

**MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY**

Permitting and Compliance Division

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

Permit Fact Sheet

Permittee: Westmoreland Absaloka Mining LLC
529 Sarpy Basin Road
Hardin MT 59034

Permit No.: MT0021229

Receiving Waters: Unnamed ephemeral tributary to Sarpy Creek, Unnamed ephemeral tributary to Middle Fork Sarpy Creek, Unnamed ephemeral tributary to East Fork Sarpy Creek

Facility Information:

Name: Absaloka Mine

Contact: Jesse Noel, Director Environmental and Regulatory Affairs

Fee Information:

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

Number of Outfalls: 4 (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.

A. Description of Facility, Discharge Point(s), and Mixing Zone(s)

1. Description and Location of Facility

Table 1 summarizes general information related to the facility.

Table 1. Facility Information

Permittee	Westmoreland Absaloka Mining LLC
Name of Facility	Absaloka Mine
Facility Address	100 Sarpy Creek Road
	Hardin, MT 59034
	Big Horn County
Facility Contact, Title and Phone	Jesse Noel, Director Environmental and Regulatory Affairs
Authorized Person to Sign and Submit Reports	SAME
Mailing Address	P.O. Box 449, Hardin, MT 59034
Billing Address	SAME
Type of Facility	Industrial (SIC 1221)
Major or Minor Facility	Minor
Pretreatment Program	Not applicable
Number of Outfalls	19
Receiving Waters	Unnamed ephemeral tributary to Sarpy Creek, unnamed ephemeral tributary to Middle Fork Sarpy Creek, unnamed ephemeral tributary to East Fork Sarpy Creek

Westmoreland Absaloka Mining LLC (hereinafter permittee) is the owner and operator of the Absaloka 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 Absaloka Mine is a surface coal mine that has operated since 1974 under surface mine permit No. C1985005. Mine facilities include the railroad loop, coal handling and processing plant, coal storage areas, warehouse and shops, miscellaneous storage buildings, and a boiler plant. The current mine permit area encompasses 7110 acres of the total lease area. As of the 2023 MSUMRA report, 5154 acres have been disturbed. Annual production in recent years has been approximately 450,000 tons of coal. The primary coal seams are the Rosebud and the McKay, which fuse together in parts of the mine area into a single seam. A third seam, the Robinson, underlies the McKay seam and is a large reserve, but is lower in quality due to high sodium content. Two stray rider seams are also present but are not market quality coal.

During the mining process, topsoil is first removed and stored in stockpiles for later reclamation uses. Overburden is then blasted and removed, exposing the coal seam. The overburden is placed in the empty pit where coal has previously been removed. The

replaced overburden is graded to approximate the original land contour and scarified to relieve compaction. Soil is redistributed and revegetated for reclamation.

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.

The permittee expanded mining onto the Crow Reservation in 2009, requiring issuance of a separate National Pollutant Discharge Elimination System (NPDES) permit (permit No. MT0030783) by the United States Environmental Protection Agency (USEPA). NPDES permit No. MT0030783 regulates discharges associated with mining operations within the Crow Reservation boundaries, also known as the South Extension. The South Extension NPDES permit was most recently renewed on November 1, 2023, and shall expire on September 30, 2028.

2. Wastewater and Biosolids Treatment or Controls

Outfalls in active mining areas are associated with sediment ponds designed to contain the runoff from a 10-year, 24-hour rainfall event. Influent flow to sediment ponds in an area of active mining consists of mine drainage. Mine drainage is defined at 40 Code of Federal Regulations (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. Sediment ponds are discharged periodically by pumping to retain pond storage capacity, only after adequate time for settling has occurred such that the discharge will comply with applicable effluent limitations. Precipitation events that cause the design capacity of a pond to be exceeded also periodically cause overflow discharges from the ponds. See Appendix I for a diagram illustrating water flow at the facility.

3. Discharge Points and Receiving Waters

The facility discharges wastewater to an unnamed ephemeral tributary to Sarpy Creek, unnamed ephemeral tributaries to Middle Fork Sarpy Creek, and unnamed ephemeral tributaries to East Fork Sarpy Creek. The Sarpy Creek drainage basin is part of the Lower Yellowstone-Sunday Hydrologic Unit (HUC 10100001). All receiving waters are considered waters of the State and all are classified in the Administrative Rules of Montana (ARM) 17.30, Subchapter 6 as C-3 waters.

Table 2 provides a description of the discharge point for each outfall established by this permit. See Appendix II for a map illustrating outfall locations.

Table 2. Description of Discharge Points

Outfall	Latitude	Longitude	Description	Outflow Structure	Receiving Water
001	45.8109	-107.0884	Storm water runoff, mine drainage, and coal processing water	Riser	Unnamed ephemeral tributary to Sarpy Creek
002	45.7872	-107.0760	Storm water runoff and mine drainage	Riser	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
006	45.8232	-107.0426	Western Alkaline Coal Mining discharge	None	Unnamed ephemeral tributary to East Fork Sarpy Creek
007	45.8257	-107.0366	Western Alkaline Coal Mining discharge	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
008	45.8263	-107.0261	Post Mining	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
009	45.8209	-107.0128	Post Mining	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
011	45.8018	-107.0196	Post Mining	Grass waterway	Unnamed ephemeral tributary to East Fork Sarpy Creek
012	45.8060	-107.0155	Post Mining	Dam crest	Unnamed ephemeral tributary to East Fork Sarpy Creek
013	45.7729	-107.0536	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
015	45.7751	-107.0570	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
016	45.7685	-107.0480	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
017	45.7712	-107.0538	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
018	45.7723	-107.0585	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
020	45.7734	-107.0587	Post Mining	Sediment pond crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
021	45.7731	-107.0632	Post Mining	Post-mining only; Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
023	45.7728	-107.0671	Storm water runoff and mine drainage	Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
024	45.7723	-107.0700	Storm water runoff and mine drainage	Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
026	45.7718	-107.0785	Storm water runoff and mine drainage	Post-mining only; outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek

4. Permit Fee Determination

The Montana Water Quality Act requires that permit fees be assessed that are sufficient to cover the costs of administering the permit program (75-5-516, Montana Code Annotated) (MCA). Permit fees are based on the type of waste (sewage, process wastewater, storm water, noncontact cooling water, etc.) and receiving water or stream segment. This analysis is based on ARM 17.30.201(6)(a) which states an application and annual fee for multiple outfalls is not required unless the discharges are to different receiving waters or result in multiple or variable effluent limits. Table 3 identifies,

individually or by group, the type of wastewater and receiving water by outfall for which effluent limits will be required.

Table 3. Outfalls for Fee Purposes

Group	Effluent Description	Receiving Water(s)	Outfalls
A	Mine drainage, coal processing	Ephemeral tributary to Sarpy Creek	001
B	Mine drainage	Ephemeral tributaries to Middle Fork Sarpy Creek	002, 013, 015
C	Mine drainage (new source mine)	Ephemeral tributaries to Middle Fork Sarpy Creek	016, 017, 018, 023, 024, 026
D	Storm water runoff from regraded/reclaimed and soil stockpile areas (Post Mining and Western Alkaline Standards)	Ephemeral tributaries to Middle Fork Sarpy Creek	020, 021
		Ephemeral tributaries to East Fork Sarpy Creek	006, 007, 008, 009, 011, 012

B. Permit and Application Information

The facility is currently regulated by Montana Pollutant Discharge Elimination System (MPDES) permit No. MT0021229, which became effective on October 1, 2015, and expired on September 30, 2020. The permittee submitted an application for permit renewal dated April 2, 2020. Correspondence between the applicant and DEQ occurred on July 22, 2020; June 26, 2023; and December 29, 2023. In correspondence dated June 26, 2023, the applicant noted the intention to remove Outfalls 019, 022, and 025 and stated the pond for Outfall 021 has not been constructed and requested the outfall be removed. However, in more recent correspondence dated October 2, 2024, the applicant requested that Outfall 021 be retained. In addition, the applicant and DEQ corresponded regarding the applicable subparts of 40 CFR Part 434, Coal Mining, that apply to specific outfalls.

1. Summary of Existing Permit Requirements and Effluent Quality Data

To evaluate effluent quality at the facility, the last five years of data were selected to represent current mine conditions in addition to data provided in the permit application and from inspection reports and compliance. Due to the presence of different activities at the mine, effluent monitoring data have been divided into the following two groups: Outfall 001 and All Other Outfalls.

Outfall 001

Dry Coulee Dam receives storm water runoff comingled with mine drainage and coal processing runoff, and discharges at Outfall 001. During the period of record, no “planned” discharges (dry weather pumping) have occurred at Outfall 001. Discharges did occur on the following dates: October 16, 2021 through October 18, 2021; January 1, 2022 through January 14, 2022; and on March 1, 2022. Samples were not collected for these discharges.

