standard.

Summary of proposed effluent limit and monitoring requirements

Table 7: SD 001 and SD 002

Pollutant, units	Calendar month average	Calendar month maximum	Calendar month minimum	Calendar month total	Daily maximum	Calendar quarter maximum	Calendar year maximum	Frequency	Which months
Flow	Monitor only			Monitor only				1 x week	Jan – Dec
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec
Iron, Dissolved (as Fe)	1.0 mg/L				2.0 mg/L			1 x week	Jan – Dec
Mercury, Dissolved (as Hg)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec
Mercury, Total (as Hg)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec
Nitrite plus Nitrate, Total (as N)							Monitor only	1 x year	Dec
Nitrogen, Kjeldahl, Total							Monitor only	1 x year	Dec
Nitrogen, Total (as N)							Monitor only	1 x year	Dec
Oil & Grease, Total	Monitor only							1 x week	Jan - Dec
pH		6.0 SU	9.0 SU					1 x week	Jan - Dec
Phosphorus, Total (as P)	Monitor only	Monitor only						1 x week	Jan - Dec
Solids, Total Dissolved (TDS)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec
Solids, Total Suspended (TSS)		20.0 mg/L	30.0 mg/L					1 x week	Jan – Dec
Solids, Total Suspended (TSS), grab (Mercury)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec

Specific Conductance, uhm/cm						Monitor only		1 x quarter	Mar, Jun, Sep, Dec
Sulfate, Total (as SO ₄)						Monitor only		1 x quarter	Mar, Jun, Sep, Dec

Explanation of total phosphorus limit review

Total phosphorus:

Federal law [40 C.F.R. § 122.44(d)] restricts mass increases of pollutants upstream of an impaired water and requires WQBEL(s) to be established for pollutant parameters where it is found that a NPDES/SDS discharger has the reasonable potential (RP) to cause or contribute to an excursion above a state WQS. An effluent limits analysis was completed to determine if the facility's discharge has RP to cause or contribute to an exceedance of a state WQS or contribute to any downstream impairment. The proposed facility has been intermittently under construction since 2007 and has not initiated operation or discharged to the Ann Pit or Sullivan Pit. In addition, the water that is proposed to discharge to the Ann Pit or Sullivan Pit does not leave the site and the downstream lakes are meeting lake eutrophication standards. A WQBEL for total phosphorus is not required at this time.

Waste stream stations

Limits and monitoring requirements for waste streams are assigned to ascertain a waste stream's impact on wastewater treatment processes, another treatment facility, and/or land treatment/discharge sites. Requirements are based on MPCA sampling policies and/or state health requirements.

The permit includes three internal waste stream monitoring stations to monitor water quality in the tailings basin and collected stormwater/stockpile runoff at the site. WS 001 represents the tailings discharge to the basin. This will be monitored by sampling the return water. The permit requires the Permittee to monitor the total mass of tailings transported to the basin each month along with the surface water elevation in the tailings basin. If more than one discharge point is used in any given month data collected shall be representative of the total mass of tailings transported to the basin in any given month. The reference elevation point for measuring the water level shall be mean sea level. Sulfate concentrations in the tailings basin is limited to an annual average of 50 mg/L as a trigger for preventing adverse effects to downgradient lakes. Additional actions are required by the Permittee if the annual average sulfate concentration in the tailings basin is exceeded. These actions are further described in the Special Requirements chapter of the draft permit. Monitoring requirements at the tailings basin are listed in Table 8 below.

Table 8: WS 001

Pollutant	Calendar month average	Calendar month maximum	Calendar year to date total	Calendar year average	Frequency	Which months
Alkalinity, Total	Monitor only				1 x month	May, July, Oct
Calcium, Total (as Ca)	Monitor only				1 x month	May, July, Oct
Chloride, Total	Monitor only				1 x month	May, July, Oct
Elevation of Water Level Relative to Reference Point		Monitor only			1 x month	Jan - Dec
Fluoride, Total (as F)	Monitor only				1 x month	May, July, Oct
Hardness, Carbonate (as CaCO ₃)	Monitor only				1 x month	May, July, Oct
Iron, Total (as Fe)	Monitor only				1 x month	May, July, Oct
Magnesium, Total (as Mg)	Monitor only				1 x month	May, July, Oct
Manganese, Total (as Mn)	Monitor only				1 x month	May, July, Oct
Mass Transported From Facility			Monitor only		1 x month	Jan - Dec

