Montana Department of Environmental Quality

Water Quality Division
Montana Pollutant Discharge Elimination System (MPDES) ▪ Fact Sheet

Permittee:	Montana Rail Link, Inc.
Permit No.:	MT0000388
Receiving Water:	Yellowstone River
Facility Information	
Name:	Montana Rail Link Wastewater Treatment Plant
Location:	704 East Gallatin Street Livingston, MT 59047
Contact:	Richard Shelley, Manager-Environmental Projects Montana Rail Link, Inc. P.O. Box 16390 Missoula, MT 59808
Fee Information	
Type of Facility:	Minor Privately-Owned Treatment Works
Number of Outfalls:	1 (For Fee Determination Only)
Type of Outfall:	001 – Facility Discharge
Fact Sheet Date:	October 2019

I. Summary

Department of Environmental Quality (DEQ) proposes to renew the Montana Pollutant Discharge Elimination System (MPDES) permit for the Montana Rail Link Wastewater Treatment Plant (MRL), MT0000388. This fact sheet documents the legal requirements and technical rationale that serve the decision-making process involved with developing effluent limits, monitoring and reporting requirements, and special conditions which are specific to MRL.

A. Permit Status

The previous permit became effective on September 1, 2012 and expired on August 31, 2017. DEQ received the MPDES renewal permit application (Forms 1 and 2C) on November 15, 2016. DEQ considered the application complete and administratively extended the permit on November 28, 2016.

B. Proposed Changes to Effluent Limits and Permit Conditions

For this permit renewal, DEQ proposes the following:

- Revised effluent limits for cadmium, copper and zinc, incorporating a compliance schedule for cadmium, copper, and zinc.
- Effluent monitoring requirements for chromium, lead, nickel, toluene, ethylbenzene and xylenes, and diesel range organics (DRO) are removed.
- Whole effluent toxicity, benzene and total phosphorus monitoring requirements are revised.

II. Facility Information

A. Facility Description and Design Criteria

MRL treats wastewater from its railroad engine overhaul and heavy maintenance, washing, and rebuild facility. Wastewater from locomotive repair is from floor washing and other activities. Wastewater from locomotive washing is from washing locomotives with detergent and water. Storm water from building roofs and drip pans also discharges to the WWTP. See Attachment A for facility location map and Attachment B for the wastewater process flow diagram.

The facility operates as a batch discharge facility, typically discharging 4-5 days a month, for 2-4 months out of the year. The maximum daily flow rate during the term of the permit was 0.108 MGD, while the maximum 30-day average flow rate was 0.009 MGD.

Initial wastewater treatment consists of grit separation in a 300,000-gallon equalization tank. When a sufficient volume of wastewater has accumulated in the equalization tank, the batch of wastewater is treated using oil skimming, chemical coagulation, flocculation, dissolved air flotation, multimedia filtration and carbon adsorption. Solids are concentrated in a drying bed before disposal at a licensed disposal facility.

One outfall is authorized at MRL. Outfall 001 is the discharge point for effluent after final treatment. A buried 6-inch pipe carries treated wastewater to the Yellowstone River located about 1¼ mile east of MRL.

B. Effluent Quality and Existing Permit Requirements

Effluent data from April 2014 through March 2019 is used as the period of record (POR) for this facility. Table 1 presents a summary of the effluent data and existing permit limits.

Table 1: Effluent Characteristics for the Period of Record

Parameter	Location	Units	2012 Permit Limit	Minimum Value	Maximum Value	Average Value	Number of Samples
Flow, Daily Max	Effluent	mgd	(1)	0.047	0.108	0.072	12
Flow Duration	Effluent	Days/month	(1)	0	5	3.8	12
Total Suspended Solids	Effluent	mg/L	45/30(2)	0.00	40.0	4.46	12
	Effluent	lb/day	9.6	0.00	0.945	0.124	12
Total Phosphorus as P	Effluent	mg/L	(1)	0.21	38.2	4.5	13
		lb/day	(1)	0.001	0.27	0.09	13