Existing permit requirements and effluent data for discharges from Outfall 001 during the period of record are summarized in Table 4.

All Other Outfalls

The second effluent data group includes discharges from all other outfalls. Sediment ponds associated with these outfalls receive either storm water runoff only, or storm

water runoff commingled with mine drainage. During the period of record, one discharge event occurred at Outfall 017 with a flow of 0.03 million gallons per day.

Existing permit requirements and effluent data for discharges from all other outfalls during the period of record are summarized in Table 4.

Table 4. Effluent Characteristics for the Period of Record

Parameter	Units	Previous Permit Limits	Minimum Monthly Average Value	Maximum Monthly Average Value	Monthly Average Value	Number of Samples
Outfall 001						
Average monthly flow rate	gpm	Report only	0	6562	1887	4
pH (laboratory)	s.u.	Between 6.0 and 9.0	7.46	7.76	7.66	4
pH (field)	s.u	Between 6.0 and 9.0	7.46	7.76	7.66	4
Total dissolved solids	mg/L	Report only	1780	2680	2343	3
Total suspended solids	mg/L	35/70	ND	31	15.5	2
Settleable solids	ml/L	0.5	NA	NA	NA	NA
Oil and grease	mg/L	10/15	ND	ND	ND	1
Iron, total	mg/L	3.5/7.0	0.15	0.72	0.37	3

2. Compliance Summary

The following compliance inspections were conducted by the Montana Department of Environmental Quality (DEQ) during the term of the previous permit:

- March 31, 2016: Several areas of non-compliance were noted including frequency of sampling and analysis not being conducted. In addition, improper operation and maintenance was noted.
- November 30, 2021: Several areas of non-compliance were identified relating to failure to report data, failure to submit monitoring data, and failure to monitor.

In addition to the items listed above, the permittee reported the following non-compliance to DEQ via twenty-four hour oral report and five-day written report:

- March 31, 2016: There was a discharge from Outfall 001. Total suspended solids and pH were out of compliance. In a letter dated April 19, 2016, the discharger stated the non-compliance was most likely due to the grout used to repair the culvert.
- October 16 - 18, 2021: Unplanned discharge occurred at Outfall 001.

II. RATIONALE FOR PERMIT CONDITIONS

A. Rationale for Effluent Limitations

The federal 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 waters of the United States and waters of the State. 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 Montana's applicable numeric and narrative water quality standards (WQS). TBELs are based on implementing available technologies to reduce or treat pollutants while WQBELs are designed to protect beneficial uses of the receiving water. Federal regulation at 40 CFR 122.44(a)(1) [incorporated into ARM 17.30.1344(2)(b) by reference] requires 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 currently available treatment and control technologies for the industry.

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 State regulations at ARM 17.30.1344(2)(e) and ARM 17.30.1207.

MPDES permits for industrial and commercial facilities must include TBELs that implement any applicable Effluent Limitations Guidelines and Standards (ELGs) promulgated by USEPA.

b. Effluent Guidelines

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

1. Best practicable control technology currently available (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 BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after

considering “cost reasonableness” by balancing the cost of attaining a reduction in effluent discharge and the benefits that would result, against the cost effectiveness of additional industrial treatment beyond BPT.

4. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA also requires the development of ELGs representing application of BPT, BAT, BCT, and NSPS. ELGs 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 ELGs 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; E – Post-Mining Areas; F – Miscellaneous Provisions; and H – Western Alkaline Coal Mining are applicable to discharges from the facility 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.

Outfalls 016, 017, 018, 023, 024, and 026 have been determined to discharge effluent from a new source coal mine as defined at 40 CFR 434.11(j) and commenced discharges from these outfalls after promulgation of the October 9, 1985, amendments to 40 CFR 434. These outfalls are associated with significant new surface disturbance in new drainages to Middle Fork Sarpy Creek. These drainages extend south onto the Crow Indian Reservation, an area previously unaffected by mining. Additionally, the USEPA determined that the expansion of coal mining onto the Crow Indian Reservation is a major alteration because of extensive new surface disruption as a result of the mining operation, and because there will be discharge into an area that was not previously affected by wastewater from the Crow Indian Reservation mine. Therefore, the NSPS requirements of the ELGs apply to Outfalls 016, 017, 018, 023, 024, and 026.

Discharges from the remaining outfalls at the facility are not associated with a new source coal mine area, and therefore BPT, BAT, and BCT requirements of the ELGs apply.

c. Applicable Technology-based Limitations

ARM 17.30.1345(6)(a) requires that for continuous discharges all permit effluent limitations, standards, and prohibitions be stated, unless impracticable, as maximum daily and average monthly discharge limitations for all discharges other than those from publicly owned treatment works (POTWs). ELGs with numeric limitations are generally stated as 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.

i. Coal Preparation Plants and Coal Preparation Plant Associated Areas, Outfall 001

The provisions described in 40 CFR 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 5 apply.

Table 5. TBELs – Outfall 001

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	Standard units	6.0 – 9.0 at all times		BPT

ii. Alkaline Mine Drainage

The provisions described in 40 CFR 434, Subpart D are applicable to alkaline mine drainage. Alkaline mine drainage is water, drainage, or discharges that normally exhibit a pH equal to or greater than 6.0.

1) Existing Sources, Outfalls 001, 002, 013, and 015

Pursuant to 40 CFR 434.40, TBELs for alkaline mine drainage for existing sources are applicable to drainage from an active mining area of coal of any rank.

Table 6. TBELs - Outfalls 001, 002, 013, and 015

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	Standard units	6.0 – 9.0 at all times		BPT

2) New Sources, Outfalls 016, 017, 018, 023, 024, 026

Pursuant to 40 CFR 434.45, TBELs for new sources, as defined in 40 CFR 434.11, are applicable to alkaline mine drainage from an active mining area of coal of any rank. For the reasons stated above in Section II.A.1.b, discharges of alkaline mine drainage from Outfalls 016, 017, 018, 023, 024, and 026 are subject to the NSPS contained in Table 7.

Table 7. TBELs – Outfalls 016, 017, 018, 023, 024, and 026

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, Total	mg/L	6.0	3.0	NSPS
Total Suspended Solids	mg/L	70	35	NSPS

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Solids				
pH	Standard units	6.0 – 9.0 at all times		NSPS

iii. *Post-Mining Areas*

The provisions described in 40 CFR 434, Subpart E are applicable to discharges from post-mining areas, except as provided in subpart H—Western Alkaline Coal Mining of this part. These outfalls are not involved with active mining and do not receive drainage exclusively from reclaimed areas where the entire contributing watershed has been released from Phase II bonding.

- 1) Reclamation areas. The limitations of this subsection apply to discharges from reclamation areas until SMCRA bond release.
- 2) Outfalls 008, 009, 011, 012, 020, and 021
These outfalls are located in reclamation areas that have not yet satisfied the requirements for subpart H-Western Alkaline Coal Mining.

Table 8. TBELs – Outfalls 008, 009, 011, 012, 020, and 021

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Settleable Solids	mL/L	0.5	--	BPT, BAT
pH	Standard units	6.0 – 9.0 at all times		BPT, BAT

iv. *Precipitation Events, All Outfalls*

For discharges driven by precipitation events, alternate effluent limitations may be applied instead of otherwise applicable TBELs (40 CFR 434.63). These alternate limitations are only applicable to discharges that are the result of pond overflows due to a precipitation event.

- 1) Storm Events Less than or Equal to the 10-year, 24-hour Event.
Precipitation-driven discharges are subject to the ELGs at 40 CFR 463.63 (a)(2), 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). The NOAA Atlas 2, Volume 1 defines the 10-year, 24-hour precipitation as 2.58 inches. Applicable TBELs are presented in Table 9.

Table 9. TBELs - Precipitation Events Less Than or Equal to the 10-yr, 24-hr Event

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

- 2) Storm Events Greater than the 10-yr, 24-hr Precipitation Event.
Precipitation driven discharges or increase 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), which is 2.58 inches (NOAA Atlas 2, Vol. 1) are subject to the following ELGs, pursuant to 40 CFR 434.63(d)(2). Applicable TBELs are presented in Table 10.