Nitrite Plus Nitrate, Total (as N)	Monitor only				1 x month	May, July, Oct
Phosphorus, Total (as P)	Monitor only				1 x month	May, July, Oct
Potassium, Total (as K)	Monitor only				1 x month	May, July, Oct
Redox (oxidation reduction potential)	Monitor only				1 x month	May, July, Oct
Sodium, Total (as Na)	Monitor only				1 x month	May, July, Oct
Solids, Total Dissolved (TDS)	Monitor only				1 x month	May, July, Oct
Specific Conductance	Monitor only				1 x month	May, July, Oct
Sulfate, Total (as SO ₄)	Monitor only			50 mg/L intervention limit	1 x month	Jan - Dec

Industrial stormwater runoff and stockpile runoff collected in Pond 1 and Pond 8 is intended to be used in the processing facility. Water from both Pond 1 and Pond 8 will be routed to the processing facility, however, the company has the ability to discharge water from Pond 1 to either the Sullivan Pit or the Ann Pit (permitted discharges SD 003 and SD 004). Internal monitoring of water quality in Pond 1 and Pond 8 is proposed to be monitored quarterly at WS 002 and WS 003 respectively. The water quality in the runoff collection ponds is monitored for parameters required for Industrial Stormwater Sector G metallic mining facilities and parameters of concern for metallic mining facilities. Internal monitoring requirements at Pond 1 and Pond 8 are listed in Table 9 below.

Table 9: WS 002 and WS 003

Pollutant	Calendar quarter maximum	Calendar quarter minimum	Frequency	Which months
Antimony, Total (as Sb)	Monitor only		1 x quarter	Jan - Dec
Arsenic, Total (as As)	Monitor only		1 x quarter	Jan - Dec
Cadmium, Total (as Cd)	Monitor only		1 x quarter	Jan - Dec
Copper, Total (as Cu)	Monitor only		1 x quarter	Jan - Dec
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	Monitor only		1 x quarter	Jan - Dec
Iron, Total (as Fe)	Monitor only		1 x quarter	Jan - Dec
Lead, Total (as Pb)	Monitor only		1 x quarter	Jan - Dec
Nickel, Total (as Ni)	Monitor only		1 x quarter	Jan - Dec
pH	Monitor only	Monitor only	1 x quarter	Jan - Dec
Selenium, Total (as Se)	Monitor only		1 x quarter	Jan - Dec
Silver, Total (as Ag)	Monitor only		1 x quarter	Jan - Dec
Solids, Total Dissolved (TDS)	Monitor only		1 x quarter	Jan - Dec
Solids, Total Suspended (TSS)	Monitor only		1 x quarter	Jan - Dec
Specific Conductance, uhm/cm	Monitor only		1 x quarter	Jan - Dec
Sulfate, Total (as SO ₄)	Monitor only		1 x quarter	Jan - Dec
Zinc, Total (as Zn)	Monitor only		1 x quarter	Jan - Dec

Groundwater Monitoring

Limits and monitoring requirements for groundwater are assigned to ascertain the impact of permitted activities on land treatment/discharge sites and downgradient groundwater quality. Requirements are based on MPCA sampling policies and/or state health requirements.

A groundwater monitoring network of 5 monitoring wells surrounds the tailings basin located on the Mesabi Metallics property. Two upgradient wells (GW 001 & GW 003) and three downgradient wells (GW 002, GW 004, and GW 005) have been installed. The groundwater monitoring network was established in 2007 to monitor groundwater for potential impacts from the tailings basin. Monitoring of the groundwater monitoring wells surrounding the tailings basin will be used to identify any potential increases in loading from tailings basin seepage prior to the seepage reaching any surface waters. Groundwater modeling as well as a water/chemical balance conducted during the 2011 supplemental EIS suggests there is a low potential for impacts to surface waters from the tailings basin. Monitoring of the groundwater is required three times per year for alkalinity, calcium, chloride, chromium, cobalt, elevation, fluoride, hardness, iron, magnesium, manganese, molybdenum, nitrate, pH, potassium, sodium, total dissolved solids, specific conductance, and sulfate. Intervention limits of 62.5 mg/L for sulfate are assigned to the downgradient wells as a trigger for identifying any potential adverse change in groundwater quality that could be attributed to the tailings basin. If an intervention limit is triggered, additional actions are required by the permit to address any identified adverse change. Mercury monitoring in the groundwater is required once per year. In addition to the 5 existing wells around the basin, the draft permit requires the company to install three additional deep wells at the basin site (GW 006 – GW 008) within a year of permit reissuance. These wells will be used for additional monitoring and to help determine the extent of vertical groundwater flow at the site.

