

STATEMENT OF BASIS

PERMITTEE: United States Bureau of Reclamation

PERMIT NO.: MT-0029106

RECEIVING WATERS: Bighorn Lake/Bighorn River

FACILITY: Yellowtail Visitor Center Wastewater Treatment Facility

RESPONSIBLE OFFICIAL: Tom Tauscher
Supervisory Facility Operations Specialist
Yellowtail Field Office
P.O. Box 7551
Yellowtail, Montana 59035
Telephone: (406) 666-3201
Email: ttauscher@usbr.gov

LOCATION: S ½ of Section 18, Township 6S, Range 30E
Latitude 45.307400° N and Longitude 107.955842° W
Crow Reservation, Big Horn County, Montana

PERMIT TYPE: Indian Country, Minor Permit, Federal Facility, Permit Renewal

I. Permit Status

This statement of basis is for the renewal of the National Pollutant Discharge Elimination System (NPDES) Permit for the wastewater treatment facility (WWTF) for the Bureau of Reclamation's (BOR) Yellowtail Visitor Center (Visitor Center). The current Permit was issued in 2010 with an effective date of October 1, 2010, and an expiration date of September 30, 2015. The application for permit renewal was dated April 16, 2015, and considered complete May 28, 2015. The current Permit has been administratively extended until the renewal Permit is issued and in effect.

II. Facility Information

This Permit is for discharges from the WWTF that treats the sanitary wastewater from the restrooms at the Visitor Center. The Visitor Center is located above the east bank of the Bighorn River and overlooks the dam and the river. The dam, which is operated by the BOR, is in southeastern Montana within the Crow Reservation and the National Park Service's Bighorn Canyon National Recreation Area. The Visitor Center is open seasonally from mid-May to early September and typically receives less than 20 visitors per season.

The WWTF is a 3,000 gallon package treatment plant consisting of a grinder, three aeration basins and ultraviolet disinfection. The design flow of the WWTF is 0.003 million gallons per day (mgd). The WWTF is located at the southeast end of the Visitor Center and was constructed in an underground vault with access through cover hatches.

Since 2005, there has been no reported discharge from the WWTF as the package plant has not been operational and instead functions as a holding tank. Instead of discharging, wastewater is pumped from the WWTF as needed, usually one to two times per month, and hauled to the Fort Smith Government Camp Lagoon System (MTG589201) for treatment. This Permit is being renewed as the WWTF may begin discharging again if the package plant is repaired and upgraded. When the WWTF discharges, the effluent goes by pipe approximately 450 to 500 feet to the east end of the dam and discharges on the upstream side of the dam about 10 feet from shore. The WWTF is inspected weekly when the Visitor Center is open.

A. Current Effluent Limits and Characteristics

The effluent limitations in the current Permit are given below in Table 1. Also, the current Permit requires effluent monitoring for *E. coli* and includes the following special condition: the facility must cordon off the discharge area with a minimum of two signs specifying “Treated Wastewater Effluent – No Boating Beyond this Point.” Currently and for the foreseeable future, a larger buffer than that required by the Permit has already been put in place for dam safety and security; boating is not allowed within about 0.25 mile of the upstream face of the dam. Because the WWTF has not discharged since 2005, there is no effluent data to compare to the effluent limits.

Table 1. Effluent Limitations in Current Permit

Effluent Characteristic	Effluent Limitation		
	30-Day Average <u>a/</u>	7-Day Average <u>a/</u>	Daily Maximum <u>a/</u>
5-Day Biological Oxygen Demand (BOD ₅), mg/L	30	45	N/A
Total Suspended Solids, mg/L	30	45	N/A
Oil and Grease, mg/L	N/A	N/A	10
BOD ₅ , percent removal <u>a/</u>	> 85%		
TSS percent removal <u>a/</u>	> 85%		
The pH of the discharge shall not be less than 6.0 or greater than 9.0 at any time.			

a/ See Definitions, Part 1.1, for definition of terms.

B. Compliance History

The WWTF was last inspected by the EPA January 18, 2012, and the inspection reports were up-to-date. However, there was no way to collect influent samples.

