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

STATEMENT OF BASIS

PERMITTEE:	St. Ignatius-Southside Wastewater Treatment Facility Salish and Kootenai Housing Authority Confederated Salish and Kootenai Tribes Flathead Reservation, MT P.O. Box 38 Pablo, MT 59855 (406)675-4491
PERMIT NO.:	MT0029017
RECEIVING WATERS:	Cattail wetland approximately ½ mile from an unnamed tributary of Sabine Creek
POPULATION:	412 residents served by the Southside system

A. Facility Description

The St. Ignatius-Southside facility is located adjacent to Highway 93 approximately one-quarter mile west of the St. Ignatius community and south of Mission Creek in the NE ¼ of the SW ¼ of Section 14, Township 18 North, Range 20 West, Montana Principal Meridian at latitude 47° 19' 4" north and longitude 114° 6' 45" west, Lake County, Montana. The facility serves about 412 people and has an estimated 161 service connections. The facility consists of 2 cells operated in series of approximately 2.5 acres each containing 4 surface aerators. An ultraviolet light system is used to disinfect effluent immediately prior to discharge.

The system discharges two to several times a year for about 30 days each discharge, with an average daily discharge flow of 90,000 gallons. During the last five years, the Salish and Kootenai Housing Authority discharged treated effluent during the months of April, May, August, October, November and December.

B. Receiving Waters

The effluent discharges from the southwest corner of Cell 2 to an open ditch which enters a cattail wetland approximately 200' from the outfall pipe. The nearest surface water to the outfall is a perennial spring-fed creek approximately ½ mile to the northwest. This unnamed creek is a tributary to Sabine Creek and is located in the SE ¼ of the NE ¼ of Section 15, Township 18 North, Range 20 West, Montana Principal Meridian. However, the effluent predominately appears to infiltrate in the wetland and an adjacent agricultural field without

overland flow reaching the creek. Nonetheless, since the potential exists for the effluent to reach the creek, depending on the discharge volume and surface conditions (such as frozen ground), the unnamed tributary to Sabine Creek has been identified as the receiving water. Sabine Creek is a tributary of Mission Creek, which joins the Flathead River near the town of Dixon.

C. Past Discharge Data

The following table summarizes permit-limited constituent detections in discharges from 2005 through present. Monitoring for total ammonia as nitrogen was required in the 2004 permit though no effluent limitation was imposed. The values for ammonia as nitrogen are included here as the new permit will need to limit ammonia to meet Tribal water quality standards.

	BOD mg/l	pH s.u.	Fecal Coliform # / 100 ml	NH_3 - N mg/l	TSS mg/l
Permitted Level	30, 30-day 45, 7-day	6.5 - 9	200, 30-day 400, 7-day	Sampling required, no permit limit	100, 30-day 135, 7-day
May 2005	41	9.6	470	1.86	104
Nov 2006	11	8.4	194	5.07	19
Apr 2007	35	8.8	1753	9.8	50
Aug 2007	11	7.57	18	0.89	ND a/
Oct 2007	9	7.4	2	1.43	9
Nov 2007	20	NR b/	3	1.69	9
Apr 2008	25	8.7	22	18.9	47
Nov 2008	6	7.7	6	1.26	7
Dec 2008	11	7.7	142	5.14	34
May 2009	31	7.1	190	11.3	16
Mean c/	20	8.1	280 / 47.7 geo	5.73	32.8

a/ Reported as "no detection"
b/ No value reported
c/ Fecal coliform value given as arithmetic and geometric means

D. Water Quality Standards

The Confederated Salish and Kootenai Tribes have EPA-approved water quality standards. The most recent changes to the water quality standards were approved on April 11, 2007 after a triennial review.

1. Water Quality Classification

The St. Ignatius-Southside WWTF discharges to a wetland adjacent to an unnamed tributary of Sabine Creek. The Confederated Salish and Kootenai Tribal Water Quality Standards classify Sabine Creek and its tributaries as B-1 waters. Waters classified B-1 must be maintained suitable for drinking and culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; wildlife (birds, mammals, amphibians and reptiles); the growth and propagation of salmonid fishes and associated aquatic life; and agricultural and industrial water supply purposes.