Groundwater monitoring wells shall be sampled following the *Sampling Procedures for Groundwater Monitoring Wells* located on the MPCA's website at <https://www.pca.state.mn.us/sites/default/files/wq-gw1-01.pdf>.

The proposed limits and monitoring requirements for groundwater stations are found in the limits and monitoring table in the accompanying draft permit document. A copy of the MPCA's Hydrological Review is available upon request.

Surface water stations

The draft permit includes five surface water monitoring stations, SW 001, SW 002, SW 003, SW 004, and SW 005, located in Ox Hide Lake, Snowball Lake, Swan Lake (main body & north bay), and O'Brien Lake. Surface water monitoring was required in the original permit issued as recommended by the EIS prepared in 2007. The purpose of the monitoring is to confirm the nutrient content of the augmentation flows assumed in the preparation of the 2007 EIS and to confirm modeling conducted for the 2011 supplemental EIS. This monitoring includes the following parameters: chloride, chlorophyll-a, Eh, hardness, iron, dissolved oxygen, pH, orthophosphate, phosphorus, total dissolved solids, sulfate, specific conductance, and water temperature. Monitoring of the surface water for additional parameters including alkalinity, calcium, chloride, fluoride, hardness, iron, magnesium, manganese, nitrite plus nitrate, sodium, total dissolved solids, sulfate and specific conductance, is also required to inform the functional equivalent analysis required by the draft permit.

The proposed monitoring requirements for the surface water stations are found in the limits and monitoring table in the accompanying draft permit document. An Information Protocol document with additional details regarding the SW station(s) is available upon request.

Pollutants of concern

Mercury

This permit contains requirements for mercury monitoring. These requirements were added in response to the EPA's approval of the Minnesota statewide Mercury Total Maximum Daily Load (TMDL) plan. More information on the TMDL can be found on the MPCA's website at <https://www.pca.state.mn.us/business-with-us/statewide-mercury-tmdl>. Specific mercury monitoring requirements are found in the Waste Stream Stations and/or Surface Discharge Stations sections of this permit. Those requirements include sampling for TSS via a grab sample taken at the same time as the total and dissolved mercury grab samples are taken.

The mercury monitoring at outfalls SD 001 and SD 002 is consistent with the *MPCA Permitting Strategy for Addressing Mercury in Municipal and Industrial Wastewater Permits* (2013) located on the MPCA's website at <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-16.pdf>.

Nitrogen

Nitrogen is a pollutant that can negatively impact the quality of Minnesota's water resources, including water used for drinking. Studies have shown that nitrogen in lakes and streams has a toxic effect on aquatic life such as fish. Like phosphorus, nitrogen is a nutrient that promotes algae and aquatic plant growth often resulting in decreased water clarity and oxygen levels. The Statewide Nutrient Reduction Strategy (<https://www.pca.state.mn.us/air-water-land-climate/reducing-nutrients-in-waters>) identifies goals and milestones for nitrogen reductions for both point and non-point nitrogen sources in Minnesota. To gain a better understanding of the current nitrogen concentrations and loadings received by and discharged from the facility, effluent nitrogen monitoring is required, in accordance with Minn. Stat. § 115.03.

The draft permit includes effluent monitoring for nitrite plus nitrate-nitrogen, total Kjeldahl nitrogen and total nitrogen at a frequency of once per year for the five-year term of the permit.