Table 10. TBELs - Precipitation Events Greater Than the 10-yr, 24-hr Event

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

v. *Western Alkaline Standards: Outfalls 006 and 007*

Outfalls 006 and 007 discharge runoff from outfalls that receive drainage exclusively from reclaimed areas when the entire contributing watershed has been released from Phase II bonding and meet the definition of 40 CFR Part 434, Subpart H—Western Alkaline Coal Mining (Western Alkaline Standards), which applies to “alkaline mine drainage at western coal mining operations from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas” (40 CFR part 434.81(a)). 40 CFR 434.82 specifies effluent limitations based on BPT, which includes the following criteria for Western Alkaline Standard outfalls:

- The permittee must submit a site-specific Sediment Control Plan (SCP) that is designed to prevent an increase in the average annual sediment yield from pre-mined, undisturbed conditions. The SCP must be approved by DEQ and be incorporated into the permit as an effluent limitation. The SCP must identify best management practices (BMPs) and also must describe design specifications, construction specifications, maintenance schedules, criteria for inspection, and expected performance and longevity of the BMPs.
- Using watershed models, the permittee must demonstrate that implementation of the SCP will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The operator must use the same watershed model that was, or will be, used to acquire the Surface Mining Control and Reclamation Act (SMCRA) permit.
- The permittee must design, implement, and maintain BMPs in the manner specified in the SCP.

Best Management Practices (BMPs)

Surface coal mining operations in Montana are regulated by the DEQ Mining Bureau (MB) under the Montana Strip and Underground Mine Reclamation Act (MSUMRA). The Montana regulatory program, which consists of MSUMRA and implementing rules ARM 17 Chapter 24, is approved by the Office of Surface Mining (OSM) under the requirements of the federal SMCRA.

Under SMCRA, coal mine operators must reclaim lands disturbed by mining and implement measures to protect the hydrologic balance during and after mining as an integral part of mining and reclamation plans incorporated into approved

surface mining permits. Sediment control measures and the following BMPs are integral to protection of the hydrologic balance.

Roadway Conveyances. Conveyance structures (ditches) are constructed to route the 10-year, 24-hour storm event to sediment traps and along roads during mining. Ditch transitions and intersections are constructed to minimize erosion and sedimentation. Where conveyance crosses a road, culverts are sized to convey a 10-year, 24-hour storm event.

Maintenance of Conveyance Structures. Ditches and culverts are inspected periodically for blockages and erosion. Erosion and/or sedimentation that compromise the ability of the ditch to convey its design flow are addressed by reconstructing the ditch to its design geometry. Where ditch erosion occurs, more frequent trap maintenance to maintain design capacity may be required. Sediment accumulations in culverts will be removed as necessary to maintain design flow capacities.

Sediment Capture. Sediment traps are employed in low spots along the undisturbed topsoil edge to confine sediment to the disturbed area to the extent practicable. Sediment traps are not designed if the ultimate point of control is a designed sediment trap or sediment pond downstream.

Sediment Ponds. Sediment ponds or traps located at final discharge points are designed to detain runoff from a 10-year, 24-hour event during active mining operations. Ponds or traps may be reduced in size to 2-year, 24-hour capacity during the reclamation phase, or they may be eliminated, with MB approval, when the contributing watershed is fully reclaimed and revegetated. Sediment traps may be reclaimed as small depressions for topographic, vegetative and wildlife habitat diversity per plans approved by MB. Sediment accumulations in sediment traps and ponds will be cleaned when sediment accumulation may interfere with detention of the 2-year or 10-year, 24-hour event, as appropriate.

Small Depressions. During reclamation, sediment traps and ponds may be converted to small depressions designed for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment capture. Small depressions may also be established on an opportunistic basis within the reclaimed area for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment control. Small depressions will meet the following criteria:

- Each depression on the interior of the reclaimed area will be one acre-foot or less in capacity;
- Each depression at the margin of the reclaimed area will be two acre-feet or less in capacity;
- No depression will be deeper than three feet;
- Depressions will be soiled and revegetated; and
- Maximum slopes will be 5:1 on the uphill (inflow) side and 3:1 on the lateral and downhill (outflow) sides.

Recontouring. After mining, overburden spoil piles are regraded to a topography meeting the SMCRA requirement of approximate original contour to facilitate erosion control, revegetation and the post-mining land use.

Soil Redistribution. Soil salvaged prior to mining disturbance is redistributed on recontoured spoils to re-establish infiltration and runoff characteristics, and to promote revegetation establishment, similar to the pre-mining conditions, consequently promoting erosion and sediment control similar to pre-mining conditions.

Minimizing Potential for Erosion During Reclamation. Slope lengths are minimized by constructing complex topography. With the exception of agricultural areas, regraded landscapes are left in a roughened condition to minimize compaction. Coarse-textured substrates, including soils with high coarse-fragment content are used, particularly on sites with increased erosion potential, or where establishment of woody species is desired.

Soil Preparation on the Contour. Spoil scarification, soil placement, soil preparation and seeding are done on the contour provided the safety of equipment operators is not compromised.

Establishment of Vegetation. Seedbed preparation techniques that create a roughened surface to retard surface runoff and increase infiltration are used. Reclaimed vegetative cover must be similar to pre-mining vegetative cover. Permanent vegetation cover appropriate for the site typically is established by the end of the third growing season following initial seeding, although the reclaimed plant community will continue to develop. From a hydrologic perspective the objective is 75 percent cover, including litter, which defines "good" hydrologic condition for runoff and sediment modeling purposes.

Reclamation of Rills and Gullies. Rills and gullies developed post-reclamation are remediated on a site-specific basis if they adversely impact the establishment of vegetation, disrupt post-mine land use and/or cause or contribute to a violation of a water quality standard. Unless otherwise approved, any rill or gully greater than 30 inches in depth will be considered disruptive and will be remediated.

Establishment of Sediment Control Measures for Site-Specific Control. Sediment control measures such as contour scarification, straw dikes, rip-rap, check dams and erosion control products will be used when necessary to minimize erosion and sediment transport in areas requiring site-specific erosion control.

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 technology-based standard where more stringent limitations are necessary to achieve applicable State 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, chapter 5, part 3 of the MWQA specifically requires DEQ to establish the classification of all state waters in accordance with their present and future most 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 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 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 federal regulations at 40 CFR 131. The WQS applicable to the 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

WQBELs are evaluated for all parameters of concern based on the WQS applicable to the receiving water at the point of discharge. All outfalls discharge into tributaries of Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek. At the point of discharge the hydrologic condition of the receiving water is ephemeral as that term is defined at ARM 17.30.602(10). Specific standards applicable to hydrologically ephemeral streams are detailed in item **i.**, below.

Because of the short length of the ephemeral drainages, some discharges from outfalls may travel out of the ephemeral tributaries and into Sarpy Creek, Middle Fork Sarpy Creek and East Fork Sarpy Creek. These creeks are located within the Middle Yellowstone watershed, which belongs to the Lower Yellowstone-Sunday hydrologic unit (HUC 10100001) and falls under the C-3 Water-Use Classification for the Yellowstone River drainage from the Billings water supply intake to the North Dakota state line [ARM 17.30.611(1)(c)]. Beneficial uses of C-3 receiving waters include: bathing, swimming, and recreation; and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of water is naturally marginally suitable for drinking, culinary and food processing purposes, agriculture, and industrial water supply. Specific standards applicable to C-3 waters are detailed in items **ii-iv**, below, and apply when discharges to hydrologically ephemeral receiving waters have the potential to reach intermittent reaches.

i. Water Use Classification and Standards – All Outfalls

All outfalls discharge into hydrologically ephemeral tributaries of Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek. 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 minimum treatment requirements in ARM 17.30.1203; and the operation standards, sampling and analytical methods, and general prohibitions in ARM 17.30.635 through 17.30.637, 17.30.640, 17.30.641, 17.30.645, and 17.30.646. The specific water quality standards for C-3 waters found in ARM 17.30.629(2) do not apply to ephemeral streams pursuant to ARM 17.30.637(4).

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.

ii. Water Use Classification and Standards – Sarpy Creek

The Montana DEQ stream assessment record for Sarpy Creek indicates it is hydrologically intermittent (DEQ, 2014). The intermittent condition of Sarpy Creek is further supported by local monitoring data. The permittee maintains surface water monitoring stations both within and outside the mine permit boundary in support of surface mine permit No.C1985005. Results of monitoring activities are reported via Annual Hydrology Reports submitted to the DEQ MB. Continuous flow data collected at Sarpy Creek monitoring stations G-1 and G-12 and reported in the period of record generally indicate daily flow occurring during all but the driest late summer and fall months.

Due to an intermittent condition, the specific water quality standards identified in ARM 17.24.629(2) are applicable to Sarpy Creek. While there are no outfalls discharging directly to Sarpy Creek, discharges into tributaries of Sarpy Creek must be evaluated against applicable WQS if potential exists for discharges from the mine to reach Sarpy Creek.

iii. Water Use Classification and Standards – Middle Fork Sarpy Creek

Middle Fork Sarpy Creek is predominantly ephemeral; it flows only in response to precipitation or snowmelt events. While there is no Montana DEQ assessment record for this stream, continuous flow data collected at Middle Fork Sarpy Creek monitoring station G-10 during the period of record generally indicate a dry channel year-round with ephemeral flows occurring rarely and only after significant precipitation or snow melt. The majority of years reviewed record zero flow year-round.

