

**MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY**

**MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(MPDES)**

Permit Fact Sheet

Permittee: Westmoreland Savage Corporation
County Road 107, 5 miles west of the town of Savage
Savage MT 59262

Permit No.: MT0023604

Receiving Waters: Peabody Coulee and Unnamed Tributary to Garden Coulee

Facility Information:

Name: Savage Mine

Contact: Jody Mann, President and General Manager

Fee Information:

Type: Privately Owned Treatment Works – Minor
(SIC 1221)

Number of Outfalls: 2 (for fee determination only)

I. BACKGROUND

This Fact Sheet identifies the legal requirements and technical rationale that serve as the basis for the requirements of this permit. The permit has been prepared under a standardized format that accommodates a broad range of discharge requirements for permittees in Montana.

A. Description of Facility, Wastewater Treatment, and Discharge Points

1. Description and Location of Facility

Table 1 summarizes general information related to the facility.

Table 1. Facility Information

Permittee	Westmoreland Savage Corporation
Name of Facility	Savage Mine
Facility Address	County Road 107, 5 miles west of the town of Savage
	Savage MT 59262
	Richland County
Facility Contact, Title and Phone	Jody Mann, President and General Manager, (406) 798-3651
Authorized Person to Sign and Submit Reports	Dicki Peterson, Wade Steere
Mailing Address	P.O. Box 30, Savage MT 59262
Billing Address	SAME
Type of Facility	Industrial [Major Surface Coal Mine (SIC 1221)]
Major or Minor Facility	Minor
Pretreatment Program	No
Number of Outfalls	5
Receiving Waters	Peabody Coulee and Unnamed Tributary to Garden Coulee

Westmoreland Savage Corporation (hereinafter permittee) is the owner and operator of the Savage Mine (hereinafter facility), a surface coal mine. For the purposes of this permit, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, policy, plans, or implementation procedures are held to be equivalent to references to the permittee in this permit.

The Savage Mine is a surface lignite coal mining operation that produces approximately 350,000 tons per year. A total of 1,284 acres are permitted by surface mine permit (SMP) C1984002. Of these acres, approximately 747 acres have been disturbed. Coal mining at the Savage Mine requires a surface disturbance of approximately 10 acres annually. Coal is surface mined through dragline-implemented overburden removal, followed by a truck and loader coal extraction operation. Blasting of coal or overburden has not been performed at the mine since approximately 2002. The coal is ultimately transported by truck to Sidney, Montana, to Montana Dakota Utilities for electric power generation and to Sidney Sugars, a sugar beet processing company.

During active mining, dewatering activities are required when groundwater infiltrates into the open pit, and when precipitation events cause runoff from disturbed areas that collects in the pit. Sediment traps or ponds are used to collect storm water runoff and water from pit dewatering activities to prevent sediment from leaving the mine site for

protection of areas downstream of the mining operation. Sediment pond water is largely used for road dust control.

2. Wastewater Treatment or Controls

Wastewater is treated by various sediment control facilities including ponds, traps, and alternate sediment control installations (best management practices, or BMPs). Sediment control structures are designed, constructed, and maintained in accordance with SMP C1984002.

Sediment ponds and traps located upstream of outfalls are designed to contain at least the theoretical runoff from a 10-year 24-hour precipitation event and provide additional volume for a calculated 3-year sedimentation yield. Influent flow to these ponds consists of mine drainage, and drainage from coal storage areas. Mine drainage is defined in the *Effluent Limitations Guidelines for the Coal Mining Point Source Category* codified at 40 CFR 434.11(h) as any drainage, or any water pumped or siphoned, from an active mining area, which includes groundwater infiltration into the pit, storm water which collects in the pit, and storm water runoff over any area of active mining. During the process of storm water runoff over disturbed soils, suspended solids become entrained in the runoff. The sediment ponds collect mine drainage and provide adequate time for settling out of suspended solids, such that the discharge will comply with applicable effluent limitations. Precipitation events that cause the volume of the runoff contained in the pond to exceed the design capacity of the pond also periodically cause discharges from the ponds.

Mine drainage is treated in seven settling ponds at the facility. The surface drainage at the facility is separated by a natural divide. Storm water runoff to the north of the divide flows to North Ponds 1, 2 and 3. North Ponds 1 and 3 drain to North Pond 2, where Outfall 001 is located. Outfall 001 discharges to Peabody Coulee. The Tipple Pond collects runoff from the yard area, which includes offices and other buildings, and discharges at Outfall 004 to Peabody Coulee. Storm water runoff to the south drains to South Ponds 1, 2, and 3, which correspond to Outfalls 002, 003, and 005. These outfalls discharge to an unnamed ephemeral tributary to Garden Coulee. Peabody and Garden Coulees are ephemeral drainages which are tributary to the Yellowstone River, located approximately 5 miles downstream.