2. Mixing Zone

The Confederated Salish and Kootenai Tribes adopted *Mixing Zone Implementation Procedures* during the most recent triennial review of their Water Quality Standards. Section 2.d. of the *Mixing Zone Implementation Procedures* states in part: [a] mixing zone shall not be granted for discharges into a wetland unless the following can be demonstrated to the Department.

i. Existing designated uses will not be threatened or impaired within or outside the mixing zone,
ii. Ecological functions associated with the receiving wetland will not be threatened or diminished,
iii. The boundary of the mixing zone can be identified, and
iv. Applicable water quality criteria will be achieved at the mixing zone boundary.

As none of the above criteria have been demonstrated, no mixing zone is being granted and all effluent limitations shall be met at the end-of-pipe discharge point.

3. Ammonia

The current permit contains a requirement for Salish and Kootenai Housing Authority to conduct an ammonia study of the St. Ignatius-Southside discharge. The Housing Authority submitted an ammonia study plan, which was approved by EPA and has monitored the discharge for ammonia but has not conducted the ammonia study.

Tribal aquatic life standards for ammonia are dependent upon the pH and the temperature of the receiving waterbody. Sabine Creek was monitored for pH and temperature 1998 and 1999 as part of the Mission Creek watershed assessment, which also indicated native salmonid fishes present in Mission Creek and its tributaries. Data from Sabine Creek near the mouth was used with the ammonia tables in the Tribal Water Quality Standards to determine ammonia effluent limitations for the St. Ignatius-Southside permit as it is the only water quality data available. The Sabine Creek temperature and pH data is attached to this Statement of Basis as Appendix A and incorporated herein by this reference.

Using the data in Appendix A, the following water quality standards were derived for ammonia:

Condition	Period a/	Salmonids Present	Early Life Stages Present	Ambient Water		WQS (mg/L)
				pH	Temperature °C	
Acute b/	Winter	Y	NA	8.2	NA	3.83
	Summer	Y	NA	8.4	NA	2.59
Chronic c/	Winter	NA	N	8.1	8.8	2.99
	Summer	NA	NA d/	8.4	16.3	1.17

NA – not applicable
a/ Winter is defined as November 1 through March 31, summer is defined as April 1 through October 31
b/ Based on the 95th percentile of the seasonal temperature and pH data
c/ Based on the 75th percentile of the seasonal temperature and pH data
d/ At 15°C and above, the criterion for fish ELS absent is the same at the criterion for fish ELS present

St. Ignatius-Southside monitored for ammonia as nitrogen 11 times during the permit period. Ammonia as nitrogen values varied from a low of 0.89 mg/L to a high of 18.9 mg/L. The acute ammonia water quality standard was exceeded 5 times, twice in winter months and 3 times during the summer months. Water quality standard-based ammonia limits will be added to the effluent limitations in this permit renewal and shall be met at the end-of-pipe discharge point.

4. *E. coli*

Tribal Water Quality Standards require the geometric mean number of *E. coli* not to exceed 126 colony-forming units per 100 milliliters, and 10 percent of the total samples may not exceed 252 colony-forming units per 100 milliliters during any 30 day period. As there is no documented receiving water flow available for discharge dilution, this water quality standard shall be met at the end-of-pipe discharge point.

5. pH

Induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range must be maintained without change. Natural pH above 7.0 must be maintained above 7.0. As there is no documented receiving water flow available for discharge dilution, this water quality standard shall be met at the end-of-pipe discharge point.

