



**UNITED STATES ENVIRONMENTAL PROTECTION  
AGENCY**  
REGION 8, MONTANA OFFICE  
FEDERAL BUILDING, 10 W. 15<sup>th</sup> STREET, SUITE 3200

**STATEMENT OF BASIS**

PERMITTEE: Northern Cheyenne Utility Commission  
Northern Cheyenne Reservation

FACILITY: Lame Deer Lagoons  
Lame Deer, MT

CONTACT: Winslow Whitecrane  
General Manager  
Northern Cheyenne Utility Commission  
100 Ridgewalker Drive  
P.O. Box 747  
Lame Deer, MT 59043

PERMIT NUMBER: MT0029360

RECEIVING WATERS: Lame Deer Creek

LOCATION: Township 2S, Range 41E, Section 33  
45° 37' 44"N 106° 40' 25"W

A. Permit Status

The Northern Cheyenne Utility Commission (NCUC) Lame Deer wastewater treatment facility (Facility) is located on the Northern Cheyenne Indian Reservation and is thus in "Indian Country" as defined as 18 U.S.C. 1151. The Northern Cheyenne Tribe has been approved by EPA for "treatment as a state."

The current National Pollutant Discharge Elimination System (NPDES) permit for the Facility became effective on June 1, 2005 and expired on April 30, 2010. The NCUC submitted an application for renewal in May 2010. The 2005 permit has remained in effect until the new permit is issued.

B. Facility Description

At the time the 2005 permit was issued, the Facility consisted of a three cell 10.7 acre, partially aerated lagoon that did not disinfect effluent. The primary cell was 2.7 acres and was built in 1957; the secondary cell was also 2.7 acres and was built in 1965; the tertiary cell was 5.34 acres and was built in 1971. There were five aerators located in the secondary cell which at the time ran 24 hours per day. Sludge was removed from the primary and secondary cells in 2001. A parshall flume was installed in the manhole just prior to the discharge point.

Since 2005, the Facility has been undergoing renovations which are expected to be complete in July 2010. During renovation of Cell 1, approximately 700,000 gallons of sludge were removed, a benonite liner was installed, and fermentation pits were installed to improve solids treatment. Dike levels and cell bottom levels were raised to improve separation with groundwater.

According to the permit application, the average daily flow is 244,000 gallons per day (gpd), and the peak design flow is 549,000 gpd.

C. Discharge Data

The Discharge Monitoring Reports (DMRs) submitted from 2006 to 2009 contained data of questionable validity for some parameters. The range of flows reported generally was from 0.2 to 0.9 million gallons per day (mgd). However several readings of 7.0 mgd were reported. The 7.0 mgd flow reports were rejected and not included in Table 1 as they are likely a reporting error. Also pH readings of 0, 0.7, and 3.8 s.u. were reported. These values were also rejected as likely data errors since there are no industrial discharges to the Facility.

<b>Table 1: Discharge Data, 2006-2009</b>						
<b>Parameter</b>	<b>Units</b>	<b>2005 Permit Limit</b>	<b>Minimum Value</b>	<b>Maximum Value</b>	<b>Average Value</b>	<b>Number of Samples</b>
Flow	mgd	--	0.2	0.9	0.64	--
Biological Oxygen Demand (BOD <sub>5</sub> )	mg/L	45/65 <sup>(1)</sup>	6	97	33.6	45
Total Suspended Solids (TSS)	mg/L	45/65 <sup>(1)</sup>	12	101	33.4	40
pH	s.u.	6.0-9.0	6.8	8.5	--	45
Fecal Coliforms	# organisms/ 100 ml	--	210	260,000	48,399	21
Oil and Grease	Visual	--	--	--	(2)	--

<sup>(1)</sup> 30-Day Average/7-Day Average

<sup>(2)</sup> No visual detections.

D. Compliance

A review of the DMRs submitted since 2006 showed the following violations:

- 10 violations of the 30 day BOD limitation of 45 mg/L
- 2 violations of the 7 day BOD limitation of 65 mg/L
- 5 violations of the 30 day average TSS of 45 mg/L
- 3 violations of the 7 day average TSS of 65 mg/L

The DMR review also showed that the NCUC failed to report flow on 8 DMRs, oil and grease observations on 9 DMRs, fecal coliforms on 23 DMRs and TSS on 7 DMRs. In addition, no DMRs have been received since the October 2009 DMR.