Pit water from dewatering activities is pumped to North Pond 2 and South Pond 1. Drainage from the coal crushing facility and coal storage area is collected in South Pond 3. Discharges occur in response to storm events that cause pond capacity to be exceeded, overflowing over a low area of a berm.

3. Discharge Points and Receiving Waters

The facility discharges wastewater to Peabody Coulee and an unnamed ephemeral tributary to Garden Coulee, which are tributary to the Yellowstone River, within the Lower Yellowstone Hydrologic Unit (HUC 10100004). Peabody Coulee and unnamed ephemeral tributary to Garden Coulee are considered waters of the State and are classified in ARM 17.30, Subchapter 6 as C-3 waters.

Table 2 provides a description of the discharge point for each outfall. All outfalls are retained from the previous permit.

Table 2. Description of Discharge Points

Outfall	Latitude	Longitude	Outfall/Effluent Description	Receiving Water
001	47° 28' 21"N	104° 25' 34"W	Overflow over low area of North Pond 2; Treated storm water runoff and pit water	Peabody Coulee
002	47° 27' 30"N	104° 26' 45"W	Overflow over low area of South Pond 1; Treated storm water runoff	Unnamed Tributary to Garden Coulee
003	47° 27' 28"N	104° 26' 45"W	Overflow over low area of South Pond 2; Treated storm water runoff and pit water	Unnamed Tributary to Garden Coulee
004	47° 28' 19"N	104° 25' 32"W	Overflow over low area of Tipple Pond; Treated storm water runoff	Peabody Coulee
005	47° 27' 45"N	104° 26' 45"W	Overflow over low area of South Pond 3; Treated coal plant wash down and storm water runoff	Unnamed Tributary to Garden Coulee

B. Permit and Application Information

The facility is currently regulated by MPDES permit No. MT0023604 which became effective on February 1, 2011, and expired on January 31, 2016. The permittee submitted an application for renewal of its MPDES permit dated May 20, 2015. Supplemental information was submitted on July 13, 2015, and the application was determined to be complete on August 11, 2015. The terms and conditions of the current permit have been automatically continued and remain in effect until a renewed permit is issued.

1. Summary of Existing Permit Requirements and Effluent Quality Data

Table 3 summarizes effluent quality data for discharges that occurred during the term of the previous permit. Monitoring data collected for MPDES permit requirements and submitted through Discharge Monitoring Reports (DMRs) from February 2011 through October 2015 indicate one discharge event occurred during this period at Outfall 001, on May 11, 2011. The discharge was in response to heavy precipitation and lasted 21 days. Effluent data from this discharge are included in the effluent summary table below. The average monthly flow rate reported for this discharge was 0.3 million gallons per day (mgd).

2. Compliance Summary

One compliance inspection was conducted during the term of the previous permit on April 22, 2015. Based on information reviewed during the inspection, no violations were documented.

Table 3. Effluent Characteristics for Period February 2011 through October 2015

Parameter	Units	Permit Limits		Measured Value
		Average Monthly	Maximum Daily	
Aluminum, dissolved	µg/L	Report only		5.0
Chromium, total	µg/L	Report only		<0.50
Copper, total	µg/L	Report only		1.6
Iron, total ⁽¹⁾	µg/L	3500	7000	<50
Lead, total	µg/L	Report only		<0.10
Nitrite + nitrate, as N	mg/L	Report only		0.030
Nitrogen, total Kjeldahl	mg/L	Report only		0.72
Settleable solids, total ⁽²⁾	mL/L/hr	--	0.5	<0.19
Oil and grease	mg/L	--	10	<5.1
pH	s.u.	Between 6.0 and 9.0		8.2
Phosphorus, total	mg/L	Report only		0.049
Acute whole effluent toxicity ⁽³⁾	% Effluent	Report only		>100% (Pass)

Footnotes:

- (1) Permit limits not applicable to precipitation-driven discharges.
- (2) Permit limit only applicable to discharges caused by a precipitation event less than or equal to the 10-year, 24-hour event.
- (3) Acute whole effluent toxicity testing was conducted using two test species, *Ceriodaphnia dubia* and *Pimephales promelas*.

