



***STORMWATER POLLUTION PREVENTION PLAN (SWPPP)***

***United States Steel Corporation  
Keetac Mine, Plant and Tailings Basin***

***Revision 16  
August 30, 2023***

## Table of Contents

1.0	Introduction.....	3
2.0	Site Description and Information.....	5
2.1	Facility Information.....	5
2.2	Stormwater Pollution Prevention Team.....	6
2.3	Narrative Site Description.....	6
2.4	General Location Map.....	7
2.5	Site Map.....	7
2.6	Description of Receiving Waters.....	7
3.0	Assessment of Materials and Associated Pollutants.....	8
4.0	Spill Prevention and Reporting.....	8
5.0	Non-Stormwater Discharges.....	8
6.0	Discharge to Impaired Waters.....	9
7.0	Stormwater Control Measures.....	9
7.1	Good Housekeeping.....	9
7.2	Eliminating and Reducing Exposure.....	9
7.3	Erosion Prevention and Sediment Control.....	9
7.4	Management of Runoff.....	10
7.5	Facility Inspections.....	10
7.6	Maintenance.....	10
7.7	Elimination of Unauthorized Non-Stormwater Discharges.....	10
7.8	Spill Prevention and Response.....	10
7.9	Employee Training.....	10
8.0	General Permit Requirements.....	10
8.1	Benchmark Monitoring Requirements.....	10
8.2	Compliance with Sector G – Metals Mining.....	10
8.3	SWPPP Maintenance and Updating.....	11
8.4	Record Keeping and Reporting.....	11
	Appendix A – General Location Map.....	12
	Appendix B –Detailed Site Map.....	13
	Appendix C – Evaluation of Unauthorized, Non-Stormwater Discharges.....	14
	Appendix D – BMP Summary Sheets.....	15
	Appendix E – Facility Stormwater Inspections.....	35
	Appendix F – BMP Maintenance Documentation.....	36
	Appendix G – SWPPP Revisions from Annual Review.....	41

## 1.0 Introduction

On November 16, 1990, the United States Environmental Protection Agency (EPA) published regulations that require certain industrial dischargers of stormwater to apply for stormwater permits under the National Pollutant Discharge Elimination System (NPDES) program. In 1992, the EPA delegated permitting authority for Minnesota's NPDES program to the Minnesota Pollution Control Agency (MPCA). That same year, MPCA issued a NPDES General Permit for Storm Water Discharges Associated with Industrial Activity, Permit Number MN G610000. Each industrial facility covered by the MPCA General Permit was required to prepare a Storm Water Pollution Prevention Plan (SWPPP) by November 2, 1993, and to implement the plan by November 2, 1994. The General Permit expired and the second version was reissued in 1997.

National Steel Pellet Company (NSPC) of Keewatin, Minnesota developed a SWPPP for stormwater discharges from the entire facility. On September 30, 1997, MPCA reissued the General Permit under Permit No. MN G611000. The General Permit governed only stormwater discharges that were not covered by either of the facility's two individual NPDES/SDS permits (MN0031879 – Mine/Plant; MN0055948 – Tailings Basin). In May of 2003, NSPC was purchased by the United States Steel Corporation (U. S. Steel) and was given the name Keetac. The General Storm Water Permit and the two individual NPDES/SDS permits were transferred to U. S. Steel at that time.

The MPCA revised the General Storm Water Permit for Industrial Activity to contain specific requirements for each different industrial 'sector'. This revised Permit MN R050000, known as the Industrial Storm Water Multi-Sector General Permit (hereinafter referred to as the General Permit) was made effective on April 5, 2010. As part of that revision of the General Permit, and the two NPDES/SDS Permits held by Keetac, U. S. Steel is required to prepare a detailed and comprehensive Storm Water Pollution Prevention Plan (SWPPP) for the facility.

In accordance with guidance from the MPCA, Keetac did not apply for coverage under the General Permit, because stormwater language from the General Permit is included in Keetac's individual NPDES/SDS permits and will be included in any re-issued versions of those individual permits. Although Keetac will not be covered under the General Permit, U. S. Steel has created this document to meet the requirements set forth in the General Permit, in addition to the requirements of the current individual NPDES/SDS Permits held by the facility. Although General Permit requirements have been incorporated into the individual permits, this document will continue to refer to the General Permit and its requirements.

The General Permit requirements apply only to the portion of Keetac's industrial storm water discharges that are not covered under either of the two individual NPDES Permits held by Keetac. NPDES/SDS Permit MN0031879 governs water discharged from the plant and mining activities, while NPDES/SDS Permit MN0055948 governs water discharged from the tailings basin. Only a small portion of stormwater runoff is left for coverage under the General Permit, which includes runoff from the stockpiles on the northwest edge of the facility that drain to unnamed wetlands, and the stockpiles on the far east edge of the facility which drain either to the West Swan River or to Welcome Creek. Stormwater runoff that drains toward a permitted outfall is covered by one of the two individual NPDES/SDS permits described above. This document is intended to meet the requirements of General Permit and both of Keetac's NPDES/SDS Permits.

Table 1 below and Section 7 of the SWPPP describe Best Management Practices (BMPs) adopted by Keetac for activities identified in the SWPPP to minimize the discharge of potential pollutants in stormwater runoff. These BMPs address the stormwater control measures listed in the General Permit: Good Housekeeping, Eliminating and Reducing Exposure, Erosion Prevention and Sediment Control, Management of Runoff, Facility Inspection, Maintenance, Elimination of Unauthorized Non-Stormwater Discharges, Spill Prevention and Response, Mercury Minimization Plan, and Employee Training Program. The following activities have been identified, with BMP Summary Sheets developed for each.

