UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 W. 15th STREET, SUITE 3200
HELENA, MONTANA 59626

STATEMENT OF BASIS

PERMITTEE:	City of Cut Bank Water Treatment Plant Cut Bank, MT Blackfeet Reservation
CONTACT:	James Suta City Superintendent City of Cut Bank 221 W. Main Cut Bank, MT 59427
PERMIT NUMBER:	MT0030562
RECEIVING WATERS:	Cut Bank Creek
LOCATION:	SE ¼ Section 2, Township 35 N, Range 6 W 48°38”32”N and 112°20’41”W
POPULATION:	3,105

A. Permit Status

The current National Pollutant Discharge Elimination System (NPDES) permit for the Cut Bank water treatment plant (WTP) became effective on June 1, 2005 and expired on March 31, 2010. In November 2009, the City of Cut Bank (Cut Bank) submitted an application for renewal. The 2005 permit will remain in effect until the permit is re-issued. The WTP has not discharged since March 2007; however the City wishes to maintain a discharge permit in the event of an emergency.

B. Facility Description

The Water Treatment Plant (WTP) is located on the Blackfeet Reservation just across Cut Bank Creek from the City of Cut Bank. Raw water is obtained from Cut Bank Creek via nine perforated intake pipes that are buried in coarse rock at a depth of three to six feet in the creek bed. Water is stored in an off stream reservoir until treatment. The treatment process includes

flocculation using alum, settling, filtration, and disinfection using chlorine. Chlorination is done at two points in the treatment process; perchlorination occurs between the settling and filtration steps, and postchlorination follows filtration. Approximately 1.5 million gallons per day (mgd) of treated water are produced. The filter backwash and the sludge from the settling basin are discharged to two settling ponds that discharge through one outfall. Previously each pond had an individual discharge. However since the last reissuance, the two discharge points have been combined into one. Flow is measured at a trapezoidal flume in the monitoring manhole in the combined discharge line.

C. Past Discharge Data

The WTP has not discharged since March 2007. The monitoring data reported from 2005 to 2007 demonstrate compliance with the effluent limitations in effect as shown in Table 1 below.

Table 1: Effluent Data from 2005 to 2007.

Effluent Characteristic	Previous Permit Limits	Minimum	Maximum	Average
Total Suspended Solids, mg/L	30 mg/L 30-day average	4.0	9.0	5.2
Total Dissolved Aluminum, mg/L	0.75 mg/L Daily maximum	0.15	0.32	--
pH, s.u.	6.5-9	7.2	7.7	--
Total Residual Chlorine	0.500 mg/L Daily Maximum	0.28	0.42	--
Flow, gpd	--	66,000	120,000	--

D. Compliance History

There have been no exceedances of the effluent limitations reported in the Discharge Monitoring reports (DMRs). An inspection conducted by EPA on April 14, 2008, noted failure to maintain a copy of the permit on site and failure to maintain complete sampling records as items needing corrective action.

E. Technology Based Effluent Limitations

There are no Technology Based Effluent Limitations (TBELs) for water treatment plants. However the settling pond technology used to treat the WTP's backwash is comparable to wastewater stabilization ponds used to meet the TBELs in 40 CFR Part 133.102, Federal

Secondary Treatment Regulation. Based on the use of Best Professional Judgment (BPJ), the TBELs in Table 2 will apply to this discharge.

Table 2: Technology Based Effluent Limitations

Effluent Characteristic	Units	30-Day Average	7-Day Average
TSS	mg/L	30	45
The pH of the effluent shall not be less than 6.0 nor greater than 9.0 in any single sample or analysis.			

F. Water Quality Based Effluent Limitations

The portion of Cut Bank Creek to which the WTP discharges is the boundary between the Blackfeet Reservation and the State of Montana. The Blackfeet Tribe has adopted water quality standards which have not yet been submitted to and approved by EPA. The permit contains a reopener condition which states that the permit may be reopened and modified if a new water quality standard is adopted.

The State of Montana has classified the portion of Cut Bank Creek from Old Maid Miller Coulee to Birch Creek as B-2 ((ARM 17.30.610(1)(d)(i)(B)). B-2 waters are to be maintained suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply ((ARM 17.30.624(1)).

Based on data compiled by the United States Geological Survey (Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1990 through 2002), the 7Q10 for Station 06099000 on Cut Bank Creek at the City of Cut Bank is 6.1 cubic feet per second (cfs). The location of this station is just downstream of the discharge from the WTP. The receiving water flow upstream of discharge is the 7Q10 at Station 06099000 minus the discharge from the WTP of 120,000 gallons per day (gpd) or 0.19 cfs. 120,000 gpd is used as the discharge flow because it was the value reported in all but one Discharge Monitoring Report.

ARM 17.30.507(1)(b) of the State's regulations on Mixing Zones specify that "acute standards for aquatic live for any parameter may not be exceeded in any portion of a mixing zone, unless the department specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses." This means that the acute criteria must be met at the end of the discharge pipe unless an exception is granted. ARM 17.30.516(2)(b) of the regulations on mixing zone specifies that for facilities that discharge a mean annual flow less than 1 MGD to a stream segment with a dilution less than 100:1, discharge limitations will be based on dilution with 25% of the 7Q10 low flow. The dilution ration is defined at the 7Q10

without the discharge, divided by the mean annual flow of the discharge. For chronic criteria, the allowable mixing zone is 0.25(5.91) = 1.48 cfs.

