



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

Permittee:	Town of Hobson
Permit No.:	MT0021636
Receiving Water:	Unnamed Drainage Ditch
Facility Information	
Name:	Town of Hobson Wastewater Treatment Facility
Location:	47° 00' 07" N latitude, 109° 51' 57" W longitude East end of 1 st Street Hobson, MT 59452
Contact:	Mark Howard, Operator P.O. Box 221 Hobson, MT 59452
Fee Information	
Type of Facility:	Minor Publicly Owned Treatment Works
Number of Outfalls:	1 (For Fee Determination Only)
Type of Outfall:	001 – Treated Domestic Wastewater
Fact Sheet Date:	April 2019

I. Summary

Department of Environmental Quality (DEQ) proposes to renew the Montana Pollutant Discharge Elimination System (MPDES) permit for the Town of Hobson Wastewater Treatment Facility (WWTF), MT0021636. 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 Hobson.

A. Permit Status

The previous permit became effective on November 1, 2012 and expired on October 31, 2017. DEQ received the MPDES renewal permit application (Forms 1 and 2A) on March 15, 2017 and applicable fees for Hobson on April 12, 2017. DEQ considered the application complete and administratively extended the permit on April 14, 2017.

B. Proposed Changes to Effluent Limits

For this permit renewal, DEQ proposes the following:

- Load calculations for biochemical oxygen demand (BOD₅) and total suspended solids (TSS) must be calculated weekly to correspond to weekly concentration sampling. In addition, pH sampling is increased to weekly.
- An oil and grease (O&G) effluent limit is set at 10 mg/L to protect narrative water quality standards and additional weekly visual monitoring is required.
- Total residual chlorine (TRC) limits are removed.
- Monitoring for nutrients, ammonia, temperature, and nitrate/nitrite is removed.

II. Facility Information

A. Facility Description and Design Criteria

The Town of Hobson WWTF serves a current population of 120 people with over 12,500 feet of gravity sewer line, an influent wastewater lift station, and a force main to transport wastewater to the treatment facility. The current two-celled facultative lagoon was constructed in 1993 on the footprint of the former lagoon and lacks disinfection capabilities. Typical operation is with the cells in series, although either can be bypassed. Operational depth is six feet in the first cell and eight feet in the second. A V-notch weir with a staff gauge are installed in the effluent control structure for flow measurement, and effluent from the second cell can be discharged at one of two different elevations to maximize effluent quality. Discharge is intermittent to an unnamed drainage ditch with a design flow of 0.039 million gallons per day (mgd).

After 25+ years of operation, the treatment system is beginning to show its age. The Town is working to complete necessary sludge removal and tend to additional needs of the WWTF. The overall process for planning, design, and construction typically takes 3-4 years and is currently pending funding.

B. Effluent Quality and Existing Permit Requirements

Table 1 lists the 2012-permit limits and effluent characteristics for Hobson for the period of record (POR), November 2012 through March 2019.

Table 1: Effluent Characteristics for the POR November 2012 through March 2019							
Parameter	Units	Permit Limit			Max Value	Average Monthly Value	Sample Size
		Average Monthly ⁽¹⁾	Average Weekly ⁽¹⁾	Max Daily ⁽¹⁾			
5-Day Biochemical Oxygen Demand (BOD ₅)	mg/L	45	65	--	44	22	23
	lbs/day	14.6	21.1	--	30	11.1	23
	% removal	65%	--	--	32% ⁽³⁾	77%	22
Total Suspended Solids (TSS)	mg/L	100	135	--	95	32	23
	lbs/day	32.5	43.9	--	74	16.2	23
	% removal	65%	--	--	32% ⁽³⁾	64%	22
Total Residual Chlorine	mg/L	0.011	--	0.019	-- ⁽⁴⁾	-- ⁽⁴⁾	-- ⁽⁴⁾
<i>E. coli</i> , April - October	cfu/100 mL	126	252	--	100	32	8