Table 1: Effluent Characteristics for the Period of Record							
Parameter	**Location**	**Units**	**2012 Permit Limit**	**Minimum Value**	**Maximum Value**	**Average Value**	**Number of Samples**
pH	Effluent.	s.u.	6.0 – 9.0	7.9	8.8	8.45	12
Oil and Grease	Effluent	mg/L	10	1(3)	4.00	1.31	16
Cadmium	Effluent	µg/L	1.7/1.1(2)	0.03(3)	1.00	0.28	16
Chromium	Effluent	µg/L	(1)	0.50(3)	10.00	3.76	12
Copper	Effluent	µg/L	13.8/6.6(2)	0.10(3)	8.80	2.09	16
Lead	Effluent	µg/L	(1)	0.05(3)	2.90	0.66	12
Nickel	Effluent	µg/L	(1)	0.90	31.00	6.57	12
Zinc	Effluent	µg/L	123/58(2)	1.00(3)	63.00	12.06	16
Benzene	Effluent	µg/L	(1)	0.50(3)	1.00(3)	0.90	5
Ethylbenzene	Effluent	µg/L	(1)	0.11	1.00(3)	0.65	5
Toluene	Effluent	µg/L	(1)	0.27	1.80	0.93	5
m+p-Xylenes	Effluent	µg/L	(1)	0.35	3.00	1.09	5
o-Xylenes	Effluent	µg/L	(1)	0.20	1.80	0.70	5
Total Xylenes	Effluent	µg/L	(1)	0.58	4.80	1.60	5
Diesel Range Organics	Effluent	µg/L	(1)	300(3)	1100	502	5

Footnotes:
(1) No limit in previous permit; monitoring requirement only.
(2) Daily Max/Monthly average.
(3) Laboratory Reporting Limit

C. Compliance History

One MPDES permit compliance evaluation inspection was conducted during the term of the permit, on November 5, 2015. No violations were documented during the inspection.
The facility failed one acute WET test in February 2014. There were no other exceedances of permit limits during the term of the permit.

III. Proposed Technology-Based Effluent Limits (TBELs)

A. Applicable Guidelines

TBELs represent the minimum treatment requirements implemented in MPDES permits. For MRL, TBELs are based on the effluent limitation guidelines (ELG) for the Metal Products and Machinery (MP&M) Point Source Category. Under this ELG, the facility is considered a railroad engine overhaul and heavy maintenance facility which conducts one or more of the oily operations defined in Appendix B of 40 CFR Part 438. The facility does not discharge process wastewaters from metal bearing operations as defined in Appendix C of 40 CFR Part 438.

Storm water at the facility is collected on drop pans along railroad tracks and is routed to the WWTP. In the development document for the MP&M ELG, EPA considers storm water combined with MP&M oily operation process wastewater prior to treatment and discharge

subject to the MP&M effluent guidelines. ELGs will be applied to the combined storm water and oil operation process water discharges.

The development document for the MP&M Point Source Category shows that EPA reviewed all pollutants of concern identified for MRL when developing ELG's. TBELs will not be developed for these pollutants.

As an existing source, MRL is subject to effluent limitations attainable by the application of the best practicable control technology currently available (BPT), as well at effluent limitations attainable by application of the best control technology for conventional pollutants (BCT). For the MP&M point source category, these limits are the same and are the basis for the TBELs shown in Table 2.

Table 2. MP&M ELG Limits

Parameter	Units	Effluent Limits	
		Max Daily	30-Day Average
Total Suspended Solids	mg/L	62	N/A
Oil and Grease	mg/L	46	N/A
pH	s.u.	6.0– 9.0 (instantaneous)	

B. Nondegradation Load Allocations

MRL is an existing source and is not a new or increased discharge. A 30-day average nondegradation load of 9.6 lbs/day of TSS was implemented in the 2004 issued permit, and will be retained.

C. Final Technology-Based Effluent Limits

Prior to the promulgation of the Metal Products and Machinery ELG, MRL had TBEL limits in place for both TSS and Oil and Grease, based on best professional judgement. These limits are more stringent than the ELGs shown in Table 2. As required by anti-backsliding regulations, the more stringent limits have been carried forward into future permits.

This permit will retain the TBELs implemented in the previous permit. These values are compared to the WQBELs in Section IV, and the most stringent limits are implemented as final effluent limits.

Table 3. Technology-Based Effluent Limits for Outfall 001

Parameter	Units	Effluent Limits	
		30-Day Average Concentration	Maximum Daily Concentration
Total Suspended Solids (TSS)	mg/L	45	30
	lb/day	9.6	---
Oil and Grease	mg/L	15	N/A
pH	s.u.	6.0 – 9.0 (instantaneous)	

IV. Water Quality-Based Effluent Limitations

A. Applicable Guidelines

The Montana Water Quality Act states that a permit may only be issued if DEQ finds that it will not result in pollution of state waters. MPDES permits must include limits on all pollutants which will cause, or have reasonable potential to cause, an excursion of any water quality standard including narrative standards. Water quality-based effluent limits (WQBELs) are designed to protect water quality standards and are required when TBELs are not adequately protective. The purpose of this section is to provide a basis and rationale for establishing effluent limits that will protect designated uses of the receiving water based on Montana water quality standards and water use classifications.