However, just within the mine permit boundary in the SE ¼ of Section 5 and SW ¼ of Section 4 exists two short segments of Middle Fork Sarpy Creek that are wet for much of the year due to groundwater expression, meeting the definition of intermittent stream at ARM 17.30.602(13) (see Appendix III). Therefore, despite

the overall ephemeral hydrologic condition of the stream, specific WQS identified in ARM 17.24.629(2) must be applied to protect these intermittent segments of Middle Fork Sarpy Creek. While there are no outfalls discharging directly into the aforementioned intermittent segments, discharges into upstream tributaries must be evaluated against applicable WQS if potential exists for discharges from the mine to reach intermittent stream segments.

iv. Water Use Classification and Standards – East Fork Sarpy Creek

There are no direct discharges to East Fork Sarpy Creek; all outfalls discharge into tributaries. At the point of discharge the hydrologic condition of the receiving waters is ephemeral.

The Montana DEQ stream assessment record for East Fork Sarpy Creek indicates a mixed hydrologic condition, with ephemeral upper and lower reaches and an intermittent middle reach occurring within the assessment unit (DEQ, 2014b). Flow data collected from the middle intermittent segment of East Fork Sarpy Creek at monitoring station G-8 during the period of record generally indicate daily flow occurring during all but the driest late summer and fall months.

East Coulee is a tributary to East Fork Sarpy Creek that is intermittent for much of its reach. Flow data collected at East Coulee monitoring station G-6 generally indicate daily flow occurring during all but the driest late summer and fall months.

As East Coulee and East Fork Sarpy Creek are hydrologically intermittent, the specific WQS identified in ARM 17.24.629(2) are applicable. Discharges into tributaries of East Coulee and East Fork Sarpy Creek must be evaluated against applicable water quality standards if potential exists for discharges from the mine to reach these streams.

i. Impaired Waters

The MWQA at 75-5-702, MCA, requires that DEQ monitor state waters and assess the quality of those waters to identify surface water bodies or segments of water bodies whose designated uses are threatened or impaired. Section 75-5-703, MCA requires that DEQ complete a total maximum daily load (TMDL) for those water bodies that are identified as threatened or impaired. These requirements satisfy sections 303(d) and 305(b) of the CWA.

The direct receiving waters for discharges from the facility (ephemeral tributary to Sarpy Creek, ephemeral tributaries to East Fork Sarpy Creek, and ephemeral tributaries to Middle Fork Sarpy Creek) are not listed as impaired waters on the State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report.

The State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report lists the segment of Sarpy Creek from the Crow Reservation boundary to the mouth at the Yellowstone River as a Category 5 stream, indicating that one or more beneficial uses has been assessed as being impaired or threatened. This segment of Sarpy Creek is listed as not supportive of aquatic life and warm water fisheries, and a TMDL is required to address the factors causing the impairment or threat. The

probable cause of impairment is nutrients (nitrite plus nitrate as N, nitrogen, and phosphorus). Probable sources of impairment are grazing in riparian or shoreline zones and non-irrigated crop production. The mine is not a significant source of nutrients; if a TMDL is adopted and approved for nutrients, this permit may be re-opened to include effluent limitations based any appropriate wasteload allocations (WLAs) for nutrients.

The State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report lists East Fork Sarpy Creek as a Category 1 stream, indicating that beneficial uses have been assessed and determined to be fully supported. Middle Fork Sarpy Creek is not included in the 2014 or prior Integrated 303(d) List and 305(b) Water Quality Report.

c. Pollutants and Parameters of Concern

WQBELs are only assessed to control pollutants or parameters of concern (POC) that may cause or have reasonable potential to cause exceedances of WQS based on the effluent characteristics and the water quality objectives for the affected receiving water(s). POC for the facility include total iron, total suspended solids, settleable solids, and pH. These pollutants and parameters are identified as POC because they are regulated under the applicable ELGs for coal mines found at 40 CFR Part 434. Thus, the MPDES permit for the facility must include TBELs for these pollutants and parameters and they should be evaluated to determine the need for WQBELs. In addition, POC include total dissolved solids (TDS) and nutrients (nitrogen, phosphorus, and nitrate + nitrite as nitrogen). TDS is included as a POC because high solute concentrations can affect beneficial uses of the receiving water. Nutrients are included as they are identified as potential sources of impairment of Sarpy Creek. Lastly chloride, aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc are added as POC because these pollutants have numeric water quality criteria in Circular DEQ-7, are commonly associated with mining activity, and non-effluent data provided with the application indicate these pollutants may be present in discharges at the mine.

d. Nondegradation

The MWQA includes a nondegradation policy at 75-5-303, MCA which protects existing water quality from undue degradation. This policy applies to any new or increased activity which results in a change in existing water quality. The MWQA states that it is unlawful to cause degradation of state waters unless authorized by DEQ pursuant to ARM 17.30.706-708. The regulations at ARM 17.30.701-718 implement the state's nondegradation policy.

i. Determination – New or Increased Source

Not applicable. There are no new outfalls.

ii. Protection of Existing Uses (Tier 1)

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 the permit for any new

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 effluent limitations applied to all discharges 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 (Tier 2)

High quality waters, as defined in 75-5-103(12) and ARM 17.30.702(8) includes all state surface waters, excluding surface waters that are not capable of supporting any one of the designated uses for their classification and surface waters that have zero flow or surface expression for more than 270 days during most years.

The receiving waters for the discharges from all outfalls are ephemeral tributaries, which are not high quality waters as defined at MCA 75-5-103. Though Middle Fork Sarpy Creek contains two short wet segments, the stream assessment unit is predominantly ephemeral and does not flow as a unit for more than 270 days during most years. Therefore, the criteria of ARM 17.30.715 do not apply.

iv. Protection of Outstanding Resource Waters (Tier 3)

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 the facility have not been designated as outstanding resources waters and therefore this regulation is not applicable.

e. Mixing Zones

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

A mixing zone is defined by the regulations as a limited area of a water body where initial dilution of a discharge takes place, where water quality changes may occur, and where certain numeric water quality standards may be exceeded [ARM 17.30.502(6)]. Acute numeric WQS may not be exceeded, even within a mixing zone, unless DEQ specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses [ARM 17.30.507(1)(b)].

Mixing zones are granted by DEQ only where they are *needed* (where the discharger cannot meet the applicable numeric WQS at the point of discharge) and where they are *appropriate* (based on the criteria specified in the regulations).

The permittee did not submit a request for an acute, chronic, or human health mixing zone with its MPDES permit renewal application. Furthermore, 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. Therefore, no mixing zones are authorized by the permit.

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 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 (emphasis added by DEQ).” 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” (RPA). Thus, an RPA 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.

Outfalls 001, 002, and 023-026

Outfalls 001, 002, and 023-026 discharge to receiving waters that hydrologically meet the definition of ephemeral [ARM 17.30.602(10)]; discharges from these outfalls are unlikely to encounter any intermittent or perennial downstream waters. Sarpy Creek is located approximately 2.4 river miles downstream of Outfall 001. At this distance, it is unlikely that periodic discharges from Outfall 001 to an ephemeral tributary will be of sufficient volume to reach Sarpy Creek. Outfalls 002, 023, 024, and 026 discharge to ephemeral tributaries that join Middle Fork Sarpy Creek downstream of any intermittent segments.

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. 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 numeric standards in Circulars DEQ-7 and DEQ-12A, as adopted by ARM 17.30.629, is unnecessary.

Outfalls 006-012, 020, and 021

Outfalls 006-012, 020, and 021 are associated with reclaimed post-mining drainages or soil stockpile areas; therefore, Post-Mining and Western Alkaline Standards at 40 CFR 434.52 and 434.53 for Post-Mining and 40 CFR 434.81 for Western Alkaline Coal Mining are applicable. For both standards, sediment is the primary pollutant of concern for reclaimed drainages. Outfalls regulated by the Post-Mining subcategory have effluent limitations for settleable solids and pH, while those regulated under Western Alkaline must implement and maintain BMPs sufficient to limit sediment discharges at or below pre-mine levels (40 CFR 434.82). Therefore, evaluation of reasonable potential to exceed numeric standards in Circulars DEQ-7 and DEQ-12A, as adopted by ARM 17.30.629, is unnecessary for Post-Mining and Western Alkaline outfalls.