III. Technology Based Effluent Limits (TBELs)

Although the WWTF treats sanitary wastewater and the facility is owned by a governmental agency, it is not considered a publicly owned treatment works (POTW) under the Clean Water Act (CWA) because it is owned by the federal government. To be considered a POTW, the treatment works must be owned by a state or municipality (as defined by section 502(4) of the CWA). There are no promulgated TBELs that apply to the discharge from this facility. However, the TBELs in the current Permit were determined using best professional judgement (BPJ) as provided for by section 402(a)(1) of the CWA. Because sanitary wastewater is being treated, BPJ was used to set the effluent limitations the same as the National Secondary Standards (NSS) as described in 40 CFR Part 133.102. Secondary treatment is defined in terms of effluent quality as measured by BOD₅, TSS, pH, and percent removal of BOD₅ and TSS.

The primary reasons for the percent removal requirements for TSS and BOD₅ in the NSS are to promote municipalities to reduce infiltration and inflow in their collection systems and to prevent intentional dilution of the influent. Because the wastewater at the Visitor Center WWTF differs from a municipality and goes a short distance from the Visitor Center directly to the WWTF, infiltration and intentional dilution are not concerns and the percent removal requirements for TSS and BOD₅ are not applicable to this facility. Therefore, the TBELs for BOD₅, TSS, pH from the current Permit are being continued in this Permit (see Table 1), however, the percent removal requirements for TSS and BOD₅ will be removed. Under CWA § 402(o)(2)(B)(ii), the removal of the TSS and BOD₅ removal requirements from this Permit is not considered backsliding (i.e., relaxation of the permit limit) because these provisions were previously mistakenly applied as TBELs.

IV. Water Quality Based Effluent Limits (WQBELs)

WQBELs, which are based on water quality standards, must be established for any parameters where TBELs are not sufficient to ensure water quality standards will be attained in the receiving water (40 CFR 122.44(d)). The parameters that must be limited are those that are or may be discharged at a level that will cause, or have the reasonable potential to cause or contribute to an exceedance of water quality standards. The purpose of this section is to provide a basis and rationale for establishing WQBELs based on the applicable water quality standards of the receiving water.

A. Receiving Waters

Any discharge would go to the Bighorn Lake/Bighorn River at the east end of the dam at the upstream edge of the dam. The conservation pool for Bighorn Lake is approximately one million (1,000,000) acre-feet when full. The flow into the reservoir varies seasonally with the runoff. The flow of water through the dam varies with the water levels in the reservoir and the operation of the hydroelectric power plant. Minimum flows from Yellowtail Dam are unknown, but there is a USGS gaging station on the Bighorn River (USGS 06287000) just downstream from the Afterbay Reservoir dam. The flow records for this gaging station for the period October 1, 1985, to December 1, 2014, show a minimum daily flow of 999 cubic feet per second (cfs). The BOR tries to maintain a minimum flow of 2,000 or 2,500 cfs from the reservoir if the water is available. To maintain that minimum level of discharge from the Afterbay Reservoir, discharges from the dam into the reservoir must be roughly the same. According to the Permittee, the flow from the dam into the reservoir is very seldom zero, and then only of a brief period of time. Using the minimum flow measured at the gaging station since 1985 to represent the critical condition for the reservoir (i.e., 999 cfs) and the design flow for the WWTF of 0.00646 cfs (0.003 mgd), the dilution ratio for the discharge is 154,644:1.

B. Water Quality Considerations

The Crow Tribe does not have tribally-adopted or the EPA-approved water quality standards. The EPA has national recommended water quality criteria for the protection of aquatic life and human health in surface water, which are referred to as 304(a) criteria, and they are used to inform development of WQBELs in the absence of tribal water quality standards.