This nitrogen monitoring will provide the data necessary to develop a better understanding of the total nitrogen concentrations and loadings that are discharged. Once a more extensive total nitrogen data set is established, nitrogen reduction work can begin to achieve the necessary reductions to meet the goal of a 20% reduction in total nitrogen loads from point source dischargers by 2025. The changes and/or increases in total nitrogen monitoring in wastewater permits as a result of the *Statewide Nutrient Reduction Strategy* is outlined in the *Minnesota NPDES Wastewater Permit Nitrogen Monitoring Implementation Plan* document located on the MPCA's website at <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-22.pdf>.

Per- and Polyfluoroalkyl substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS) are a group of more than 5,000 human-made chemicals that do not break down over time. They are a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom. Their extreme resistance to degradation in the environment and resistance to destruction in wastewater treatment plants, landfills, and incinerators has led to the nickname "forever chemicals."

Many PFAS are known to be health hazards to humans. Several specific PFAS have been linked to increased risks for cancer, liver disease, immune system dysfunction, and other negative health impacts. PFAS can also negatively impact aquatic life and wildlife.

Due to the potential for chemical additive products used in the company's process potentially containing PFAS ingredients, The draft permit includes requirements for the Permittee to conduct a PFAS Inventory to identify and reduce potential sources of PFAS in its processing facility. The PFAS Inventory is due within 18 months of permit issuance.

Phosphorus

Phosphorus is a common constituent in many wastewater discharges and a pollutant that has the potential to negatively impact the quality of Minnesota's lakes, wetlands, rivers, and streams. Phosphorus promotes algae and aquatic plant growth, often resulting in decreased water clarity and oxygen levels. In addition to creating general aesthetic problems, these conditions can also impact a water body's ability to support healthy fish and other aquatic species. Therefore, phosphorus discharges are being carefully evaluated throughout the state.

All phosphorus samples must be analyzed by a certified laboratory and the data submitted to the MPCA. If the laboratory would like more information about becoming certified, please call the Environmental Laboratory Certification Unit at 612-676-5200. Samples must be collected in a clean bottle (preferably cleaned by a certified laboratory) that was not washed with phosphate detergent. Also, a sulfuric acid preservative must be added immediately after the sample is collected, and it must be stored at four degrees Celsius until analysis. If a contract laboratory is used, the bottle and preservative would typically be provided by the laboratory analyzing the sample.

Guidance for considering phosphorus in the wastewater treatment system and preparing a PMP can be found on the MPCA's website at <https://www.pca.state.mn.us/business-with-us/phosphorus-management-plans> or the University of Minnesota's website at <http://www.mntap.umn.edu/focusareas/water/phosphorus/>. For additional information about completing the PMP, please contact the MPCA at 651-282-6143 or 800-657-3864.

Sulfate

In 1973 Minnesota adopted a sulfate water quality standard to protect wild rice. In a February 16, 2022, letter to the MPCA, the US Environmental Protection Agency (EPA) stated their expectations that MPCA issued NPDES/SDS permits are required to comply with the federally-approved sulfate water quality standard and Minnesota Rules.

There are currently approximately 2,400 waters within the state of MN have been identified as waters used for the production of wild rice (this includes the 35 waters identified on the 303(d) impaired waters list). The facility does not discharge to any wild rice waters and the Sullivan Pit and the Ann Pit are not listed as wild rice waters. Sulfate is monitored only at the discharges at this facility and effluent limits for sulfate are not required.

The draft permit requires additional sulfate monitoring at the tailings basin and in the nearby lakes. An increase in monitoring frequency is required by the permit if the annual sulfate concentration in the tailings basin exceeds 50 mg/L. In the event that an upward trend in sulfate concentrations is observed in the groundwater or lake sampling, and that trend can be correlated to an upward trend in the tailings basin sulfate concentration, potential water treatment options will be evaluated.

If sulfate levels in the tailings basin are within expected levels (less than 50 mg/L), and in the event that an upward trend in sulfate concentrations is observed in groundwater monitoring well or lake sampling, the company shall conduct a Source Identification Study. The study shall include discussion on tailings basin operation and potential transport of pollutants from the tailings basin to surface waters as well as potential sources of sulfate including sources outside of the company's operations.

Total suspended solids (TSS)

Suspended Solids may include both organic and inorganic matter. The inorganic compounds may include sand, silt, clay and precipitated metals. The organic fraction may include such materials as wood fibers and unsettled biomass from biological treatment systems.