**Table 1**  
**Best Management Practices for SWPPP Activities**

BMP No.	Industrial Activity / Significant Materials
1	Aboveground Storage Tanks
2	Hazardous / Non-Hazardous Waste Storage
3	Pit Fueling Station
4	Existing Stormwater Treatment
5	Employee Training
6	Preventative Maintenance Program
7	Berm Around Crude Ore Building
8	Storage Barrels at Old and New Shovel Repair Areas
9	Sludge Disposal
10	Substations and Transformers
11	Gas Fueling Station
12	Rail Car Deluge Diversion Ditch
13	Sewage Holding Tanks
14	Good Housekeeping
15	Facility Stormwater Inspections
16	BMP Maintenance Program
17	Equipment Preventive Maintenance Program
18	Stockpile Design and Construction

## 2.0 Site Description and Information

### 2.1 Facility Information

<b>United States Steel Corporation</b>		
<b>Facility:</b>	Keetac	
<b>Address:</b>	1 Mine Road Keewatin, MN 55753	
<b>Emergency Contact:</b>	Tom Moe	<b>Work Phone:</b> 218-749-7485
<b>Title:</b>	Environmental Engineer	<b>Cell Phone:</b> 218-248-0028 <b>Emergency:</b> 218-778-8700
<b>Secondary Contact:</b>	Stephani Campbell	<b>Work Phone:</b> 218-778-8684
<b>Title:</b>	Environmental Engineer	<b>Emergency:</b> 218-778-8700
<b>Type of Manufacturer:</b>	Iron Ore Mining/Processing	
<b>Operating Schedule:</b>	3 shifts, year-round	
<b>Number of Employees:</b>	appx. 380	
<b>NPDES/SDS Permit Numbers:</b>	MN0031879 (Mining), MN0055948 (Tailings Basin)	

**2.2 Stormwater Pollution Prevention Team**

Committee Position	Member Name
Managers – Storm Water Pollution Prevention Plan*	Tom Moe Work Phone: 218-749-7485
Employee Trainer	Tom Moe Work Phone: 218-749-7485
Facility Inspectors	Tom Moe Work Phone: 218-749-7485 Stephani Campbell Work Phone: 218-778-8684 Bethany Jones Work Phone: 218-778-8672
Records Keeper	Tom Moe Work Phone: 218-749-7485

\* This individual is responsible for managing, implementing, maintaining, modifying, and ensuring compliance with the facility’s SWPPP

**2.3 Narrative Site Description**

The site consists of a number of active and inactive mining pits, tailings basins, various stockpiles, reservoirs, and the concentrator / pellet plant facility. The Site Map in Appendix A shows a number of these areas; however, the emphasis in this SWPPP is on the process and areas of increased pollution potential. Therefore, those are the areas called out on the Site Map and discussed in this SWPPP.

The layout of the main plant area is from north to south, as follows: the primary crushers and pit fueling station, crushed ore conveyors and drive house, crude ore storage building and concentrator with thickeners on the east, service building and offices, pellet plant with storage piles on the east and a substation and parking lot on the west, bentonite unloading area and concentrate storage piles, pellet conveyors and pellet pile, potable water filter building, and finally pellet drive house, pellet loadout station and railcar deluge system.

In addition to the main plant area, there is the new and old shovel repair yard northeast of the pellet plant, the Bennett tailings basin east of the plant used for dredge materials and tailing spills (now inactive), and the wastewater treatment plant west of the plant.

The entire facility encompasses an area of approximately 37,000 acres. Of this total area, approximately 10,525 acres (28%) contain industrial activities or significant materials that may come in contact with stormwater. These 10,525 acres are comprised of the plant area (225 acres), the mine pit and waste rock dumps (4,300 acres), and the active tailings basin (6,000 acres). The 31,275 acres not housing industrial activity or significant materials are used as a buffer to industrial activities, area to expand mining in the future, and land available for limited use by the public under the Minnesota Sustainable Forest Incentive Act.

The primary Standard Industrial Classification (SIC) code which applies to the operations at Keetac is 1011 – Iron Ores. However, there are many ancillary industrial activities that take place at the facility as part of normal operations. These activities are as follows:

- Fueling
- Vehicle and equipment maintenance
- Loading and unloading of dry bulk materials and liquids
- Liquid storage tanks
- Outdoor processing (e.g., pellet screening)
- Outdoor storage of significant materials
- Access roads, railroad cars and tracks
- Wastewater treatment and solid waste management
- Dust or particulate-generating processes

#### **2.4 General Location Map**

A general location map is located in Appendix A of this SWPPP.

#### **2.5 Site Map**

A detailed Site Map is located in Appendix B of this SWPPP.

#### **2.6 Description of Receiving Waters**

There are six (6) main NPDES-permitted outfalls which allow water to be discharged off the property of U. S. Steel. These outfalls are as follows:

##### **Permit MN0031879**

SD001 – Water Treatment Plant Backwash Outfall 040. This outfall discharges intermittently to Welcome Lake, which can drain to Carlz Pit but has no current outlet.

SD002 – Weir Outfall 050. This outfall, also known as the Welcome Creek Outfall, is the headwater of Welcome Creek, which flows back onto U. S. Steel Property, where it is eventually discharged again and flows to Reservoir #2, the O'Brien Diversion Ditch, Hay Creek, and Swan Lake.

SD003 – Pipe Outfall 080. This outfall, also known as the Mesabi Chief Outfall, discharges to O'Brien Creek which flows to O'Brien Reservoir (also known as Reservoir #4), the O'Brien Diversion Ditch, Hay Creek, and Swan Lake.

SD012 – Perry Pit Dewatering. This outfall also discharges to O'Brien Creek which flows to O'Brien Reservoir/Reservoir #4, the O'Brien Diversion Ditch, Hay Creek, and Swan Lake.

##### **Permit MN0055948**

SD001 – Reservoir #6 Siphon. This outfall consists of a series of four siphons (010, 011, 012 and 013) that are used to transfer water from Reservoir #6 to Reservoir #2 during emergency situations. These siphons are rarely used.

