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1. General Requirements

Facility Description

The Mesabi Nugget Delaware, LLC facility (facility) is located in Section 24, Township 59 North, Range 15 West, Aurora, St. Louis County, Minnesota. The principal activity at this facility is the production of iron nuggets from iron ore concentrate at a rate of 600,000 metric tons per year (661,400 short tons per year). The nuggets are approximately 96-98% iron, and can be fed directly into electric arc furnaces (mini-mills) as well as to foundries and blast furnaces at conventional integrated iron and steel manufacturing facilities. The facility consists of all manufacturing, conveyance and storage facilities, the Area 1 Pit, and non-sewage wastewater treatment systems within the area designated on the map included in this permit for water treatment.

Raw materials for nugget manufacturing consists of iron ore concentrate, various coals, fluxes, and binders. All raw materials are delivered by rail, truck, pneumatic truck, or in bulk supersacks with the iron ore concentrate stored in storage piles and the other raw materials stored in bins and/or storage piles in an adjacent storage yard.

Coals, fluxes, binders, and iron ore concentrate are mixed and formed into green balls (similar to taconite operations). The balls are dried and fed to a rotary hearth furnace where they undergo reduction and are converted to metallic iron and slag material. The iron and slag are cooled and separated, and then loaded directly into rail cars or stored in onsite piles for shipment at a later date.

Mesabi Nugget appropriates water from the Area 1 Pit at an approximate average and maximum rate of 2.9 million gallons per day – MGD (2000 gallons per minute – gpm) and 7.2 MGD (5000 gpm), respectively. This water is supplied for process temperature control (contact and non-contact cooling) and for process water, including for the wet scrubber system. If additional water is needed, water can be supplied from the Area 2WX or Area 9 Pits. For water conservation purposes, a majority of the makeup water is sequentially cycled and cascaded from the clean (non-contact) cooling system to the process (contact) cooling system to a wet scrubber air pollution control system. Rotary hearth off-gases are passed through the wet scrubber system for control of particulates, sulfur dioxide, acid gases and metals, including mercury. Blowdown from the scrubber system, at an approximate average and maximum rate of 1100 gpm and 2000 gpm is routed to a multi-stage wastewater treatment system for treatment prior to discharge. A portion of the makeup water that is used for once-through, non-contact cooling and seal water (approximate average 400 gpm and maximum 800 gpm) is routed directly back to the Area 1 Pit.

The wastewater treatment system employs chemical coagulation and precipitation, followed by filtration through a Mesabi Nugget developed filtration system (MNC Mercury Filter – patented) for enhanced mercury removal (if needed to meet permit limits). Chemical precipitation is accomplished using a one stage metals removal and softening system employing lime, ferric chloride, cationic and anionic polymers and caustic soda. The precipitate generated is passed through a filter press or other filtration device with the solids disposed off site in an approved landfill, or used for beneficial reuse upon approval. The effluent from the chemical precipitation system is then routed through the first of two MNC Mercury Filter units, (if needed to meet permit limits), for mercury removal, and from there into a multimedia filter, and then the west end of the Area 1 Pit. The MNC Mercury Filter units are proprietary filtration systems utilizing taconite tailings as the filtration media. Water from the east end of the Area 1 Pit can then be routed into a second MNC Mercury Filter Unit for final mercury removal prior to discharge, if needed to meet permit limitations. The final treated effluent is piped through Outfall SD001 for direct discharge to Second Creek at an average and maximum rate of 1.5 MGD (1065 gpm) and 5.8 MGD (4000 gpm) respectively. Second Creek is a Class 2B, 3C, 4A, 4B, 5 and 6 water under Minn. R. Ch. 7050.0430 and an Outstanding International Resource Water (OIRW) according to Minn. R. Ch. 7052. Outfall SD001 is the same outfall as was previously permitted as Outfall SD003 in the NPDES/SDS permit for the Cliffs Erie (formerly LTV Steel Mining Company) Mining Area (MN0042536).

A variance from the Class 3C water quality standard for hardness and the Class 4A water quality standards for specific conductance, total dissolved salts (solids) and bicarbonates is included in this permit. As a result of the variance, the permit includes interim effluent limitations for the variance parameters during the life of this permit reissuance with final effluent limitations becoming effective as defined by the variance schedule in the permit language. Stream monitoring upstream and downstream of the discharge point for the variance parameters is required.

Tailings to be used as the filtration media in the MNC Mercury Filter Units will be obtained from ArcelorMittal near Virginia, Minnesota or other locations upon approval. Spent filtration media removed from the MNC Mercury Filter Units will be disposed of at an approved location or solid waste disposal facility. Slag generated during the nugget manufacturing process, at an approximate rate of 100,000 metric tons per year, will be stored on site for future sale or beneficial reuse or disposed of at an approved facility or location.

Chemical additives proposed for use at the water treatment system include various softening agents and water treatment chemicals in the makeup water softening system, various anti-scalants, corrosion inhibitors and biocides in the cooling water systems, and various softening agents, flocculants, pH adjusters and polymers in the wastewater treatment systems. Chemical additives and their usage rates are approved for use through the process described in Chapter 8, with additives already approved as of permit reissuance listed in Chapter 6. Dust suppression at the storage area will be accomplished primarily with water application, with the supplemental use of approved chemical dust suppressants.

Stormwater from the plant area and the raw material/product storage areas will be collected and routed to two on-site sedimentation basins for solids settling. The east sedimentation basin has a manual valve which is connected to Area 1 Pit as well as a sump pump and piping which connects to the on-site water treatment system. The west sedimentation basin does not have a physical outlet structure. Excess stormwater from the west sedimentation basin is manually pumped to the on-site water treatment system. Water treated by the onsite treatment system is directed to the Area 1 Pit, and subsequent discharge through Outfall SD001. Sewage generated at the facility is stored in a holding tank and hauled to local municipal wastewater treatment plants.

The Permittee is authorized to transfer water to and from the Area 1 Pit to and from the Area 2WX Pit for the purposes of managing facility water inventory and minimizing the impact of the SD001 discharge on the receiving water, as authorized by the previous permit.

The location of the facility is shown on the "Topographical Map of Permitted Facility" page. The location of designated monitoring stations is specified on the "Summary of Stations and Station Locations" page.

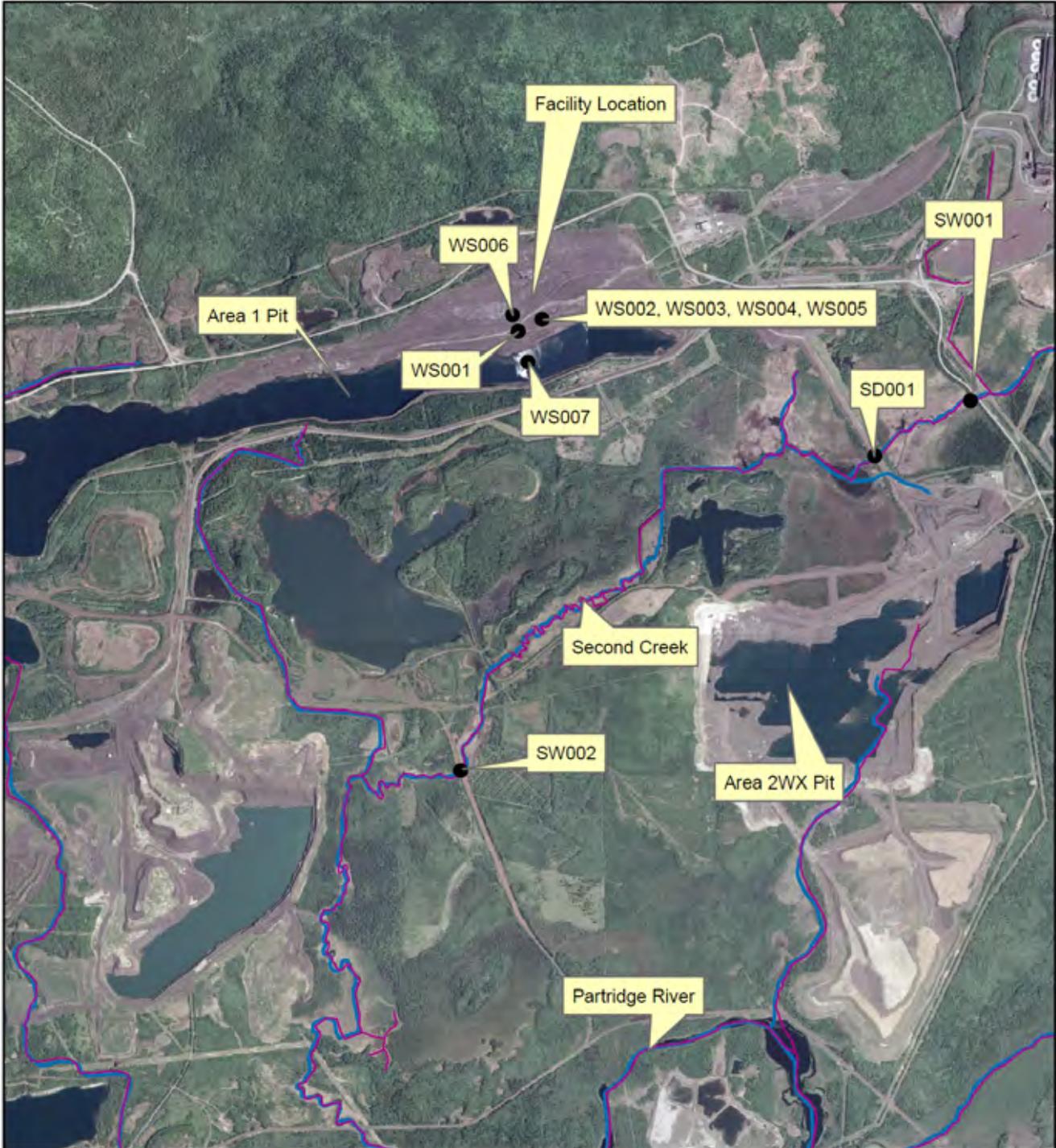
In accordance with MPCA rules regarding nondegradation for all waters that are not Outstanding Resource Value Waters, nondegradation review is required for any new or expanded significant discharge (Minn. R. 7050.0185). A significant discharge is: (1) a new discharge (not in existence before January 1, 1988) that is greater than 200,000 gallons per day to any water other than a Class 7 water or (2) an expanded discharge that expands by greater than 200,000 gallons per day that discharges to any 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 flow rate used to determine significance is the design **maximum daily** flow. The January 1, 1988, design **maximum daily** flow for this facility is 14.4 mgd.

This Permit also complies with Minn. R. 7053.0275 regarding anti-backsliding.

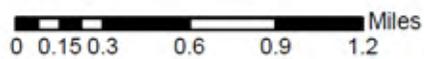
Any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the MPCA that contains effluent limits more stringent than those that would be established by Minn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit,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

Aerial Map of Permitted Facility

MN0067687, Mesabi Nugget Delaware, LLC
T59N, R15W, Section 24
Aurora, St. Louis County, Minnesota



Map produced by MPCA Staff 9/26/2012
Source: USGS Aurora Quad
Scale: 1:36,000



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<u>Station</u>	<u>Type of Station</u>	<u>Local Name</u>	<u>PLS Location</u>
SD001	Effluent To Surface Water	Area 1 Pit to Second Creek	SE Quarter of the NW Quarter of the SW Quarter of Section 20, Township 59 North, Range 14 West

Surface Water Stations

<u>Station</u>	<u>Type of Station</u>	<u>Local Name</u>	<u>PLS Location</u>
SW001	Stream/River/Ditch, Upstream	Second Cr. - Upstream	NE Quarter of Section 20, Township 59 North, Range 14 West
SW002	Stream/River/Ditch, Downstream	Second Cr. - Downstream	SW Quarter of Section 25, Township 59 North, Range 15 West

Waste Stream Stations

<u>Station</u>	<u>Type of Station</u>	<u>Local Name</u>	<u>PLS Location</u>
WS001	Influent Waste	Influent to Wastewater Treatment System	NE Quarter of the NW Quarter of Section 24, Township 59 North, Range 15 West
WS002	Internal Waste Stream	Influent to Tailings Filter #1	NE Quarter of the NW Quarter of Section 24, Township 59 North, Range 15 West
WS003	Internal Waste Stream	Dschrg fr Tailings Filter #1 to Pit 1	SE Quarter of Section 21, Township 59 North, Range 15 West
WS004	Internal Waste Stream	Influent fr Pit 1 to Tailings Filter #2	SW Quarter of the NE Quarter of the NW Quarter of Section 19, Township 59 North, Range 14 West
WS005	Solids to Land Disposal/Non-application	Spent Tailings Disposal	NW Quarter of Section 24, Township 59 North, Range 15 West
WS006	Solids to Land Disposal/Non-application	Slag Disposal	NW Quarter of Section 24, Township 59 North, Range 15 West
WS007	Water Intake	Area 1 Pit	NW Quarter of Section 24, Township 59 North, Range 14 West

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Aluminum, Total (as Al)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Arsenic, Total (as As)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Bicarbonates (HCO3)	362	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	5
Bicarbonates (HCO3)	378	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	5
Boron, Total (as B)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Cadmium, Total (as Cd)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chromium, Total (as Cr)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chronic Toxicity Testing	1	TUc	Monthly WET Testing	Jan-Dec, effective November 01, 2012	24-Hour Flow Composite	1 x Month	
Cobalt, Total (as Co)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Copper, Total (as Cu)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	1
Fluoride, Total (as F)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	831	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	863	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Lead, Total (as Pb)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Manganese, Total (as Mn)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Mercury, Total (as Hg)	1.8	ng/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	0.000070	kg/day	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	3.2	ng/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Nickel, Total (as Ni)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
pH	8.5	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH	6.5	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Selenium, Total (as Se)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	1160	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Solids, Total Dissolved (TDS)	1228	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	1.4	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	2.9	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance	1889	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	2 x Month	
Specific Conductance	1965	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Thallium, Total (as Tl)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Zinc, Total (as Zn)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

SW 001, SW 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

WS 001, WS 002, WS 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	5
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Interim Period