Although Montana's water quality standards do not apply on the Crow Reservation, the state has classified Bighorn Lake/Yellowtail Reservoir (upstream of the dam) before it enters the Reservation as a C-3 water, and the Bighorn River downstream of the Reservation as a B-2 water. Both of these classifications have a suite of designated uses that apply: drinking, culinary, and food processing; bathing, swimming, and recreation; growth and propagation of fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. These classifications give an indication of the potential uses of the Bighorn River both upstream and downstream of the Yellowtail Dam.

C. Reasonable Potential Analysis

Pollutants typically present in treated effluent from domestic wastewater treatment facilities that may cause or contribute to exceedances of water quality standards include conventional pollutants such as biological material (measured by BOD₅), TSS, oil and grease, *Escherichia coli* (*E. coli*) bacteria and pH; and non-conventional pollutants such as total residual chlorine (TRC), ammonia (NH₃), nitrate/nitrite (NO_{2/3}), total nitrogen (TN), and total phosphorus (TP). Based on the domestic nature of the discharge and the high dilution ratio, no other parameters are anticipated to have reasonable potential to cause or contribute to exceedances of 304(a) criteria or Montana water quality standards downstream in the Bighorn River.

1. Conventional Pollutants

TSS, BOD₅, and pH – The WWTF provides a significant reduction in biological material and solids through secondary treatment, and as there are no applicable numeric water quality standards for TSS and BOD₅, no WQBELs are necessary. However, the EPA's 304(a) criterion for pH in freshwater is 6.5 to 9.0, which is more stringent than the TBEL, and will apply as the WQBEL. Monthly monitoring will be required for effluent BOD₅, TSS, and pH during discharge.

Oil and Grease – The WWTF Permit currently has an effluent limitation for oil and grease of 10 mg/L. A review of the permit application and past permit records indicates the 10 mg/L limit was intended to protect water quality in the Big Horn River and was a translation of the 304(a) criteria for oil and grease pursuant to CWA § 301(b)(1)(C). This narrative criterion requires that “Surface waters shall be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum-derived oils.” However, both the current permit application and the permit record support a conclusion that oil and grease is not a pollutant of concern for this facility, and the permit limit is unnecessary. The sole source of influent to the facility is sanitary wastewater from the toilets and sinks serving the Yellowtail Dam visitor center. Although there have been no recent discharges, the effluent quality at the Visitor Center WWTF is expected to be similar to the Yellowtail Dam WWTF (MT0022993), which also only treats sanitary wastewater from a limited number of individuals. The Yellowtail Dam WWTF, which has daily monitoring via observation, has had zero observances of oil and grease since the limit was put in place in the 2005 permit. In light of this information, the EPA has concluded that oil and grease was mistakenly identified as a pollutant of concern for this facility, and there is no reasonable potential for oil and grease to be present in the discharge and thus to cause or contribute to an exceedance of the narrative 304(a) criteria in the Bighorn River. As a result, the EPA has concluded that the 10 mg/L oil and grease effluent limit is not necessary to protect water quality, and thus does not belong in the Permit.

Generally, the Clean Water Act prohibits the reissuance of permits containing water quality based effluent limits that “are less stringent than the comparable effluent limitations in the previous permit.” CWA § 402(o)(1). Section 402(o)(2) provides some exceptions to this general rule. Under this section of the Act, a NPDES permit may be modified to contain less stringent effluent limits if “information is available which was not available at the time of permit issuance . . . and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.” In the present case, oil and grease monitoring data that was not available at the time of issuance clearly indicates that the discharge lacks the reasonable potential to cause or contribute to an exceedance of the narrative 304(a) water quality criterion for oil and grease. Similarly, the current permit application and permit record indicate that there are no identifiable sources of petroleum products or other oils and greases in the system. Thus, removal of the oil and grease effluent limit is permissible and does not constitute backsliding under the CWA. However, because it is possible that small quantities of oil and grease could be introduced to the system via a toilet or sink, the narrative prohibition on a visible oil sheen will remain in the Permit.