These solids may settle out rapidly and bottom deposits are often a mixture of both organic and inorganic solids. Solids may be suspended in water for a time and then settle to the bed of the stream or lake. They may be inert, slowly biodegradable materials, or rapidly decomposable substances. While in suspension they increase the turbidity of the water, reduce light penetration, and impair the photosynthetic activity of aquatic plants. Suspended solids may kill fish and shellfish by causing abrasive injuries, by clogging gills and respiratory passages, by screening out light and by promoting and maintaining the development of noxious conditions through oxygen depletion. Suspended solids also reduce the recreational value of water.

Whole effluent toxicity

The draft permit does not require any monitoring for whole effluent toxicity.

Chemical additives

The company does not currently have any approved chemical additives for use at its facility. The draft permit requires rates of chemical additives for use in the concentrator or pellet plant to be submitted to the MPCA for review and approval within 60 days of the intended use.

Special Permit Conditions

Functional Equivalent Determination of Discharge

A 2020 Supreme Court decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020), (Maui) requires that regulators consider whether discharges of wastewater from a facility to groundwater are functionally equivalent to direct discharges of the wastewater to surface water. The Maui decision identified several factors that could be considered when assessing the 'functional equivalency' of a discharge to groundwater such as the amount of time and distance of travel through the groundwater prior to discharging to a surface water, the nature of the subsurface materials through which the groundwater flows and the likelihood that the wastewater discharged to groundwater would be diluted, chemically altered or otherwise changed prior to discharged to surface water. These factors are not exhaustive and other factors may also be considered in assessing functional equivalency.

In the process of preparing the draft reissued permit, the MPCA considered the preliminary functional equivalent analysis conducted by the company in its permit application dated June 27, 2024, along with other available information to assess whether any uncollected seepage from the tailings basin would constitute a functionally equivalent discharge as considered by the US Supreme Court. The MPCA considered the factors identified by the Court and determined that the information was not sufficient to be able to conclude whether functional equivalency exists.

Because the facility is not operational, only background sample data is available and the chemistry of the tailings basin seepage has not been fully characterized. The MPCA has taken a step-wise approach in the draft permit to gather the information to assess whether the discharge of seepage is affecting downgradient surface waters via the functional equivalent of a direct discharge. The draft permit includes a requirement for the permittee to conduct a functional equivalent analysis. This includes expanded groundwater monitoring requirements, monitoring requirements of the basin pool water, and monitoring at 5 downstream monitoring locations. The water quality monitoring will be used to determine whether pollutants being discharged via seepage are the functional equivalent of a direct discharge to surface waters.

This data will be assessed as it is collected and upon MPCA review if it is determined that tailings basin seepage is causing or contributing to a violation of water quality standards via the functional equivalent of a direct discharge, the permit may be modified to incorporate corrective mitigation or adaptive management to address the seepage discharge and/or to authorize the discharge as an NPDES discharge. In accordance with Minn. R. 7001.0170, adaptive management or corrective actions may require a modification of the permit, including a public notice of the proposed modifications.

Tailings Basin Area and Swan Lake Enhanced Water Quality Monitoring

The company has been monitoring groundwater and surface waters since the permit was originally issued in 2007. The permit contains special conditions to evaluate background concentrations in groundwater data and compare it to concentrations when the tailings basin is operational to attempt to determine whether there is an impact from the operation of the tailings basin or not. Any adverse changes in groundwater concentrations would be considered a trigger for potential corrective actions which would in turn; address any potential surface water impacts.

The permit includes five surface water monitoring stations, SW 001, SW 002, SW 003, SW 004, and SW 005, located in Ox Hide Lake, Snowball Lake, Swan Lake (main body & north bay), and O'Brien Lake. Surface water monitoring was required in the original permit issued as recommended by the EIS prepared in 2007. The purpose of the monitoring is to confirm the nutrient content of the augmentation flows assumed in the preparation of the 2007 EIS and to confirm modeling conducted for the 2011 supplemental EIS. Monitoring is required for chloride, chlorophyll-a, Eh, hardness, iron, dissolved oxygen, pH, orthophosphate, phosphorus, total dissolved solids, sulfate, specific conductance, and water temperature. In order to help assess whether the tailings basin seepage is a functionally equivalent discharge, the MPCA has included additional monitoring in the surface waters for alkalinity, calcium, fluoride, magnesium, manganese, nitrite plus nitrate nitrogen, redox, sodium, and sulfate.