II. RATIONALE FOR PERMIT CONDITIONS

A. Rationale for Effluent Limitations

The Clean Water Act (CWA) and the Montana Water Quality Act (MWQA) require point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in MPDES permits. There are two principal bases for effluent limitations: technology-based effluent limitations (TBELs) that attain technology-based standards and limitations specified in the regulations and water quality-based effluent limitations (WQBELs) that attain and maintain applicable numeric and narrative water quality standards within Montana's water quality standards. TBELs are based on implementing available technologies to reduce or treat pollutants while WQBELs are designed to protect the beneficial uses of the receiving water. The federal regulations at 40 CFR 122.44(a)(1) [incorporated into ARM 17.30.1344(2)(b) by reference] require that MPDES permits include conditions that meet all applicable technology-based standards and limitations, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

1. **Technology-based Effluent Limitations (TBELs)**

TBELs are based on federal or State technology-based standards and reflect a minimum level of treatment or control for point source discharges. These standards are developed based on the performance of current available treatment and control technologies.

a. **Scope and Authority**

CWA Section 301 and USEPA regulations at 40 CFR 122.44(a) require that permits include effluent limitations based on applicable technology-based standards. These requirements are incorporated into the State regulations at ARM 17.30.1344(2)(e) and ARM 17.30.1207.

MPDES permits for industrial and commercial facilities (i.e., facilities other than POTWs or other facilities treating sewage) must include TBELs that implement any applicable Effluent Limitations Guidelines and Standards (effluent guidelines) promulgated by USEPA. If no effluent guidelines apply to the facility or if the facility employs processes or discharges pollutants not covered by applicable effluent guidelines, the permit writer must determine whether there are any State treatment requirements that apply. Where there are not applicable national effluent guidelines, MCA 75-5-305 allows the Board of Environmental Review (Board) to adopt minimum treatment requirements "for parameters likely to affect beneficial uses, ensuring that the requirements are cost-effective and economically, environmentally, and technologically feasible."

b. **Effluent Guidelines**

The CWA requires that TBELs for non-POTWs (industrial and commercial facilities) be based on several levels of control:

1. Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

2. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
3. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biological oxygen demand (BOD), total suspended solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
4. New source performance standards (NSPS) represent the best available demonstrated control technology standards. NSPS guidelines are intended to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA also requires the development of effluent guidelines representing application of BPT, BAT, BCT, and NSPS. Effluent guidelines are promulgated by USEPA under the authority of Sections 301, 304, 306, 307, 308, 402, and 501 of the CWA (33 U.S.C. 1311, 1314, 1316, 1318, 1342, and 1361).

USEPA has established effluent guidelines for the coal mining industry at 40 CFR Part 434, *Effluent Limitations Guidelines for the Coal Mining Point Source Category*. Subparts B – Coal Preparation Plants and Coal Preparation Plant Associated Areas; D – Alkaline Mine Drainage; and F – Miscellaneous Provisions are applicable ELGs to the Savage Mine, and have been used to determine TBELs in this permit. In accordance with 40 CFR 434.61, for commingled waste streams, the most stringent TBELs for a pollutant apply. The facility is not a new source coal mine, as defined by the effluent guidelines at 40 CFR 434.11(j), and therefore BPT, BAT, and BCT requirements of the effluent guidelines apply.

c. Applicable TBELs

ARM 17.30.1345(6)(a) requires that discharge limitations for non-POTWs (industrial facilities) be stated as average monthly discharge limitations and maximum daily discharge limitations unless impracticable. Effluent guidelines with numeric limitations generally include both average monthly and maximum daily limitations. For these reasons, both average monthly and maximum daily effluent limitations are required for most parameters in MPDES permits for non-POTWs.

1. *Coal Preparation Plants and Coal Preparation Plant Associated Areas, Outfall 005.*

The provisions described in 40 CFR Part 434, Subpart B are applicable to discharges from coal preparation plants and associated areas. These include discharges that are pumped, siphoned, or drained from preparation plant water circuits, coal storage, refuse storage, and ancillary areas related to the cleaning or beneficiation of any rank of coal, including, but not limited to, lignite, bituminous, and anthracite. When discharges from these areas normally exhibit a

pH equal to or greater than 6.0 prior to treatment, the TBELs in Table 4 apply.

Table 4. TBELs – Outfall 005

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, total	mg/L	7.0	3.5	BPT, BAT
Total suspended solids	mg/L	70	35	BPT
pH	s.u.	6.0 – 9.0 at all times		BPT

2. *Alkaline Mine Drainage, Existing Sources, Outfalls 001, 002, 003, and 004*

The provisions described in 40 CFR Part 434, Subpart D are applicable to alkaline mine drainage from existing sources. Alkaline mine drainage is water, drainage, or discharges that normally exhibit a pH equal to or greater than 6.0. Pursuant to 40 CFR 434.40, TBELs for alkaline mine drainage are applicable to drainage from an active mining area of coal of any rank. The TBELs presented in Table 5 are applicable to discharges at Outfalls 001, 002, 003, and 004.