E. coli – The current Permit does not have a limit but has monitoring requirements for *E. coli*. Because bacterial criteria are protecting recreational uses, the EPA in Region 8 no longer allows mixing to meet bacterial criteria. Therefore, the reasonable potential analysis is based on evaluating if concentrations at the end-of-the-pipe exceed the EPA's recreational water quality criteria for *E. coli*. The WWTF has UV disinfection, which should result in effluent with low bacterial concentrations. However, of 17 samples collected between 2010 and 2015 at the Yellowtail Dam WWTF, five samples exceeded the monthly geometric mean criterion of 126 colony forming units (cfu)/100 mL and four of the samples exceeded the statistical threshold value of 410 cfu/100 mL (which should not be exceeded by more than 10 percent of samples). Since the effluent is entirely sanitary wastewater, there is already a disinfection system in place, and performance of the WWTF at the Yellowtail Dam indicates there would likely be *E. coli* concentrations in the effluent that would periodically exceed the 304(a) criteria, there is reasonable potential for *E. coli*. WQBELs will be based on meeting the EPA 304(a) recreational water quality criteria at the end-of-the-pipe. Since the WWTF already has UV disinfection, the new limit will be effective with the issuance of this Permit. Because the *E. coli* limit applies recreational criteria at the end-of-pipe and BOR has prohibited recreational access in the 0.25 mile upstream of the dam, the special condition requiring signage for

boaters at the discharge location will be removed from the Permit. Monthly monitoring will be required during discharge.

2. Non-conventional Pollutants

TRC – UV light treatment is used for effluent disinfection, so there is no reasonable potential for TRC and no effluent limit or monitoring is needed.

NH₃, NO_{2/3}, TN, and TP – As nutrients are a common constituent in sanitary wastewater, all of these nutrient fractions are likely present in the effluent from the WWTF. However, with the WWTF not discharging since 2005, there is no representative effluent data. Also, there is no nutrient data upstream of the dam in Bighorn Lake. Given the lack of effluent and ambient data and the unknown mixing dynamics in the reservoir near the dam, there is insufficient data to perform a reasonable potential analysis for NH₃, NO_{2/3}, TN, and TP. In the event the WWTF discharges, effluent monitoring will be required for all of these parameters, and pH and temperature monitoring will be required in the reservoir (because the 304(a) criterion for ammonia is pH and temperature dependent).

V. Final Effluent Limitations

The effluent limitations in Table 4 will be applied to the discharge at Outfall 001, effective upon issuance of the Permit and remain in effect for the duration of the permit cycle. Limits are based on the most stringent of either the TBELs or WQBELs presented in Sections III and IV, respectively.

Table 4. Final Effluent Limitations for Outfall 001

Effluent Characteristic	Effluent Limitations		
	30-Day Average <u>a/</u>	7-Day Average <u>a/</u>	Daily Maximum <u>a/</u>
BOD ₅ , mg/L	30	45	N/A
TSS, mg/L	30	45	N/A
<i>E. coli</i> , cfu/100 mL <u>b/</u>	126	N/A	410
The pH of the discharge shall not be less than 6.5 or greater than 9.0 at any time.			
There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no discharge which causes a visible oil sheen in the receiving water.			

a/ See Definitions, Part 1.1, for definition of terms.

VI. Self-Monitoring Requirements

The following requirements in Table 5 apply to Outfall 001 when the WWTF is discharging. The effluent self-monitoring requirements for BOD₅ and TSS will remain the same as the existing Permit, but no influent monitoring is required because of the removal of the percent removal requirements. Since the Visitor Center WWTF effluent is entirely domestic wastewater and is expected to be similar in character to that at the Yellowtail Dam WWTF, which has a documented history of pH values in a narrow range, pH monitoring will be decreased from weekly to monthly. When the WWTF discharges, the flow rate is too low to measure the effluent flow rate with a meter. However, the facility can meter the flow rates from its distribution system, and since most of that water ends up at the WWTF, it is representative of effluent flows. Therefore, if the facility resumes discharging, effluent flow rates will be based on measurements collected at the water treatment/distribution system.