Modeling conducted for the supplemental EIS in 2011 evaluated seepage from the tailings basin and potential impacts to Swan Lake. The results of the modeling indicated there would be a potential 0.3 mg/L increase in sulfate to Swan Lake. During the 2012 permit reissuance the company committed to an enhanced water quality monitoring program for the tailings basin and Swan Lake. The permit contains sulfate monitoring in Swan Lake 4 times per year. The sulfate sampling will provide an increased data set to assess water quality conditions as needed and will also serve as a means of assessing any correlation between the tailings basin, groundwater and Swan Lake water quality. An increase in monitoring frequency is required by the permit if the annual sulfate concentration in the tailings basin exceeds 50 mg/L. In the event that an upward trend in sulfate concentrations is observed in the groundwater or lake sampling, and that trend can be correlated to an upward trend in the tailings basin sulfate concentration, potential water treatment options will be evaluated.

If sulfate levels in the tailings basin are within expected levels (less than 50 mg/L), and in the event that an upward trend in sulfate concentrations is observed in groundwater monitoring well or lake sampling, the company shall conduct a Source Identification Study. The study shall include discussion on tailings basin operation and potential transport of pollutants from the tailings basin to surface waters as well as potential sources of sulfate including sources outside of the company's operations

Stormwater management

Industrial facilities with a standard Industrial Classification of Iron Ores (SIC 1011) are required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for industrial stormwater disposal. In lieu of obtaining coverage under both the general permit and the individual NPDES/SDS permit, the MPCA has created the necessary industrial stormwater boilerplate language and limits and monitoring so that coverage under the individual NPDES/SDS permit alone will cover both permits. The Permittee does not need to obtain separate ISW General Permit Coverage

This facility consists of the Mesabi Metallics processing facility, mine pit dewatering, overburden and waste rock stockpiles, a tailings basin and the drainage area contributing surface runoff to the basin. The stormwater originating at the tailings basin is not discharged. Runoff at the mining and plant site, including various stockpiles, is routed to various stormwater collection ponds (Ponds 1, 2A, 2B, 2C, 3, 4, 5, 6-ALT, 7-ALT, or 8) or to Pit 5. No industrial stormwater or stockpile runoff is routed off-site. The stormwater routed to Pit 5 is discharged through the permitted outfalls SD 001 and SD 002 and regulated under these permitted discharge locations. The stormwater routed to the various stormwater collection ponds is routed to the processing facility for use in processing or routed to Pond 1 or Pond 8. Water from Pond 8 is routed to the processing facility and is not discharged. Excess water in Pond 1 is permitted to be discharged to either the Sullivan Pit via SD 003 at a maximum rate of 0.52 mgd or the Ann Pit via SD 004 at a maximum rate of 0.4 mgd during extreme weather events.

Industrial stormwater requirements language, benchmark limits and benchmark monitoring requirements and intervention limits required for Metallic Mining - Ore Mining & Dressing category (ISW Sector G) at locations SD 003 and SD 004 have been applied to the draft permit and are identified in Table 10. The basis for the intervention limits applicable to Sector G comes from Minnesota Rules 7050.0220, 7050.0100, 7053.0225, and USEPA. The intervention limits for hardness dependent metals assume a total hardness of 100 mg/L. In addition to the Sector G parameters, the draft permit contains quarterly monitoring for additional parameters of concern to iron mining facilities. Monitoring for pH, total dissolved solids, sulfate and specific conductance at SD 003 and SD 004 is also required.

The provisions for runoff control are based on Minn. Stat. ch. 115 and state WQS, according to Minn. R. 7001.1080, 7050.0210 and 7050.0220, and 40 C.F.R. § 122.26. The best management practices requirements are based on Minn. R. 7001.1080.