SD005 – Reservoir #6 Overflow. This culvert outfall discharges water from Reservoir #6 to Reservoir #2, which flows to the O’Brien Diversion Ditch, Hay Creek and Swan Lake. The discharge from Reservoir #2 is monitored via Outfall SW001 but contains no limits as U. S. Steel does not have complete control of the water entering this reservoir. All of the water discharged from Keetac remains in the Upper Mississippi River Watershed.

O’Brien Reservoir and Swan Lake are listed on the State of Minnesota’s 303d list of impaired waters for mercury in fish tissue. Hay Lake and the SW bay of Swan Lake are listed on the State of Minnesota’s 303d list of impaired waters for Wild Rice sulfate. It should be noted that Permit MN0055948 contains another designated outfall, SD009, for discharges from the Sargent Pit in the Keetac West Mine Pit to Reservoir #2. To date, this outfall has not been established, and instead dewatering discharge from the Sargent Pit is pumped to either the Mesabi Chief Pit or to the Russell Pit.

### **3.0 Assessment of Materials and Associated Pollutants**

In conjunction with a site review from U. S. Steel Corporate Environmental Affairs, the SWPPP team identified significant materials and potential pollutants associated with those materials at the facility. The results of this evaluation are listed below, with associated potential stormwater pollutants shown in parenthesis.

- Concentrate piles (TSS, Fe)
- Coal piles (TSS)
- Pellet piles (TSS, Temperature)
- Chip piles (TSS)
- Fuel oil tanks - with secondary containment (DRO)
- Waste oil tanks – with secondary containment (DRO)
- Lube oil tanks – with secondary containment (DRO)
- MgCl<sub>2</sub> tank –with secondary containment (Chlorides, TDS, Hardness)

### **4.0 Spill Prevention and Reporting**

Keetac operates under a Spill Prevention, Control and Countermeasure Plan (SPCC), in accordance with 40 U. S. Code of Federal Regulations, Part 112. This document in its entirety is hereby considered to be part of this SWPPP. An SPCC plan is required by Federal regulations for any facility at which certain quantities of oil are managed, and at which, if a release of petroleum occurred, it would reasonably be expected to reach navigable waters of the United States. All spills and releases are reported in accordance with Minn. Stat. §115.61 and documentation is kept on site.

### **5.0 Non-Stormwater Discharges**

The Keetac SWPPP team has evaluated the facility for the presence of any unauthorized non-stormwater discharges. No unauthorized non-stormwater discharges have been identified. The facility does discharge non-stormwater, however these discharges are authorized under the individual NPDES/SDS

permits mentioned above. Documentation of the evaluation of unauthorized, non-stormwater discharges is presented as Appendix C.

## **6.0 Discharge to Impaired Waters**

Keetac does not discharge directly to any waters listed as impaired by the State of Minnesota. Keetac Mining Area discharges flow through the O'Brien Reservoir/Reservoir #4 and into the Diversion Ditch, at which point Tailings Basin Discharges enter. The Diversion Ditch flows into Hay Creek, which flows through Hay Lake and eventually into Swan Lake. Hay Lake and the SW bay of Swan Lake are both listed as impaired for Wild Rice sulfate. Since Swan Lake is impaired for mercury in fish tissue both of Keetac's individual NPDES permits are subject to the requirements of the Statewide Mercury TMDL, which was approved by the US EPA on March 27, 2007. This TMDL allows for a wasteload allocation of 4 kilograms per year of mercury for the NE Region of MN. No other stormwater control measures, implementation activities, or compliance schedules pertinent to industrial discharges are included in the TMDL.

## **7.0 Stormwater Control Measures**

The Keetac SWPPP team has created BMPs to address potential pollutant sources that were identified by the General Permit. Each area or activity where there is an existing or potential source of stormwater contamination was classified into one of three groups. These groups were labeled as either, "high", "medium", or "low". Those areas rated as "high" are first priority and often require the implementation of structural controls or adoption of new operating procedures in order to lower their pollution potential. Areas rated as "medium" need to be addressed but can usually be resolved with procedural BMPs. Those areas rated as "low" do not require additional BMPs but are areas that should be observed in case the potential for storm water pollution increases. Details of each BMP are shown in Appendix D of this SWPPP. Each BMP summary sheet includes information related to the location and type of BMP installed, a description of how BMP effectiveness is to be measured, and any preventive maintenance that may be required for the BMP to maintain its effectiveness. Below is a list of the stormwater control measures required by the General Permit and the BMPs that apply to each one.

### **7.1 Good Housekeeping**

BMP 6 – Preventive Maintenance Program  
BMP 14 – Good Housekeeping

### **7.2 Eliminating and Reducing Exposure**

BMP 2 – Hazardous/Nonhazardous Waste Storage  
BMP 3 – Pit Fueling Station  
BMP 8 – Storage Barrels at Old and New Shovel Repair Area  
BMP 9 – Sludge Disposal  
BMP 10 – Substations and Transformers  
BMP 14 – Good Housekeeping

### **7.3 Erosion Prevention and Sediment Control**

BMP 4 – Existing Storm Water Treatment  
BMP 7 – Berm Around Crude Ore Building

BMP 12 – Rail Car Deluge Diversion Ditch  
BMP 18 – Stockpile Design and Construction

#### **7.4 Management of Runoff**

BMP 4 – Existing Storm Water Treatment  
BMP 16 – BMP Maintenance Program

#### **7.5 Facility Inspections**

BMP 10 – Substations and Transformers  
BMP 15 – Facility Stormwater Inspections

#### **7.6 Maintenance**

BMP 6 – Preventive Maintenance Program  
BMP 16 – BMP Maintenance Program  
BMP 17 – Equipment Preventive Maintenance Program

#### **7.7 Elimination of Unauthorized Non-Stormwater Discharges**

BMP 12 – Rail Car Deluge Diversion Ditch  
BMP 13 – Sewage Holding Tanks

#### **7.8 Spill Prevention and Response**

BMP 1 – Aboveground Storage Tanks  
BMP 2 – Hazardous/Nonhazardous Waste Storage  
BMP 3 – Pit Fueling Station  
BMP 11 – Gas Fueling Station

#### **7.9 Employee Training**

BMP 5 – Employee Training

## **8.0 General Permit Requirements**

### **8.1 Benchmark Monitoring Requirements**

According to Part V of the General Permit, all stormwater discharges covered under the Permit shall be sampled and analyzed for comparison against Benchmark Values. The only areas of the Keetac facility covered under the General Permit consist of the stockpiles on the northwest edge of the facility which drain to unnamed wetlands, and the stockpiles on the far east edge of the facility which drain either to the West Swan River or to Welcome Creek. No representative benchmarking monitoring locations were identified upon reissuance of NPDES/SDS Permit MN0031879 (Mining Area) or NPDES/SDS Permit MN0055948, and therefore benchmark monitoring is not required.