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

WS 005, WS 006

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mass Transported From Facility	Monitor Only	ton/mo	Calendar Month Total	Jan-Dec	Measurement	1 x Month	

WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
pH	Monitor Only	SU	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	4
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

Period: Limits Applicable in the Final Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Aluminum, Total (as Al)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Arsenic, Total (as As)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Bicarbonates (HCO3)	257	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	5
Bicarbonates (HCO3)	267	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	5
Boron, Total (as B)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Cadmium, Total (as Cd)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

Mesabi Nugget Delaware, LLC
Limits and Monitoring Requirements

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Chromium, Total (as Cr)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Chronic Toxicity Testing	1	TUc	Monthly WET Testing	Jan-Dec, effective November 01, 2012	24-Hour Flow Composite	1 x Month	
Cobalt, Total (as Co)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Copper, Total (as Cu)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Flow	Monitor Only	MG	Calendar Month Total	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	2 x Month	1
Flow	Monitor Only	mgd	Daily Maximum	Jan-Dec	Measurement	2 x Month	1
Fluoride, Total (as F)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	512	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	532	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Lead, Total (as Pb)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Manganese, Total (as Mn)	Monitor Only	mg/L	Calendar Month Maximum	Oct	Grab	1 x Month	
Mercury, Total (as Hg)	1.8	ng/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	0.000070	kg/day	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Mercury, Total (as Hg)	3.2	ng/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	3
Nickel, Total (as Ni)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
pH	8.5	SU	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
pH	6.5	SU	Calendar Month Minimum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Selenium, Total (as Se)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	726	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Dissolved (TDS)	768	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	1.4	mg/L	Calendar Month Average	Jan-Dec	Grab	2 x Month	
Solids, Total Suspended (TSS)	2.9	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	
Specific Conductance	1025	umh/cm	Calendar Month Average	Jan-Dec	Measurement, Instantaneous	2 x Month	
Specific Conductance	1066	umh/cm	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	2 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	2 x Month	

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

SD 001

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Thallium, Total (as Tl)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2
Zinc, Total (as Zn)	Monitor Only	ug/L	Calendar Month Maximum	Oct	Grab	1 x Month	2

SW 001, SW 002

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Flow, Stream, Instantaneous	Monitor Only	cfs	Calendar Month Maximum	Jan-Dec	Measurement, Instantaneous	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

WS 001, WS 002, WS 004

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3

WS 003

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	5
Chloride, Total	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Flow	Monitor Only	mgd	Daily Average	Jan-Dec	Measurement	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO3)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	3
Sodium, Total (as Na)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	
Sulfate, Total (as SO4)	Monitor Only	mg/L	Calendar Month Maximum	Jan-Dec	Grab	1 x Month	

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The Permittee shall comply with the limits and monitoring requirements as specified below.

Period: Limits Applicable in the Final Period

WS 005, WS 006

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Mass Transported From Facility	Monitor Only	ton/mo	Calendar Month Total	Jan-Dec	Measurement	1 x Month	

WS 007

Parameter	Limit	Units	Limit Type	Effective Period	Sample Type	Frequency	Notes
Bicarbonates (HCO ₃)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Hardness, Calcium & Magnesium, Calculated (as CaCO ₃)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Mercury, Total (as Hg)	Monitor Only	ng/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
pH	Monitor Only	SU	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Solids, Total Dissolved (TDS)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	
Specific Conductance	Monitor Only	umh/cm	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	4
Sulfate, Total (as SO ₄)	Monitor Only	mg/L	Calendar Month Maximum	Feb, May, Aug, Nov	Grab	1 x Month	

- Notes:
- 1 -- See Chapter 1.7.3
 - 2 -- Use EPA analytical method 200.8.
 - 3 -- Use EPA clean-sampling method 1669 and EPA analytical method 1631
 - 4 -- Use EPA clean-sampling method 1669 and EPA analytical method 1631.
 - 5 -- as CaCO₃

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Chapter 1. Surface Discharge Stations

1. Requirements for Specific Stations

- 1.1 SD 001: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

2. Sampling Location

- 2.1 Samples for Station SD001 shall be taken at the discharge structure leading to Second Creek.
- 2.2 Samples and measurements required by this permit shall be representative of the monitored activity.

3. Surface Discharges

- 3.1 Floating solids or visible foam shall not be discharged in other than trace amounts.
- 3.2 Oil or other substances shall not be discharged in amounts that create a visible color film.
- 3.3 The Permittee shall install and maintain outlet protection measures at the discharge station SD001 to prevent erosion.

4. Discharge Monitoring Reports

- 4.1 The Permittee shall monitor Outfall SD001 according to the requirements in the Limits and Monitoring Section of this permit whenever a discharge occurs whether the manufacturing facility is operating or not.
- 4.2 The Permittee shall submit monitoring results for discharges in accordance with the limits and monitoring requirements for this station. If no discharge occurred during the reporting period, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR).

5. Winter Sampling Conditions

- 5.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

6. Prohibited Discharges

- 6.1 To minimize the potential impact to wild rice resources in downstream waters, the Permittee shall not discharge from Outfall SD001 from April 1 through August 31 of each year.
- 6.2 To minimize the potential for a discharge with chronic toxicity characteristics, the Permittee shall not discharge from Outfall SD001 from August 1 through September 30 of each year unless it can demonstrate through a Chronic Whole Effluent Toxicity Test conducted on Area 1 Pit water during that time period that a discharge would not exceed 1.0 chronic toxicity units (TUc). Facility discharge shall in no case resume prior to September 1, consistent with the requirements in 6.1 above.
- 6.3 The Permittee may submit, by September 30 of each year, the results of a chronic Whole Effluent Toxicity (WET) Test conducted at a point representative of SD001 at any time during the August 1 through September 30 timeframe of that year for approval. The Permittee shall not discharge, consistent with the requirements in 6.1 above during August 1 through August 31, regardless of WET test result. The Permittee shall not discharge during the September 1 to September 30 period until MPCA receives the passing chronic WET test result, (<1.0 TUc), for this discharge. The Permittee may provide such result to MPCA via U.S. mail, electronic, private carrier, courier or hand delivery.

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Chapter 1. Surface Discharge Stations

7. Special Requirements

- 7.1 If the data from monitoring at Outfall SD001 establishes exceedences of the mercury monthly average effluent limitation of 1.8 ng/L three times in any rolling 12-month period or four times in any 60-month period, the Permittee shall cease discharge through SD001 until such time compliance with the mercury monthly effluent limitations can be achieved.
- 7.2 Upon exceedance of the mercury monthly average effluent limitation as described in Part 7.1 above, the Permittee shall immediately notify the MPCA and comply with the requirements of Part 7.1. In addition, within 14 calendar days of the occurrence of conditions under Part 7.1, the Permittee shall submit for MPCA approval a written plan of the specific course of actions the Permittee will take to comply with the provisions of this Section 7.

The Permittee shall not implement the proposed course of actions until such time that it has received approval of the plan in writing from the MPCA.

- 7.3 The Permittee may, for the purpose of creating storage capacity in the Area 1 Pit, draw down the Area 1 Pit water level by discharging pit water through Outfall SD001 outside of the period of prohibited discharge as described in Part 6 of this chapter above.

Such discharge may occur provided that the discharge does not exceed 5.8 MGD and that the discharge fully complies with the applicable effluent limitations specified in the Limits and Monitoring Section of this permit.

The Permittee shall not draw the Area 1 Pit water level down by more than the amount representing three years of storage capacity at normal wastewater flows, so as to provide an adequate in-pit mixing ratio for the purpose of maintaining pit water quality at concentrations that will be able to attain compliance after treatment with effluent limitations upon eventual discharge. The determination of the three years storage capacity shall include all hydrologic inputs into the pit including wastewater flows, groundwater inflow and precipitation/runoff inflows.

- 7.4 If the conditions under Part 7.1 above occur and the Permittee ceases discharges through Outfall SD001, the Permittee may continue iron nugget production provided the following conditions are met:
- a. The Permittee has notified the MPCA in accordance with Part 7.2 above;
 - b. The Permittee has storage capacity in the Area 1 Pit, such that an ongoing discharge through SD001 will not occur;
 - c. Any wastewater generated by the facility during continued iron nugget production continues to be treated through the chemical precipitation and mercury filtration system of the wastewater treatment facility as necessary prior to routing to the Area 1 Pit;
 - d. The Permittee is actively implementing the course of actions identified in the approved plan required by Part 7.2 above; and
 - e. The Permittee maintains a minimum freeboard in the Area 1 Pit representing six months of hydrologic inputs into the pit, including wastewater flow at normal rates of operation, groundwater inflow, and precipitation/runoff inflows. For the purpose of this provision, freeboard is defined as the difference in elevation between the Area 1 Pit water level and the elevation at which the Area 1 Pit would otherwise outlet or overflow. This provision to maintain a minimum 6 month freeboard in the Area 1 Pit is applicable if exceedances of the mercury monthly average effluent limitation as described in Part 1.7.1 above have occurred.

Notwithstanding the provisions of this Chapter, the Permittee shall remain responsible for the financial assurance requirements in Chapter 5, Sections 1.15 to 1.26. The Permittee shall provide for treatment for mercury until such time that the water quality of the Area 1 Pit meets water quality standards for mercury.

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Chapter 1. Surface Discharge Stations

7. Special Requirements

- 7.5 The provisions of this Chapter do not relieve the Permittee from any responsibilities, liabilities or penalties for violations of effluent limitations and water quality standards that may have occurred.
- 7.6 Notwithstanding the provisions of this Chapter, nothing in this permit waives the rights or ability of the MPCA to require the Permittee to implement additional remedial and corrective actions, mitigation, and/or other actions that the MPCA deems necessary for the Permittee to comply with the effluent limitations and other terms and conditions of this permit.

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Chapter 1. Surface Discharge Stations

8. Variances

Variance

- 8.1 The Permittee is granted a variance from the provisions in Minn. R. 7050.0223 Subp.3, that specifies the Class 3C (industrial consumption) water quality standard of 500 mg/L for hardness and in Minn. R. 7050.0224 Subp. 2, that specifies the Class 4A (agricultural and wildlife) water quality standards of 1000 umhos/cm for specific conductance, 700 mg/L for total dissolved solids (salts), and 5 meq/L for bicarbonates (HCO₃) for Outfall SD001 in accordance with the variance procedures established in Minn. R. pts. 7000.7000 and 7050.0190. The Permittee shall comply with the applicable effluent limitations for hardness, specific conductance, total dissolve salts (solids), and bicarbonates for Outfall SD001 specified in the Limits and Monitoring Requirements of this permit.
- 8.2 For as long as this variance is in effect, it shall be the responsibility of the Permittee to make reasonable progress towards attainment of the water quality standards. To accomplish this, the Permittee shall investigate and implement the requirements of this chapter to establish reasonable progress toward meeting the water quality based Final Effluent Limitations for hardness, TDS, specific conductance and bicarbonates until such time as compliance is attained. The requirements in conditions 1.8.1 through 1.8.23 and 6.7.3 cease to apply if the Permittee achieves compliance with applicable water quality based Final Effluent Limitations for hardness, specific conductance, TDS and bicarbonates without the use of a variance for those parameters, and receives confirmation of compliance from MPCA.
- 8.3 This permit and variance may be modified by the MPCA if revisions to water quality standards adopted by MPCA and approved by EPA that are applicable to the pollutants involved in the variance. Nothing herein affects or limits any other MPCA authorities regarding permit and variance modifications.

Schedule for Short-Term Pollutant Reductions in Existing Wastewater

- 8.4 Within 30 days after permit reissuance the Permittee shall submit for approval a Short Term Water Quality Improvement Study Work Plan. This work plan shall describe how the Permittee proposes to investigate and evaluate actions, treatment, mitigation and/or activities that could be taken in the short term (e.g., within the first two years after permit reissuance) to reduce concentrations of TDS-related parameters, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the wastewater treatment facility (WWTF) and/or the Area 1 Pit.

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Chapter 1. Surface Discharge Stations

8. Variances

8.5 The Short Term Water Quality Improvement Work Plan shall include, but is not limited to:

- Source control strategies to reduce pollutant loading from the existing scrubber system to the WWTF;
- Evaluation of the use of alternative raw materials, chemical additives, water sources and/or processing techniques to reduce pollutant loading to the WWTF;
- Evaluation of improvements or optimizations that could be made to the existing WWTF to increase pollutant removal efficiencies; and
- A proposal to bench test, and as appropriate pilot test, alternative and/or additional wastewater treatment that could be employed to reduce pollutant concentrations, including a schedule for completion of testing.

The goal of the Short Term Water Quality Improvement Study is to identify the means by which reductions in the concentration of TDS-related pollutants, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the existing WWTF is accomplished over the short term so as to establish a downward trend in the levels of TDS and specific conductance in the SD001 discharge as soon as possible. As appropriate and necessary, the Study may also include actions, controls and treatment that could be applied in the short term directly to the SD001 discharge from the Area 1 Pit.

8.6 Within 270 days of MPCA approval of the Short Term Water Quality Improvement Study Work Plan the Permittee shall complete and submit for approval the Short Term Water Quality Improvement Study Report. This report shall include a specific proposal of the actions, treatment, mitigation and/or activities to be taken over the short term, with a schedule for implementation, to accomplish reductions of TDS-related pollutants, including sulfate as it relates to its contribution to TDS and specific conductance, in the discharge from the WWTF and/or Area 1 Pit as soon as possible. The proposal may include actions that would result in reductions in pollutant concentrations even if they may not necessarily result in compliance with Final Effluent Limitations.

8.7 Within 7 days after MPCA approval of the Short Term Water Quality Improvement Study Report, the Permittee shall initiate the plan of action identified in the approved Report in accordance with the approved schedule.

Schedule for Compliance with Final Effluent Limitations at SD001

8.8 Within 60 days after permit reissuance the Permittee shall submit for approval Work Plans for both a Water Balance Study and a Chemical Balance Study for the ultimate purpose of providing information necessary for completion of the Pollutant Reduction Study required by parts 8.16 through 8.21 of this chapter.