Outfalls 013, 015-018

Outfalls 013, 015-018 discharge directly to ephemeral tributaries to Middle Fork Sarpy Creek and are located upstream of identified intermittent segments. The specific WQS for C-3 waters found in ARM 17.30.629(2) do not apply to ephemeral streams pursuant to ARM 17.30.637(4). However, effluent discharged from outfalls located upstream of the Middle Fork Sarpy Creek intermittent segments has potential to reach these segments. Therefore, DEQ concludes that the specific WQS of ARM 17.30.629(2) apply to discharges from Outfalls 013, 015-018.

Continuation of Existing Effluent Limitations

There was no discharge data from Outfalls 013, 015-018. Based on anti-backsliding provisions, the WQBEL for total iron at Outfalls 013, 015-018 will continue for this permit.

Whole Effluent Toxicity

DEQ interprets the prohibition against discharges that will create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life in terms of acute and chronic whole effluent toxicity (WET) as follows:

- Acute toxicity occurs when, during an acute toxicity test, 50 percent mortality is observed for any tested species at any effluent concentration (i.e., $LC50 < 100\%$ effluent)
- Chronic toxicity occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC25) for any tested species is less than or equal to the percent effluent represented by the effluent concentration in the receiving water after accounting for any allowable mixing zone.

DEQ determines the need for WET limitations by directly comparing WET testing data submitted in a permit application or as a result of monitoring requirements in the previous permit) to these definitions of acute and chronic effluent toxicity.

The existing permit contains no requirement for WET testing; therefore, no acute WET tests have been conducted by the permittee to facilitate a reasonable potential analysis. WET testing at Outfall 001 is required by this permit.

g. WQBEL Calculations

Reasonable potential to exceed numeric WQS was recognized for total iron. As the critical low flow condition for the receiving waters is 0 cfs, instream dilution of pollutant concentrations is not available and no mixing zone is allowed. Therefore, the WQBEL for total iron has been set as an “end of pipe” limit based on numeric WQS contained in Circular DEQ-7. For iron, a chronic WQS of 1.0 mg/L is applicable; this translates into an average monthly effluent limitation (AML) of 1.0 mg/L. Circular DEQ-7 does not contain an acute WQS for total iron; therefore, there is no corresponding maximum daily effluent limitation (MDL).

h. Final WQBELs

WQBELs were determined for total iron, a pollutant that demonstrated reasonable potential to exceed numeric WQS. WQBEL calculation generated an AML of 1.0 mg/L based on applicable chronic WQS; this is more protective than the

corresponding TBEL of 3.0 mg/L and therefore will be incorporated as a permit limit for applicable outfalls. Because there is no acute WQBEL for iron from which to assign a MDL, the corresponding TBEL of 6.0 mg/L is retained.

Final WQBELs are assigned only to outfalls discharging upstream of identified intermittent segments of Middle Fork Sarpy Creek (Outfalls 013, 016-018). Outfalls discharging into ephemeral receiving waters are not subject to WQBELs [ARM 17.30.637(4)].

Effluent limitations for oil and grease are continued from the previous permit and are based on ARM 17.30.637(1)(b). Narrative WQBELs are retained from the previous permit.

3. Final Effluent Limitations

Section 402(o) of the CWA and section 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. TBELs consist of restrictions on iron, total suspended solids, settleable solids, and pH. 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. WQBELs are established in the permit for total iron and are applicable only to Outfalls 013, 016-018. The calculated WQBEL for total iron (an AML of 1.0 mg/L) is more stringent than the TBELs for total iron (an AML of 3.0 mg/L) for new sources and is therefore established in the permit as a final effluent limitation for total iron.

WQBELs for oil and grease are continued from those found in the previous permit and are based on ARM 17.30.637(1)(b). Narrative WQBELs are retained from the previous permit. Final effluent limitations for discharges at all outfalls are summarized in Tables 13 through 15.

Table 11. Summary of Final Effluent Limitations – Outfalls 001, 002

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Iron, Total	mg/L	3.5	7.0	40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 12. Summary of Final Effluent Limitations – Outfalls 023, 024, and 026

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	3.0	6.0	40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 13. Summary of Final Effluent Limitations – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	1.0	6.0	Nondegradation
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 14. Summary of Final Effluent Limitations – Outfalls 008, 009, 011, 012, 020, and 021

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable Solids	mL/L		0.5	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434

Table 15. Summary of Final Effluent Limitations – Outfalls 006 and 007

Parameter	Units	Effluent Limitations	Basis
Average Annual Sediment Yield	Tons/acre/year	Implementation of Approved Sediment Control Plan	40 CFR 434

Narrative Effluent Limitations (All Outfalls):

- i. There shall be no discharge from any outfall 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 of floating solids or visible foam in other than trace amounts.
- iii. There shall be no discharge from any outfall that causes visible oil sheen in the receiving stream.
- iv. There shall be no discharge from any outfall that creates conditions that produce undesirable aquatic life; and
- v. There shall be no discharge from any outfall that creates concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life.

Alternate, final effluent limitations applicable to precipitation-driven discharge events which are due to a pond overflow are summarized in Tables 16 and 17 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 and infrequent in nature. Alternate effluent limitations are not applicable to Western Alkaline Standards outfalls.

Table 16. Summary of Alternate Final Effluent Limitations for Precipitation Events – Outfalls 001, 002, 023, 024, 026

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable Solids ⁽¹⁾	ml/L	--	0.5	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)
<u>Footnotes:</u>				
(1) Effluent limitations apply 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).				

Table 17. Summary of Alternate Final Effluent Limitations for Precipitation Events – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable Solids ⁽¹⁾	ml/L	--	0.5	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Iron, Total	mg/L	--	6.0	Nondegradation
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)
<u>Footnotes:</u>				
(1) Effluent limitations apply 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

All monitoring shall be conducted at the overflow structure where effluent discharges as overflow from the sediment control structure, or at the end of the discharge pipe when pumped or drained, and prior to contact with the receiving water. Monitoring requirements for discharges not caused by precipitation events are summarized in Table 18.

Table 18. Summary of Monitoring Requirements – Non-precipitation Driven Discharges

Parameter	Units	Monitoring Frequency	Basis
Flow	gpm	1/Day	Previous permit
Total Volume Discharged	Acre feet	1/Discharge	Effluent characterization
Total Suspended Solids (TSS)	mg/L	1/Month	Effluent limitations compliance
Total Dissolved Solids (TDS)	mg/L	1/Month	Effluent limitations compliance
pH	s.u.	1/Month	Effluent limitations compliance
Oil and Grease	mg/L	1/Month	Effluent limitations compliance
Aluminum, dissolved	µg/L	1/Month	Effluent characterization
Arsenic, total	µg/L	1/Month	Effluent characterization
Cadmium, total	µg/L	1/Month	Effluent characterization
Chloride	mg/L	1/Month	Effluent characterization
Chromium, total	µg/L	1/Month	Effluent characterization
Copper, total	µg/L	1/Month	Effluent characterization
Hardness (as CaCO ₃)	mg/L	1/Month	Effluent characterization
Iron, total	mg/L	1/Month	Effluent limitations compliance
Lead, total	µg/L	1/Month	Effluent characterization
Mercury	µg/L	1/Month	Effluent characterization
Nickel, total	µg/L	1/Month	Effluent characterization
Nitrate + Nitrite (as N)	mg/L	1/Month	Effluent characterization
TKN	mg/L	1/Month	Effluent characterization

Parameter	Units	Monitoring Frequency	Basis
Nitrogen, total	mg/L	1/Month	Effluent characterization
Phosphorus, total	mg/L	1/Month	Effluent characterization
Selenium, total	µg/L	1/Month	Effluent characterization
Zinc, total	µg/L	1/Month	Effluent characterization
Whole Effluent Toxicity, Acute ⁽¹⁾	% Effluent	1/Year	Effluent characterization

Footnotes:

1. Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitoring locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

- a. Effluent monitoring requirements for flow, pH, TSS, settleable solids, total iron, oil and grease, and TDS are retained from the previous permit. A monitoring requirement for total volume of effluent discharged has been added and is applicable to non-precipitation driven (pumped) discharges only. This addition is necessary to better estimate the daily discharge (volume) as defined in ARM 17.30.1304(18). Monitoring requirements are added for identified pollutants of concern for which reasonable potential could not be analyzed due to lack of effluent data. These pollutants include nitrogen, phosphorus, Total Kjeldahl Nitrogen (TKN), nitrate + nitrite as nitrogen, chloride, aluminum, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc. Pollutants will be monitored at a rate of once per month to better characterize effluent quality. The additional parameters that were determined to be pollutants of concern are either those that have recommended 304(a) criteria, those for which the state of Montana has adopted WQS, and/or those that are commonly found in coal mine NPDES permits.