EPA conducted an inspection of the facility on May 1, 2007. EPA observed the following items in need of corrective action:

- pH measurements were being made using pH paper. A calibrated pH meter should be used.
- Sample collection records were not being recorded. A sample log needs to be kept.
- Flow measurement and visual oil and grease observations were not recorded on the DMR reviewed as part of the inspection. Complete DMRs must be submitted.
- Lagoon inspections were not regularly conducted and documented. The requirements of the permit must be followed.
- Operators were unable to describe how they took samples and measured flow.
- Vegetation around the lagoons was not being controlled.
- The aerators were not running.

E. Technology Based Effluent Limitations

40 CFR Part 133.102 establishes the minimum level of effluent quality attainable by secondary treatment for BOD<sub>5</sub>, TSS, and pH. 40 CFR Part 133.105 establishes the minimum level of effluent quality attainable for BOD<sub>5</sub>, TSS, and pH for facilities eligible for treatment equivalent to secondary treatment. 40 CFR Part 133.101(g) defines facilities eligible for treatment equivalent to secondary if they meet the following requirements:

- 1) The BOD<sub>5</sub> and TSS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in 133.102(a) and (b).
- 2) A trickling filter or waste stabilization pond is used as the principal process, and
- 3) The treatment works provide significant biological treatment of municipal wastewater.

The facility qualifies for treatment equivalent to secondary based on the following:

- 1) As shown in Table 1 above, the BOD<sub>5</sub> and TSS effluent concentrations are consistently above the effluent quality set forth in 133.102(a) and (b), 30 mg/L for 30 day average and 45 mg/L for 7 day average for both BOD<sub>5</sub> and TSS.
- 2) The facility primary treatment system is waste stabilization ponds.
- 3) 133.105(a)(3) specifies that the relaxed limits shall be accompanied by a requirement for 30-day percent removal equivalent to 65%. It has been the experience of EPA Region 8 that there are practical problems that prevent the determination of the actual percent removals of BOD in small municipal wastewater lagoon systems such as this one. The detention times in lagoon systems usually range from several weeks to several months. The lag time between when the influent enters the lagoon and when the wastewater leaves the lagoon system makes it difficult to make a valid comparison between influent and effluent concentrations. Based on best professional judgment, percent removal requirements were not included in the previous permit and will not be required in this permit. Therefore EPA does not have removal data to determine if this requirement is being met.

The BOD<sub>5</sub> and TSS requirements are the same as in the previous permit and are based on 40 CFR 133.105(a) and (b). The 30-day average BOD<sub>5</sub> and TSS shall not exceed 45 mg/L, and the 7-day average shall not exceed 65 mg/L.

40 CFR Part 133.102(c) establishes the pH limits for all types of facilities. The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 standard units (su).

The Facility is currently being renovated. If the renovated system is able to meet the requirements of 40 CFR 133.102(a) and (b), the permit limitations may be revised in the next permit renewal.

<b>Table 2. Technology Based Effluent Limitations</b>		
Effluent Characteristic	30-Day Average	7-Day Average
BOD <sub>5</sub> , mg/L	45	65
Total Suspended Solids, mg/L	45	65
The pH of the effluent shall not be less than 6.0 s.u. or greater than 9.0 s.u. in any single sample or analysis.		

F. Water Quality Based Effluent Limitations

The Northern Cheyenne Tribe has proposed water quality standards which have not yet been finalized by the Tribe or approved by EPA. When the water quality standards have been approved by EPA, the next permit reissued will address water quality based effluent guidelines.

According to the proposed water quality standards submitted to EPA for approval, the designated uses of the mainstem of Lame Deer Creek are Class 1 Cold Water – Salmonid propagation, growth; recreation – incidental contact; drinking water after conventional treatment; and agriculture, industrial, cultural, and wetland. Numeric criteria are also proposed parameters which are likely to be discharged by the facility including pH, fecal coliforms, E. coli, and ammonia. The proposed water quality standards include a Mixing Zone and Dilution Policy which allows for the denial of mixing zones when potential human exposure to pollutants resulting from drinking water or recreational activities. At a minimum, future permits will likely include limits on fecal coliform which would require disinfection to be installed.

The previous permit contained two narrative standards to protect water quality. This permit will retain these two narrative standards shown in Table 3.