8.9 The Water Balance Study Work Plan shall describe how the Permittee proposes to complete an evaluation of hydraulic loadings to and losses from the Area 1 Pit under the condition of continuous operation of the Large Scale Demonstration Plant (LSDP), taking into consideration changes in operation that may result from implementation of actions contained in, or required by, the various air emission-related studies required by the facility's Air Emissions Permit which are anticipated, as of permit reissuance, to be submitted to the MPCA no later than May 2013.

The evaluation proposed by the Water Balance Study Work Plan shall include, but is not limited to:

- Inputs to and appropriations from the Area 1 Pit related to operation of the LSDP;
- Inflow to and outflow from the Area 1 Pit from groundwater and surface water;
- Evaporation and precipitation; and
- Transfers to or from other water bodies, including the potential for use of the Area 2WX Pit as an alternative water source for the LSDP.

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Chapter 1. Surface Discharge Stations

8. Variances

8.10 The Chemical Balance Work Plan shall describe how the Permittee proposes to complete an evaluation of chemical loadings to and losses from the Area 1 Pit under the condition of continuous operation of the LSDP, taking into consideration changes in operation that may result from implementation of actions contained in, or required by, the various air emission-related studies required by the facility's Air Emissions Permit which are expected to be submitted to the MPCA no later than May 2013.

The evaluation proposed by the Chemical Balance Study Work Plan shall include, but is not limited to:

- Chemical loadings to and losses from the Area 1 Pit related to the LSDP, including operation of the WWTF and stormwater contributions. In particular, the relative contributions from individual wastewater streams or processes (i.e., water conditioning, scrubber water, cooling water blowdown, etc.) shall be identified;
- Chemical loadings via groundwater or surface water flow from waste rock stockpiles located within the Area 1 Pit watershed. The evaluation shall, to the extent practical, identify the relative contributions from individual stockpiles, or areas, contributing chemical loading to the Area 1 Pit;
- Chemical loadings from unimpacted groundwater or surface water flow to the Area 1 Pit.
- Chemical loadings to and losses from the Area 1 Pit related to transfer of water to or from other water bodies, including the potential for use of the Area 2WX Pit as an alternative water source for the LSDP.

8.11 The Permittee shall initiate the approved Water Balance Study Work Plan no later than June 1, 2013.

8.12 Within 90 days after initiation of the approved Water Balance Study Work Plan the Permittee shall complete and submit for approval the Water Balance Study Report.

8.13 Within 7 days after MPCA approval of the Water Balance Study Report the Permittee shall initiate the approved Chemical Balance Study Work Plan.

8.14 Within 90 days after initiation of the approved Chemical Balance Study Work Plan the Permittee shall complete and submit for approval the Chemical Balance Study Report.

8.15 As new information becomes available during the course of either the Water Balance Study or the Chemical Balance Study, the Permittee may submit for approval proposed revisions to the approved Work Plans for the Study(s). Upon MPCA approval such revisions shall be incorporated into the ongoing Study(s) and be addressed in the Study Report(s).

8.16 Within 60 days after MPCA approval of the Chemical Balance Study Report the Permittee shall submit for approval a Pollutant Reduction Study Work Plan. The Pollutant Reduction Study Work Plan shall describe how the Permittee, utilizing the results of the Water Balance and Chemical Balance Studies, proposes to investigate and evaluate specific actions, or combination of actions, that can be implemented to reduce contaminant loading to the Area 1 Pit and/or provide additional treatment to the SD001 discharge such that compliance with Final Effluent Limitations is achieved as soon as possible.

8.17 The Pollutant Reduction Study Work Plan shall include, but is not limited to:

- Specific proposal for the bench testing, and as appropriate the pilot testing, of treatment technologies and/or source control strategies that could be applied at the WWTF and/or the SD001 discharge to determine technical and economic feasibility, including the effects of seasonal and operational variability;
- A complete evaluation of source control and mitigation technologies and practices to reduce pollutant loading from existing Area 1 Pit watershed sources including those related to existing waste rock stockpiles, including an assessment of the benefit of bench and/or pilot testing of treatment/mitigation technologies or practices.

The goal of the Pollutant Reduction Study is to identify the means by which reductions in the concentration of the variance parameters in the SD001 discharge is accomplished and compliance with Final Effluent Limitations is achieved as soon as possible.

8.18 Within 365 days of MPCA approval of the Pollutant Reduction Study Work Plan the Permittee shall complete and submit for approval the Pollutant Reduction Study Report.

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Chapter 1. Surface Discharge Stations

8. Variances

8.19 The Pollutant Reduction Study Report shall include a comprehensive analysis of the Water Balance Study Report, the Chemical Balance Study Report and the findings and analysis of the Pollutant Reduction Study, and shall propose a specific plan of action, with schedule, that will result in compliance with Final Effluent Limitations as soon as possible.

The Pollutant Reduction Study Report shall include, but is not limited to:

- A description of how potential treatment technologies, mitigation alternatives and other actions were considered and evaluated;
- An evaluation of the effectiveness (i.e., technical feasibility) of each of the potential treatment technologies, mitigation alternatives and other actions, or combination of actions in achieving compliance with Final Effluent Limitations as soon as possible;
- An evaluation of the cost to implement each of the potential treatment technologies, mitigation alternatives and other actions, or combination of actions, in achieving compliance with Final Effluent Limitations as soon as possible;
- A detailed description of the plan of action that the Permittee proposes to implement to achieve compliance with Final Effluent Limitations as soon as possible, with rationale for why the particular plan of action is being proposed;
- A detailed schedule for implementation with milestone dates indicated;
- A detailed evaluation of the economic impact (i.e., economic feasibility) on the Permittee of implementing the proposed plan of action in the event that the Permittee believes that implementation of the plan of action would result in an unacceptable financial hardship to the Permittee.

8.20 Within 7 days after MPCA approval of the Pollutant Reduction Study Report the Permittee shall initiate the plan of action identified in the approved Report in accordance with the approved schedule.

8.21 If the MPCA approved Pollutant Study Report proposes the installation of waste management or treatment technology, the Permittee shall obtain all applicable permits and approvals, including MPCA approval of plans and specifications prior to any construction.

8.22 As new information becomes available during the course of the Pollutant Reduction Study, the Permittee may submit for approval proposed revisions to the approved Pollutant Reduction Study work plan. Upon MPCA approval, such revisions shall be incorporated into the ongoing Pollutant Reduction Study and addressed in the Study Report.

8.23 The Permittee shall comply with Final Effluent Limitations as soon as possible, but in no case later than August 1, 2021.

Progress Reports

8.24 The Permittee shall submit a detailed Progress Report by the end of each half year following permit reissuance (i.e., June 30 and December 31 of each year). Progress Reports shall include, but are not limited to:

- A description of the activities and actions that have occurred in the previous six months relative to completion of the required studies and reports;
- A summary of ongoing monitoring data and the progression toward attaining compliance with Final Effluent Limitations; and
- Anticipated activities to be completed in the next six months relative to completion of the required studies and reports.

Chapter 2. Surface Water Stations

1. Requirements for Specific Stations

1.1 SW 001, SW 002: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

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Chapter 2. Surface Water Stations

2. Discharge Monitoring Reports

2.1 The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If flow conditions are such that no sample could be acquired, the Permittee shall check the "No Flow" box and note the conditions on the Discharge Monitoring Report (DMR).

3. Sampling Location

3.1 Samples for Station SW001 (upstream Second Creek) shall be taken at the County Road 666 crossing in Section 20, T59N, R14W.

3.2 Samples for Station SW002 (downstream Second Creek) shall be taken at the railroad grade crossing in Section 36, T59N, R15W.

3.3 Samples for Stations SW001 and SW002 shall be taken at mid-stream, mid-depth. Record location, date, time and results for each sample on the supplemental Discharge Monitoring Report form.

4. Sampling Protocol

4.1 All instruments used for field measurements shall be maintained and calibrated to insure accuracy of measurements.

4.2 Sample water shall be preserved according to lab instructions and delivered to a certified lab within the maximum holding times.

5. Winter Sampling Conditions

5.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Flow" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

Chapter 3. Waste Stream Stations

1. Requirements for Specific Stations

1.1 WS 001, WS 002, WS 003, WS 004: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

1.2 WS 005, WS 006: Submit a monthly DMR annually by January 22 of each year following permit issuance.

1.3 WS 007: Submit a monthly DMR monthly by 21 days after the end of each calendar month following issuance of public notice.

2. Special Requirements

2.1 The Permittee shall conduct mercury monitoring at monitoring stations WS001, WS002, WS003, and WS004 on a monthly basis as specified in the Limits and Monitoring Section of this permit.

2.2 Upon completion of two years (24 months) of monthly mercury monitoring, the Permittee may request in writing a reduction in the frequency of mercury monitoring at these stations.

2.3 No reduction in the frequency of mercury monitoring at these stations is authorized without approval from the MPCA.

3. Sampling Location

3.1 Grab and composite samples shall be collected at a point representative of total influent flow to the system.

3.2 Samples for Station WS001 shall be taken at the influent to the chemical coagulation and precipitation system.

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Chapter 3. Waste Stream Stations

3. Sampling Location

- 3.3 Samples for Station WS002 shall be taken at influent to MNC Mercury Filter unit #1.
- 3.4 Samples for Station WS003 shall be taken between the effluent of MNC Mercury Filter unit #1 and the discharge to the Area 1 Pit.
- 3.5 Samples for Station WS004 shall be taken at the influent to MNC Mercury Filter unit #2, when in use.
- 3.6 Measurements for Station WS005 shall be of the total mass of slag generated in the nugget manufacturing process during the calendar month.
- 3.7 Measurements for Station WS006 shall be of the total mass of spent tailings filtration media removed from the wastewater treatment facility during the calendar month.
- 3.8 Samples for Station WS007 (Area 1 Pit) shall be taken at the point of water intake from the Area 1 Pit. Samples for WS007 shall be representative of the Area 1 Pit water at the depth from which water is appropriated.

Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

1. General Requirements

- 1.1 The Permittee shall conduct monthly chronic toxicity test batteries on Discharge SD001 beginning with the first full calendar month following the issuance date of the permit in which there is a discharge. The first month results are due the last day of the first full calendar month following the issuance date of the permit, and is monthly thereafter. (For example, if the permit is issued April 28, the first monthly results are due by May 31.) The monthly monitoring requirement continues at least until the permittee has reported twelve (12) consecutive passing monthly samples after successful completion of the Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluation (TRE).
- 1.2 Chronic test batteries shall be conducted in each succeeding year for the remainder of the permit on a basis of once every other month during discharge.
- 1.3 Any test that exceeds 1.0 TUc shall be re-tested according to the Positive Toxicity Results requirement(s) that follow to determine if toxicity is still present above 1.0 TUc (RWC < 100%).
- 1.4 This permit includes a chronic whole effluent toxicity limit of 1.0 TUc for Discharge SD001. A violation of the 1.0 TUc limit at SD001 constitutes a violation of the permit.

2. Species and Procedural Requirements

- 2.1 Tests shall be conducted in accordance with procedures outlined in EPA-821-R-02-013 "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" - Fourth Edition (Chronic Manual) and any revisions to the Manual. Any test that is begun with an effluent sample that exceeds a total ammonia concentration of 5 mg/l shall use the carbon dioxide-controlled atmosphere technique to control pH drift.
- 2.2 Test organisms for each test battery shall include the fathead minnow (*Pimephales promelas*)-Method 1000.0 and *Ceriodaphnia dubia*-Method 1002.0.
- 2.3 Static renewal chronic serial dilution tests of the effluent shall consist of a control, 12, 25, 50, 75 and 100% effluent.
- 2.4 All effluent samples shall be flow proportioned composite or grab samples. Test solutions shall be renewed daily from each fresh composite. Testing of the effluent shall begin within 36 hours of sample collection. Receiving water collected outside of the influence of discharge shall be used for dilution and controls.
- 2.5 Any other circumstances not addressed in the previous requirements or that require deviation from that specified in the previous requirements shall first be approved by the MPCA.

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Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

3. Quality Control and Report Submittals

- 3.1 Any test that does not meet quality control measures, or has results which the Permittee believes reflect an artifact of testing shall be repeated within two (2) weeks of Permittee's receipt of any results. These reports shall contain information consistent with the report preparation section of the Chronic Manual. The MPCA shall make the final determination regarding test validity.

4. Positive Toxicity Result for WET

- 4.1 Should a test of the SD001 discharge exceed 1.0 TUC for whole effluent toxicity based on results from the most sensitive test species, the Permittee shall conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after completion of the positive test. These tests will be used to determine if toxicity exceeding 1.0 TUC remains present for any test species. For both retests, if no toxicity is present above 1.0 TUC for any test species, the Permittee shall return to the test frequency specified by the permit. If either of the repeat test batteries indicate toxicity above 1.0 TUC for any test species, the Permittee shall submit for MPCA review a plan for conducting a Toxicity Reduction Evaluation (TRE), including the Facility Performance Review (to be submitted to the MPCA WQ Submittals Center within 60 days after toxicity discovery date) and, at a minimum, provide quarterly reports starting from the date of TRE submittal, regarding progress towards the identity, source, and any plans for the removal of the toxicity. The TRE shall be consistent with EPA guidance or subsequent procedures approved by the MPCA in attempting to identify and remove the source of the toxicity. Routinely scheduled chronic toxicity test batteries required in this permit chapter shall be suspended for the duration of the TRE.
- 4.2 Following successful completion of the TRE the Permittee shall conduct testing as required by part 1 of this chapter. Amendments to the initial TRE shall be approved by MPCA staff and the schedules identified therein

Facility-Specific TRE Requirements

- 4.3 For the TRE process underway as of the issuance of this permit, the Permittee shall conduct and submit data sheets and summary reports for monthly chronic WET tests during the period of discharge, consistent with the requirements of this chapter.
- 4.4 For the TRE process underway as of issuance of this permit, the Permittee shall submit a quarterly report identifying and summarizing all activities completed and underway as part of the TRE process. This includes, but is not limited to:
- A description and summary of isolated variables tested;
 - Complete raw data taken from all tests run within the last quarter;
 - All water quality data taken with chronic WET tests during the last quarter; and
 - Description of plans for the next quarter of the TRE.
- 4.5 For the duration of the TRE process underway at the issuance of this permit, the Permittee shall submit in December of each year an annual report providing a summary and analysis of any TRE-related activities which occurred in the previous year. This includes, but is not limited to:
- Complete summary in total of the year's testing results;
 - Any changes to the facility or the site which may have affected testing conditions or results;
 - Discussion of results of tests which were unexpected; and
 - Goals and an outline of the next year's testing process.