Table 5. Self-monitoring requirements for Outfall 001

Effluent Characteristic	Frequency	Sample Type <u>a/</u>
Total Flow, gallons	Daily <u>b/</u>	Instantaneous

Effluent Characteristic	Frequency	Sample Type <u>a/</u>
Total BOD ₅ , mg/L	Monthly	Composite
TSS, mg/L	Monthly	Composite
<i>E. coli</i> , cfu/100 mL	Monthly	Grab
pH, units	Monthly	Grab
Total Ammonia as N	Monthly <u>c/</u>	Grab
Total Nitrogen (TN), mg/L	Monthly <u>d/</u>	Grab
Total Phosphorus (TP), mg/L	Monthly	Grab
Nitrate + Nitrate as N, mg/L	Monthly	Grab

a/ See Definitions, Part 1.1, for definition of terms.

b/ Flow will be measured on a daily basis while the facility is staffed but will be reported as total flow (gallons per month).

c/ Receiving water temperature and pH must be taken the same day as the sample is collected.

d/ Monthly monitoring between July 1 and September 30 only. Total Nitrogen may be measured directly or calculated as the sum of Nitrate + Nitrite and Total Kjeldahl Nitrogen.

A. Discharge Monitoring Reports

Discharge monitoring report (DMR) forms for the remainder of the year will be mailed out shortly. However, if the facility does not discharge, no DMR needs to be submitted. The Permittee may elect to use *NetDMR* to electronically submit DMRs instead of mailing paper DMRs. However, starting December 21, 2016, permittees must electronically report DMRs using *NetDMR*. If you have any DMR questions or concerns regarding *NetDMR*, please contact the EPA's Policy, Information Management & Environmental Justice Program, DMR Coordinator at (303) 312-6056. See Section 2.4 of the Permit, Reporting of Monitoring Results, for additional information.

VII. Endangered Species Act Requirements

Section 7(a) of the Endangered Species Act requires federal agencies to ensure that any actions authorized, funded or carried out by an agency are not likely to jeopardize the continued existence of any federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species. According to U.S. Fish and Wildlife Service, Information for Planning and Conservation (IpaC) website (<https://ecos.fws.gov/ipac/>) on April 19, 2016, there are no federally listed threatened and endangered species and no critical habitat found in the project area.

Since there are currently no federally listed species in the project area, the EPA finds that reissuance of this Permit will have No Effect on any of the species listed by the U.S. Fish and Wildlife Service under the Endangered Species Act. Therefore, no consultation is required.

VIII. National Historic Preservation Act (NHPA) Requirements

Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f) requires that federal agencies consider the effects of federal undertakings on historic properties. The EPA has evaluated its planned reissuance of the NPDES Permit for the Yellowtail Visitor Center WWTF to assess this action's potential effects on any listed or eligible historic properties or cultural resources. In a review of properties on the National Register of Historic Places, there are no listed properties in the project vicinity. The EPA does not anticipate any impacts on listed/eligible historic properties or cultural resources because this Permit is a renewal and will not be associated with any significant ground disturbance or significant changes to the volume or point of discharge. The EPA notified the Tribal Historic Preservation Officer of the planned issuance of this NPDES Permit during the public

comment period and did not receive a response regarding potential effects on historic properties or the EPA's preliminary determination of no effect.

IX. Miscellaneous

The renewal Permit will be issued for a period of approximately five years. The permit effective and expiration dates will be determined at the time of permit issuance.

Permit drafted by Robert D Shankland, SEE, Wastewater Unit, 8P-W-WW, January 25, 2016.

Permit edited by Lisa Kusnierz, 8MO, May 17, 2016.

Permit reviewed by Robert D. Shankland, Al Garcia, Amy Clark, VelRey Lozano, Qian Zhang, and Bob Brobst, Wastewater Unit, 8P-W-WW, May 24, 2016.

X. Public Notice and Response to Comments

The Permit and statement of basis were public noticed in the Big Horn County News on July 28, 2016. The public comment period extended for 30 days and the documents were posted on the EPA's website. No comments were received during the public comment period. The civil and criminal penalties in Section 3.2 of the Permit were revised following the public comment period to reflect penalty increases that took effect August 1, 2016.