### **8.2 Compliance with Sector G – Metals Mining**

Keetac is an iron ore mining facility and falls under Sector G – Metal Mining (Ore mining and dressing) of the General Permit. However, this SWPPP has been tailored to meet the requirements set forth in Keetac's NPDES/SDS Permits (MN0031879 and MN0055948), which meet or exceed the requirements of the General Permit.

### **8.3 SWPPP Maintenance and Updating**

This SWPPP shall be reviewed at least annually and modified as necessary. At the very least, this document will be updated if:

- There is construction or a change in design, operation, or maintenance at the facility that affects stormwater management or compliance with this permit.
- U. S. Steel identifies a monitoring location from which the discharge flows to, and is within one mile of, an impaired water.
- A routine inspection, compliance evaluation, or visual inspection identifies deficiencies in the SWPPP and/or BMPs.
- Additional stormwater control measures and BMPs are necessary to meet applicable water quality standards or to address exceedances of benchmark values.
- There is an unauthorized discharge from the facility.

### **8.4 Record Keeping and Reporting**

An electronic copy of this SWPPP will be kept in a folder on the U. S. Steel Minnesota Ore Operations server at Q:\Departments\Environmental\Keetac\WATER\Storm water\SWPPP\ and be retained for the duration of the permit. All records pertaining to the SWPPP inspection reports, and applicable monitoring data, will be retained for the period of permit coverage. A Stormwater annual report shall be submitted to the MPCA by March 31 of each year following permit issuance.

## Appendix A – General Location Map

**Appendix B –Detailed Site Map**

## **Appendix C – Evaluation of Unauthorized, Non-Stormwater Discharges**

**United States Steel Corporation, Minnesota Ore Operations - Keetac  
Evaluation of Unauthorized Non-stormwater Discharges**

Date of evaluation: 8/30/10 Evaluator: Jean Muel

Evaluation criteria: No precipitation/runoff. Evaluate process flow diagrams and ensure all facilities' discharges are authorized by a NPDES/SDS permit.

Monitoring locations observed: Mesabi Creek (SD003), Penny Pit (SD012), Scrubber makeup (WS011), Scrubber clarifier overflow (WS012), Potable water back wash (SD001 - not running), Welcome Creek (SD002), Reservoir 6 (SD005), Reservoir 2 (SW001), Siphon Discharge (SD001), WWTP (WS005)

Types of non-stormwater discharges and source locations: Mine Pit dewatering, Process water, wastewater, groundwater/creek flow, Reservoir overflow, potable water

Action(s) taken to eliminate any unauthorized discharge(s) that were identified: none needed.

**Appendix D – BMP Summary Sheets**

## ACTIVITY 1: Aboveground Storage Tanks

---

### Stormwater Control Measure:

- Spill Prevention and Response

### Potential Pollutants:

Fuel oil, lube oil, hydraulic oil, antifreeze, magnesium chloride, used oil

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practices (BMP):

All outdoor aboveground storage tanks have secondary containment around them to contain any spills or leaks. The secondary containment capacity was designed for 100% containment of the volume of the largest tank within the structure plus one foot of freeboard.

Visual inspections of all tanks, piping, and associated secondary containments are performed on a weekly basis to ensure compliance with applicable water quality standards prior to discharge and maintain adequate containment capacity.

Containments are drained of water as necessary after visually inspecting for contamination (visible sheen, etc.) to maintain adequate containment capacity. If the containment has a visible, oily film greater than what an absorbent pad can handle, a sample of the rainwater may be collected and analyzed for petroleum hydrocarbons and diesel range organics or a third party is contacted to pump out the water. Alternatively, absorbent pads may be used to remove the oil from the water prior to draining. If the collected rainwater exhibits no sheen, the responsible facility personnel shall unlock the drain valve, drain the containment area and re-lock the drain valve in the closed position. (Reference Form Tank 1 – Water Drain Report for Secondary Containment)

Collected rainwater in secondary containment areas is discharged, after inspection, through drainpipes with manually operated valves, which are locked in the closed position when not in use.

Completed logs for the Inspection Program are maintained by the Environmental Department for a minimum of three years.

**Indicators of BMP Function:** Secondary containments inspected

**Preventive Maintenance:** Routine containment draining after rainfall / snowmelt events

## ACTIVITY 2: Hazardous / Non-Hazardous Waste Storage

---

### Stormwater Control Measure:

- Eliminating and Reducing Exposure
- Spill Prevention and Response

### Potential Pollutants:

Waste oil and non-hazardous waste materials

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

The hazardous / non-hazardous waste storage area is a curbed 3-sided building with a roof. The building is designated for the storage of properly labeled barrels containing waste oil, hazardous, and non-hazardous waste materials waiting to be removed from the site by vendors. Inspections of the hazardous / non-hazardous waste area is conducted on a weekly frequency.