Table 10: Limits and Monitoring Requirements for SD 003 and SD 004

Pollutant, units	*Calendar year average intervention - quarter	Calendar quarter maximum intervention - quarter	Calendar month minimum intervention, quarter	Calendar quarter maximum	Frequency	Which months	Basis
Antimony, Total (as Sb)	0.18 mg/L				1 x quarter	Jan - Dec	7050.0220
Arsenic, Total (as As)	0.68 mg/L				1 x quarter	Jan - Dec	7052.0100
Cadmium, Total (as Cd)	0.0078 mg/L				1 x quarter	Jan - Dec	7050.0220
Chemical Oxygen Demand (COD)	120 mg/L				1 x quarter	Jan - Dec	USEPA
Copper, Total (as Cu)	0.028 mg/L				1 x quarter	Jan - Dec	7052.0100
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	100 mg/L				1 x quarter	Jan - Dec	7050.0220
Iron, Total (as Fe)	1.0 mg/L				1 x quarter	Jan - Dec	7050.0220
Lead, Total (as Pb)	0.164 mg/L				1 x quarter	Jan - Dec	7050.0220
Nickel, Total (as Ni)	0.938 mg/L				1 x quarter	Jan - Dec	7052.0100
Nitrite Plus Nitrate, Total (as N)	0.68 mg/L				1 x quarter	Jan - Dec	USEPA
pH		9.0 SU	6.0 SU		1 x quarter	Jan - Dec	7053.0225
Selenium, Total (as Se)	0.04 mg/L				1 x quarter	Jan - Dec	7050.0220
Silver, Total (as Ag)	0.0041 mg/L				1 x quarter	Jan - Dec	7050.0220
Solids, Total Dissolved (TDS)				Monitor only	1 x quarter	Jan - Dec	BPJ
Solids, Total Suspended (TSS)	100 mg/L				1 x quarter	Jan - Dec	USEPA
Specific Conductance, uhm/cm				Monitor only	1 x quarter	Jan - Dec	BPJ

Sulfate, Total (as SO ₄)				Monitor only	1 x quarter	Jan - Dec	BPJ
Zinc, Total (as Zn)	0.234 mg/L				1 x quarter	Jan - Dec	7050.0220

*Calendar year intervention quarter samples are taken once per quarter and reported as an annual average on the discharge monitoring report.

Pond system

The Permittee is proposing to construct wastewater ponds throughout the mining area and tailings basin site to manage runoff collected at the site. The ponds are required to be designed, constructed, and maintained to meet a 500 gallon per acre per day leakage rate. Prior to the operation of any new wastewater pond, the Permittee must complete a pond performance evaluation which includes a water balance test on each new wastewater pond. Prior to placing any new pond into service, the wastewater pond must be shown to meet the seepage criteria identified in the MPCA Prefill and Water Balance Criteria (<https://www.pca.state.mn.us/sites/default/files/wq-wwtp5-61b.pdf>).

The pond freeboard monitoring is established to ensure regular verification of wastewater levels throughout the year, related to preventing overflows, at the typical weekly frequency for wastewater ponds.

Compliance schedules

There are no compliance schedules in the draft permit.

Variances

There are no variances in the draft permit.

Total facility requirements

Certified laboratory

Effective January 1, 2013, all Minnesota municipal, county, or industrial laboratories that analyze wastewater per Clean Water Act requirements must be certified by the MPCA or the Minnesota Department of Health. Information regarding MPCA laboratory certification is located on the MPCA website at <https://www.pca.state.mn.us/business-with-us/mpca-laboratory-certification>. If there are any questions concerning the MPCA laboratory certification, please contact the MPCA at 800-657-3864 or by email at qa.questions.mPCA@state.mn.us. Commercial laboratories doing these analyses must maintain Minnesota Department of Health certification.

Electronic Discharge Monitoring Reports (eDMRs)

The eDMRs, Sample Values/Operational Spreadsheets, and related attachments shall be electronically submitted via the MPCA e-Services (https://rsp.pca.state.mn.us/TEMPO_RSP/Orchestrate.do?initiate=true). Paper copies of DMRs will no longer be accepted. The eDMR and Sample Value/Operational Spreadsheets are generated directly from the limits and monitoring requirements in the final reissued permit for the facility. They are generated by the Pollution Control Data Specialist assigned to manage the data for the facility and will be available online within 30 days of the permit action, please make sure to download the most recent version of the eDMR and Sample Value/Operational Spreadsheet prior to submitting the next monthly eDMRs.