Table 5. TBELs - Outfalls 001, 002, 003, and 004

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, total	mg/L	7.0	3.5	BPT, BAT
Total suspended solids	mg/L	70	35	BPT
pH	s.u.	6.0 – 9.0 at all times		BPT

3. *Precipitation Events, All Outfalls*

For discharges driven by precipitation events, alternative effluent limitations are established in the permit, based on 40 CFR 434.63, instead of otherwise applicable effluent limitations.

i) Storm Events Less than or Equal to the 10-year, 24-hour Event.

For any discharge or increase in the volume of discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume), TBELs in Table 6 apply. The National Oceanographic and Atmospheric Administration (NOAA) Atlas 2, Volume 1 (1973) defines the 10-year, 24-hour precipitation as 2.5 inches.

Table 6. TBELs - Precipitation Events Less Than or Equal to the 10-yr, 24-hr Event—All Outfalls

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation
Settleable solids	ml/L	0.5	---
pH	Standard units	Between 6.0 and 9.0 at all times	

- ii) Storm Events Greater than the 10-yr, 24-hr Precipitation Event.
Precipitation driven discharges or increases in the volume of discharges caused by precipitation within any 24 hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) of 2.5 inches, are subject to the TBELs shown in Table 7.

Table 7. TBELs - Precipitation Events Greater Than the 10-yr, 24-hr Event—All Outfalls

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation
pH	Standard units	Between 6.0 and 9.0 at all times	

2. Water Quality-based Effluent Limitations (WQBELs)

Section 301(b) of the CWA and 40 CFR 122.44(d), which is incorporated into ARM 17.30.1344(2)(b) by reference, require that permits include limitations more stringent than limitations based on applicable federal technology-based standards where more stringent limitations are necessary to achieve applicable State water quality standards (WQS).

a. Scope and Authority

Section 303(c) of the CWA requires every state to develop WQS applicable to all water bodies or segments of water bodies within the state. Title 75, Part 3 of the MWQA specifically requires the Board to establish the classification of all State waters in accordance with their present and future beneficial uses; to formulate and adopt standards of water quality, giving consideration to the economics of waste treatment and prevention; adopt rules implementing the State’s nondegradation policy; and adopt rules governing mixing zones. Montana WQS include beneficial use classifications, numeric and/or narrative water quality standards, and a nondegradation policy, and implementing regulations. The use classification system designates the beneficial uses that each water body within the State is expected to achieve; and the numeric and/or narrative water quality standards are the criteria deemed necessary by the State to support the beneficial use designation. The State’s nondegradation policy ensures that existing beneficial uses are maintained and provides protection of high quality and outstanding resource waters. These components match the basic components of WQS – designated uses, water quality criteria, and an antidegradation policy - required by the federal regulations at 40 CFR Part 131.

Montana Surface Water Quality Standards and Procedures (ARM 17.30, Subchapter 6) include, by reference, Circular *DEQ-7—Montana Numeric Water Quality Standards*, and the *Water Quality Standards Handbook, Second Edition*, EPA-823-B-94-005a, August 1994 (WQS Handbook), which sets forth procedures for development of site-specific criteria. Montana’s regulations on Non-Degradation of Water Quality are in ARM 17.30.701-718 and regulations on Mixing Zones in Surface and Ground Water are in ARM 17.30.5.

ARM 17.30.603 (Application and Composition of Surface Water Quality Standards) states, “The standards in this subchapter are adopted to establish maximum allowable changes in surface water quality and to establish a basis for limiting the discharge of pollutants which affect prescribed beneficial uses of surface waters.” The WQS applicable to receiving waters for the discharges regulated by this permit establish a basis for WQBELs in the permit.

b. Applicable Beneficial Uses and Numeric and Narrative Standards

The beneficial uses applicable to Peabody Coulee and Unnamed Ephemeral Tributary to Garden Coulee, which are located in the Yellowstone River drainage between the Billings water supply intake and the North Dakota border, are summarized in Table 8.

Table 8. Beneficial Uses

Classification	Beneficial Uses
C-3	<ul style="list-style-type: none"> • Bathing, swimming, and recreation • Growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers • Natural water quality is marginally suitable for drinking, culinary and food processing purposes, agriculture, and industrial water supply.

Each water body classification in the Montana Surface Water Quality Standards and Procedures has associated numeric and narrative WQS designed to ensure that the beneficial uses associated with the classification are protected. Montana Water Quality Standards include both specific water quality standards and general provisions that protect the beneficial uses set forth in the water use classifications. General treatment standards in ARM 17.30.635 and ARM 17.30.637 apply to all discharges from the facility.

The general provisions of ARM 17.30.637(1) apply to all categories of state surface water. These provisions require that state waters must be free from substances which will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and (e) create conditions which produce undesirable aquatic life.