**Indicators of BMP Function: Hazardous and non-hazardous waste stored properly**  
**Preventive Maintenance: None**

### ACTIVITY 3: Pit Fueling Station

---

**Stormwater Control Measure:**

- Eliminating and Reducing Exposure
- Spill Response and Prevention

**Potential Pollutants:**

Fuel oil, antifreeze, motor oil, and hydraulic oil

**Environmental Risk:**

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

**Best Management Practice (BMP):**

The pit fueling station consists of an enclosed building and an outside cement fueling pad on the South side. Production trucks are fueled inside the building and all other pit vehicles are fueled on the outdoor cement pad. Both fueling areas have floor drains which collect spills and drain into the pit sump. Water accumulated in the pit sump is removed by a vendor for disposal.

Storm water from this area drains into the Section 18 Pit Sump. Water from the Section 18 Sump is pumped to the Russell Pit and subsequently to the Carlz Pit for use as process makeup.

**Indicators of BMP Function:** Spills or leaks associated with the pit fueling station

**Preventive Maintenance:** Regular pumping of the pit sump during thawed conditions

## ACTIVITY 4: Existing Storm Water Treatment

---

### Stormwater Control Measure:

- Erosion Prevention and Sediment Control

### Potential Pollutants:

Sediments associated with plant operations

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practices (BMP):

Precipitation runoff in the mine flows to dewatering sumps that discharge through permitted outfalls covered under the NPDES permit. The Section 18 Sump collects runoff from the area around the coarse crushers and fueling station. This water is ultimately pumped to the Russell Pit, which in turn is pumped to the Carlz Pit and reused as process makeup.

Storm water runoff in the North and East stockpile and plant area collects and is treated in a series of settling ponds that make up the Plant Diversion Ditch. The Diversion Ditch system discharges into Welcome Creek at the site boundary and flows through permitted Outfall SD002. Settling basins are cleaned out every 2 to 3 years.

Storm water from the South and Southwest stockpile and plant area collects in a settling pond next to the concentrate reclaim building. The water either evaporates or is pumped out for dust control.

Precipitation runoff within the tailings basin flows to a series of reservoirs that ultimately discharge to Reservoir 6. The water in Reservoir 6 is either reclaimed to satisfy process demands or is discharged through permitted Outfall SD005.

**Indicators of BMP Function:** Water quality at facility outfalls

**Preventive Maintenance:** Routine sediment removal from the upper settling basins

## ACTIVITY 5: Employee Training

---

### Stormwater Control Measure:

- Employee Training

### Potential Pollutants:

Various pollutants associated with plant operations

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

All employees receive annual environmental training for their specific work area through monthly safety meeting contacts. In addition to other facets of environmental stewardship and compliance, this training covers stormwater control measures, the components and goals of the SWPPP, and stormwater monitoring procedures.

All attending employees will sign in and training records will be kept in the training department of U. S. Steel – Minnesota Ore Operations.

**Indicators of BMP Function:** Number of employees receiving annual training

**Preventive Maintenance:** None

## ACTIVITY 6: Preventative Maintenance Program

---

### Stormwater Control Measure:

- Maintenance

### Potential Pollutants:

Various pollutants associated with plant activities

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practices (BMP):

Daily preventative maintenance practices (PM) employed include:

- Maintaining clean ground surfaces where possible, storing barrels and bulk containers in designated areas, regularly picking up and disposing of garbage and waste material. Main fuel oil tank unloading area repaired and monitored for spills.

Weekly PM includes:

- Inspecting aboveground storage tanks, sumps with overflow connections to the storm drain system.

Monthly PM includes:

- Inspecting the areas of the site that can contribute to the contamination of storm water such as transformers in the substations and storage yard, loading/unloading areas, material storage areas, and aspects of the storm water management system itself.

**Indicators of BMP Function:** Inspections resulting in the prevention of water contamination

**Preventive Maintenance:** Adherence to above listed schedule

## ACTIVITY 7: Berm Around Crude Ore Building

---

### Stormwater Control Measure:

- Erosion Prevention and Sediment Control

### Potential Pollutants:

Eroded fine ore sediments

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

Berm around crude ore storage area composed of large material to reduce amount of erosion from the area. The berm will be monitored and fine sediments will be diverted as needed.

**Indicators of BMP Function:** Lack of fine ore sediments in runoff

**Preventive Maintenance:** Addition of coarse material if erosion is present

## ACTIVITY 8: Storage Barrels at Old and New Shovel Repair Areas

---

### Stormwater Control Measure:

- Eliminating and Reducing Exposure

### Potential Pollutants:

Waste oil, lube oil, and grease

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

Storage of barrels for waste oil and grease at both shovel repair areas is no longer permitted. Waste barrels are to be labeled and placed in the non-hazardous waste storage building.

**Indicators of BMP Function:** Elimination of waste barrels stored at the shovel repair area

**Preventive Maintenance:** None

## ACTIVITY 9: Sludge Disposal

---

### Stormwater Control Measure:

- Eliminating and Reducing Exposure

### Potential Pollutants:

Wastewater sludge, shop oil-water separator sludge, oils, sediment

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

Sludge is taken off site for treatment and/or disposal on an as-needed basis

**Indicators of BMP Function:** Elimination of on-site sludge disposal

**Preventive Maintenance:** Removal of wastewater and oil-water separator sludge

## ACTIVITY 10: Substations and Transformers

---

### Stormwater Control Measure:

- Eliminating and Reducing Exposure
- Routine Inspections

### Potential Pollutants:

Transformer oil (non-PCB)

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

Outdoor substations and transformers are inspected periodically to detect leaks. There are no PCB-containing transformers located onsite as of 2009.

**Indicators of BMP Function:** No leaks indicated at substations and transformers

**Preventive Maintenance:** None

## ACTIVITY 11: Gas Fueling Station

---

### Stormwater Control Measure:

- Spill Prevention and Response

### Potential Pollutants:

Gasoline (87 Octane)

### Environmental Risk:

Low	<input type="checkbox"/>
Medium	<input checked="" type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

The storage tank is underground and has leak monitoring equipment. Pumper trucks have spill kits and vacuum units for cleaning up spills. Tank volume is recorded on a daily basis.