The previous permit did not contain any effluent total hardness monitoring requirements. The simplest definition of water hardness is the amount of divalent cations in the water. This quality factors into metals toxicity (i.e., metals become more toxic when water hardness is lower, and many metals WQS are calculated using an equation that includes hardness). To better determine the applicable metals' WQS, hardness monitoring has been established.

Annual monitoring requirements for acute whole effluent toxicity (WET) are added by this permit. WET monitoring is required only at those outfalls receiving runoff from areas categorized as "coal preparation plants and coal preparation plant associated areas" as defined by 40 CFR 424.11. Acute WET testing is necessary for characterization of the effluent and for future RPA [ARM 17.30.637(1)(d)]. Monitoring for chronic toxicity is not required because the discharges from the facility are intermittent and sporadic and are unlikely to result on chronic impacts on the beneficial uses of the receiving waters. If acute toxicity is detected during routine monitoring at one of these monitoring locations, accelerated monitoring is triggered.

- b. Alternate monitoring requirements for discharges caused by precipitation events are summarized in Table 19. The permittee is required to monitor precipitation in the

Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek drainage basins, as described below, to generate evidence for proof that any discharge was a result of a precipitation event, and that these alternate monitoring requirements are applicable. A monitoring requirement for total settleable solids replaces total suspended solids; otherwise, the parameter set is identical to Table 18. The monitoring frequency for precipitation-driven discharges is once per discharge for all parameters except whole effluent toxicity, which is monitored annually.

Table 19. Summary of Monitoring Requirements –Precipitation Driven Discharges

Parameter	Units	Monitoring Frequency	Basis
Flow	gpm	1/Discharge	Previous permit
Total Settleable Solids (SS) ⁽¹⁾	mg/L	1/Discharge	Effluent limitations compliance
Total Dissolved Solids (TDS)	mg/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
Arsenic, total	µg/L	1/Discharge	Effluent characterization
Cadmium, total	µg/L	1/Discharge	Effluent characterization
Chloride	mg/L	1/Discharge	Effluent characterization
Chromium, total	µg/L	1/Discharge	Effluent characterization
Copper, total	µg/L	1/Discharge	Effluent characterization
Hardness (as CaCO ₃)	mg/L	1/Month	Effluent characterization
Iron, total	mg/L	1/Discharge	Effluent limitations compliance and Effluent characterization
Lead, total	µg/L	1/Discharge	Effluent characterization
Mercury	µg/L	1/Month	Effluent characterization
Nickel, total	µg/L	1/Discharge	Effluent characterization
Nitrate + Nitrite (as N)	mg/L	1/Discharge	Effluent characterization
TKN	mg/L	1/Month	Effluent characterization
Nitrogen, total	mg/L	1/Discharge	Effluent characterization
Phosphorus, total	mg/L	1/Discharge	Effluent characterization
Selenium, total	µg/L	1/Discharge	Effluent characterization
Zinc, total	µg/L	1/Discharge	Effluent characterization
Whole Effluent Toxicity, Acute ⁽²⁾	% Effluent	1/Year	Effluent characterization
Footnotes:			
(1) Monitoring requirement applies 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) Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitoring locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.			

2. Other Monitoring Requirements

- a. Whole Effluent Toxicity Testing. Whole effluent 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 at outfalls associated with coal preparation plants or coal preparation plant associated areas (Outfall 001). Testing for acute toxicity must use two test species. If acute toxicity is detected, the permittee is required to conduct accelerated testing until further notified by DEQ. 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, infrequent, and not continuous. Therefore, chronic effects from the discharges are not anticipated. If discharges become continuous in the future, the permit may be reopened to include chronic toxicity monitoring requirements.

- b. Precipitation Monitoring. The permittee is required to monitor and report precipitation in the Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek drainage basins, using a precipitation gauge that meets the standards provided in National Weather Service’s Instructional Bulletin 10-1302 (October 4, 2005), *Instrument Requirements and Standards for the NWS Surface Observing Programs (Land)*, which are provided in Table 20. Precipitation monitoring is required to provide evidence that a precipitation event resulted in a discharge, and that alternate limitations and monitoring requirements apply.

Table 20. Precipitation Gauge Performance Standards

Parameter	Accuracy	Range	Resolution
Liquid Precipitation Accumulated Amount	±0.02 inches or 4 percent of hourly amount (whichever is greater)	0-10 inches/Hour	0.01 inches
Snow Depth	0 to 5 inches: ±0.5 inches, >5 to 99 inches: ±1.0 inch	0 to 99 inches (auto)	1 inch
Freezing Precipitation	Detection occurs whenever 0.01 inch accumulates	0 to 40 inches	0.01 inches
Frozen precipitation (water equivalent)	±0.04 inches or 1 percent of total accumulation	0 to 40 inches	0.01 inches

- c. Flow Measurement and Sampling Units. The permit requires the permittee to install and use automated flow measurement and sample collection equipment at each outfall. This requirement is necessary because precipitation events are often localized, high intensity, short duration thunderstorms, and watersheds often cover large, isolated areas. Likewise, weather conditions may prevent access to outfalls for monitoring whether an overflow discharge occurred or for discharge sampling.

In response to a June 23, 2013, violation, the permittee submitted a plan for installation of automated equipment. Flow monitoring is conducted utilizing a USGS style of crest gage. The gage is installed in the selected section of the channel. The USGS crest gage uses fine cork to mark a reference staff located inside the gage. During a flow event the cork floats inside the unit on the water surface and becomes

entrained on the reference staff. The distance between the reference level and the highest cork entrainment represents the highest level of water passing the gage. The discharge channel has been surveyed and a ratings curve developed to establish a peak flow volume passing the crest gage. The gage will be checked at the frequency required in the permit with the depth of discharge noted. Conversion of depth of flow into volume of flow will be completed using the established ratings curve.

To ensure collection of effluent discharge from the impoundments, a passive crest sampler is installed in the constructed channel floor. Passive crest samplers are housed below grade in the overflow channels to intercept the first flows discharged from the impoundments. A mounting container is used to prevent floating of the samplers and provide protection from excessive flow events. The passive samplers are configured with an inlet check valve so when the container is full the container is sealed to prevent additional inflow. Sample volumes can be one to two liters depending on sample analysis needs. Multiple samplers and/or oversized bottles may be needed if an expanded parameter list or WET testing is required.

Procedurally, the day after a storm event, or when the site is accessible, personnel will retrieve the crest sampler and prepare aliquots for analysis. The initial aliquot will be used to measure pH of the sample. Subsequent aliquots will be collected and preserved based on the parameter in question. To validate the appropriateness of analysis of pH from the passive sampler, a verification pH sample will also be measured in the impoundment from which water overflowed.

2. Reporting Requirements

The permittee must comply with reporting requirements as specified in ARM 17.30.1342. If multiple monitoring periods occur during the reporting period the permittee must report the highest calculated or measured value that conforms to the numeric effluent in the permit, except for parameters reported as minimum values. For parameters specified as minimum on the Discharge Monitoring Report, the permittee must report the lowest calculated or measured value.

C. Rationale for Special Conditions

1. Additional Monitoring and Special Studies

TIE/TRE. A Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) is required by the permit upon detection of acute or chronic 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. Best Management Practices and Pollution Prevention

Best management practices will be implemented as described in the approved Sediment Control Plan.

3. Reopener Provisions

These provisions are based on 40 CFR Part 123 and the previous permit. DEQ 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 DEQ.

4. Storm Water Management

See Sediment Control Plan discussion in Section II.A.1.C.iv (page 12), above.

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 this 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 75-5-633, MCA.