Since all receiving streams are hydrologically ephemeral, ARM 17.30.637(4) is applicable to this permit. Ephemeral streams are not subject to the specific water quality standards for C-3 waters as specified in ARM 17.30.629.

c. Impaired Waters

Peabody Coulee and Unnamed Ephemeral Tributary to Garden Coulee are not identified as impaired waterbodies by the State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report.

d. Nondegradation

The MWQA includes a nondegradation policy in 75-5-303 MCA. This policy is applied during the permit application process through a nondegradation review of any new or expanding discharge. The three aspects of the State nondegradation policy parallel the three “tiers” of an antidegradation policy as required by USEPA in 40 CFR 131.12. These three “tiers” are as follows:

1. existing uses of State waters and the level of water quality necessary to protect those uses must be maintained and protected (75-5-303(1));
2. unless authorized by the Department through a nondegradation analysis or exempted from review under 75-5-317 MCA, the quality of high-quality waters must be maintained (75-5-303(2)-(7)); and
3. the Board may not authorize degradation of State waters classified as “outstanding resource waters” (75-5-303(8)).

Regulations at ARM 17.30.701-718 address implementation of this policy. These regulations apply when someone proposes an activity of man resulting in a new or increased source that may cause degradation.

i. New and Expanding Discharges

In this permit, there are no discharges classified as new sources as defined at 40 CFR 434.11(j)(1) or new and increased sources as defined at ARM 17.30.702(18). Discharges from Outfalls 001, 002, 003, 004, and 005 are therefore existing sources, and are not subject to the nondegradation review.

ii. Protection of Existing Uses

ARM 17.30.705(2)(a) requires that, for all State waters, existing and anticipated uses and the water quality necessary to protect those uses must be maintained. In practice, application of this regulation means that the effluent limitations in an MPDES permit for a new or expanding discharge, just as in the permit for any point source discharge, must be derived from and comply with all numeric and narrative standards associated with the existing and anticipated beneficial uses of the receiving water. The discharges at the Savage Mine are existing discharges, and effluent limitations in this permit are derived from and comply with the State’s WQS and, therefore, ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

iii. Protection of High Quality Waters

High quality waters as defined in 75-5-103(10) and ARM 17.30.702(8) includes all state surface waters except those not capable of supporting any one of the

designated uses for their classification or that have zero flow or surface expression for more than 270 days during most years.

The receiving waters for discharges from the Savage Mine are ephemeral drainages, which are not high quality waters as defined at MCA 75-5-103, and therefore the criteria of ARM 17.30.715 do not apply.

iv. Protection of Outstanding Resource Waters

ARM 17.30.705(2)(c) requires that, for outstanding resource waters, no degradation and no permanent change in the quality of outstanding resources waters resulting from a new or increased point source discharge are allowed. Receiving waters for the discharges from Savage Mine have not been designated as outstanding resources waters; therefore this regulation is not applicable.

e. Mixing Zones

75-5-301(4) MCA required the Department to adopt rules governing the granting of mixing zones. The Department adopted such regulations and codified them at ARM 17.30, Subchapter 5.

Mixing zones are granted by the Department only where they are *needed* (where a discharger cannot meet the applicable numeric water quality standards at the point of discharge), and where they are *appropriate* (based on the criteria specified in the regulations).

The permittee did not request an acute, chronic, or human health mixing zone with its MPDES permit renewal application. Furthermore, the receiving waters for the permittee's discharges are ephemeral and, therefore, the critical low flows for the receiving waters are zero and would provide no water for a mixing zone and dilution for the permittee's discharges.

f. Determining the Need for WQBELs

EPA regulations at 40 CFR 122.44(d), which are incorporated into ARM 17.30.1344 by reference, require that all discharges be assessed by DEQ to determine the need for water quality-based effluent limits (WQBELs) in the permit. Specifically, 40 CFR 122.44(d)(1)(i) states, "Limitations must be established in permits to control all pollutants or pollutant parameters that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Often, this regulation is referred to as the "reasonable potential" regulation and the process that DEQ uses to determine whether a WQBEL is required is called a "reasonable potential analysis." Thus, a reasonable potential analysis may be used to determine whether a discharge, alone or in combination with other sources of pollutants to a water body and under some set of conditions arrived at by making a series of reasonable assumptions, could lead to an excursion above an applicable water quality standard or applicable level of nondegradation policy protection.