Dissolved Aluminum and Total Residual Chlorine

Total residual chlorine and dissolved aluminum are of potential concern to aquatic life. The State's aquatic life acute and chronic toxicity criteria for these pollutants (Circular WQB-7, Montana Numeric Water Quality Standards, February 2008) are given in Table 3.

Table 3: Aquatic Life Acute and Chronic Water Quality Standards

Pollutant	Acute	Chronic
Dissolved Aluminum, µg/L	750	87
Total Residual Chlorine, µg/L	19	11

The calculations for the allowable effluent concentrations of total chlorine and dissolved aluminum to meet their respective chronic criterion are given below using the following mass balance equation:

$$C_d = \frac{C_r(Q_d+Q_s) - CsQ_s}{Q_d}$$

Where C_d = Concentration of pollutant in discharge
C_r = Water Quality Standard
Q_r = Downstream flow
C_s = Background in-stream pollutant concentration
Q_s = Upstream flow available for dilution
Q_d = Discharge flow

Effluent concentration of total residual chlorine:

$$C_d = \frac{11\mu g/L(0.19 \text{ cfs} + 1.48 \text{ cfs})}{0.19 \text{ cfs}}$$
$$C_d = 97\mu g/L$$

Effluent concentration for dissolved aluminum:

$$C_d = \frac{87\ \mu g/L(0.19 \text{ cfs} + 1.48 \text{ cfs})}{0.19 \text{ cfs}}$$
$$C_d = 765\ \mu g/L$$

The above calculations assume no background concentrations for either pollutant.

The effluent limitations to meet the chronic criteria are expressed as 7-day averages and the effluent limitations to meet the acute criteria are expressed as instantaneous maximums, not to be exceeded in any grab sample or instantaneous measurement. Since the effluent limitation based on the acute criterion for total residual chlorine (19 µg/L) and dissolved aluminum (750 µg/L) are more stringent than the 7-day average effluent limitation (97 µg/L total residual chlorine and 765 µg/L dissolved aluminum) based on the chronic criterion, the 7-day average effluent limitation for total residual chlorine and dissolved aluminum will not be used in this permit.

pH

The pH criteria for Class B-2 waterbodies is 6.5 to 9 su
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G. Final Effluent Limitations

The final effluent limitations are shown in Table 4.

Table 4: Final Effluent Limitations for 001

Effluent Characteristic	Effluent Limitation			
	30-Day Average a/	7-Day Average a/	Daily Maximum a/	Basis
Total Suspended Solids, mg/L	30	45	--	Previous Permit/TBEL
Total Dissolved Aluminum, mg/L	--	--	0.75	WQS
Total Residual Chlorine, mg/L b/	--	--	.019	WQS
The pH of the discharge shall not be less than 6.5 or greater than 9.0 at any time.				WQS

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

b/ The analysis for total residual chlorine shall be done by EPA Method 330.5 unless the use of another method is approved in writing by the permit issuing authority. The analytical method shall have a method detection limit of no greater than 100 µg/L. For the purposes of this permit, analytical results less than 100 µg/L are considered as nondetection.

H. Self-Monitoring Requirements – 001

The self-monitoring requirements are shown in Table 5. Effluent samples shall be taken in the monitoring manhole after the two settling ponds.

Table 5: 001 – Self Monitoring Requirements

Effluent Characteristic	Frequency a/	Sample Type b/
Total Flow, mgd c/	Weekly	Instantaneous
Total Suspended Solids, mg/L	Weekly	Grab
pH, units d/	Weekly	Grab
Total Dissolved Aluminum, mg/L	Weekly	Grab
Total Residual Chlorine, mg/L	Weekly	Grab

a/ Monitoring frequency will be at least once per week when discharges are occurring.

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

c/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained. The average flow rate (in million gallons per day) during the reporting period and the maximum flow rate observed (in mgd) shall be reported.

d/ pH samples must be analyzed within 15 minutes of collection.

I. 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/montanafieldoffice/Endangered_Species/Listed_Species/Reservations.html, Table 6 lists the federally listed threatened, endangered and candidate species and proposed and designated critical habitat found on the Blackfeet Reservation in Montana.

Table 6. Threatened, Endangered, and Candidate Species on the Blackfeet Reservation

Common Name	Scientific Name	Status	Habitat
Grizzly Bear	*Ursus arctos horribilis*	Threatened	Resident, transient; Alpine/subalpine coniferous forest
Canada Lynx	*Lynx canadensis*	Threatened	Resident: western Montana – Montana spruce/fir forest
Piping Plover	*Charadrius melodus*	Threatened	Pondera County; Sandbars, alkali beaches
Bull trout	*Salvelinus confluentus*	Threatened; Proposed Critical Habitat	St. Mary and Belly river basins; cold water rivers and lakes

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. This facility discharges to Cut Bank Creek. There is one listed aquatic species, the bull trout. The renewal of this permit does not allow any increase in effluent limitations over the previous permit.

J. National Historic Preservation (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 history properties. EPA has evaluated its planned reissuance of the NPDES permit for the Cut Bank Water Treatment Plant 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 propertied 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.

I. 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. (The orders were issued pursuant to the lawsuit Friends of the Wild Swan, et al., v. U.S. EPA, CV 97-35-M-DWM, District of Montana, Missoula Division.)

EPA finds 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, June 21, 2010