B. Receiving Water

MRL discharges to the Yellowstone River, stream segment MT43B003_010, located within USGS Hydrologic Unit Code (HUC) 10070002. This segment of the Yellowstone River is classified as B-1. Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply. The stream segment is listed as not fully supporting aquatic life. Causes of impairment include alteration in stream-side or littoral vegetative covers, and physical substrate habitat alterations. No TMDLs have been developed.

USGS gage station 06192500 is located on the Yellowstone River, located approximately 6.3 miles upstream of the discharge point. Flows measured at this site are representative of the flow of the Yellowstone River at the discharge point. The 7Q10 and 14Q5 low flow values are 491 million gallons per day (MGD) and 573 MGD, respectively. These stream flow values are used in assessing reasonable potential and calculating water quality based effluent limits.

Upstream water quality data for the Yellowstone River was collected by DEQ between 2012 and 2018. Table 4 summarizes data relevant to this permit.

Table 4. Yellowstone River - Ambient Water Quality Monitoring Data

Parameter(1)	Units	75th Percentile	Number of Samples	Monitoring Data Source	Monitoring Data Timeframe
Cadmium	µg/L	0.03	12	MDEQ_WQ_WQX–Y03YELSR26	2013-2018
Chromium	µg/L	1.75	12	MDEQ_WQ_WQX–Y03YELSR26	2013-2018
Copper	µg/L	2.5	12	MDEQ_WQ_WQX–Y03YELSR26	2013-2018
Lead	µg/L	0.825	12	MDEQ_WQ_WQX–Y03YELSR26	2013-2018
Nickel	µg/L	2	5	MDEQ_WQ_WQX–Y03YELSR26	2013-2016
Zinc	µg/L	5.3	12	MDEQ_WQ_WQX–Y03YELSR26	2013-2018
Hardness(2)	mg/L	42(2)	19	MDEQ_WQ_WQX–Y03YELSR26	2013-2018

Footnote:
(1) All metals are total recoverable
(2) Hardness is the 25th percentile.

C. Mixing Zone

A mixing zone is an area where effluent mixes with the receiving water and certain water quality standards may be exceeded. Mixing zones must have the smallest practicable size, a minimum practicable effect on water uses, and definable boundaries. DEQ will determine the appropriateness of a mixing zone and will grant a mixing zone, deny the mixing zone, or grant an alternative or modified mixing zone.

Mixing zones allowed under a permit issued prior to April 29, 1993, will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses. Mixing zones are granted on a parameter-by-parameter basis. No mixing zone will be granted that will impair beneficial uses. Chronic aquatic life, acute aquatic life, and human health standards may not be exceeded outside of a mixing zone.

Facilities that discharge a mean annual flow of less than 1 mgd to a stream segment with a dilution ratio of greater than 100:1 qualify for a dilution allowance of up to 100% of the 7Q10 for chronic aquatic life and human health conditions.

The 7Q10 value is 491 mgd, and the mean annual flow is 0.005 mgd; therefore, the dilution ratio is 98,200:1 (calculated as 7Q10 : mean annual flow of the facility). For RP calculation, DEQ used the following dilution with this renewal:

- 100% of the 7Q10 (491 mgd) is used to calculate RP for cadmium, chromium, copper, lead, nickel, and zinc based on the chronic aquatic life standard and human health standard.
- No dilution is used to calculate RP for any parameter based on acute aquatic life standard.

Previous permits for MRL have granted mixing zones for cadmium, copper, and zinc. The established mixing zone extends 165 feet downstream of the outfall, and dilution of 100% of the 7Q10 was used for assessing chronic and human health standards for chromium, lead and nickel. MRL has not requested any additional mixing zones. The mixing zones as described in the 2012 permit are retained in the renewed permit.

D. Applicable Water Quality Standards & Pollutants of Concern

The discharge from the MRL WWTP must comply with general prohibitions (narrative standards) of ARM 17.30.637(1) which require that state waters, including mixing zones, 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.

The need for additional WQBELs is based on an RP analysis for pollutants to determine if numeric or narrative water quality standards may be exceeded. Pollutants present in treated effluent from facilities in the Metal Products and Machinery point source category, and those that are specific to MRL, are summarized in Table 5.