<i>E. coli</i> , November - March	cfu/100 mL	630	1,260	--	130	24	12
pH	s.u.	6.0 – 9.0			6.0–8.6 ⁽⁵⁾	7.0	22
Oil and Grease	mg/L	quarterly monitoring required			30	12	15
Total Ammonia	mg/L	quarterly monitoring required			25.6	10.2	17
Nitrate + Nitrite	mg/L	monthly monitoring required			0.34	0.25	2
Total Kjeldahl Nitrogen	mg/L	monthly monitoring required			12.2	8.5	2
Total Nitrogen ⁽²⁾	mg/L	monthly monitoring required			12.4	8.8	2
Total Phosphorus ⁽²⁾	mg/L	monthly monitoring required			225	114	2
Temperature	°C	monthly monitoring required			25	10	22
Flow Rate	mgd	monitoring required			0.79	0.08	21
⁽¹⁾ See Definition section at the end of the MPDES permit for explanation of terms ⁽²⁾ Monitoring applies June 1 through September 30, annually ⁽³⁾ Value reported is the minimum for the POR ⁽⁴⁾ The facility does not currently use chlorine for disinfection ⁽⁵⁾ Reported as minimum to maximum value							

C. Compliance History

The facility’s last compliance inspection was in April 2015. Several violations and concerns were noted including failure to maintain samples at or below 6°C, failure to maintain complete facility records, failure to meet effluent limitations, and failure to submit discharge monitoring reports (DMRs). The facility has also reported exceedances for BOD₅, *E. coli*, and total suspended solids. Hobson responded with a written explanation addressing the findings and a plan to prevent exceedances in the future.

III. Proposed Technology-Based Effluent Limits (TBELs)

A. Applicable Guidelines

The Montana Board of Environmental Review (BER) has adopted general treatment requirements that establish the degree of wastewater treatment required to restore and maintain the quality of surface waters. These general treatment requirements are based on the surface water quality standards; the State’s nondegradation policy; present and anticipated beneficial uses of the receiving water; the quality and flow of the receiving water; the quantity and quality of sewage; industrial wastes and other wastes to be treated; and the presence or absence of other sources of pollution in the same watershed.

Technology-based effluent limits (TBELs) represent the minimum treatment requirements implemented in MPDES permits. 40 CFR 133 defines minimum treatment requirements for secondary treatment or equivalent for POTWs as measured by pH, BOD₅, TSS, and percent removal of BOD₅ and TSS. Hobson is currently being held to treatment equivalent to secondary standards (TES) for BOD₅ and alternative state requirements (ASR) for TSS.

Waste stabilization ponds are eligible for TES standards if the BOD₅ and TSS effluent concentrations, through proper operation and maintenance of the treatment works, consistently exceed the minimum level of effluent quality requirements set for secondary treatment standards. In addition, permitting agencies may give special consideration to treatment works that employ waste stabilization ponds. ASR may be applied as limits for lagoons if historic data indicates that

TES limits cannot be achieved. The 30-day ASR for TSS in Montana is 100 mg/L and the 7-day limit is 135 mg/L.

The 95th percentile of the effluent data submitted by Hobson for BOD₅ for the period of record is 36 mg/L. This is higher than the national secondary standard of 30 mg/L (30-day limit). Additionally, the 95th percentile of the data submitted for TSS is 56 mg/L, which is above the TES 30-day limit of 45 mg/L. Based on monitoring data submitted by Hobson, DEQ has determined that the facility continues to meet the eligibility criteria for TES for BOD₅ and ASR for TSS.

B. Mass-Based Limits

Effluent limits must be expressed in terms of mass and are identified as load (lbs/day) when suitable. Exceptions include parameters that cannot be appropriately expressed in mass, such as pH and temperature. The following equations were used to calculate the BOD₅ and TSS mass-based load allocations using the TBEL concentrations associated with TES and ASR, the design flow of 0.039 mgd, and a conversion factor:

BOD₅:	30-day	Load = 0.039 mgd x 45 mg/L x 8.34 = 14.6 lbs/day
	7-day	Load = 0.039 mgd x 65 mg/L x 8.34 = 21.1 lbs/day
TSS:	30-day	Load = 0.039 mgd x 100 mg/L x 8.34 = 32.5 lbs/day
	7-day	Load = 0.039 mgd x 135 mg/L x 8.34 = 43.9 lbs/day

Load limits for BOD₅ and TSS will apply to the effluent and the monthly average load limit will be maintained at the more stringent of the nondegradation load allocations or mass-based loading limits, as discussed next.

C. Nondegradation Load Allocations

Long-term nondegradation threshold values of 16.9 lbs/day for BOD₅ and 37.5 lbs/day for TSS (average monthly) were established in the 2006-permit using actual annual loads. Except for a few minor exceedances that were addressed by the facility, Hobson has met the allocated load limits during the POR and proposes to maintain the existing discharge to the unnamed ditch. Therefore, the facility is not a new or increased source. The mass-based loading limits are more stringent than the nondegradation limits. Therefore, Hobson will continue to be held to the average monthly load limits calculated in section III.B.