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Chapter 4. Whole Effluent Toxicity (WET) Testing - Chronic

4. Positive Toxicity Result for WET

4.6 For the duration of the TRE process underway at the issuance of this permit, if a test result for any species is >1.0 TUc (i.e. a failing test), the Permittee shall, in place of the protocol described in 4.1, conduct two repeat test batteries on all species. The repeat tests are to be completed within forty-five (45) days after Permittee's receipt of any positive test. These tests will be used to determine if toxicity exceeding 1.0 TUc remains present for any test species. For both retests, if no toxicity is present above 1.0 TUc for any test species, the Permittee shall return to the test frequency specified in 4.2. In the case of a failing test, re-testing must continue until tests for all species find a <1.0 TUc (i.e. a passing test) result. In the case of a failing test, this continuation of testing until passing tests are completed for both species is required regardless of seasonality, and should the facility no longer be discharging, due to seasonal restrictions, a sample representative of the discharge from Area 1 Pit will be obtained to continue testing according to TRE protocols.

5. WET Data and Test Acceptability Criteria (TAC) Submittal

5.1 All WET test data and TAC must be submitted to the MPCA by the dates required by this section of the permit using the following form(s) and associated instruction forms:

Minnesota Pollution Control Agency Ceriodaphnia dubia Chronic Toxicity Test Report
Minnesota Pollution Control Agency Fathead Minnow Chronic Toxicity Test Report.

Data not submitted on the correct form(s), or submitted incomplete, will be returned to the Permittee and deemed incomplete until adequately submitted on the designated form (identified above). Data should be submitted to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

6. Whole Effluent Toxicity Requirement Definitions

- 6.1 "Chronic Whole Effluent Toxicity (WET) Test is a static renewal test conducted on an exponentially diluted series of effluent. The purpose is to calculate appropriate biological effect endpoints (NOEC/LOEC or IC25), specified in the referenced chronic manual. A statistical effect level less than the Receiving Water Concentration (RWC) constitutes a positive test for chronic toxicity. The RWC equals the 100 percent effluent concentration or 1.0 TUc.
- 6.2 "Chronic toxic unit (TUc)" is the reciprocal of the effluent dilution that causes no unacceptable effect on the test organisms by the end of the chronic exposure period. For example, a TUc equals $[\text{7Q10flow (mgd)} + \text{effluent average dry weather flow (mgd)}] / [\text{effluent average dry weather flow (mgd)}]$.
- 6.3 "Test" refers to an individual species.
- 6.4 "Test Battery" consists of WET testing of all test species for the specified test. For chronic WET testing, all test species includes Fathead minnows and Ceriodaphnia dubia.

Chapter 5. Special Requirements

1. Special Requirements

Solids Management

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Chapter 5. Special Requirements

1. Special Requirements

- 1.1 The Permittee is responsible for the proper use or disposal of all spent filtration media (i.e. tailings filtration media), wastewater treatment sludges, slag and waste material, and shall comply with all applicable statutes and rules in the disposal of such material.

If any waste material meets any of the criteria for designation as hazardous waste, pursuant to Minn. R. pts 7045.0131 or 7045.0135, it shall be managed as hazardous waste in accordance with Minn. R. ch. 7001 and 7045, unless the Permittee requests and obtains a written determination from the Agency that the regulatory exemptions contained in Minn. R. pt. 7045.0210 apply.

If waste material does not meet any of the criteria for designation as hazardous waste, the waste material shall be disposed of in a permitted solid waste disposal facility or other specifically approved alternative.

- 1.2 By 90 days after permit reissuance, the Permittee shall submit for approval a Solids Management Plan update of the relevant portions of the previously submitted "MNC Mercury Filter Filtration Media Acquisition and Disposal Plan" and "Wastewater Treatment Solids and Slag Management Plan."
- 1.3 At a minimum the Solids Management Plan shall describe:
- a. the source, estimated volume and method of transportation of tailings filtration media to be used in the mercury filtration units;
 - b. the method and location for disposal of spent filtration media and any testing that will be conducted to confirm the composition of the spent filtration media;
 - c. the method and location for beneficial reuse or disposal of waste solids and sludges generated by the wastewater treatment system;
 - d. the estimated volume, composition and nature of the slag generated by the manufacturing process and any testing that will be conducted to confirm the composition of the slag; and
 - e. the management and/or method and location for beneficial reuse or disposal of the slag material generated.
- 1.4 Submit a Solids Management Annual Report by February 1 of each year following permit issuance.
- 1.5 The Solids Management Report shall include for the previous calendar year:
- a. the total volume of filtration media acquired for use in the mercury filtration units;
 - b. the total volume of spent filtration disposed of and the location where disposal took place;
 - c. the total volume of wastewater treatment sludges and solids beneficially reused or disposed of and the location where beneficial reuse or disposal took place;
 - d. the total volume of slag generated by the facility;
 - e. the ultimate disposition of the slag generated by the facility, (i.e. whether it was sold, transported off site for use or disposal or stored or used on site);
 - f. the results of any testing conducted on any of the waste materials; and
 - g. any significant deviations from the volumes and methods described in the approved Solids Management Plan.
- 1.6 Tailings from the Northshore Mining Company or Cliffs Erie shall not be utilized in the wastewater treatment system.

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Chapter 5. Special Requirements

1. Special Requirements

Sulfate Transport and Wild Rice Impact Studies

- 1.7 Within 90 days of permit reissuance, the Permittee shall submit for approval a Sulfate Transport Study work plan. The Sulfate Transport Study shall be based on modeling designed to evaluate and predict sulfate concentrations in the waters between the SD001 discharge and the confluence of the Partridge River with the St. Louis River. The model shall be calibrated to existing data and shall be capable of predicting sulfate concentrations under multiple stream flow and discharge conditions.
- 1.8 Within 12 months after MPCA approval of the Sulfate Transport Study work plan the Permittee shall complete and submit for approval the Sulfate Transport Report.
- 1.9 As new information becomes available during the course of the Sulfate Transport Study, the Permittee may submit for approval proposed revisions to the approved Sulfate Transport Study work plan. Upon MPCA approval such revisions shall be incorporated into the ongoing Sulfate Transport Study.
- 1.10 By 90 days after permit reissuance, the Permittee shall submit for approval a Wild Rice Impact Study work plan. At a minimum, the Wild Rice Impact Study work plan shall propose:
 - a. Monitoring/survey for the presence and general condition (e.g., areal extent, plant density, etc.) of wild rice resources from the SD001 discharge to the confluence of the Partridge River with the St. Louis River over a multi-year (e.g., four year) period;
 - b. Monitoring of water column sulfate concentrations at locations where wild rice is growing;
 - c. An evaluation of the SD001 discharge's contribution to sulfate concentration in affected portions of the Partridge River, taking into account the seasonal nature of the discharge; and
 - d. A general evaluation of water level changes in the Partridge River resulting from the seasonal nature of the SD001 discharge.
- 1.11 Within 48 months after MPCA approval of the Wild Rice Impact Study work plan, the Permittee shall complete and submit the Wild Rice Impact Study Report.
- 1.12 By February 1 of each year of the Study, the Permittee shall submit a written progress report on the status of the Wild Rice Impact Study including a preliminary evaluation of the information and data collected to date.
- 1.13 As new information becomes available during the course of the Wild Rice Impact Study, the Permittee may submit for approval proposed revisions to the approved Wild Rice Impact Study. Upon MPCA approval such revisions shall be incorporated into the ongoing Wild Rice Impact Study.
- 1.14 If data from the studies required provide information previously unavailable to the agency that shows that the terms and conditions of the permit do not accurately represent the actual circumstances relating to the permitted facility or activity, the MPCA may reopen the permit to modify or reissue it.

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Chapter 5. Special Requirements

1. Special Requirements

Financial Assurance

- 1.15 The Permittee shall maintain financial assurance for long-term operation of wastewater treatment systems necessary for compliance with applicable water quality standards and/or effluent limits for the Area 1 Pit. Financial assurance shall be established and maintained at a level that will cover, at a minimum, all of the following costs:
- a. the cost to the MPCA of administering and contracting with a third party to implement the treatment requirements;
 - b. the costs to operate and maintain, as necessary, the chemical precipitation treatment system and mercury filtration systems;
 - c. transportation costs for both raw and spent filtration media (i.e., tailings filtration media) utilizing current transportation infrastructure;
 - d. disposal costs for spent filtration media and other solid and/or hazardous wastes generated during operation of the treatment facilities;
 - e. cost of polymers, flocculants or other water treatment additives required to attain necessary pollutant removals;
 - f. necessary analytical costs; and
 - g. costs to restore hydraulic flows and discharge locations of overflows from the pit in accordance with reclamation plans approved by Department of Natural Resources.
- 1.16 The financial assurance mechanism to be employed shall be: (1) an irrevocable letter of credit with a standby trust fund, (2) a fully-funded cash trust fund, or (3) another method of financial assurance approved in advance by MPCA. The Permittee shall use forms provided and approved by the Commissioner in establishing any irrevocable letter of credit and any trust fund.
- 1.17 The Permittee shall maintain an initial irrevocable letter of credit to the MPCA or establish a fully funded cash trust fund to satisfy the long term treatment costs in Section 1.15 above. At the time of permit issuance, the required amount is \$5,000,000.00.

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Chapter 5. Special Requirements

1. Special Requirements

- 1.18 If the Permittee elects to utilize the irrevocable letter of credit and standby trust fund to fulfill this obligation:
- a. The irrevocable letter of credit shall be issued to the Minnesota Pollution Control Agency by an institution that has the authority to issue letters of credit, and whose letter of credit operations are regulated and examined by a federal agency.
 - b. The letter of credit must be irrevocable and issued for a period of at least one year, and must provide that the letter's expiration date shall be automatically extended for at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the Permittee and the MPCA of a decision not to extend the expiration date. Under the terms of the letter of credit, the 120-day period must begin on the date when the MPCA received the notice, as evidenced by the return receipt.
 - c. In addition to the irrevocable letter of credit, the Permittee shall also establish and maintain a standby trust fund, and the terms of the letter of credit shall direct the letter's issuing institution to deposit all amounts paid pursuant to the letter of credit directly into the standby trust fund in accordance with instructions from the MPCA.
 - d. The MPCA may draw on the irrevocable letter of credit at any time the MPCA determines the Permittee has failed to perform closure when the Permittee is required to do so in accordance with part 5.1.15 of this Permit, or at any time within sixty (60) days prior to the expiration date of the letter of credit if a replacement irrevocable letter of credit, suitable to the MPCA in its sole discretion, has not been provided by the Permittee to the MPCA to replace an existing irrevocable letter of credit.
- 1.19 If the Permittee elects to establish a fully-funded cash trust fund to fulfill the financial assurance obligation, the amount of the fund shall be equal to the amount of financial assurance required by Section 1.17 as adjusted under Section 1.21 through 1.25, and the form of the trust agreement shall be the same as the form of agreement used to establish the standby trust fund, with only those minor changes necessary to indicate that a fully-funded cash trust fund has been established rather than a letter of credit with a standby trust fund.
- 1.20 The Permittee shall notify the MPCA by certified mail of the filing of any voluntary or involuntary petition under the United States Code, Title 11, naming the Permittee as a debtor, within five (5) days after filing of the petition or of any foreclosure actions taken against the Permittee within five (5) days after the initiation of the foreclosure action.

If the financial institution's authority (the institution which issued the letter of credit or which is the trustee for the trust fund) to issue, maintain or honor the letter of credit or any trust agreement or fund is terminated, suspended, diminished or is otherwise impaired, the Permittee shall within seven (7) days thereafter provide a substitute irrevocable letter of credit and establish the required trust fund to the MPCA, in compliance with all of the requirements of this permit.

- 1.21 On an annual basis, the Permittee shall review and update closure costs in accordance with projected timeframes necessary to fulfill Section 1.15 above. All cost estimates shall be fully supported by accounting principles and standard engineering practices acceptable to the MPCA and documented by actual bids from qualified independent vendors, where appropriate.
- 1.22 By February 1 each year, the Permittee shall submit an annual report to the MPCA identifying any changes in estimated enclosure costs due to changing conditions such as inflation or changes in facility operation and the factual basis for these changes. If there are no changes, the report must reflect this and explain the basis for this determination.

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Chapter 5. Special Requirements

1. Special Requirements

- 1.23 The annual report required by 1.22 above must be reviewed and approved by a qualified, independent (non-employee) registered professional engineer prior to submittal to the MPCA. The report must also contain proof that financial assurance is being maintained in accordance with Permit requirements and must propose a replacement letter of credit, or a modified level of funding if a fully-funded cash trust fund is used, to respond to changes in the estimated closure costs.
- 1.24 The Permittee is prohibited from making any modifications or changes to the financial assurance mechanisms, including levels of funding, unless authorized by written approval of the Commissioner. An account statement from the financial institution maintaining the trust fund shall also be provided to the MPCA at this time (i.e. at the time of submittal of the annual report). If the Permittee wishes to establish a dedicated trust fund, in lieu of an irrevocable letter of credit, to satisfy its financial assurance obligations, it shall make such a request as part of its annual review and report submittal required in 1.22 above.
- 1.25 The Permittee shall obtain the Commissioner's written prior approval to modify any portion of an approved financial assurance plan, including any proposed changes to the financial assurance mechanisms and financial assurance funding levels.
- 1.26 In the event that the MPCA requires the Permittee to provide to the MPCA a facility closure plan for approval in accordance with Chapter 8.1.48 of this permit, or if proper closure of the facility includes corrective, cleanup, or remedial actions for any environmental contamination or damage, the MPCA is authorized to hold, and to require the Permittee to maintain, any letter of credit with standby trust fund or fully-funded cash trust fund until the corrective, cleanup or remedial actions are completed to the satisfaction of the MPCA. If such actions are not completed by the Permittee in a timely manner and to the satisfaction of the MPCA, the MPCA is authorized to draw on the letter of credit or the fully-funded cash trust fund and to initiate and/or complete such actions.