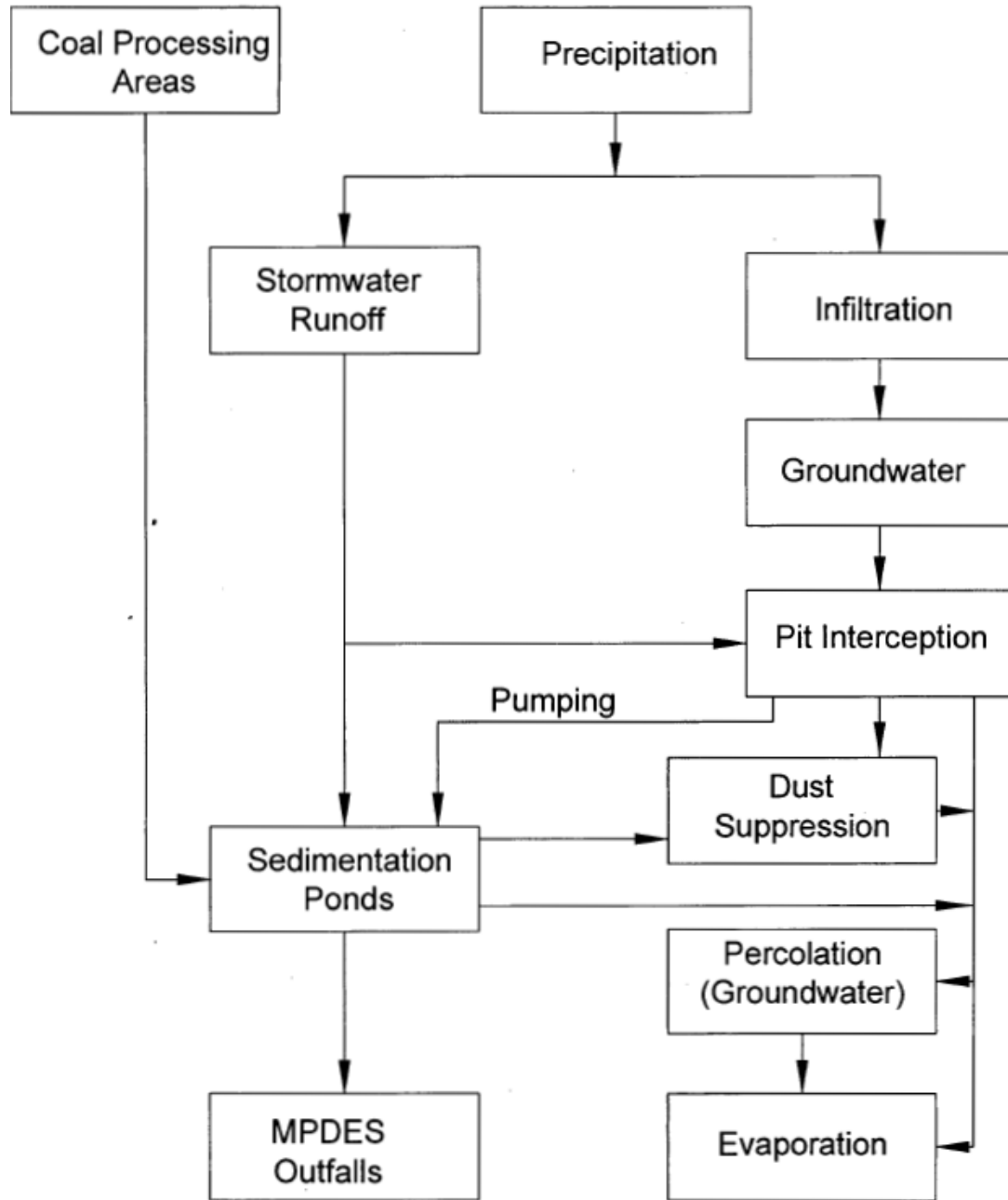
E. Nonsignificance Determination

The discharge is subject to Montana Nondegradation Policy (75-5-303, MCA; ARM 17.30.705). Effluent limitations prescribed by the permit and discussed in the fact sheet are intended to ensure that water quality standards are met at the point of discharge and that mine effluent will not impair receiving waters. These effluent limitations ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

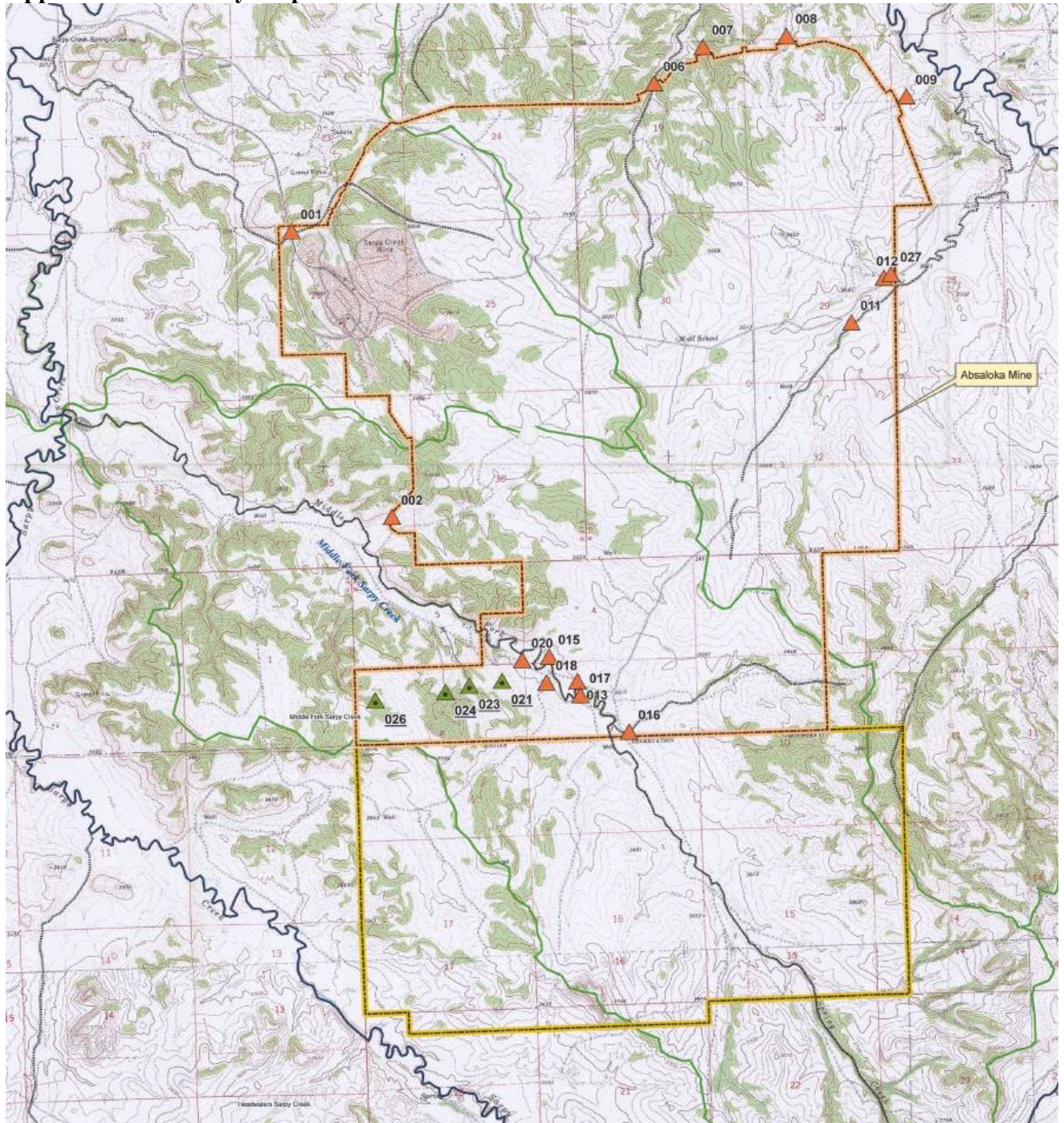
III. REFERENCES

- Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
Subchapter 2 – Permit Application, Degradation Authorization, and Annual Fees.
Subchapter 5 – Mixing Zones in Surface and Ground Water.
Subchapter 6 – Surface Water Quality Standards and Procedures.
Subchapter 7 – Nondegradation of Water Quality.
Subchapter 12 – MPDES-Effluent Limitations and Standards, Standards of Performance, and Treatment Requirements.
Subchapter 13 – MPDES Permits
- Montana Code Annotated (MCA), Title 75-5-101, et seq., “Montana Water Quality Act”.
- Montana Department of Environmental Quality (DEQ), 2019. *Circular DEQ-7, Montana Numeric Water Quality Standards*. Prepared By: Water Quality Planning Bureau, Water Quality Standards Section. June 2019.
- Montana Department of Environmental Quality (DEQ), 2014a. *Montana 2014 Final Water Quality Integrated Report*. May 2014.
- Montana Department of Environmental Quality (DEQ), 2014d. *Department Circular DEQ-12A, Montana Base Numeric Nutrient Standards*. July 2014 Edition.
- United States Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, 136, and 434.
- United States Environmental Protection Agency (US EPA), 1991. *US EPA Technical Support Document for Water Quality-Based Toxics Control*, EPA/505/2-30-001, March 1991.
- Westmoreland Resources, Inc. (WRI). 2012b. *Westmoreland Absaloka Mine Sediment Control Plan for Reclaimed Watersheds Draining to the East Fork of Sarpy Creek*. March 2012. Prepared by Hydrometrics, Inc. (Bozeman, MT). Available at the Montana DEQ Water Protection Bureau, Helena, Montana.