**Indicators of BMP Function:** Number of leaks associated with the gas fueling station

**Preventive Maintenance:** None

## ACTIVITY 12: Rail Car Deluge Diversion Ditch

---

### Stormwater Control Measure:

- Elimination of Unauthorized Non-Stormwater Discharges

### Potential Pollutants:

Sediments associated with plant operations

### Environmental Risk:

Low	<input type="checkbox"/>
Medium	<input checked="" type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practice (BMP):

During the summer of 1998 a ditch was constructed to prevent and collect pellet loadout storm water and rail car deluge water from directly entering Welcome Lake. The ditch diverts area runoff to the 10 settling basin treatment system and is cleaned on an as-needed basis.

**Indicators of BMP Function:** Lack of pellet loadout water entering Welcome Lake

**Preventive Maintenance:** Sediment removal as part of the routine Plant Diversion Ditch Cleanout.

## ACTIVITY 13: Sewage Holding Tanks

---

### Stormwater Control Measure:

- Elimination of Unauthorized Non-Stormwater Discharges

### Potential Pollutants:

BOD

TSS

Coliform bacteria

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practices (BMP):

Since the septic drain field servicing the crushers and pit dry was abandoned, the two large septic tanks have become sewage holding tanks which are periodically pumped out by a contractor. To prevent these tanks from overflowing, the contractor has been placed on a schedule to pump out the tanks as needed. This practice is to remain in place when the facility is in operation. This frequency may be increased if deemed necessary by inspection.

**Indicators of BMP Function:** Number of holding tank overflow events

**Preventive Maintenance:** Routine pumping

## ACTIVITY 14: Good Housekeeping

---

### Stormwater Control Measure:

- Good Housekeeping
- Eliminating and Reducing Exposure

### Potential Pollutants:

Various pollutants associated with plant activities

### Environmental Risk:

Low   
Medium   
High

### Best Management Practices (BMP):

Good housekeeping practices employed include:

- Keeping waste storage containers closed. This includes waste containing drums and solid waste dumpsters. Closing these containers reduces the opportunity for leaching to occur.
- Putting away any tools or other service-related equipment that is used outside after each use. This reduces exposure to stormwater.
- To the extent practical, significant materials shall be stored in areas not exposed to precipitation or runoff.

**Indicators of BMP Function:** Number of waste containers closed; Service locations with exposed equipment; Properly stored materials

**Preventive Maintenance:** N/A

## ACTIVITY 15: Facility Stormwater Inspections

---

### Stormwater Control Measure:

- Facility Inspection

### Potential Pollutants:

Environmental Risk: N/A

### Best Management Practices (BMP):

Facility inspections shall be conducted to ensure that runoff controls are being maintained to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060. Facility inspections shall be made by a trained individual at least once every two months during non-frozen conditions to evaluate existing BMPs, runoff conditions, and site conditions that have a potential to impact stormwater runoff. Changes to site characteristics that have an increased potential for erosion due to precipitation/snowmelt runoff will be identified and additional BMPs will be implemented as needed. These changes will be documented in the **Keetac BMP Maintenance Documentation** section of this SWPPP. The frequency of facility inspections may be increased to greater than once every two months during non-frozen conditions depending upon the nature of the facility change(s), as well as precipitation frequency, intensity, duration, the magnitude of runoff due to snowmelt events and antecedent conditions. Areas of the facility identified as having the potential for increased risk of erosion from runoff will be targeted for more frequent stormwater inspections, with site and weather conditions dictating the exact frequency and timeframe of those inspections. Documentation of increased inspection frequency will also be included in the **Keetac BMP Maintenance Documentation** section of this SWPPP.

One inspection annually shall be during a snowmelt runoff event and another annual inspection shall be during a precipitation runoff event so that the condition of runoff may be evaluated.

Inspections will be documented and retained.

Inspections will be performed on a semiannual basis if the facility is unstaffed and inactive for more than 10 months in any calendar year.

**Indicators of BMP Function:** Number of inspections performed annually  
**Preventive Maintenance:** N/A

## **ACTIVITY 16: BMP Maintenance Program**

---

### **Stormwater Control Measure:**

- Maintenance

**Potential Pollutants: N/A**

**Environmental Risk: N/A**

### **Best Management Practices (BMP):**

All BMPs shall be maintained to ensure effectiveness according to the schedule indicated on each BMP sheet. If any BMP is found to be not functioning properly, it shall be repaired, maintained, or replaced within seven (7) days of discovery. If this timeframe is unachievable, a backup BMP shall be implemented in the interim.

Any BMP repair, maintenance, or replacement shall be documented in the **Keetac BMP Maintenance Documentation** section of this SWPPP.

**Indicators of BMP Function:** Properly maintained BMPs

**Preventive Maintenance:** N/A

## ACTIVITY 17: Equipment Preventive Maintenance Program

---

### Stormwater Control Measure:

- Maintenance

### Potential Pollutants:

Petroleum products

Automotive fluids

### Environmental Risk:

Low	<input checked="" type="checkbox"/>
Medium	<input type="checkbox"/>
High	<input type="checkbox"/>

### Best Management Practices (BMP):

All equipment at the facility is operated under a preventive maintenance program which is intended to prevent unexpected breakdowns and equipment failures. All mobile equipment is serviced routinely based on hours of operation. Each routine servicing includes a check for worn or leaking hoses, or any other problem which may result in a loss of fluid. In addition, all mobile equipment is inspected by the operator prior to first use on each shift. These inspections are documented and intended to identify problems before they impact safety or environmental compliance.