At such time as proper closure of the facility and all required corrective, cleanup and/or remedial actions have been completed and paid for the MPCA shall return the letter of credit to the issuing institution or the balance of the unused funds in any trust fund to the Permittee.

Chapter 6. Industrial Process Wastewater

1. Authorization

- 1.1 This permit authorizes the discharge from the Area 1 Pit, and includes the activities at the Mesabi Nugget Large Scale Demonstration Plant (LDSP) and Area 1 Pit which contribute pollutants or may affect the discharge from the Area 1 Pit. This permit does not authorize the inactive station SD004, activities covered by NPDES/SDS Permit MN0069078 issued to Mesabi Mining LLC associated with the Mesabi Mining Area, or for discharges from the Area 2WX, 6, 9, and 9S Pits.

2. Prohibited Discharges

- 2.1 Unless specifically authorized elsewhere in this permit, this permit does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.
- 2.2 The Permittee shall prevent the routing of pollutants from the facility to a municipal wastewater treatment system in any manner unless authorized by the pretreatment standards of the MPCA and the municipal authority.
- 2.3 The Permittee shall not transport pollutants to a municipal wastewater treatment system that will interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards.

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Chapter 6. Industrial Process Wastewater

3. Chemical Additives

- 3.1 The following listed chemical additives have been approved for use at the water treatment system. If the facility chooses to change usage of chemical additives, the chemical additive approval processes is included in Chapter 8. Total Facility Requirements, part 1.43. MPCA's prior approval is required before the Permittee may use any new or different water treatment additive or increase the quantity used of an existing additive.
- 3.2 The following chemicals are used as dust suppressants:
- DustTreat DC9119E, at a maximum rate of 900 gal/day;
 - DustTreat DC9136, at a maximum rate of 1200 gal/day;
 - EC46, at a maximum rate of 1200 gal/day; and
 - HaulEZ, at a maximum rate of 3300 gal/day.
- 3.3 The following chemical additives are authorized for use for pH adjustment:
- Sulfuric Acid, at a maximum rate of 230 gal/day;
 - Lime (98%Ca(OH)₂), at a maximum rate of 35 gal/day;and
 - Sodium Hydroxide, at a maximum rate of 240 gal/day.
- 3.4 The following chemical additives are approved for used as anti-scalants:
- DeposiTrol SF502, at a maximum rate of 5 gal/day; and
 - DepositTrol PY5206, at a maximum rate of 20 gal/day.
- 3.5 The following chemical additives have been approved for use at the facility as corrosion inhibitors:
- CorrShield NT 402, at a maximum rate of 250 lb/day; and
 - FloGard MS6206, at a maximum rate of 220 lb/day.
- 3.6 The following chemical additives have been approved as settling and filtering aids:
- Polyfloc AE1115, at a maximum rate of 150 lb/day;
 - Klairaid PC1192, at a maximum rate of 300 lb/day;
 - Klairaid IC1183, at a maximum rate of 5 gal/day; and
 - Nalco 71325, at a maximum rate of 42 gal/day.
- 3.7 The following chemicals have been approved for use at the facility as biocides:
- Sodium Hypochlorite, at a maximum rate of 250 gal/day; and
 - Spectrus NX 1106, at a maximum rate of 5 lb/day.
- 3.8 GenGard GN 7004, used as a solids dispersant, is approved for use at the facility at a maximum rate of 250 lb/day.
- 3.9 Soda Ash (98% H₂SO₄), used in the lime softening system, is approved for use at the facility at a maximum rate of 10 short tons/day.
- 3.10 MetClear MR2405, which is used for metal precipitation, is approved for use at the facility a maximum rate of 50 lb/day.
- 3.11 FoamTrol AF2290, which is used as an anti-foaming agent, is approved for use at the facility at a maximum rate of 5 gal/day.
- 3.12 Nalco 73924, which is used for iron deposit removal, is approved for use at a maximum rate of 5700 lb/day.

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Chapter 6. Industrial Process Wastewater

4. Toxic Substance Reporting

- 4.1 The Permittee shall notify the MPCA immediately of any knowledge or reason to believe that an activity has occurred that would result in the discharge of a toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10 or listed below that is not limited in the permit, if the discharge of this toxic pollutant has exceeded or is expected to exceed the following levels:
- a. for acrolein and acrylonitrile, 200 ug/L;
 - b. for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol, 500 ug/L;
 - c. for antimony, 1mg/L;
 - d. for any other toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10, 100 ug/L; or
 - e. five times the maximum concentration value identified and reported for that pollutant in the permit application. (Minnesota Rules, pt. 7001.1090, subp. 2.A)
- 4.2 The Permittee shall notify the MPCA immediately if the Permittee has begun or expects to begin to use or manufacture as an intermediate or final by-product a toxic pollutant that was not reported in the permit application under Minnesota Rules, pt. 7001.1050, subp. 2.J. (Minnesota Rules, pt. 7001.1090, subp. 2.B)

5. Polychlorinated Biphenyls (PCBs)

- 5.1 PCBs, including but not limited to those used in electrical transformers and capacitors, shall not be discharged or released to the environment.

6. New Proposed Dewatering

- 6.1 The Permittee shall obtain a permit modification before discharging from a previously unpermitted point source to a water of the state.
- 6.2 In addition to the requirements in the Permit Modifications section of this permit, the Permittee shall submit to the MPCA detailed plans and specifications for the proposed methods of achieving any discharge limits for turbidity and total suspended solids for the new outfall, based in part upon representative water quality data for untreated wastewater and a detailed map and diagram description of the proposed design for the flow control structures, and route of the discharge to receiving waters.

7. Application for Permit Reissuance

- 7.1 The permit application shall include analytical data as part of the application for reissuance of this permit. These analyses shall be done on individual samples taken during the twelve-month period before the reissuance application is submitted.

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Chapter 6. Industrial Process Wastewater

7. Application for Permit Reissuance

7.2 The permit application shall include analytical data for at least the following parameters at monitoring station SD001:

- a. biochemical oxygen demand, chemical oxygen demand, total organic carbon, gasoline range organics, diesel range organics, fecal coliform, ammonia, temperature;
- b. color, fluoride, nitrate-nitrite (as nitrogen), total organic nitrogen, oil and grease, total phosphorus, chloride, sulfate, sulfide (as sulfur), surfactants, bicarbonates, alkalinity, total salinity, total dissolved solids, specific conductance;
- c. aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, tin, titanium, vanadium, zinc (all in total form) according to 40 CFR Part 136.3;
- d. total mercury using EPA Method 1631;
- f. PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260; and
- g. a scan of constituents using EPA Methods 624 and 625, in 40 CFR Part 136.

The Permittee shall identify, in addition to those pollutants noted in Methods 624 and 625 (Appendix D, Table II), the concentrations of at least ten of the most abundant constituents of the acid and base/neutral organic fractions shown to be present by peaks on the total ion plots (reconstructed gas chromatograms) within ten percent of the nearest internal standard. Identification shall be through the use of U.S. EPA/NIH computerized library of mass spectra, with visual confirmation and potential quantification.

7.3 The permit application shall include a detailed, finalized version of the Final Pollutant Reduction Study Report which includes a proposal and complete information submittal which will result in the compliance with applicable final effluent limitations as soon as possible, but no later than August 1, 2021, as required by 1.8.21. The application, through the Final Pollutant Reduction Study Report, shall identify in detail the sequence of specific activities to be undertaken (e.g. the process for design of treatment equipment or pipeline construction), including any pilot testing, and shall include specific milestone dates for completion of the intermediary activities. This permit application submittal shall also include, as necessary, conceptual engineering plans and a proposed schedule for submittal of engineering plans and specifications applicable to the proposed design, a complete set of monitoring or background data required as part of the proposal, and details related to the proposal to meet effluent limitations, in addition to all of the components required within an application for modification or reissuance of a permit. The Pollutant Reduction Study Report which fulfills all requirements of the approved Pollutant Reduction Study work plan must be submitted to MPCA before the application for permit reissuance can be determined complete.

Chapter 7. Stormwater Management

1. Authorization

- 1.1 This chapter authorizes the Permittee to discharge stormwater associated with industrial activity from industrial activity associated with SIC codes 3312 in accordance with the terms and conditions of this chapter.
- 1.2 This permit, unless specifically authorized by this or another chapter, does not authorize the discharge of sewage, wash water, scrubber water, floor drains from process areas, spills, oils, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.

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Chapter 7. Stormwater Management

2. Water Quality Standards

- 2.1 The Permittee shall operate and maintain the facility and shall control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060.
- 2.2 The Permittee shall limit and control the use of materials at the facility that may cause exceedances of ground water standards specified in Minnesota Rules, ch. 7060. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

3. Stormwater Pollution Prevention Plan

- 3.1 The Permittee shall develop and implement a Stormwater Pollution Prevention Plan (Plan) to address the specific conditions at the industrial facility. The goal of the Plan is to eliminate or minimize contact of stormwater with significant materials that may result in pollution of the runoff. If contact cannot be eliminated or reduced, stormwater that has contacted significant material should be treated before it is discharged from the site.

Guidance for preparing the SWPPP can be found on the web at:

<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html>.

- 3.2 At a minimum, the SWPPP must include:

- a. a description of appropriate Best Management Practices (BMPs) (including structural and non-structural) for protection of surface and groundwater quality at the facility and a schedule for implementing the practices;
- b. a drainage map for the entire facility;
- c. an inventory of exposed significant materials;
- d. an evaluation of the facility areas with exposure of significant materials to stormwater;
- e. an evaluation of all discharge conveyances from the site; a preventative maintenance program;
- f. a spill prevention and response procedure;
- g. procedures to be followed by designated staff employed by the Permittee to implement the SWPPP; and
- h. description of stormwater controls.

- 3.3 In addition, the SWPPP must include the following:

- a. Facility Map. Identify where any of the following may be exposed to stormwater: storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; pollution control equipment (e.g. baghouses); coal, coke, scrap, sand, fluxes, refractories, or metal in any form.
- b. Potential Pollutant Sources. Describe the following additional sources that have potential pollutants associated with them: Areas where accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions and losses from coal and coke handling operations.

- 3.4 The SWPPP shall be developed and implemented within 180 days after permit issuance and shall be available for inspection.

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Chapter 7. Stormwater Management

4. Employee Training Program

4.1 The Permittee must develop and implement an employee training program to inform appropriate personnel of the components and goals of the SWPPP. At a minimum, training must address:

- a. spill/leak prevention and response;
- b. good housekeeping;
- c. petroleum product management;
- d. process chemical management;
- e. fueling procedures;
- f. proper procedures for using fertilizer, herbicides, and pesticides;
- g. erosion and sedimentation controls;
- h. inspections;
- i. preventative maintenance;
- j. runoff management; and
- k. materials management practices.

The SWPPP must identify periodic dates for such training as well as personnel responsible for managing and implementing the SWPPP and those responsible for the reporting requirements of this permit. This must include the facility contact person as indicated on the permit application. Identified personnel must be available at reasonable times of operation.

Guidance regarding employee training programs is available on the web at:
<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html>.

5. Inspection and Maintenance

5.1 The Permittee must develop and implement an inspection schedule that includes a minimum of one facility inspection per calendar month. A total of two monthly inspections shall occur during runoff events, with at least one being performed during snow melt. Inspections must be conducted by appropriately trained personnel at the facility. The purpose of inspections is to: 1) determine whether structural and non-structural BMPs require maintenance or changes, and 2) evaluate the completeness and accuracy of the SWPPP.

Inspection results and documentation must remain on-site whenever Permittee staff are available on the site and must be available upon request. The inspection form is located on the MPCA's website at
<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html>.

5.2 Inspections must be documented and must include the following information:

- a. inspection date and time;
- b. weather conditions;
- c. inspector name;
- d. findings; and
- e. a description of any necessary corrective actions and a schedule for corrective action completion.

A copy of all inspection documentation must be stored with the SWPPP.

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Chapter 7. Stormwater Management

5. Inspection and Maintenance

- 5.3 In addition to the inspection requirements listed above, the following areas (including, but not limited to) must be inspected:
- air pollution control equipment (e.g. baghouses, electrostatic precipitators, scrubbers, and cyclones) for any signs of degradation (e.g. leaks, corrosion, or improper operation) that could limit efficiency and lead to excessive emissions.
 - air flow at inlets and outlets (or use equivalent measures) to check for leaks or blockage in ducts
 - all process and material handling equipment (e.g. conveyors, cranes and vehicles) for leaks, drips or the potential loss of material.
- 5.4 If conditions are observed at the site that require changes in the SWPPP, such changes must be made to the SWPPP prior to submission of the annual report for that calendar year.
- 5.5 If the findings of a site inspection indicate that BMPs are not meeting the objectives as identified above, corrective actions must be initiated within thirty days and the BMP restored to full operation as soon as conditions allow.

6. Good Housekeeping & Control Measures

- 6.1 The Permittee shall include a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading and unloading, storage handling and processing occur.
- 6.2 The Permittee shall also implement a cleaning program which includes regular sweeping for paved areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable.
- 6.3 For unstabilized areas where sweeping is not practicable, the Permittee shall choose alternative stormwater management devices that effectively trap or remove sediment.

7. Sedimentation Basin Design and Construction

- 7.1 The Permittee is authorized to use designed infiltration devices or industrial stormwater ponds/sedimentation basins for stormwater management. Stormwater ponds/sedimentation basins must be designed by a registered professional engineer and installed under the direct supervision of a registered professional engineer. If a new stormwater pond/sedimentation basin will be constructed, the Permittee must follow the guidance located on the web site at <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html>.