Table 5. Identification of Pollutants of Concern

Parameter	Basis for Pollutant of Concern
Total Suspended Solids	TBEL
pH	TBEL
Oil & Grease	TBEL
Total Phosphorus, as P	Known present
Total Recoverable Cadmium	Known present
Total Recoverable Chromium	Known present
Total Recoverable Copper	Known present
Total Recoverable Lead	Known present
Total Recoverable Nickel	Known present
Total Recoverable Zinc	Known present
Benzene	Known present
Toluene	Known present
M+p Xylenes	Known present
O-Xylenes	Known present
Total Xylenes	Known present
Diesel Range Organics	Known present

E. Reasonable Potential Analysis

DEQ uses a statistical approach outlined in Chapter 3 of EPA's Technical Support Document for Water Quality-based Toxics Control (TSD) to determine reasonable potential for individual pollutants to exceed water quality standards and calculate WQBELs for those pollutants.

1. Critical Effluent Concentration (Cd) Calculation: The facility's maximum reported effluent concentration (Cmax) is converted into the projected critical effluent concentration (Cd) to account for variation in effluent concentration.

- First, the statistical TSD 3-2 multiplier is determined by the data set, coefficient of variation (CV), and sample size at the 95th percentile confidence interval. A default CV of 0.6 is used if there are less than 10 samples. Then the TSD 3-2 multiplier is applied to the facility's Cmax to determine the Cd.

2. Determination of RP Calculation: DEQ uses a mass balance equation (Equation 1) to determine RP and develop WQBELs, Technical Support Document for Water Quality-based Toxics Control, March 1991 (TSD), EPA/505/2-90-001.

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_d + Q_s} \qquad (\textit{Equation 1})$$

Where:

C_r = the resulting receiving water concentration, Q_d = critical discharge rate, (maximum monthly average for chronic and human health, max daily discharge rate for acute)
Q_s = critical receiving water low-flow (available dilution of 7Q10)
C_d = critical effluent pollutant concentration (maximum discharge concentration x TSD multiplier)
C_s = critical ambient pollutant concentration (Yellowstone River 75th percentile concentration)

Tables 6 and 7 summarize the critical effluent and reasonable potential calculations for each pollutant where sufficient data was available to do so. See Attachment B for complete RP calculations.

Table 6. Critical Effluent Concentration Summary

Pollutant	CV	Sample Size	→	TSD Multiplier	×	Maximum Effluent Concentration(1)	=	Critical Effluent Concentration(1)
Cadmium	1.46	16		2.10		1		2.1
Chromium	0.73	12		1.77		10		17.7
Copper	1.17	16		1.90		8.8		16.8
Lead	1.21	12		2.30		2.9		6.7
Nickel	1.23	12		2.32		31		71.9
Zinc	1.52	16		2.14		63		134.6
Benzene	0.60	5		2.32		1		2.3
Ethylbenzene	0.60	5		2.32		1		2.3
Toluene	0.60	5		2.32		1.8		4.2
m+p Xylenes	0.60	5		2.32		3		7.0
o-Xylenes	0.60	5		2.32		1.8		4.2
Oil and Grease(2)	---	---		---		---		46

(1) Concentration units of µg/l for all parameters except Oil and Grease in mg/l.
(2) Oil and grease critical effluent concentration is set equal to the TBEL limitation to assess adequacy of TBEL limits.

Table 7. Reasonable Potential Analysis

			Projected Receiving Water Conc. (C_r)					**Reasonable Potential**			
Pollutant	Standard	Dilution	C_s • Q_s + C_d • Q_d / Q_r					C_r	< or >	WQS	RP?
	Acute/Chronic/ Human Health	%	(µg/L)	(mgd)	(mg/L)	(mgd)	(mgd)	(µg/L)	< or >	(µg/L)	(yes/ no)
Cadmium	Acute	0%	0.03	0	2.1	0.11	0.11	2.1	>	0.81	Yes
	Chronic	100%	0.03	491	2.1	0.01	491.01	0.03	<	0.40	No
	Human Health	100%	0.03	491	2.1	0.01	491.01	0.03	<	5	No
Chromium	Acute	0%	1.75	0	17.7	0.11	0.11	17.7	<	886	No
	Chronic	100%	1.75	491	17.7	0.01	491.01	1.8	<	42.3	No
	Human Health	100%	1.75	491	17.7	0.01	491.01	1.8	<	100	No