Appendix I – Flow Diagram

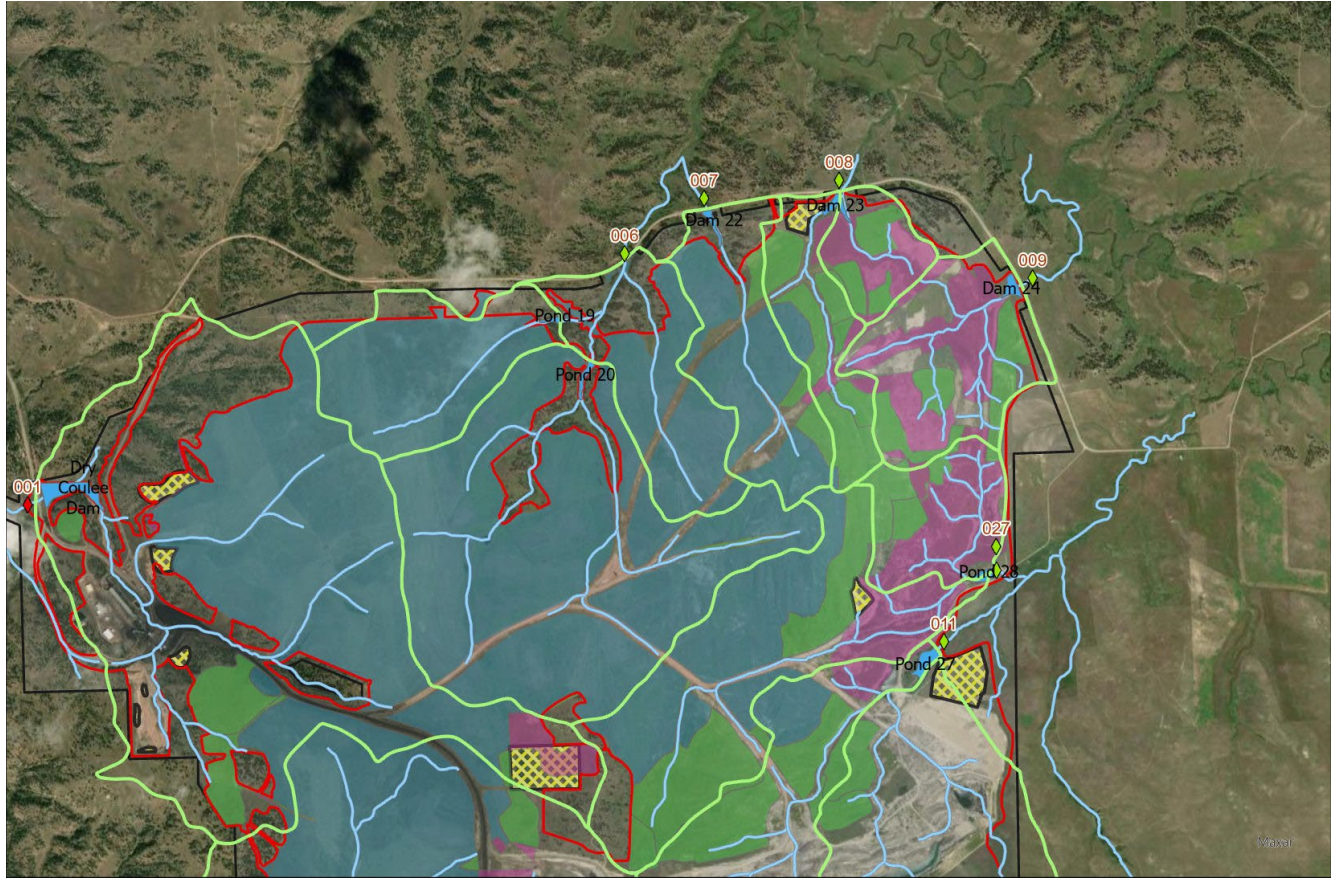


Appendix II – Facility Map



Legend

- ▲ Existing Outfalls
- ▲ Proposed Outfalls
- 85005_Permit_Boundary
- 0021-A_Permit_Boundary
- HUC 12 Drainages



MPDES Outfall

- ◆ Active Mining
- ◆ Western Alkaline
- Sediment Control Ponds
- Soil Storage Stockpiles

Postmine Drainage Basins

- Postmine Drainages

- Permit Boundary

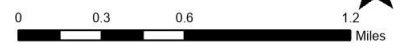
Bond Phase

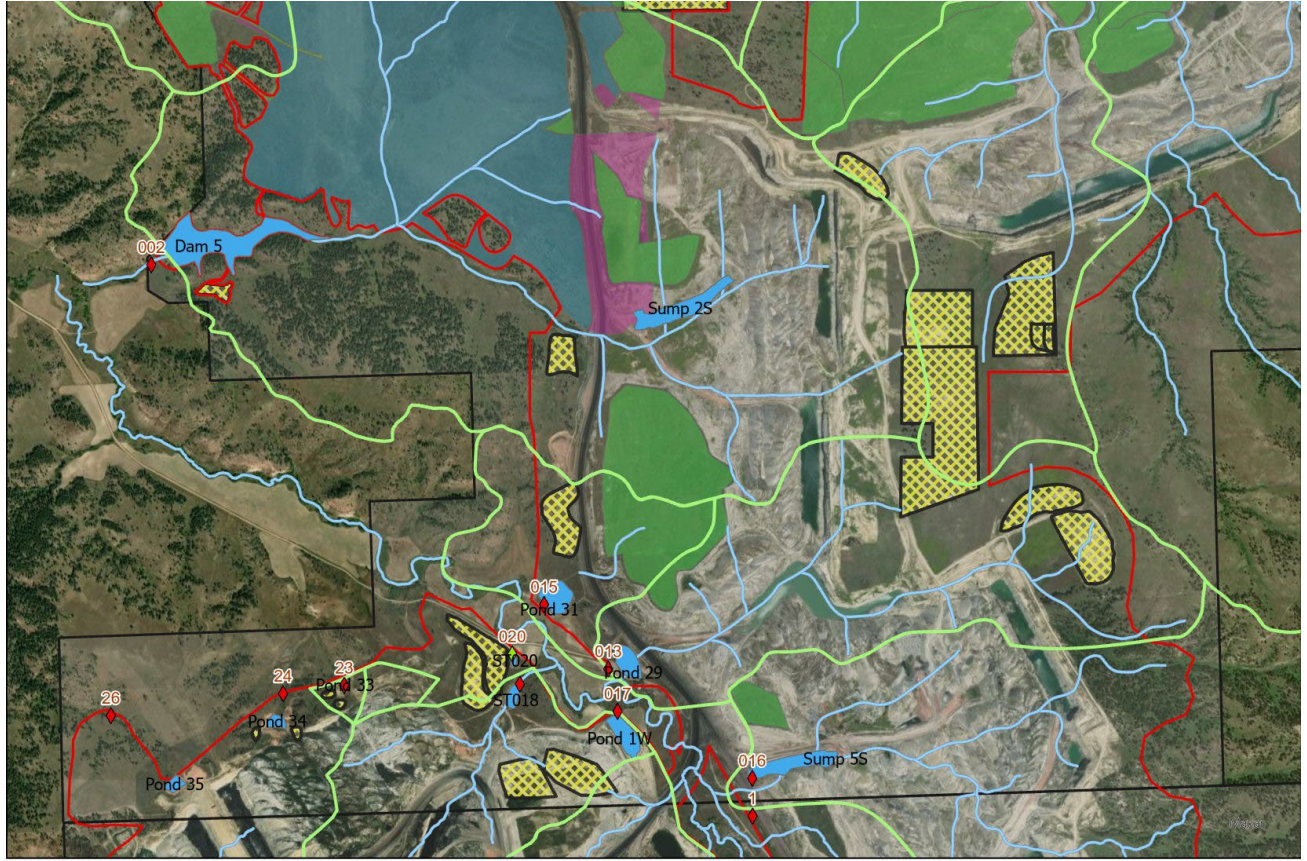
- 1

- 2

- 3

- Life of Mine Disturbance Boundary





MPDES Outfall

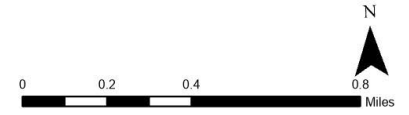
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- ◆ Active Mining
- ◆ Western Alkaline
- Sediment Control Ponds

Soil Storage Stockpiles

- Soil Storage Stockpiles
- Postmine Drainage Basins
- Postmine Drainages
- Permit Boundary

Bond Phase

- 1
- 2
- 3
- Life of Mine Disturbance



Appendix III – Middle Fork Sarpy Creek Intermittent Segments

Ovals denote approximate intermittent segment locations.