8. Application of Chemical Dust Suppressants

- 8.1 If chemical dust suppressants are applied, the Permittee shall submit a Chemical Dust Suppressant Annual Report due 31 days after the end of each calendar year, (February 1), following the application of a chemical dust suppressant.
- 8.2 The Chemical Dust Suppressant Annual Report shall include:
- a record of the dates, methods, locations and amounts by volume of chemical application at the facility; and
 - whether the product was applied in the preceding year.
- 8.3 If a material applied is mixed with water or another solvent before application, the chemical analysis shall be done on the aqueous or other mixture that is representative of the solution applied. This analysis shall be conducted during the same calendar year of application. This analysis shall include the parameters that may be determined by U.S. Environmental Protection Agency (EPA) Methods 624 and 625 which are described in 40 CFR Part 136.

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Chapter 7. Stormwater Management

8. Application of Chemical Dust Suppressants

8.4 Chemical dust suppressants, if used, shall not be applied within 100 feet of the surface receiving waters identified in the 'Facility Description' section of this permit.

9. Reporting

9.1 Submit a Stormwater Annual Report by March 31 of each year following permit issuance. A copy of the Stormwater Annual Report Form is located on the MPCA's website at:
<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/industrial-stormwater/industrial-stormwater.html>.

9.2 The Permittee shall, upon request of the Agency, submit within a reasonable time the information and reports that are relevant to compliance with this Chapter, including the Plan, inspection reports, annual reports, original laboratory sheets from analyses conducted on the waste stream, and BMP plans and specifications.

10. Records

10.1 The SWPPP must be retained for the duration of the permit. A copy of the SWPPP must remain on the permitted site whenever Permittee staff are available on the site and be available upon request. The Permittee must maintain the following records for the period of permit coverage:

- a. dates and findings of inspections;
- b. completed corrective actions;
- c. documentation of all changes to the SWPPP; and
- e. a copy of all annual reports.

11. Notification

11.1 If the Permittee discharges stormwater into a regulated Municipal Separate Storm Sewer System (MS4), the Permittee must notify the operator of the first MS4 of the existence of this permit within 30 days of its issuance.

12. Request for Termination of Stormwater Permit Coverage

12.1 If the Permittee meets the eligibility criteria for No Exposure and is eligible for the conditional exclusion for No Exposure, as regulated by 40 CFR 122.26(b)(14)(i) through (ix) and (xi), it may submit: a) a No Exposure certification to the MPCA in accordance with Minn. R. 7090.3060, and b) a permit application for a modification of the NPDES/SDS Permit.

12.2 The Permittee must apply for the No Exposure certification to the MPCA once every five years. A copy of the No Exposure certification card shall be submitted with the permit application for permit reissuance.

12.3 The No Exposure exclusion is conditional. The facility must maintain a condition of No Exposure at the facility in order for the No Exposure exclusion to remain applicable. In the event of any change or circumstance that causes exposure of industrial activities or materials to stormwater, the facility must comply with the stormwater requirements of this chapter.

12.4 The no exposure certification is non-transferrable in accordance with Minn. R. 7090.3060, subp. 5(D). In the event that the facility operator changes, then the new operator must submit a new no exposure certification to the MPCA, Industrial Stormwater Program, 520 Lafayette Rd N, St Paul, MN 55155-4194.

12.5 The MPCA retains the authority to require the facility operator to comply with the requirements of this chapter, even when an industrial operator certifies no exposure, if the MPCA has determined that the discharge is contributing to the violation of, or interfering with the attainment or maintenance of water quality standards, including designated uses.

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Chapter 7. Stormwater Management

13. Definitions

- 13.1 "Benchmark Monitoring Location" means the location(s) within the boundary of the facility where the Permittee will collect stormwater samples for the purpose of compliance with the benchmark monitoring requirements of this permit. The benchmark monitoring location(s) shall be in a location that:
- a. is below the most down-gradient BMP from the source of the industrial activity or significant materials, but prior to discharging from the Permittee's operational control;
 - b. minimizes or eliminates sampling of stormwater from off-site sources (run-on); and
 - c. yields a sample that best represents the contribution of pollutants the Permittee is required to monitor for in accordance with the Benchmark Monitoring Requirements section of this permit, and that receives drainage from an area of industrial activities, processes, and significant materials exposed to stormwater.
- 13.2 "Best Management Practices" or "BMPs" means practices to prevent or reduce the pollution of waters of the state, including schedules of activities, prohibitions of practices, other management practices, and also includes treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge, waste disposal or drainage from raw material storage.
- 13.3 "No exposure" means all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snow melt, and/or runoff. Industrial activities or materials include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.
- 13.4 "Non-stormwater discharge" means any discharge not comprised entirely of stormwater discharges authorized by a NPDES permit.
- 13.5 "Runoff" means any liquid that drains over land from any part of a facility.

Chapter 8. Total Facility Requirements

1. General Requirements

General Requirements

- 1.1 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.
- 1.2 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)
- 1.3 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)
- 1.4 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)
- 1.5 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

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Chapter 8. Total Facility Requirements

1. General Requirements

- 1.6 **Liability Exemption.** In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)
- 1.7 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)
- 1.8 **Liabilities.** The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)
- 1.9 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)
- 1.10 **Severability.** The provisions of this permit are severable and, if any provisions of this permit or the application of any provision of this permit to any circumstance are held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.
- 1.11 **Compliance with Other Rules and Statutes.** The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.
- 1.12 **Inspection and Entry.** When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)
- 1.13 **Control Users.** The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

Sampling

- 1.14 **Representative Sampling.** Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))
- 1.15 **Additional Sampling.** If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)
- 1.16 **Certified Laboratory.** A laboratory certified by the Minnesota Department of Health shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature, specific conductance, and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)
- 1.17 **Sample Preservation and Procedure.** Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

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Chapter 8. Total Facility Requirements

1. General Requirements

- 1.18 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)
- 1.19 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information (Minn. R. 7001.0150, subp. 2, item C):
- a. The exact place, date, and time of the sample or measurement;
 - b. The date of analysis;
 - c. The name of the person who performed the sample collection, measurement, analysis, or calculation; and
 - d. The analytical techniques, procedures and methods used; and
 - e. The results of the analysis.
- 1.20 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

DMR Supplemental Form

Individual values for each sample and measurement must be recorded on the DMR Supplemental Form which, if required, will be provided by the MPCA. DMR Supplemental Forms shall be submitted with the appropriate DMRs. You may design and use your own supplemental form; however it must be approved by the MPCA. Note: Required summary information **MUST** also be recorded on the DMR. Summary information that is submitted **ONLY** on the DMR Supplemental Form does not comply with the reporting requirements.

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Chapter 8. Total Facility Requirements

1. General Requirements

1.21 Submitting Reports. DMRs and Supplementals shall be submitted to:

MPCA
Attn: Discharge Monitoring Reports
520 Lafayette Road North
St. Paul, Minnesota 55155-4194.

DMRs, DMR supplemental forms and related attachments may be electronically submitted via the MPCA Online Services Portal after authorization is approved. When electronically submitted, the paper DMR submittal requirement is waived.

DMRs and DMR Supplemental Forms shall be postmarked or electronically submitted by the 21st day of the month following the sampling period or as otherwise specified in this permit. Electronic DMR submittal must be complete on or before 11:59 PM of the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

Other reports required by this permit shall be postmarked by the date specified in the permit to:

MPCA
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

1.22 Incomplete or Incorrect Reports. The Permittee shall immediately submit an amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. (Minn. R. 7001.0150 subp. 3, item G)

1.23 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)

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Chapter 8. Total Facility Requirements

1. General Requirements

1.24 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)

Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:

- a. If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.
- b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection.
- c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)

1.25 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

1.26 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

Noncompliance and Enforcement

1.27 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.28 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.29 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

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Chapter 8. Total Facility Requirements

1. General Requirements

1.30 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. If the permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall within 24 hours of the discovery of the noncompliance, orally notify the commissioner and submit a written description of the noncompliance within 5 days of the discovery. The written description shall include items a. through e., as listed below. If the Permittee discovers other non-compliance that does not explicitly endanger human health, public drinking water supplies, or the environment, the non-compliance shall be reported during the next reporting period to the MPCA with its Discharge Monitoring Report (DMR). If no DMR is required within 30 days, the Permittee shall submit a written report within 30 days of the discovery of the noncompliance. This description shall include the following information:

- a. a description of the event including volume, duration, monitoring results and receiving waters;
- b. the cause of the event;
- c. the steps taken to reduce, eliminate and prevent reoccurrence of the event;
- d. the exact dates and times of the event; and
- e. steps taken to reduce any adverse impact resulting from the event. (Minn. R. 7001.0150, subp. 3k)

1.31 Unauthorized Releases of Wastewater Prohibited. Except for conditions specifically described in Minn. R. 7001.1090, subp. 1, items J and K, all unauthorized bypasses, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

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Chapter 8. Total Facility Requirements

1. General Requirements

1.32 Discovery of a release. Upon discovery of a release, the Permittee shall:

- a. Take all reasonable steps to immediately end the release.
- b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon discovery of the release. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area).
- c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.
- d. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.
- e. Submit the sampling results as directed by the MPCA. At a minimum, the results shall be submitted to the MPCA with the next DMR.

1.33 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

- a. The specific cause of the upset;
- b. That the upset was unintentional;
- c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;
- d. That at the time of the upset the facility was being properly operated;
- e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and
- f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

Operation and Maintenance

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Chapter 8. Total Facility Requirements

1. General Requirements

- 1.34 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F.
- 1.35 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)
- 1.36 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)
- 1.37 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)
- 1.38 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150. subp. 3, item F and Minn. R. 7001.0150. subp. 2, item B)

Changes to the Facility or Permit

- 1.39 Permit Modifications. Except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, no person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to the facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

- 1.40 No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity.
- 1.41 Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

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Chapter 8. Total Facility Requirements

1. General Requirements

- 1.42 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)
- 1.43 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

- a. The process for which the additive will be used;
 - b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. The aquatic toxicity information shall include at minimum the results of: a) a 48-hour LC50 or EC50 acute study for a North American freshwater planktonic crustacean (either Ceriodaphnia or Daphnia sp.) and b) a 96-hour LC50 acute study for rainbow trout, bluegill or fathead minnow or another North American freshwater aquatic species other than a planktonic crustacean;
 - c. A complete product use and instruction label;
 - d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
 - e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use. (Minn. R. 7001.0170)
- 1.44 Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements.

Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard.

- 1.45 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.
- 1.46 TMDL Impacts. Facilities that discharge to an impaired surface water, watershed or drainage basin may be required to comply with additional permits or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) and 40 CFR 122.44.1.2.i., necessary to ensure consistency with the assumptions and requirements of any applicable US EPA approved wasteload allocations resulting from Total Maximum Daily Load (TMDL) studies.
- 1.47 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

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Chapter 8. Total Facility Requirements

1. General Requirements

1.48 Facility Closure. The Permittee is responsible for closure and post-closure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, post-closure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

1.49 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

- a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;
- b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;
- c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

**STATEMENT OF BASIS
MESABI NUGGET DELAWARE, LLC
PO BOX 235, HOYT LAKES, MN 55750
NPDES/SDS PERMIT NO. MN0067687
SEPTEMBER 2012**

Description of Permitted Facility

The Mesabi Nugget Delaware, LLC facility (Facility) is located in Section 24, Township 59 North, Range 15 West, Aurora, St. Louis County, Minnesota, though the mine site covers several surrounding sections. The principal activity at this facility is the production of iron nuggets from iron ore concentrate at a rate of 600,000 metric tons per year (661,400 short tons per year). The nuggets are approximately 96-98% iron, and can be fed directly into electric arc furnaces (mini-mills) as well as to foundries and blast furnaces at conventional integrated iron and steel manufacturing facilities. The Facility consists of all manufacturing, conveyance and storage facilities, utilizes the Area 1 Pit, and non-sewage wastewater treatment systems within the area designated on the map included in the permit for water treatment.

Raw materials for nugget manufacturing consists of iron ore concentrate, various coals, fluxes and binders. All raw materials are delivered by rail, truck, pneumatic truck or in bulk supersacks. The iron ore concentrate is stored in storage piles and the other raw materials are stored in bins and/or storage piles in an adjacent storage yard.

Coals, fluxes, binders and iron ore concentrate are mixed and formed into green balls (similar to taconite operations). The balls are dried and fed to a rotary hearth furnace where they undergo reduction and are converted to metallic iron and slag material. The iron and slag are cooled and separated, and then the iron is loaded directly into rail cars or stored in onsite piles for shipment at a later date.

Mesabi Nugget appropriates water from the Area 1 Pit at approximate average and maximum rates of 2.9 million gallons per day – MGD (2000 gallons per minute – gpm) and 7.2 MGD (5000 gpm), respectively. This water is supplied for process temperature control (contact and non-contact cooling) and for process water, including for the wet scrubber system. If additional water is needed, water can be supplied from the Area 2WX or Area 9 Pits. For water conservation purposes, a majority of the makeup water is sequentially cycled and cascaded from the clean (non-contact) cooling system to the process (contact) cooling system to a wet scrubber air pollution control system. Rotary hearth off-gases are passed through the wet scrubber system for control of particulates, sulfur dioxide, acid gases and metals, including mercury. Blowdown from the scrubber system, at an approximate average and maximum rate of 1100 gpm and 2000 gpm is routed to a multi-stage wastewater treatment system for treatment prior to discharge. A portion of the makeup water that is used for once-through, non-contact cooling and seal water (approximate average 400 gpm and maximum 800 gpm) is routed directly back to the Area 1 Pit.