Table 7. Reasonable Potential Analysis											
			Projected Receiving Water Conc. (C_r)					Reasonable Potential			
Pollutant	Standard	Dilution	C_s •	Q_s +	C_d •	Q_d /	Q_r	C_r	< or >	WQS	RP?
Copper	Acute	0%	2.5	0	16.8	0.11	0.11	16.8	>	6.18	Yes
	Chronic	100%	2.5	491	16.8	0.01	491.01	2.5	<	4.45	No
	Human Health	100%	2.5	491	16.8	0.01	491.01	2.5	<	1300	No
Lead	Acute	0%	0.825	0	6.7	0.11	0.11	6.7	<	27.06	No
	Chronic	100%	0.825	491	6.7	0.01	491.01	0.8	<	1.05	No
	Human Health	100%	0.825	491	6.7	0.01	491.01	0.8	<	15	No
Nickel	Acute	0%	2	0	71.9	0.11	0.11	71.9	<	225	No
	Chronic	100%	2	491	71.9	0.01	491.01	2.0	<	25.0	No
	Human Health	100%	2	491	71.9	0.01	491.01	2.0	<	100	No
Zinc	Acute	0%	5.3	0	134.6	0.11	0.11	134.6	>	57	Yes
	Chronic	100%	5.3	491	134.6	0.01	491.01	5.3	<	57	No
	Human Health	100%	5.3	491	134.6	0.01	491.01	5.3	<	2000	No
Benzene	Human Health	0%	0	0	2.3	0.01	0.01	2.3	<	5	No
Ethylbenze	Human Health	0%	0	0	2.3	0.01	0.01	2.3	<	68	No
Toluene	Human Health	0%	0	0	4.2	0.01	0.01	4.2	<	1000	No
m+p Xylenes	Human Health	0%	0	0	7.0	0.01	0.01	7.0	<	1000	No
o-Xylenes	Human Health	0%	0	0	4.2	0.01	0.01	4.2	<	1000	No
Total Xylenes	Human Health	0%	0	0	11.2	0.01	0.01	11.2	<	1000	No
			(mg/L)	(mgd)	(mg/L)	(mgd)	(mgd)	(mg/L)	< or >	(mg/L)	(yes/ no)
Oil and Grease	N/A	0%	0	0	46	0.11	0.11	46	>	10	Yes

Further discussion of each parameter's reasonable potential analysis and WQBEL development is presented below:

Conventional Pollutants:
TSS and pH – MRL is subject to TBELs for TSS and pH, which require significant control of these pollutants. The TBELs for pH are equivalent to the water quality standards, and TSS itself does not have a numeric water quality standard. No additional WQBELs will be required for these parameters.

Oil and Grease (O&G) – MRL is subject to Oil and Grease TBEL limitations discussed in Section III. However, as shown in Tables 6 and 7, these limits are not sufficiently protective of the oil and grease water quality standards of 10 mg/L. The oil and grease discharge limitation and monitoring requirements are retained from the previous permit.

Nutrients:
Total Phosphorus (as P): DEQ has adopted Base Numeric Nutrient Standards found in Circular DEQ-12A. The Yellowstone River where MRL discharges is considered a large river listed in

Table E-2 DEQ-12A, but standards have not yet been developed for the segment where MRL discharges.

Monthly monitoring for Total Phosphorus will be required from July 1- October 31 for future use if numeric nutrient standards are implemented for this segment of the Yellowstone River.

Toxic Pollutants:
Concentrations of carcinogenic, bio-concentrating, toxic, or harmful parameters which would remain in the water after conventional treatment must not exceed the applicable standards specified in DEQ-7.

Cadmium, Zinc, and Copper – MRL is subject to effluent limitations for cadmium, zinc, and copper. DEQ assessed these parameters and determined that they have RP to exceed acute water quality standards, as shown in Tables 6 and 7. WQBELs for these parameters are recalculated using the 25th percentile for hardness in calculating the applicable water quality standard, and the 75th percentile receiving water background concentration.

Past effluent data demonstrates that MRL may not be able to consistently comply with the revised cadmium, copper, and zinc effluent limits. A compliance schedule will allow MRL to access the source of cadmium, copper, and zinc and take action for reduction. Interim effluent limits are retained from the previous permit for all three pollutants. See Section V for the compliance schedule.

Chromium, Lead and Nickel – Monitoring for these three metals was required in the previous permit. DEQ assessed RP, based on dilution with the full 7Q10 of the receiving water when assessing chronic and human health water quality standards**.** As shown in Tables 6 and 7, these parameters do not have reasonable potential to exceed the water quality standards, and monitoring for them is discontinued.

Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) – Monitoring for BTEX compounds was required in the previous permit. DEQ assessed reasonable potential for each these compounds individually. For human health standards, footnote 16 of DEQ-7 states that surface or groundwater concentrations may not exceed water quality standards. Shown in Table 7, the projected maximum concentration of each BTEX compound discharged from the facility is less than the human health standard. Therefore, RP does not exist, and a limit is not required. Annual monitoring for benzene will be required.

Diesel Range Organics (DRO) – Monitoring for DRO was required in the past as a general indicator of organic pollutants. Numeric RP cannot be assessed because no water quality standard exists for DRO. Oil and grease limits and monitoring assess for petroleum contamination, and toxic BTEX compounds have been evaluated separately. Monitoring for DRO is discontinued.

Whole Effluent Toxicity (WET) Testing - State regulation requires that state water be free from substances attributable to municipal waste that create condition which are harmful or toxic

to human, animal, plant or aquatic life, and provides the basis for WET requirements in MPDES permits.

The following endpoints define acute toxicity as measured in a WET test:

- Acute toxicity occurs when, during an acute WET test, 50 percent mortality is observed for any tested species at any effluent concentration (i.e., LC50 < 100% effluent)

When there is reasonable potential for a discharge to cause acute and/or chronic toxicity, the MPDES permit includes limits for WET based on one, or both, of the endpoints above.
The current permit includes prohibitions on acute toxicity in the effluent discharged by the facility, with quarterly two-species monitoring. The facility failed an acute WET test for *Pimephales promelas* in February 2014. Because of this test failure, the prohibition on acute WET will be continued in this permit renewal. Monitoring will be required quarterly on two species until 4 consecutive two-species tests have passed, after which testing may be reduced to two-species semi-annually. Standard WET language will be included in the permit. Because the discharge is not continuous, if an acute test fails, the permittee will be required to conduct an acute WET test during a subsequent discharge event until notified otherwise by DEQ.

MRL is a minor, private discharger, with significant dilution from the receiving water with the maximum 30-day average discharge (54,555:1). Given the nature of the discharge and significant dilution, chronic WET testing will not be required.

F. Proposed WQBEL Limits

WQBELs are expressed as maximum daily limit and average monthly limit. DEQ uses a statistical approach outlined in Chapter 5 of EPA's TSD Manual to develop these limits for each pollutant. The waste load allocation (WLA) is the loading concentration of a pollutant that the point source can discharge while still assuring applicable water quality standards are attained in the receiving water. If dilution is available, Equation 1 is used to calculate the WLA for each pollutant. For aquatic life standards, the long-term average (LTA) is then calculated, accounting for effluent variability. The most protective LTA is used to determine the maximum daily limit (MDL) and average monthly limit (AML). For human health standards, the MDL is set equal to the standard, and the AML is calculated based on the MDL. The most restrictive limitations are selected as the WQBELs. For this permit, WQBELs are driven by aquatic life standards.

Table 8 summarizes WQBEL calculations based on acute and chronic criteria. See Attachment D for complete calculations

Table 8. Waste Load Allocation Summary

Pollutant	Standard	Dilution	Equation 1 Values: C_r • Q_r - C_s • Q_s / Q_d					Waste Load Allocation, WLA: C_d	Long Term Average, LTA
		%	(µg/L)	(mgd)	(µg/L)	(mgd)	(mgd)	(µg/L)	(µg/L)
Cadmium	Acute	0	0.800	0.108	0.030	0.000	0.108	0.800	0.217
	Chronic	100	0.400	491	0.030	491	0.009	1682.2	455.4
Copper	Acute	0	6.180	0.108	2.500	0.000	0.108	6.180	1.097
	Chronic	100	4.450	491	2.500	491	0.009	8865.6	2907.9
Zinc	Acute	0	57.450	0	5.300	0	0.108	57.5	8.2
	Chronic	100	57.450	491	5.300	491	0.009	237094.1	61922.1

Table 9. WQBEL Development Summary

Pollutant	Averaging Period	CV	Minimum LTA, µg/l	Table 5-2 Multiplier	Effluent Limitations, µg/l
Cadmium	MDL	1.46	0.2	6.8	1.5
	AML			2.4	0.5
Copper	MDL	1.17	1.1	5.6	6.2
	AML			2.1	2.3
Zinc	MDL	1.52	8.2	7.0	57.5
	AML			2.4	19.8