D. Final Technology-Based Effluent Limitations

This permit will retain TBELs based on TES for BOD₅ and ASR for TSS as shown in Table 2. Technology-based limits for pH require levels between 6.0-9.0 standard units.

Table 2. Technology-Based Effluent Limits for Outfall 001			
Parameter	Units	Effluent Limits	
		Average Monthly	Average Weekly
5-Day Biochemical Oxygen Demand (BOD ₅)	mg/L	45	65
	% removal	65%	-
	lb/day	14.6	21.1
Total Suspended Solids (TSS)	mg/L	100	135
	% removal	65%	-
	lb/day	32.5	43.9
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 shall include limitations on all pollutants which will cause, or have reasonable potential to cause, an excursion of any numeric or narrative water quality standard. Water quality-based effluent limits (WQBELs) are designed to protect these 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

The Hobson WWTF discharges to an unnamed man-made ditch that drains a low-lying area south of the Burlington Northern Railroad tracks and US Highway 87. A nearby spring also contributes to the ditch and the receiving water has limited potential to flow into the Judith River during significant precipitation events. A 2012 site visit confirmed that the water in the ditch is hydrologically ephemeral in nature and the water naturally infiltrates into the ground before reaching other surface waters.

The water-use classification for the receiving water is 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. Neither the unnamed ditch nor Judith River have been assessed for impairment.

C. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded. As previously mentioned, the unnamed ditch is ephemeral in nature. Therefore, the 7Q10 is zero and no dilution is available for mixing. Compliance must be met at end of pipe.

D. Applicable Water Quality Standards & Pollutants of Concern

The unnamed ditch is not subject to the specific water quality standards of B-1 waters due to its ephemeral nature. Water quality standards applicable to ephemeral drainages are general treatment

requirements specified by ARM 17.30.635-637. The discharge from Hobson must comply with general prohibitions (narrative standards) 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 reasonable potential for pollutants to exceed numeric or narrative water quality standards. Pollutants specific to Hobson's discharge are those summarized below.

E. Proposed WQBEL Limits

Conventional Pollutants:

BOD₅, TSS, and pH – The facility provides a significant reduction in biological material and solids through BOD₅, TSS, and pH TBELs (section III). No additional WQBELs will be required for these parameters.

Oil and Grease (O&G) – The 2012-permit required quarterly monitoring for this parameter. As shown in Table 1, monitoring for O&G indicates higher than normal values for the POR. In order to protect the narrative requirements for state waters, a limit of 10 mg/L will be established for this permit renewal and additional visual monitoring will be required for periods of discharge. If visual monitoring indicates the presence of oil and grease, an additional grab sample must be submitted for analysis and discharge must cease if the concentration is found to be greater than the standard of 10 mg/L.

Escherichia coli (E. coli) Bacteria Limits – The applicable standard for *E. coli* is:

- 1) April 1 through October 31, of each year, the geometric mean number of the microbial species *E. coli* must not exceed 126 organisms per 100 milliliters (org/100 mL), nor are 10% of the total samples during any 30-day period to exceed 252 org/100 mL; and
- 2) November 1 through March 31, of each year, the mean number of *E. coli* organisms should not exceed 630 org/100 mL and 10% of the samples during any 30-day period may not exceed 1,260 org/100 mL

To comply with the narrative requirements of ARM 17.30.637(1)(d), prohibiting conditions which are harmful to humans, the permit will continue existing effluent limits based on the state water quality standard for *Escherichia coli*.

Non-conventional Pollutants:

Total Residual Chlorine – TRC limits set forth in Circular DEQ-7 do not apply to ephemeral waters and chlorination is not used by the facility. Limits and monitoring for TRC are removed in this permit.

Ammonia & Nutrients – No numeric water quality standards apply for ammonia, total nitrogen, total phosphorus, or nitrate/nitrite for ephemeral waters. Nor is the Judith river listed as impaired for nutrients on the 2018 303(d) list. Monitoring for nutrients will be removed in this permit.

V. Final Effluent Limits

The final effluent limits in Table 3 will be applied to the discharge at Outfall 001 beginning on the permit effective date and lasting through the term of the permit.