Pollutants of concern for the facility include total iron, TSS, settleable solids, and pH. These pollutants and parameters are identified as pollutants of concern because they

are regulated under the applicable effluent guidelines for coal mines found at 40 CFR Part 434. Additional pollutants of concern include dissolved aluminum and total recoverable cadmium, copper, lead, and zinc. Effluent samples and/or samples collected from sediment ponds and reported in 2012 through 2014 Annual Hydrology Reports submitted in accordance with SMP C1984002 indicate the presence of these pollutants. Total chromium and nutrients (total nitrogen and phosphorus) were identified as pollutants of concern in the previous permit but have been removed. Existing effluent data show that these pollutants are present at low concentrations; furthermore, DEQ standards for nutrients adopted in 2014 are not applicable to the receiving waters as they are not wadeable streams (*Montana DEQ, 2014. Department Circular DEQ-12A*). Total dissolved solids have been removed as a pollutant of concern due to lack of corresponding numeric water quality standards (*Montana DEQ, 2012. Department Circular DEQ-7*).

The receiving waters are within the Yellowstone River drainage between the Billings water supply intake and the North Dakota state line, and are classified as C-3. ARM 17.30.629 establishes the designated beneficial uses for C-3 waters and prescribes the standards to protect those designated uses. However, all permitted outfalls discharge to receiving waters that hydrologically meet the definition of ephemeral [ARM 17.30.602(12)]. ARM 17.30.637(4) is specific to ephemeral streams of all classes and prescribes the standards applicable to protect the uses of hydrologically ephemeral streams. Pursuant to ARM 17.30.637(4), the applicable water quality standards for hydrologically ephemeral streams include the prohibitions and treatment requirements in ARM 17.30.637. Therefore, the prohibitions and treatment requirements applicable to ephemeral streams in ARM 17.30.637 will apply to the permitted discharges in addition to the applicable technology based effluent limits.

The specific water quality standards for C-3 waters found in ARM 17.30.629 do not apply to ephemeral streams pursuant to ARM 17.30.637(4). Therefore, evaluation of reasonable potential to exceed the numeric standards in DEQ-7, as adopted by ARM 17.30.629, is unnecessary.

The general prohibitions of ARM 17.30.637(1) contain general provisions that apply to all State waters, including mixing zones, and typically are referred to as “free from” standards. These general prohibitions represent the minimum level of protection that applies to all state waters, including within mixing zone quality and ephemeral water and drainage ways not subject the specific standards of ARM 17.30.621 to 629 and 650 to 658.

ARM 17.30.637(1)(d) is implemented through application of numeric standards and whole effluent toxicity requirements. With few exceptions, facilities that are subject to the minimum treatment requirements and that are in compliance with those limitations fulfill the requirements sections 637(1) (a)-(c) and (e); however, where a discharge would cause, have the reasonable potential to cause, or contribute to an excursion of a narrative standard, effluent limitations implementing that narrative standard must be included in the permit.

There is a reasonable potential for machinery used inside the mine to leak hydraulic oil, engine oil and other fluids and enter mine dewatering water. For this reason, the general prohibition at ARM 17.30.637(1)(b) limiting oil and grease to less than 10 mg/L will be retained from the previous permit. Additional narrative limitations on sludge or emulsion, floating solids or visible foam, and visible oil sheen were retained from the previous permit.

3. Final Effluent Limitations

Section 402(o) of the CWA and 40 CFR 122.44(l) require that effluent limitations or conditions in reissued permits be at least as stringent as those in the existing permit, with certain exceptions.

a. Satisfaction of Anti-backsliding Analysis

All effluent limitations in this permit are at least as stringent as the effluent limitations in the previous permit.

b. Stringency of Requirements for Individual Pollutants

This permit contains both TBELs and WQBELs for individual pollutants. The TBELs consist of restrictions on TSS, settleable solids, and pH, and are discussed in section II.A.1 of this Fact Sheet. This permit’s technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this permit contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. Narrative effluent limitations and WQBELs for oil and grease are retained from the previous permit. Final effluent limitations for all outfalls are summarized in Table 9.

Narrative Effluent Limitations – All Outfalls

- i. There shall be no discharge from any outfall listed in Table 2 that reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving water or upon adjoining shorelines.
- ii. There shall be no discharge from any outfall listed in Table 2 of floating solids or visible foam in other than trace amounts.
- iii. There shall be no discharge from any outfall listed in Table 2 that causes visible oil sheen in the receiving stream.

Table 9. Summary of Final Effluent Limitations – All Outfalls

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total suspended solids	mg/L	35	70	40 CFR 434 Subparts B and D
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434 Subparts B and D
Oil and grease	mg/L	--	10	ARM 17.30.637(1)(b)
Iron, total	µg/L	3500	7000	40 CFR 434 Subparts B and D

Alternate, final effluent limitations applicable to precipitation-driven discharge events which are due to a pond overflow are summarized in Table 10, and may be applied instead of otherwise applicable effluent limitations. The permittee has the burden of proof that the discharge was a result of a precipitation-driven pond overflow, and that the alternate limitations presented here are applicable. Only maximum daily (and not average monthly) WQBELs are applicable to discharges due to precipitation events because these discharges are likely intermittent in nature.