V. Proposed Effluent Limits

A. Interim Limits

Past effluent data demonstrates that MRL may not be able to consistently comply with the revised cadmium, copper, and zinc effluent limits. Therefore, beginning on the effective date and lasting through **{58 months after the permit effective date}**, the effluent discharged by the facility through Outfalls 001 shall, at a minimum, meet the following interim limits:

Table 10: Interim Effluent Limits for Outfall 001 (1)

Parameter	Units	Maximum Daily Limit	Average Monthly Limit
Total Suspended Solids (TSS)	mg/L	45	30
	lb/day	---	9.6
Oil and Grease	mg/L	10	---
pH(2)	s.u.	6.0 – 9.0	
Cadmium, total recoverable	µg/L	1.7	1.1
Copper, total recoverable	µg/L	13.8	6.6
Zinc, total recoverable	µg/L	123	58

(1) See Definition section at end of permit for explanation of terms.
(2) Effluent pH shall remain between 6.0 and 9.0 (instantaneous minima and maxima). For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

There shall be no acute toxicity in the effluent discharged by the facility.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving stream.

B. Final Effluent Limits

The most restrictive of the TBEL and WQBEL parameters were selected is the final effluent limits. The final effluent limits in Table 11 apply to the discharge at Outfall 001 beginning **{58 months after the permit effective date}** and lasting through the term of the permit.

Table 11: Final Effluent Limits for Outfall 001 (1)

Parameter	Units	Maximum Daily Limit	Average Monthly Limit
Total Suspended Solids (TSS)	mg/L	45	30
	lb/day	---	9.6
Oil and Grease	mg/L	10	---
pH(2)	s.u.	6.0 – 9.0	
Cadmium, total recoverable	µg/L	1.5	0.5
Copper, total recoverable	µg/L	6.2	2.3
Zinc, total recoverable	µg/L	57.5	19.8

(3) See Definition section at end of permit for explanation of terms.
(4) Effluent pH shall remain between 6.0 and 9.0 (instantaneous minima and maxima). For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

There shall be no acute toxicity in the effluent discharged by the facility.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving stream.

VI. Monitoring and Reporting Requirements

A. Outfall 001

Monitoring requirements are based on the type of treatment facility and the method of discharge. The samples collected and analyzed must be representative of the volume and nature of the facility's discharge. The Required Reporting Value (RRV) is DEQ's best determination of a level of analysis that can be achieved using EPA-approved methods or methods approved by DEQ.

Monitoring will start with the effective date of the permit and last for the duration of the permit cycle. All analytical procedures must comply with the specifications of 40 CFR Part 136. MRL must submit NetDMR results for each month by the 28th of the following month. Effluent samples must be collected at the discharge pipe in the WWTP building after all treatment processes.

Table 12. Monitoring Requirements for Outfall 001

Parameter	Units	Sample Location	Type [1]	Minimum Frequency	RRV [2]
Flow	mgd	Effluent	1/Week	Instantaneous	---
Flow Duration	days	Effluent	1/Month	Calculated	---
pH	s.u.	Effluent	1/Week	Instantaneous	0.1
Total Suspended Solids (TSS)	mg/L	Effluent	1/Week	Grab	1
	lb/day	Effluent	Monthly	Calculated[3]	---
Oil and Grease	mg/L	Effluent	1/Week	Grab	1
Cadmium, total recoverable	µg/L	Effluent	1/Week	Grab	0.03
Copper, total recoverable	µg/L	Effluent	1/Week	Grab	2
Zinc, total recoverable	µg/L	Effluent	1/Week	Grab	8
Total Phosphorus as P[4]	mg/L	Effluent	1/Month	Grab	0.003
Whole Effluent Toxicity, Acute	% Effluent	Effluent	1/Quarter	Grab	---
Benzene	µg/L	Effluent	1/Year	Grab	0.02

(1) See Definition section at end of permit for explanation of terms.
(2) Required reporting value. Analysis must achieve these, or lower, RRVs if reporting non-detect
(3) Methods for calculating mass load (lbs/day) are provided in the permit.
(4) Total Phosphorus sampling only required during July 1 – October 30.

VII. Monitoring and Reporting Requirements

A. Compliance Schedule

MRL shall meet the new effluent limits for cadmium, copper, and zinc by no later than {**58 months from the effective date of the permit}** in accordance with the following schedule:

- By {**24 months after the effective date of this permit},** MRL shall submit the proposed actions the facility commits to take to ensure compliance with new limits.
- By **{58 months after the effective date of the permit}**, MRL shall comply with the new limits.