Wastewater Management

The wastewater treatment system employs chemical precipitation and coagulation (used primarily to remove sulfate, fluoride, solids and metals), followed by filtration through a Mesabi Nugget developed filtration system (MNC Mercury Filter – patented), (if needed to meet permit limits), and a multimedia filter for enhanced mercury removal. Chemical precipitation is accomplished using a two stage metals removal and softening system employing lime, ferric chloride, cationic and anionic polymers and caustic soda (used primarily to precipitate metal hydroxides and metal sulfides). The precipitate generated is

passed through a filter press or other filtration device with the solids beneficially used on-site or disposed off site in an approved landfill. The effluent from the chemical precipitation system is then routed into the first of two MNC Mercury Filter units, if needed to meet permit limits, followed by a mixed media filter for additional solids and mercury removal; from there into the west end of the Area 1 Pit. The MNC Mercury Filter units are proprietary filtration systems utilizing taconite tailings as the filtration media. Water from the east end of the Area 1 Pit can then be routed into a second MNC Mercury Filter Unit for final mercury removal prior to discharge, if needed to meet permit limitations. The final treated effluent is piped through Outfall SD001 for direct discharge to Second Creek at an average and maximum rate of 1.5 MGD (1065 gpm) and 5.8 MGD (4000 gpm) respectively. Second Creek is a Class 2B, 3C, 4A, 4B, 5 and 6 water under Minn. R. Ch. 7050.0430 and an Outstanding International Resource Water (OIRW) according to Minn. R. Ch. 7052. Outfall SD001 is the same outfall as was previously permitted as Outfall SD003 in the NPDES/SDS permit for the Cliffs Erie (formerly LTV Steel Mining Company) Mining Area (MN0042536).

Tailings to be used as the filtration media in the MNC Mercury Filter Units will be obtained from ArcelorMittal near Virginia, MN or other locations upon approval of the MPCA. Spent filtration media removed from the MNC Mercury Filter Units will be disposed of at an approved location or solid waste disposal facility. Slag generated during the nugget manufacturing process, at an approximate rate of 100,000 metric tons per year, will be stored on site for future sale or beneficial reuse, or disposed of at an approved facility or location.

Chemical additives proposed for use at the water treatment system include various softening agents and water treatment chemicals in the makeup water softening system, various anti-scalants, corrosion inhibitors and biocides in the cooling water systems, and various softening agents, flocculants, pH adjusters and polymers in the wastewater treatment systems. Chemical additives and their usage rates approved for use at the facility have been listed in Chapter 6. Industrial Process Wastewater. Use of these chemicals at the facility does not exceed the rates permitted by this permit language. Any change in use of these chemical additives must be approved by the MPCA prior to altering usage at the facility. Monitoring and limits with respect to the various chemical additives are addressed by the chemical parameter and toxicity monitoring in the permit. Dust suppression at the storage area will be accomplished primarily with water application, with the supplemental use of approved chemical dust suppressants.

The following are the chemical additives approved to date to the water system at points contributing to the wastewater streams covered by this permit:

Chemical Type or Name	Purpose	Maximum Addition Rate
CorrShield NT 402	Corrosion inhibitor	250 lb/day
Flogard MS6206	Corrosion inhibitor	220 lb/day
GenGard GN7004	Solids dispersant	250 lb/day
Polyfloc AE1115	Settling aid	150 lb/day
Spectrus NX1106	Biocide	5 lb/day
MetClear MR2405	Metal precipitation	50 lb/day
DustTreat DC9136	Pile destabilization and dust control	1200 gal/day
Klaraid IC1183	Settling aid	5 gal/day
Klaraid PC1192	Settling aid	300 lb/day
EC46	Pile stabilization and dust control	1200 gal/day

HaulEZ (Nalco 81201)	Dust control	3300 gal/day
Nalco 71325	Filtration aid	42 gal/day
Nalco 73924	Iron deposit removal	5700 lb/day
Acid (H2SO4)	pH Control	5 short tons/day
Sodium Hypochlorite	Biocide	250 gal/day
Lime (98% Ca(OH)2)	pH Control/metals precipitation agent	19 short tons/day
DeposiTrol SF502	Antiscalant	5 gal/day
FoamTrol AF 2290	Antifoam	5 gal/day
DeposiTrol PY 5206	Antiscalant	20 gal/day
DustTreat DC9119E	Pile destabilization and dust control	900 gal/day
Sodium Hydroxide	pH Control	240 gal/day

The Permittee is authorized to transfer water from the Area 1 Pit to the Area 2WX Pit for the purposes of managing facility water inventory and minimizing the impact of the SD001 discharge on the receiving water.

Industrial Stormwater

Stormwater from the plant area and the raw material / product storage areas are collected and routed to sedimentation basins for solids settling. The east sedimentation basin has a manual valve which is connected to Area 1 Pit as well as a sump pump and piping which connects to the on-site water treatment system, which also discharges to Area 1 pit after treatment. The west sedimentation basin does not have a physical outlet structure. Excess stormwater from the west sedimentation basin is manually pumped to the on-site water treatment system. Water treated by the onsite treatment system is directed to the Area 1 Pit, and subsequent discharge through Outfall SD001.

The Facility has applied for coverage under the Multi-Sector General Permit for Industrial Stormwater as part of Sector F: Primary Metals, Subsector F1, and this coverage will be included as part of this individual NPDES/SDS permit. Sector G: Metal Mining associated requirements were not included in this permit because this sector is not applicable to the current facility industry code (SIC code). A benchmarking station has not been created since all stormwater is directed to Area 1 Pit prior to discharge and therefore monitored by SD001. Benchmark monitoring requirements of this Subsector include Total Aluminum, Total Zinc, and Total Suspended Solids. Total Suspended Solids and Total Zinc have been limited and monitored, respectively, at SD001 as part of the previous permit. An additional monitoring requirement of Total Aluminum has been included at SD001 on a frequency consistent with the Total Zinc monitoring to maintain consistency with the pollutants of concern identified in the Multi-Sector General Permit. The facility manages stormwater via a Stormwater Pollution Prevention Plan & the use of Best Management Practices.

Process and Sanitary Wastewaters

Sewage generated at the facility is stored in a holding tank and hauled to local municipal wastewater treatment plants.

The provisions for runoff control are based on Minn. Stat. ch. 115 and state water quality standards, according to Minn. R. 7001.1080, 7050.0210 and 7050.0220, and 40 CFR 122.26. The permit expiration date is based on an expected five-year permit, the maximum allowable.

Permit Effluent Limits

SD001

The permit requirements are set according to 40 CFR 122 and Minn. R. chs. 7001, 7050, 7052, 7053 and 7060. The limits on discharge of floating solids, visible foam and oil are based on Minn. R. 7050.0210. The MPCA may develop effluent limitations based on Minnesota state water discharge criteria, Minnesota state water quality standards for the receiving water use classification, federal technology-based treatment standards applicable to specific discharge types, or combination of these standards to regulate discharge of wastewater. In addition, MPCA may derive standards that are 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 regulatory agencies. The receiving water 7Q₁₀ low flow at outfall SD001 is 0 cubic feet per second (cfs). The current non-degradation design flow is 5.80 mgd as of January 1, 1988.

A variance from the Class 3C water quality standard for hardness and the Class 4A water quality standards for specific conductance, total dissolved salts (solids) and bicarbonates is included in this permit. As a result of the variance, the permit includes interim effluent limitations for the variance parameters during the life of this permit reissuance with final effluent limitations becoming effective as defined by the variance schedule in the permit language. Stream monitoring upstream and downstream of the discharge point for the variance parameters is required.

Effluent monitoring of the SD001 discharge, including low-level monitoring for mercury (Method 1631), is required by this permit. In addition, low-level monitoring for mercury is required at a number of internal points in the wastewater treatment system to assess the efficacy of the treatment system for mercury removal.

Technology Based Effluent Limits

The draft permit includes technology based effluent limitations (TBELs) for total suspended solids based on the New Source Performance Standards (NSPS) limits for the Iron and Steel Manufacturing Point Source Category, Other Operations Subcategory set forth in 40 CFR 420, Subpart M.

Total Suspended Solids:

The effluent limitations for TSS were calculated based on requirements set forth in 40 CFR 420, Subpart M. The proposed facility meets the definition of "direct-reduced iron" described in sec. 420.131(b) and the NSPS set forth in sec. 420.134 apply. The specific NSPS standards include a monthly average limitation of 0.00465 pounds TSS per 1000 pounds of product and a daily maximum limitation of 0.00998 pounds TSS per 1000 pounds of product.

The proposed facility is rated to produce 600,000 metric tons (approximately 1.323 billion pounds of product per year or 3.624 million pounds per day). The NSPS daily maximum and monthly average mass limitations thus calculate to approximately 36.2 and 16.9 pounds per day respectively. At the projected average daily flow rate of 1.5 MGD, the mass limits calculated above convert to daily maximum and monthly average concentration limits of 2.9 and 1.4 mg/L, respectively.

These limits became effective upon commencement of production and have been carried forward from the previous permit.

pH:

The NSPS limits for the subcategory also include pH limits of a minimum of 6.0 and a maximum of 9.0 Standard Units (SU). Because more stringent water quality standards are applicable for the receiving water classification, those water quality based effluent limits have been included in the draft permit, as discussed below.

State Water Discharge Criteria applicable to point source dischargers of industrial or other waste are detailed in Minnesota Rules 7053.0225. However, State Water Discharge Restrictions requiring effluent quality based on secondary treatment are not applied in this permit, (Minn. R. 7053.0215 Subp. 1), since there are Effluent Limits Guidelines for Total Suspended Solids TBEL applicable to this facility, and there is no potential for CBOD5 or oil and grease to be present in the discharge. Therefore, limits are not applied pursuant to 7053.0225 Subpart 1.B.

Water Quality Based Limits/Monitoring

Federal regulations require MPCA to evaluate the discharge to determine whether the discharge has the reasonable potential to cause or contribute to a violation of water quality standards. The Agency 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 water quality standard. 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 reasonable potential to cause or contribute to a water quality standards excursion. When Reasonable Potential is indicated, the permit must contain a water quality-based effluent limit (WQBEL) for that pollutant. The Average Design Flow is used to calculate water quality-based effluent limits under critical low flow stream conditions.

The draft permit includes final water quality based effluent limitations (WQBELs) for pH, mercury, bicarbonates, hardness, specific conductance and total dissolved solids (TDS) based on the water quality standards contained in Minn. R. 7050.0222, 7050.0223 and 7050.0224. A detailed discussion of the derivation of the WQBELs is included in the Effluent Limit Summary (ELS) and the Variance review document. A summary is provided below.

Parameters Limited by the Permit:

Total Dissolved Solids (TDS), Ca & Mg hardness as CaCO₃, bicarbonate (HCO₃), specific conductance: Reasonable potential to cause or contribute to the excursion above a water quality standard has been indicated for hardness, TDS, bicarbonates, and specific conductance. Effluent limits were derived from water quality standards pursuant to 40 CFR 122.44(d)(1)(vii)(A). The final water quality based effluent limitations for these parameters are included in Table 2 below. The calculations for these limitations are detailed in the "Discharger: Mesabi Nugget LLC" Memo dated 9-10-2010, from Effluent Limits Review Staff to the Permit File. The monitoring frequency has been maintained from the previous permit at twice monthly.

pH:

The effluent limitations of 6.5 to 8.5 for pH are based on the water quality standards for Class 2B (aquatic resources) and 4A (agriculture and wildlife) set forth in Minn. R. 7050.0222 and 7050.0224. The water quality based effluent limitations for pH are more stringent than the technology based effluent limitations of 6.0 to 9.0 for pH set forth in 40 CFR 420.134, thus the water quality based effluent

limitations are included as the limits in the draft permit. These have been carried forward from the previous permit to the current draft permit.

Mercury:

The water quality based effluent limitations of 1.8 ng/L monthly average and 3.2 ng/L daily maximum were calculated based on the 1.3 ng/L GLI water quality standard for the Lake Superior Basin set forth in Minn. R. 7052.0100 using the default coefficient of variation of 0.6 and a twice monthly monitoring frequency. As a “new discharger” in the Great Lakes Basin, the discharge must meet the mercury effluent limitations at the point of discharge upon initial discharge and without benefit of a mixing zone. Twice monthly monitoring of the effluent for mercury using analytical method 1631 and clean-sampling method 1669 is required by the draft permit. These limits have been carried forward from the previous permit to the current draft permit.

Variance

Mesabi Nugget has submitted a variance application pursuant to Minn. R. 7000.7000 requesting a variance from the water quality standards for four pollutants, (bicarbonate, hardness, specific conductance and total dissolved solids) that currently exceed water quality standards at the point of discharge (SD001). These four pollutants are also expected to exceed standards in the receiving water because the receiving water consists of discharge water, solely or primarily, for significant portions of the year. Details of the variance application and variance review process are described in the Effluent Limit Summary (ELS), the Variance Issue Statement and associated review documents.

The draft permit includes the requested variance and permit conditions related to the variance. Some of these conditions involve ongoing monitoring throughout the term of this permit, including interim effluent limitations based on currently achievable treatment, in-stream flow and parameter monitoring, and Whole Effluent Toxicity (WET) testing. In addition, the draft permit contains requirements that include the submittals of a Short Term Water Quality Improvement Study, a Water Balance Study, a Chemical Balance Study, and a Pollutant Reduction Study Report, which are expected to inform the permit application for reissuance due six months prior the end of this permit term. This permit application for reissuance is required to include a proposal which will meet all final permit limitations as soon as possible, and in no case after August 1, 2021. The specifics of these studies and monitoring requirements are detailed in the ELS, the Variance Review documents, and the permit language.

The interim permit limitations applicable at issuance for each pollutant are projected based on current levels for hardness and bicarbonates, and on projected levels in 5 years for specific conductivity and TDS provided in the variance application with the application for permit reissuance. Interim limits included in the previous permit were based on projected data from the previous permit application. Since there has been monitoring data established for hardness and bicarbonates, this new actual information was used to determine the new interim limits included in this permit reissuance. Interim limits for Total Dissolved Salts (solids) and Specific Conductivity are based on projected levels because they may be affected by any changes to the facility related to optimization or fully-operational process components. The daily maximums in the current permit are calculated from the ratio of daily maximum to monthly average limits in establishing the final WQBELs. It is expected that the Permittee will be investigating alternate technologies to improve treatment and establish a downward trend towards meeting the water quality standards for Hardness, Total Dissolved Salts (solids), specific conductivity, and bicarbonates upon implementation of the Pollutant Reduction Study Report.