Table 10. Summary of Alternate Final Effluent Limitations – Precipitation Events – All Outfalls

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable solids ⁽¹⁾	mL/L	--	0.5	40 CFR 434 Subpart F
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434 Subpart F
Oil and grease	mg/L	--	10	ARM 17.30.637(1)(b)
Footnotes: (1) Applicable to discharges or increases in the volume of discharges caused by precipitation within any 24 hour period less than or equal to the 10-yr, 24-hr precipitation event (or snowmelt of equivalent volume).				

B. Rationale for Monitoring and Reporting Requirements

Regulations requiring the establishment of monitoring and reporting conditions in MPDES permits are found at 40 CFR 122.44(i) and 122.48, and ARM 17.30.1351. Section I.C of the permit, establishes monitoring and reporting requirements to implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements for this facility.

1. Monitoring Locations and Frequency

Effluent monitoring requirements are included for flow and those pollutants identified above in Section II.A.2.f (page 12) as pollutants of concern. Monitoring requirements have been modified slightly from the previous permit. Monitoring for dissolved aluminum and total copper and lead has been retained from the permit while monitoring frequencies have been increased from annually to monthly (or one per discharge for precipitation-driven discharges) to better characterize the effluent. Monitoring requirements for total cadmium and zinc have been added and monitoring requirements for nutrients (total nitrogen, total phosphorus), total chromium, and total dissolved solids have been removed based on the rationale discussed above in Section II.A.2.f (page 12).

All effluent monitoring locations of the previous permit are retained and described in section I.A.3 of this Fact Sheet, and Table 5 of the permit. Monitoring requirements for discharges at outfalls are summarized in Tables 11 and 12. The discharge point and monitoring location shall be permanently marked in the field.

Table 11. Summary of Monitoring Requirements – All Outfalls

Parameter	Units	Monitoring Frequency	Basis
Flow	mgd	1/Day	Effluent characterization
Total suspended solids	mg/L	1/Day	Effluent limitations compliance
pH	s.u.	1/Day	Effluent limitations compliance
Oil and grease	mg/L	1/Month	Effluent limitations compliance
Aluminum, dissolved	µg/L	1/Month	Effluent characterization
Cadmium, total	µg/L	1/Month	Effluent characterization
Copper, total	µg/L	1/Month	Effluent characterization
Iron, total	µg/L	1/Month	Effluent limitations compliance
Lead, total	µg/L	1/Month	Effluent characterization
Zinc, total	µg/L	1/Month	Effluent characterization
Whole effluent toxicity, acute	% Effluent	1/Year	Effluent characterization

The permittee shall collect a grab sample within the first thirty minutes of discharge from any permitted outfall for any discharge which results from a precipitation related event, at minimum. As an alternative to a single grab sample, the permittee may take a flow-weighted composite of either the entire discharge or for the first three hours of the discharge. For a flow-weighted composite, only one analysis of the composited aliquots is required. Flow-weighted composite samples are not allowed for pH and oil and grease.

Table 12. Summary of Alternate Monitoring Requirements – Precipitation-driven Discharges - All Outfalls

Parameter	Units	Monitoring Frequency	Basis
Flow	mgd	1/Day	Effluent characterization
Settleable solids ⁽¹⁾	ml/L	1/Discharge	Effluent limitations compliance
pH	s.u.	1/Discharge	Effluent limitations compliance
Oil and grease	mg/L	1/Discharge	Effluent limitations compliance
Aluminum, dissolved	µg/L	1/Discharge	Effluent characterization
Cadmium, total	µg/L	1/Discharge	Effluent characterization
Copper, total	µg/L	1/Discharge	Effluent characterization
Iron, total	µg/L	1/Discharge	Effluent characterization
Lead, total	µg/L	1/Discharge	Effluent characterization
Zinc, total	µg/L	1/Discharge	Effluent characterization
Whole effluent toxicity, acute	% Effluent	1/Year	Effluent characterization
<u>Footnotes</u>			
(1) Applicable to discharges or increases in the volume of discharges caused by precipitation within any 24 hour period less than or equal to the 10-yr, 24-hr precipitation event (or snowmelt of equivalent volume).			

2. Whole Effluent Toxicity Testing

Whole effluent acute toxicity testing as specified in the permit is required to assess any negative effects caused by aggregate toxic effects of pollutants in the discharge. Frequency of monitoring for acute toxicity is once per year, per outfall.