MRL shall submit an annual report documenting what progress has been made during the previous year and what actions are planned for the upcoming year by January 28th of each year until MRL complies with these limits.

Table 13: Compliance Schedule

Action	Frequency	Scheduled Completion Date of Action (1)	Report Due Date (2)
Submit proposed actions for copper limit compliance	Once	24 months after effective Date of Permit	14 days after Completion Date
Comply with final cadmium, copper, and zinc limits	Once	58 months after effective Date of Permit	14 days after Completion Date
Annual Report	Annually until January 2025	January 28th of each year	January 28th of each year

Footnotes:
NA = Not Applicable
(1) The actions must be completed on or before the scheduled completion dates.
(2) This notification must be received by the DEQ on or before the scheduled due date.

VIII. Public Participation

A. Public Notice

DEQ issued a public notice stating that a tentative decision has been made to issue an MPDES permit to Montana Rail Link and that a draft permit, fact sheet, and environmental assessment (EA) have been prepared. Details are below:

- Public Notice No. MT-19-24 dated December 2, 2020
- Public comments are invited any time prior to the close of business January 2, 2020
  Comments may be directed to:
  Department of Environmental Quality
  Water Protection Bureau or DEQWPBPublicComments@mt.gov
  PO Box 200901
  Helena, MT 59620
- All comments received or postmarked prior to the close of the public comment period will be considered in the formulation of the final permit.
- DEQ will respond to all substantive comments and issue a final decision within sixty days of the close of the public comment period or as soon as possible thereafter.

All persons, including the applicant, who believe any condition of the draft permit is inappropriate shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period.

B. Notification of Interested Parties

Copies of the public notice were mailed to the discharger, state and federal agencies, and persons who have expressed an interest in being notified of permit actions. A copy of the distribution list is available in the administrative record for this permit.

In addition to mailing the public notice, a copy of the notice and applicable draft permit, fact sheet and EA were posted on DEQ's website for 30 days. Any person interested in being placed on the mailing list for information regarding the MPDES permit should contact DEQ, reference this facility, and provide a name, address, and email address.

C. Public Hearing

During the public comment period provided by the notice, DEQ will accept requests for a public hearing. A request for a public hearing must be in writing and must state the nature of the issue proposed to be raised in the hearing.

D. Permit Appeal

After the close of the public comment period DEQ will issue a final permit decision, which is a final decision to issue, deny, modify, revoke and reissue, or terminate a permit. A permit decision is effective 30 days after the date of issuance unless a later date is specified in the decision, a stay is granted, or the applicant files an appeal.

Montana Rail Link may file an appeal within 30 days of DEQ's action to the following address:

Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
PO Box 200901
Helena, Montana 59620-0901

E. Additional Information

Requests for additional information or questions regarding this permit should be directed to the Water Protection Bureau at 406-444-5546

IX. Information Sources

Administrative Rules of Montana Title 17 Chapter 30 – Water Quality

- Subchapter 2 – *Water Quality Permit and Application Fees*
- Subchapter 5 – *Mixing Zones in Surface and Ground Water*
- Subchapter 6 – *Montana Surface Water Quality Standards and Procedures*
- Subchapter 7 – *Nondegredation of Water Quality*
- Subchapter 12 – *Montana Pollutant Discharge Elimination (MPDES) Standards*
- Subchapter 13 – *Montana Pollutant Discharge Elimination (MPDES) Permits*

CWAIC: Clean Water Act Information Center, Department of Environmental Quality. 2018. Accessed April 2019.

Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. §§ 1251-1387, October 18, 1972, as amended 1973-1983, 1987, 1988, 1990-1992, 1994, 1995 and 1996.

Integrated 303(d) Water Quality Report for Montana (2018).

Montana Code Annotated (MCA), Title 75-5-101, *et seq.*, "Montana Water Quality Act."

Montana DEQ. 2014. *Department Circular DEQ-12A, Montana Base Numeric Nutrient Standards.*

Montana DEQ. 2015. *Compliance Evaluation Inspection Report, Montana Rail Link WWTP.*

Montana DEQ. 2017. *Department Circular DEQ-7, Montana Numeric Water Quality Standards.*

Montana DEQ. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MT0000388

- Administrative Record
- Renewal Application Forms DEQ-1 and EPA Form 2C, November 2016

National Water Quality Monitoring Council: Water Quality Data for the Yellowstone River

Code of Federal Regulations, 40 CFR Parts 438

US EPA. 2003. *Development Document for the Final Effluent Limitations Guidelines and Standard for the Metals Products and Machinery Point Source Category*