<b>Table 3. Water Quality Based Effluent Limitations</b>
The oil and grease of the effluent shall not exceed 10 mg/L in any single sample or analysis.
There shall be no discharge of floating solids or visible foam in other than trace amounts

The permit contains a reopener provision under which the permit may be reopened and modified as appropriate if the Tribal Water Quality Standards are finalized and approved by EPA.

G. Final Permit Limitations

<b>Table 4: Final Permit Limitations</b>		
<b>Effluent Characteristic</b>	<b>Effluent Limitation</b>	
	<b>30-Day Average</b>	<b>7 Day Average</b>
BOD <sub>5</sub> , mg/L	45	65
Total Suspended Solids, mg/L	45	65
The pH of the discharge shall not be less than 6.0 s.u. or greater than 9.0 s.u. at any time.		
The concentration of oil and grease in any single sample shall not exceed 10 mg/L nor shall there be any visible sheen in the receiving water or adjoining shoreline.		
There shall be no discharge of floating or visible foam in other than trace amounts.		

I. Self-Monitoring Requirements

Outfall 001 shall be sampled at the earliest possible point in the discharge line from the Parshall Flume. Sampling will be required as listed in Table 5.

<b>Table 5: Self-Monitoring Requirements</b>		
<b>Effluent Characteristic</b>	<b>Frequency</b>	<b>Sample Type <sup>(1)</sup></b>
Flow, mgd	Monthly	Instantaneous
BOD <sub>5</sub> , mg/L	Monthly	Grab
Total Suspended Solids, mg/L	Monthly	Grab
pH, standard units	Monthly	Grab <sup>(1)</sup>
Oil and Grease, Visual	Monthly	Observation
Oil and Grease, mg/L	<sup>(2)</sup>	Grab

<sup>(1)</sup> Analyses of pH samples must be performed within 15 minutes of sample collection

<sup>(2)</sup> A daily visual observation is required. If a visible sheen is detected, a grab sample shall be taken immediately and analyzed in accordance with the requirements of 40 CFR Part 136.

J. Whole Effluent Toxicity

The Town of Lame Deer does not have any industrial dischargers discharging to the wastewater treatment facility. There will be no Whole Effluent Toxicity Limits or testing in this permit.

K. Endangered Species Act (ESA) Requirements

Section 7(a) of the Endangered Species Act requires federal agencies to insure 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 the U.S. Fish and Wildlife Service, Montana Field Office, internet site at <http://www.fws.gov/mountain-prairie/mt.html>, Table 6 lists the federally listed threatened,

endangered and candidate species and proposed and designated critical habitat found on the Northern Cheyenne Reservation in Montana.

<b>Table 6: Threatened, Endangered, and Candidate Species on the Northern Cheyenne Reservation</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>Habitat</b>
Black-footed Ferret	<i>Mustela nigripes</i>	Endangered, Nonessential experimental	Prairie dog complexes; Eastern Montana
Greater sagegrouse	<i>Centrocercus urophasianus</i>	Candidate	Eastern, central, and southwestern Montana in sagebrush, sagebrush-grasslands, and associated agricultural lands.

EPA finds this permit is Not Likely to Adversely Affect any of the species listed by the US Fish and Wildlife Service under the Endangered Species Act. The finding is based upon the following: (1) no aquatic species are listed on the Northern Cheyenne reservation; and (2) the renewal of this permit does not allow any increase in effluent limitations over the previous permit.

L. National Historic Preservation Act (NHPS) 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. EPA has evaluated its planned reissuance of the NPDES permit for the Facility to assess this action's potential effects on any listed /eligible historic properties or cultural resources. 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 new ground disturbance or changes to the volume or point of discharge.

M. Total Maximum Daily Load

On June 21, 2000 and September 21, 2000, U.S. District Judge Donald W. Molloy issued orders stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the EPA is prohibited from issuing new permits or from increasing already permitted discharges under the NPDES program. (Friends of the Wild Swan, et al., v. U.S. EPA, CV 97-35-M-DWM, District of Montana, Missoula Division.)

EPA finds that the issuance of this permit does not conflict with the order because the receiving water is in Indian Country and is not on an approved list of waters requiring TMDLs under Section 303(d) of the Clean Water Act.

Prepared by Rosemary Rowe  
October 12, 2010