The draft variance schedule requiring the studies is triggered to begin at permit reissuance. All of the following studies will be triggered off of MPCA approvals of work plans of previous studies.

This temporary variance must be approved by EPA prior to it being issued and effective. If the MPCA Citizen's Board adopts the staff resolution to approve the reissuance of the draft permit with temporary variance, the variance package will be submitted to the EPA which will then have 60 days to approve, or 90 days to deny, the variance. This permit is not considered in effect until the approval of this variance by EPA has been received by MPCA.

Monitoring Requirements without Limits:

Sulfate, sodium, chloride:

Monitoring without limits has been included in the draft permit for chloride, sodium, and sulfate on a twice monthly basis. The monitoring frequency of twice monthly is based on the preliminary information that these parameters are present in the wastewater and the potential for their concentrations to increase in the discharge during the life of the permit and maintain consistency with the permitting frequency for those parameters for which the facility variance is applicable.

Aluminum, arsenic, boron, cadmium, chromium, cobalt, copper, fluoride, lead, manganese, nickel, selenium, thallium, zinc:

Monitoring without limits has been included in the draft permit for various metals (aluminum, arsenic, cadmium, chromium, cobalt, copper, lead, nickel, thallium, selenium, and zinc) on a once annual basis. The monitoring frequency of once annually is based on the information that these parameters may be present in the wastewater and that their concentrations in the discharge should be tracked. The month of monitoring is October to accommodate restrictions on the months of discharge required by the permit due to wild rice and toxicity concerns. See the Special Requirements of this document for further information on these restrictions. Upon reissuance of this permit, the data generated from this discharge monitoring may be reviewed to determine if further monitoring or limits are required.

Parameters not monitored by this permit:

CBOD:

A limit for 5-day Carbonaceous Biochemical Oxygen Demand (CBOD₅) has not been included due to the inorganic characteristics of the discharge and a lack of reasonable potential for the facility discharge to cause or contribute to violations of a water quality standard due to this parameter.

Molybdenum:

There is currently no water quality standard in Minnesota against which Molybdenum may be reviewed for a Reasonable Potential (RP) to exceed, and Molybdenum is unlikely to negatively affect any of the parameters covered in the variance request. In addition, a previous Health Based Value (HBV) for Molybdenum, which was established by the Minnesota Department of Health has been rescinded with no replacement at this time. Therefore, no monitoring of Molybdenum has been included in the draft permit reissuance.

Strontium, Barium:

Since these parameters were analyzed as part of the application for permit reissuance, RP was reviewed. However, since the application data point was the only one available and was significantly below applicable water quality standards, no monitoring has been included in the draft reissuance of the permit.

Potassium:

Since this parameter was analyzed as part of the application for permit reissuance, RP was reviewed. However, since this parameter makes up the minority portion of the total cations in solution, no additional monitoring has been included in the draft permit reissuance.

Calcium, Magnesium:

These parameters are sufficiently controlled by the “Hardness, Calcium and Magnesium, Calculated (as CaCO₃)” limit included in the permit, so that individual monitoring of these parameters has been determined to be unnecessary.

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. Currently, Mesabi Nugget discharges treated process water with chemicals which provide no risk of eutrophication for ambient waters. Therefore, no limits or monitoring requirements are included in the permit at this time.

For reference, Table 1 includes the limits determined for Technology Based Effluent Limits, Table 2 includes monitoring and limits for Water Quality Based Effluent Limits and Table 3 contains the final limits and monitoring in the permit.

Table 1: Technology Based Effluent Limits

Pollutant	Calendar Month Average	Daily Maximum
TSS, mg/L	1.4	2.9
pH, SU	6.0 – 9.0	

Table 2: Water Quality Based Final Effluent Limits

Pollutant	Calendar Month Average	Daily Maximum
pH, SU	6.5-8.5	6.5-8.5
Mercury, ng/L	1.8 (CalMoMax: 3.2)	0.000070 kg/day
Bicarbonate (HCO ₃), mg/L	257	267
Hardness (Ca+Mg), mg/L	512	532
Total Dissolved Solids, mg/L	726	768
Specific Conductance, umhos/cm	1025	1066
Whole Effluent Toxicity (WET) – Chronic		1.0 TUc

Table 3: Final Permit Limits and Monitoring

Pollutant	Calendar Month Average	Daily Maximum
TSS, mg/L	1.4	2.9
pH, SU	6.5-8.5	6.5-8.5
Mercury, ng/L	1.8 (CalMoMax: 3.2)	0.000070 kg/day
Total Suspended Solids, mg/L	1.4	2.9
Bicarbonate (HCO ₃), mg/L	257	267
Hardness (Ca+Mg), mg/L	512	532

Total Dissolved Solids, mg/L	726	768
Specific Conductance, umhos/cm	1025	1066
Total Aluminum (ug/L)	Monitor Only (Oct)	
Total Arsenic (ug/L)	Monitor Only (Oct)	
Total Boron (ug/L)	Monitor Only (Oct)	
Total Cadmium (ug/L)	Monitor Only (Oct)	
Total Chloride (mg/L)	Monitor Only	
Total Chromium (ug/L)	Monitor Only (Oct)	
Total Cobalt (ug/L)	Monitor Only (Oct)	
Total Copper (ug/L)	Monitor Only (Oct)	
Total Fluoride (mg/L)	Monitor Only (Oct)	
Total Lead (ug/L)	Monitor Only (Oct)	
Total Manganese (mg/L)	Monitor Only (Oct)	
Total Nickel (ug/L)	Monitor Only (Oct)	
Total Selenium (ug/L)	Monitor Only (Oct)	
Total Sodium (mg/L)	Monitor Only	
Total Sulfate (mg/L)	Monitor Only	
Total Thallium (ug/L)	Monitor Only (Oct)	
Total Zinc (ug/L)	Monitor Only (Oct)	

Additional Monitoring Requirements (SW001, SW002, WS001-007)

The draft permit requires quarterly monitoring of the receiving water (Second Creek) upstream and downstream (SW001 and SW002) of the discharge for flow and the variance parameters. The purpose of the monitoring is to further develop flow and water quality information on Second Creek where it is currently not well understood and to provide a direct measure of potential impacts of the discharge on Second Creek.

The draft permit also requires quarterly monitoring of water quality within the Area 1 Pit (WS007, previously SW003) for the four variance parameters, mercury and Total Sulfate, for the purpose of documenting existing pit water quality and tracking potential changes in pit water quality resulting from operation of the wastewater treatment system.

The draft permit requires monthly monitoring at several points within the wastewater treatment system (WS001, WS002, WS003, WS004) for mercury for the purpose of quantifying the degree of mercury removal in the mercury filtration units used on site. Specifically, this mercury monitoring is required in the raw influent, in the influent and effluent of the first mercury filtration unit, and in the influent to the second mercury filtration unit. The draft permit also requires monthly monitoring of the intermediate discharge to the Area 1 Pit (WS003) for a number of salinity-related parameters for the purpose of documenting the water quality of inputs into the pit water. Mass of Spent Tailings or Slag transported from the facility is monitored via stations WS005 and WS006, respectively.

Special requirements

Solids Management Plant (Chapter 5.1.1-5.1.6):

The wastewater treatment system generates various solids that will need to be managed. The Permittee is required to determine if any waste material generated at the site meets any of the criteria for designation as hazardous waste, and managed accordingly. The facility also must submit an updated Solids Management Plan, described in the permit language, by 90 days following permit reissuance.

Sulfate Transport Study (Chapter 5.1.7-5.1.9):

In the interest of evaluating sulfate concentrations and movement in the waters between the SD001 discharge and the wild rice on the Partridge River and in the St. Louis River at the mouth of the Partridge River, the facility is required to conduct a Sulfate Transport Study within 12 months of the approval of a facility-submitted work plan to the MPCA. Further details on work plan and study requirements are included in the draft permit language.

Wild Rice Study (Chapter 5.1.10-5.1.13):

In the interest of monitoring and measuring the effects on water chemistry, hydrology and wild rice resources downstream of SD001, the facility is required to conduct a Wild Rice Impact Study, a report which must be completed within 48 months of approval of an associated work plan submitted to MPCA. Further details on work plan and study requirements are included in the draft permit language.

Financial Assurance (Chapter 5.1.15-5.1.26):

The Area 1 Pit is a portion of the wastewater treatment system for the facility. Specifically, it lies between the two mercury filtration units, (used as needed to meet permit limits), prior to discharge to Second Creek. As such, there is the potential that the Area 1 Pit may accumulate some concentration of pollutants that may remain present at the time of facility closure and that may require continued treatment during the closure period.

In order to ensure that funding is available to continue operation of the mercury filtration unit #2 after closure, the draft permit contains a provision for financial assurance. Specifically, the draft permit requires that a Letter of Credit, fully funded cash trust fund or another method of financial assurance approved by the MPCA in the amount of 5 million dollars be maintained. Further details on financial assurance, including provisions for annual review and adjustment of the financial assurance, are included in the draft permit language.

The specific amount of financial assurance was based on the estimated cost of operating the MNC Mercury Filter #2, based on the design information available at this time, for the amount of time necessary to return Area 1 Pit water quality to its pre-existing levels, estimated to be approximately three to five years. The draft permit provides for an annual review of the amount of financial assurance, at which time the dollar amount may be adjusted upwards or downwards.

Discharge Restrictions (Chapter 1.6.1-1.6.3):

The annual restriction of discharge from station SD001 to Second Creek between April 1 and August 31 discussed in Chapter 1.6.1 is based on the current draft MPCA staff recommendation dated August 27, 2012, which states, in part, "the MPCA staff recommendation is that the 10 mg/L sulfate standard is applicable for portions of the Partridge and Embarrass River systems used for the production of wild rice from April 1 through August 31." Station SD001 is located at Second Creek, which is upstream of a portion of the Partridge River which has been used for the production of wild rice.

The annual restriction of discharge from SD001 to Second Creek between August 1 and September 30 annually as required by Chapter 1.6.2 and Chapter 1.6.3 is based on potential toxicity concerns occurring

on a seasonal basis. The facility is restricted from discharging from SD001 during this time unless the facility can illustrate, via a chronic WET test, that the discharge does not exceed 1.0 chronic toxicity units (TUc). In no case shall the facility begin discharging prior to September 1.

Mercury Requirements (Chapter 1.7.1-1.7.6):

The mercury requirements are consistent with the previous permit. The facility is located in the Lake Superior Basin. As such, the discharge must comply with the GLI mercury water standard of 1.3 ng/L (Minn. R. 7052.0100). The draft permit contains conditions to provide additional assurance that total mercury contained in the facility discharge complies with effluent limitations. If monitoring data at outfall SD001 indicates that the mercury monthly average effluent limitation is not being achieved, the draft permit requires that the Permittee cease discharging through SD001. The Permittee may continue to manufacture product provided they have previously pumped the Area 1 Pit down to create excess storage capacity, (thus eliminating the immediate need to discharge through SD001), and they continue to treat wastewater through at least the first two (of three) treatment units prior to storage in the Area 1 Pit. If excess storage capacity becomes unavailable and the pit fills to the point where it will resume discharging, the draft permit requires that the company cease its manufacturing process and cease generating wastewater until such time that compliance with the mercury limits can be demonstrated.

If either of these events occurs, a major modification of the permit with public notice is required before the discharge through outfall SD001 can resume, and the Permittee must demonstrate that it can comply with the mercury limit.

For the purposes of these provisions only, an exceedance of the mercury limit has been defined in the permit as three exceedances of the mercury monthly average in any rolling 12-month period, or four times in any 60-month period. This exceedance frequency was based on a 95% compliance level (i.e., 3 samples in exceedance per 60 monthly samples over the five year life of the permit equals 95% compliance; the 4th sample in exceedance triggers the above requirements in the permit). The permit allows that the Permittee may propose for MPCA approval an alternative statistical criteria for determining an exceedance in this context, provided it is based on an equivalent statistical level of compliance as that stipulated in the permit.

Whole Effluent Toxicity Testing (Chapter 4):

Whole Effluent Toxicity (WET) testing has been conducted on Area 1 Pit since 2006. Area 1 Pit water has not shown evidence of having chronic toxicity to fathead minnows, but has been intermittently chronically toxic to *C. dubia*. The Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluation (TRE) process began in 2008 and has continued through 2011. The intermittent chronic toxicity has not resulted in complete reproduction failure (i.e. zero young per bearing female), but a reduction in the number of young per bearing female. To date, TIE/TRE tests conducted have included the following: ion exchange to remove negatively charged constituents, lime softening to remove alkalinity, EDTA addition to bind metals, calcium addition to rebalance the ratio of calcium to magnesium ions in pit water, selenium addition to alleviate micronutrient deficiency with respect to this metal, use of carbon dioxide headspace during WET testing to prevent pH rise during the test, and addition of organic carbon because the pits have very low total organic carbon which is hypothesized to be supportive of aquatic life. Initial stages of selenium addition to quantify WET testing results and level of addition to pass WET tests have been conducted. Most of these treatments did not eliminate toxicity, however, some reduced toxicity. Selenium and organic carbon addition significantly reduced toxicity. Mesabi Nugget plans to continue with the TIE and TRE process as directed in the NPDES permit. In addition, for the duration of the TIE/TRE process, the facility will be required to conduct monthly chronic WET tests for

the discharge, (or water samples representative of the discharge). In addition, quarterly updates regarding the progress of the TIE and TRE are required to be provided to MPCA staff, and an annual summary of all WET-related activities which occurred in the previous year.

Following the completion of the TRE process, the facility is required to conduct monthly chronic toxicity testing, on the station SD001 discharge to Second Creek in order to track the potential effects of the facility discharge on toxicity. A total of twelve monthly tests must be passed (<1.0 TUc) before the facility will begin monitoring every other month for the duration of the permit. Testing must be conducted during periods of discharge, so the twelve monthly tests will equate to approximately two years of passing monthly chronic WET tests prior to the reduction in monitoring. The toxicity testing is required to follow standardized procedures as outlined in the EPA Chronic Manual (EPA-821-R-02-013) and the draft permit specifies the required organisms, dilution series, sampling method and reporting.

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September 2012

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