Construction projects

Separate written approval of plans and specifications, in addition to the final issued permit, must be obtained from the MPCA before construction can begin for any planned construction projects.

Additional requirements

Minnesota NPDES/SDS Permits contain certain conditions that remain the same regardless of the size, location, or type of discharge. These standard conditions satisfy the requirements outlined in 40 C.F.R. 122.41, Minn. R. 7001.0150 and Minn. R. 7001.1090. These requirements cover a wide range of areas, including operation and maintenance, outfall

erosion control, best management practices, equipment calibration and maintenance, monitoring and analysis, recordkeeping, reporting, upsets, bypass, solids handling, changes in operation, inspections, records retention, general prohibitions, duty to notify, compliance responsibilities, compliance/noncompliance notification, entry and inspection, and permit modification and reissuance.

Antidegradation and anti-backsliding

Antidegradation: Changes to the facility may result in an increase in pollutant loading to surface waters or other causes of degradation to surface waters. If a change to the facility will result in a net increase in pollutant loading or other causes of degradation that exceed the maximum loading authorized through conditions specified in the existing permit, the changes to the facility are subject to antidegradation requirements found in Minn. R. 7050.0250 to 7050.0335. The permit does not propose to allow a new or increased discharge and does not trigger antidegradation.

Anti-backsliding: Any point source discharger of sewage, industrial, or other wastes for which a NPDES Permit has been issued by the MPCA that contains effluent limits more protective than those that would be established by Minn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less protective effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342. The permit complies with Minn. R. 7053.0275 regarding anti-backsliding.

Environmental review

An Environmental Impact Statement (EIS) for the Minnesota Steel Industries (MSI) project was prepared and deemed adequate by the Department of Natural Resources (DNR) on August 10, 2007. The NPDES/SDS permit issued on August 21, 2007, contained mitigation measures identified in the EIS as alternatives to either minimize or eliminate potential environmental impacts from stormwater runoff, water use, process water and the tailings basin. The original taconite pellet production from Minnesota Steel Industries was proposed at 4.1 million metric tons/year. Minnesota Steel Industries was purchased in October 2007 by Essar Steel Minnesota LLC (ESML). In 2010, Essar Steel proposed modifications to the original project reviewed and permitted in 2007 to better align with the company's North American business strategy.

The ESML modifications project as proposed by the company and considered in environmental review during 2010-2011, included all the activities covered under the MSI project including mining, ore processing, direct reduced iron (DRI) production and steel-making, but entailed higher taconite pellet production and associated mining and tailings generation rates. The proposed ESML modifications to the original project included an increase in taconite pellet production to 6.5 million metric tons/year of high flux blast furnace grade pellets or 7.0 metric tons/year of low-flux, DRI grade taconite pellets. The proposed project also planned an increased mining rate which reduced the 20-year life of the mine to 15 years.

A supplemental EIS was completed by the DNR in December 2011 to evaluate impacts associated with the proposed increase in capacity, construction and operation of the modified mine plan, new crushing/concentrating lines, expansion of the indurating furnace, and a reduction in capacity to produce DRI and steel slabs. The project was permitted by the MPCA with requirements reflecting the 2011 supplemental EIS in 2012. Essar Steel Minnesota LLC subsequently went bankrupt and the mine did not initiate operation..

The restructured company, known as Mesabi Metallics LLC, is still in the process of constructing the facilities.⁶ Due to proposed production and mineral lease access changes, water management changes at the site have been proposed. There is no proposed increase in discharge volumes or receiving waters (Sullivan Pit and Ann Pit) from the outfalls permitted to discharge that were permitted in 2012. The Minnesota DNR has determined that additional environmental

review is not necessary for these proposed changes to the project. The permitted facility description and permit requirements in the draft permit reflect updates made to the project and submitted to the MPCA with its updated permit applications in 2024 and 2025.

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Term of permit

The effective date of the permit and the permit expiration date will be determined at the time of issuance.

The MPCA has made a preliminary determination to reissue this NPDES/SDS permit for a term of approximately five years.

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