Testing for acute toxicity must use two test species; however, if the results of four consecutive tests for either acute toxicity testing indicate no toxicity, the permittee may request testing on only one species on an alternating basis. If toxicity is detected, the permittee is required to conduct accelerated testing until further notified by the Department. If acute toxicity is detected, the permit may be re-opened to include an effluent limitation for acute toxicity. Monitoring for chronic toxicity is not required because the discharges are intermittent, not continuous, and therefore chronic effects from the discharges are not anticipated. If discharges become continuous in the future, the permit may be re-opened to include chronic toxicity monitoring requirements.

3. Other Monitoring Requirements

- a. **Precipitation Monitoring.** The permittee is required to monitor and report precipitation in each drainage basin (Garden Coulee and Peabody Coulee), using a precipitation gauge that meets the standards provided in National Weather Services (NWS) Instructional Bulletin 10-1302 (November 14, 2014), *Requirements and Standards for NWS Climate Observations*, which are provided in Table 13. Precipitation monitoring is required to provide evidence that a precipitation event resulted in a discharge, and that alternate limitations and monitoring requirements apply.

Table 13. Precipitation Gauge Standards

Parameter	Requires	Seasonal	Range	Resolution	Measurement Accuracy
Manual Daily Precipitation – Gauge Standard					
Precipitation, Rain	Eight-Inch Diameter Collection Vessel with Tube and Measuring Stick	Funnel (All year except for snow or frozen precip events)	0 to 20 inches	0.01 inches	±0.02 inches
	Four-Inch Diameter Collection Vessel with Tube	Funnel (All year except for snow or frozen precip events.)	0 to 10 inches	0.01 inches	±0.02 inches
Precipitation, Frozen (Liquid Equivalent)	Eight-Inch Diameter Collection Vessel	Open Aperture (snow or frozen precip events)	0 to 24 inches of snow	0.01 inches melted	±0.04 inches melted
	Four-Inch Diameter Collection Vessel	Open Aperture (snow or frozen precip events)	0 to 12 inches of snow	0.01 inches melted	±0.04 inches melted

Parameter	Requires	Seasonal	Range	Resolution	Measurement Accuracy
Snowfall / Snow Depth - Equipment Standard					
Snowfall / Snow Depth: 0.1 inch to 20 inches	Snow stick (marked) and Snow board	Not applicable	0 to 20 inches	0.1 inch	±0.1 inch
Snowfall / Snow Depth: 20 to 40 inches	Snow stick (marked) and Snow board		0 to 40 inches	0.1 inch	±0.1 inch
Snow Depth: 40 to 60 inches	Snow stake (marked)		0 to 60 inches	1 inch	± 1 inch

- b. Flow Monitoring and Sampling Units. The permit requires the permittee to install and use flow monitoring and sampling equipment at each outfall. This requirement is necessary because precipitation events are often localized, high intensity, short duration thunderstorms, and watersheds often cover vast and isolated areas. Ponds may retain water from previous events. Likewise, weather conditions may prevent access to outfalls for monitoring whether an overflow discharge occurred or for discharge sampling. A crest gauge or equivalent equipment can measure flow at the crest, with the establishment of a ratings curve that shows the relationship between peak flow and gauge height. Remote sampling unit can sample a representative sample of the discharged effluent when discharge occurs. The discharge point and monitoring location shall be permanently marked and identified at the overflow structure.

4. Reporting Requirements

The permittee must comply with reporting requirements as specified in ARM 17.30.1342. Due to the expected low frequency of discharge activity at the facility, the reporting period for discharges is semiannual or January 1 through June 30 and July 1 through December 31 of each calendar year. If multiple daily or monthly discharge events occur during the semiannual reporting period the permittee must report the highest calculated or measured values that conform to the numeric effluent in the permit.

C. Rationale for Special Conditions

1. Additional Monitoring and Special Studies

- a. TIE/TRE. A Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) is required by the permit upon detection of acute toxicity during any accelerated testing. This provision is required to establish the cause of continued toxicity in the effluent and subsequently develop control or treatment for the toxicity.

2. Reopener Provisions

These provisions are based on 40 CFR Part 123 and the previous permit. The Department may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new federal regulations, modification in

toxicity requirements, adoption of a TMDL, or adoption of new regulations by the Department.

D. Rationale for Standard Conditions

Standard Conditions, which apply to all MPDES permits in accordance with ARM 17.30.1342 and additional conditions applicable to specified categories of permits in accordance with ARM 17.30.1343, are included in section III of the permit. The permittee must comply with all standard conditions under ARM 17.30.1342 and the additional conditions that are applicable to the permittee under ARM 17.30.1343.

40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this permit omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the ARM is more stringent. In lieu of these conditions, this permit incorporates by reference MCA 75-5-633.

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January 2016