**Indicators of BMP Function:** Number of spills caused by unexpected equipment failure

**Preventive Maintenance:** Follow equipment preventive maintenance program

## ACTIVITY 18: Stockpile Design and Construction

---

**Applies to Storm Water:**

**Applies to Process Water:**

**Applies to Groundwater:**

### **Stormwater Control Measure:**

- Erosion Prevention and Sediment Control

### **Potential Pollutants:**

Sediment

### **Environmental Risk:**

Low   
Medium   
High

### **Best Management Practices (BMP):**

All stockpiles are managed to minimize and prevent erosion, in accordance with Minn Rules Chapter 6130. This includes, but is not limited to:

- Restricting lift height between benches
- Restricting the slope angle between benches
- Sloping all benches toward the center of the stockpile
- Establishing vegetation on completed or partially completed stockpiles (including the tops and benches of rock/lean ore stockpiles)
- Perform routine inspections of Stockpile "A" and ensure stockpile berm is maintained

**Indicators of BMP Function:** Number of stockpiles properly stabilized

**Preventive Maintenance:** Re-establishing vegetation if state standards are not met

## **Appendix E – Facility Stormwater Inspections**

Facility stormwater inspections are available upon request and are stored electronically at:

Q:\Departments\Environmental\Keetac\WATER\Storm water\Stormwater Inspections\year\*Mining Area or Tailings Basin*

**Appendix F – BMP Maintenance Documentation**

# Keetac BMP Maintenance Documentation

## **1) BMP Issue discovered during MPCA facility NPDES Compliance Inspection – 6/15/17**

### Issue:

Breach in berm discovered on south side of RR tracks near pellet load-out deluge system. Stormwater runoff and concentrate were found to have been discharging down slope to NE corner of Welcome Lake.

### Corrective Actions:

The following corrective actions were completed on Saturday, 6/17/17: the berm was repaired using additional concentrate and the newly repaired berm was then armored with rip rap. Additionally, improvements were made to the swale that begins between the berm and the RR tracks and ends at the nearest settling pond to the SE so that future stormwater runoff will be directed to Keetac's 10 settling basin system.

### Follow-up Corrective Actions:

Final removal of material deposited in Welcome Lake and reclamation of the slope below pellet loadout from the berm breach described above was completed over the period 6/21-25/21. Coarse rock berms were installed at various levels up the slope, erosion control blanket was placed on the areas of exposed soils, the area was seeded with a DNR-approved seed mix and jersey barriers were placed at the toe of the newly rebuilt berm adjacent to the railroad tracks and pellet loadout.

## **2) Issue discovered during follow-up inspection of BMP Activity 12 – 7/31/17**

### Issue:

Berm was repaired as described above, but a crown in the slope between the railroad track and repaired berm was present causing a portion (20 - 30%) of the deluge water draining out of the pellet railcars to flow to the west and into the berm. This water was then infiltrating through the berm and down the slope into Welcome Lake.

### Corrective Actions:

The following actions were completed by Friday, 8/4/17: additional material was brought in and contouring was completed across the area between the railroad track and berm to try and correct the crown issue and promote flow of all deluge water away from the berm and into the ten settling basin system.

## **3) Issue discovered during SWPPP inspection during rain event – 8/17/17**

### Issue:

BMP Activity 12 - The crown in the slope between the railroad track and repaired berm is still present causing a portion (20 - 30%) of the deluge water draining out of the pellet railcars to flow to the west and into the berm. This water was then infiltrating through the berm and down the slope into Welcome Lake.

### Corrective Actions:

Elevations were shot along the desired path of flow to produce an elevation profile. Additional grading was subsequently conducted in an attempt to correct the problem.

## **4) Issue discovered during inspection of aerial photos from blast plane – 7/16/18**

### Issue:

BMP Activity 18: Stockpile Design and Construction – Due to heavy precipitation in early – mid July 2018, a section of perimeter berm on the 1560-ft elevation (lowest) lift of Surface Stockpile “A” was washed out, with stockpile material discharged to nearby wetland beyond the Permit to Mine boundary. A similar washout was also discovered on the perimeter berm in the southeast portion of the 1600-ft elevation lift during a subsequent inspection conducted on July 27, 2018. However, the eroded material was confined by downslope coarse rock toe berms.

Corrective Actions:

The washed-out sections of both lifts were filled and the perimeter berms were repaired. A sinkhole just upgradient of the 1560-ft lift perimeter berm, suspected to be one of the root causes of the washout, was filled. Additional grading of the bench surfaces is being completed to keep pooled runoff away from the perimeter. Routine inspections of Stockpile “A” will be included as a documented SWPPP activity. Seeding of completed stockpile bench slopes will be completed in October 2018.

**5) Issue occurred due to operator error – 10/5/18**

Issue:

BMP Activity 18: Stockpile Design and Construction – During day shift on October 4, 2018, an operator working on an upper lift of Surface Stockpile “A” removed a section of perimeter berm, without management’s knowledge or approval, to allow ponded stormwater runoff to drain to the lower lift. The result of this action was movement of a limited amount of surface material from the lower lift into adjacent wetlands through an opening in the lower lift’s perimeter berm. The opening in the lower lift perimeter berm had been created to allow equipment access to the area described in Issue #4 above. Equipment access was needed to remove material deposited into the wetland, as per MN DNR demands.

Corrective Actions:

The surface material was removed from the adjacent wetland and the perimeter berm on the upper lift was replaced on October 5, 2018, and the perimeter berm on the lower lift was replaced as soon as removal activity associated with Issue #4 was completed. The operator responsible for removing the perimeter berm from the upper lift was retrained on proper management of accumulated runoff on stockpiles, as were all other operators with similar job descriptions.

**6) Issue discovered during snowmelt runoff inspection – 3/19, 26 & 27/19**

Issue:

BMP Activity 18: Stockpile Design and Construction – A snowmelt runoff inspection of the facility was begun on 3/19/19, with no apparent issues observed. However, all areas of Surface Stockpile A could not be accessed due to conditions related to the remaining snow, ice and ponded water. Photos of the area were subsequently taken from a blast plane on 3/26/19, again with no apparent issues identified. The next day, 3/27/19, the south side of Stockpile A was accessed from the adjacent railroad tracks after the majority of the remaining snowpack had disappeared. From this vantage point an area of erosion was observed in the safety berm at the southern boundary of the lowest stockpile lift, which allowed a small amount of surface material to move into the adjacent previously mitigated wetland.