Table 3. Outfall 001 Final Effluent Limits ⁽¹⁾				
Parameter	Units	Maximum Daily Limit	Average Weekly Limit	Average Monthly Limit
5-Day Biochemical Oxygen Demand (BOD ₅)	mg/L	--	65	45
	lbs/day	--	21.1	14.6
	% Removal	--	--	65%
Total Suspended Solids (TSS)	mg/L	--	135	100
	lbs/day	--	43.9	32.5
	% Removal	--	--	65%
pH	s.u.	6.0 - 9.0		
Oil & Grease	mg/L	10	--	--
<i>E. coli</i> Bacteria – summer ⁽²⁾	org/100 mL	--	252	126
<i>E. coli</i> Bacteria – winter ⁽²⁾	org/100 mL	--	1,260	630
⁽¹⁾ See Definitions section at the end of the MPDES permit for explanation of terms ⁽²⁾ <i>Escherichia coli</i> bacteria - summer is April 1 through October 31, winter is November 1 through March 31				

There shall also be no discharge of floating solid or visible foam.

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

There shall be no discharge that settles to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines.

VI. Monitoring and Reporting Requirements

A. Outfall 001 and Influent

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. Hobson must submit NetDMR results for each month by the 28th of the following month. The town will

monitor the effluent quality at the effluent control structure. Influent monitoring is needed to calculate percent removal for BOD₅ and TSS and must be collected from the influent control structure.

The monitored parameters, their respective monitoring locations, and frequency requirements are presented in Table 4. Monitoring is required during periods of discharge. If no discharge occurs during the reported period, “no discharge” shall be reported on the NetDMR.

Table 4. Monitoring Requirements for Outfall 001					
Parameter	Units	Sample Location	Type ⁽¹⁾	Minimum Frequency ⁽²⁾	RRV ⁽³⁾
Discharge Flow Rate	mgd	Effluent	Instantaneous	1/Week	--
Flow, Duration of Event	days	Effluent	Calculated	1/Month	--
5-Day Biochemical Oxygen Demand (BOD ₅) ⁽⁴⁾	mg/L	Influent	Composite	1/Month	2
	mg/L	Effluent	Grab	1/Week	2
	lbs/day	Effluent	Calculated	1/Week	--
	% Removal	--	Calculated	1/Month	--
Total Suspended Solids (TSS) ⁽⁴⁾	mg/L	Influent	Composite	1/Month	10
	mg/L	Effluent	Grab	1/Week	10
	lbs/day	Effluent	Calculated	1/Week	--
	% Removal	--	Calculated	1/Month	--
pH	s.u.	Effluent	Instantaneous	1/Week	0.1
Oil and Grease	Yes / No	Effluent	Visual ⁽⁵⁾	1/Week	--
	mg/L	Effluent	Grab	Quarterly ⁽⁵⁾	1.0
<i>E. coli</i>	org/100 mL	Effluent	Grab	1/Month	1/100mL
⁽¹⁾ See Definition section at end of permit for explanation of terms ⁽²⁾ Monitoring is required only for any calendar period where there is discharge ⁽³⁾ Required reporting value. If reporting non-detect, analysis must achieve these, or lower, RRVs ⁽⁴⁾ Methods for calculating mass load (lbs/day) and % removal are provided in the permit. ⁽⁵⁾ O&G analysis must be conducted quarterly at a minimum. If visual monitoring indicates the presence of oil and grease, an additional grab sample must be submitted for analysis and discharge must cease if the concentration is found to be > 10 mg/L					

VII. Special Conditions

A. Lagoon Operation and Maintenance Requirements

A permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. A wastewater treatment system must have an Operation and Maintenance (O&M) manual developed at the time of construction and/or upgrade. Each permitted facility is required to:

1. Maintain an up-to-date O&M manual;
2. Follow the procedures in the O&M manual;
3. Conduct inspections at least monthly to ensure the O&M procedures are being followed and are working; and

4. Maintain records of the routine inspections and any follow-up.

B. Sewage Sludge Requirements

The use or disposal of sewage sludge must be in conformance with 40 CFR Part 503.

VIII. Public Participation

1. Public Notice

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

- Public Notice No. MT-19-12 dated June 3, 2019
- Public comments are invited any time prior to the close of business July 3, 2019
- Comments may be directed to:
Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620
or
DEQWPBPublicComments@mt.gov
- 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.

2. 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.

3. 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.

4. 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.

Hobson 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

5. Additional Information

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

XI. 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 – *Nondegradation 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. 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, Town of Hobson WWTF.*

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

Montana DEQ. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MT0021636

- Administrative Record
- Renewal Application Forms DEQ-1 and EPA Form 2A, March 2017

US Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, & 136.