Corrective Actions:

The eroded portion of the safety berm will be refilled and built-up with erosion resistant material as soon as field conditions allow and the safety berm BMP will be restored to proper operation on or before 4/26/19.

## **7) Maintenance issues discovered during non-routine inspection – 8/14/19**

### Issue:

BMP Activity 18: Stockpile Design and Construction – Several erosional rills were identified on the lowest bench of Surface Stockpile A which was recently sloped and seeded. Vegetative growth is taking hold on the newly sloped (2.75:1 sloping ratio), but concentrated runoff flow has created several minor erosional rills. Additionally, the area at the toe of the stockpile at which the first sediment release of 2018 occurred (see Item 4 above) needs additional sedimentation control along lowest safety berm.

### Corrective Actions:

The erosional rills will be mulched and reseeded. Additional safety berm material will be placed at the toe of the slope in the problematic area identified in Item 4 above to eliminate further release of sediment. Corrective actions will be completed by 8/30/19.

## **8) Maintenance issues discovered during non-routine inspection – 8/27/19**

### Issue:

BMP Activity 18: Stockpile Design and Construction – The concentrated run-off released into Wetland ID 2008-13 causing an unpermitted impact of approximately 2960 sq. ft. or 0.067 acres. The area has not yet been sloped.

### Corrective Actions:

The material shall be removed from the wetland after receiving necessary approvals. Silt fencing will be installed downgradient of the toe of the deposit to restrict any additional movement of material into non-impacted wetlands.

## **9) Maintenance issues discovered during non-routine inspection – 9/10/19**

### Issue:

BMP Activity 18: Stockpile Design and Construction – The inspection was conducted due to precipitation during the previous 24 hours that was close to, if not slightly greater than, 1". The inspection revealed some newly formed erosional rills in the South Central West portion of Surface Stockpile A that need attention. The inspection also revealed that a sediment lip needs to be constructed at the south edge of the bench at the top of the slope at this location to prevent concentrated discharge flow off the bench.

### Corrective Actions:

Mulch will be applied to the erosional rills to reduce erosion potential. A sediment lip will be installed along the edge of the bench and the slope to prevent the discharge of accumulated runoff downslope.

## **10) Maintenance issues discovered during non-routine inspection – 9/18/19**

### Issue:

BMP Activity 18: Stockpile Design and Construction – The inspection conducted was in response to an accumulation of over 1 inch of rain. Rain caused high-concentrated run-off from up-most lift on Stockpile A to flow down gradient. This material released into Wetland ID 2008-13 causing another unpermitted impact of approximately 0.07 acres. The material flowed over the silt fencing causing the extra wetland impact. This area had recently been partially sloped in response to the event on 8/27/19.

### Corrective Actions:

The material shall be removed from the wetland after receiving necessary approvals. Silt fencing will be repaired while sloping work is finished. The slope will then be reclaimed, seeded, and the wetland will also be reclaimed by removing material from the stockpile.

**11) Maintenance issues discovered during non-routine inspection – 10/7/19**

Issue:

BMP Activity 18: Stockpile Design and Construction – The inspection was in response to an internal report of slightly turbid seepage discharge from two discrete locations at the toe of the SW corner of Surface Stockpile A.

Corrective Actions:

Filtration enclosures will be constructed of square hay bales around the seepage discharge points to allow settlement and filtration of the particulate within the seepage stream.

**Appendix G – SWPPP Revisions from Annual Review**

## SWPPP Revisions from Annual Review

### **Revision 15 – 2022 SWPPP review, November 1, 2022**

Table of Contents/Appendices:

- Added Appendix F, SWPPP Revisions from Annual Review

Section 2.0, Site Description and Information:

- Section 2.1, Facility Description. Updated contact information (added Wade Klingsporn)
- Section 2.2, Stormwater Pollution Prevention Team. Updated contact information (added Wade Klingsporn, corrected Bethany Jones' name)
- Section 2.6, Description of Receiving Waters. Added information related to downstream wild rice production waters (Hay Lake and Swan Lake)

Section 6.0, Discharge to Impaired Waters:

- Added newly updated status of Hay Lake and Swan Lake as impaired for wild rice sulfate

General:

- Made some minor grammatical changes

Appendix C, BMP Sheets:

- Activity 1, Aboveground Storage Tanks. Included language on how to treat water contained in secondary storage when there is a sheen present
- Activity 13, Sewage Holding Tanks. Added a list of potential pollutants

### **Revision 16 – 2023 SWPPP review, August 30, 2023**

Cover Page:

- Added Tailings Basin to the area of SWPPP coverage

Table of Contents/Appendices:

- Made minor revisions to the appendices headings

Section 1.0, Introduction:

- Revised some of the language to describe the relationship between the stormwater regulations and Keetac's individual NPDES permits

Section 2.0, Site Description and Information:

- Section 2.1, Facility Description. Updated contact information (removed Wade Klingsporn)
- Section 2.2, Stormwater Pollution Prevention Team. Updated contact information (removed Wade Klingsporn)
- Section 2.3, Narrative Site Description. Provided edits to the site description to reflect current conditions (removed reference to main fuel oil tank, no longer in use; added reference to railcar deluge system; updated the areal extents of industrial activity or significant materials that may come in contact with stormwater)
- Section 2.6, Description of Receiving Waters. Added narrative related to permitted outfall SD009

Section 8.0, General Permit Requirements

- Section 8.4, Record Keeping and Reporting. Updated the narrative to match the stormwater requirements contained in the individual NPDES/SDS permits

General:

- A number of minor edits were made to improve the readability of the document and correct minor inaccuracies

Appendix F, BMP Maintenance Documentation

- Added follow-up corrective actions to Issue #1