E. Effluent Limitations

Effluent Characteristic	Effluent Limitation			
	30-Day Average	7-Day Average	Daily Maximum	Basis of Limitation
BOD_5, mg/L	30	45	N/A	Previous Permit 40 CFR 133.102(a)
Percent BOD_5 Removal	85	N/A	N/A	40 CFR 133.102(a)
Total Suspended Solids, mg/L	100	135	N/A	Previous Permit 40 CFR 133.103(c)&133.105(b)
Percent TSS Removal	65	N/A	N/A	40 CFR 133.105(b)(3)
E. coli, CFU/100 mL	126	252	N/A	WQS
Total ammonia as nitrogen, mg/L Winter Summer	 2.99 1.17	N/A	 3.83 2.59	WQS
The pH of the discharge shall not be less than 6.5 or greater than 8.5 at any time.				WQS
There shall be no discharge of floating solids or visible foam in other than trace amounts, and there shall not be a discharge which causes a visible sheen in the receiving waters. The concentration of oil and grease in any single sample shall not exceed 10 mg/L.				Previous Permit

BOD The limits for biochemical oxygen demand (BOD) are based on 40 CFR 133.102(a), "Secondary Treatment Standards." The previous permit also set the limits at 30 mg/l (30-day average) and 45 mg/l (7-day average). The 5-year measured average BOD was 20 mg/l.

TSS The limits for total suspended solids (TSS) are based the following *Secondary Treatment* regulations: 40 CFR 133.105(b), *SS* (suspended solids); 40 CFR 133.105(d), *Alternative State requirements* (ASR); and, 40 CFR 133.103(c), *Waste stabilization ponds*. 40 CFR 133.105(b) establishes TSS effluent limits of 45 mg/L for a 30-day average and 65 mg/L for a 7-day average. 40 CFR 133.103(c) allows the State, subject to EPA approval, to adjust the minimum level of effluent quality set in § 133.105(b) for waste stabilization facilities to conform to the TSS effluent concentrations achievable with waste stabilization ponds. 40 CFR 133.105(d) allows the state, subject to EPA approval to adjust the minimum level of effluent quality for waste stabilization facilities to conform to TSS effluent concentrations consistently achievable through proper operation and maintenance by the median facility in a representative sample of facilities with in a state. In 49 FR37005 9/20/84, EPA approved an ASR for a waste stabilization pond TSS effluent limit of 100 mg/L for Montana. Since the St. Ignatius-Southside is a waste stabilization pond similar to the facilities used to determine the Montana ASR, the ASR of 100 mg/L has been applied in this permit as the 30-day average. The previous permit

also set the limits at 100 mg/L (30-day average) and 135 mg/L (7-day average). Although the effluent TSS average during the current permit period was 33 mg/L, if the 30-day average limit had been 45 mg/L, 3 monitoring samples out of 11 would have exceeded the limit.

F. Self-Monitoring Requirements- Outfall 001

The following influent and effluent characteristics shall be monitored during each discharge period. Characteristics requiring monitoring on a monthly basis shall be monitored during each calendar month or part of a month during which a discharge occurs. Characteristics requiring monitoring on a weekly basis shall be monitored during each calendar week or part of a week during which a discharge occurs. If a discharge event lasts less than one week, i.e. Sunday through Wednesday, all effluent and influent characteristics shall be monitored once.

Effluent/Influent Characteristic	Frequency	Sample Type
Effluent Total Flow, mgd	Weekly	Instantaneous
Influent Total BOD_5, mg/L	Monthly	Grab
Effluent Total BOD_5, mg/L	Monthly	Grab
Percent BOD_5 Removal	Monthly	Calculated
Influent Total Suspended Solids, mg/L	Monthly	Grab
Effluent Total Suspended Solids, mg/L	Monthly	Grab
Percent Total Suspended Solids Removal	Monthly	Calculated
E. coli, MPN/100 mL	Monthly	Grab
Effluent Total Ammonia as N, mg/L	Monthly	Grab
Effluent pH, standard units	Monthly	Grab
Effluent Oil and grease, visual observation a/	Weekly	Visual

a/ A weekly visual observation is required. If a visible sheen is detected, a grab sample shall be collected and immediately submitted for analysis. The concentration of oil and grease shall not exceed 10 mg/L in any sample.

G. Ammonia and Mixing Zone Study

The current permit required St. Ignatius-Southside to submit to EPA, an Ammonia and Mixing Zone Study within one hundred and twenty (120) days of the effective date of the permit. After applying for and receiving a time extension, the Salish and Kootenai Housing Authority submitted a draft ammonia study for St. Ignatius-Southside in April 2005. EPA approved the study in July 2005, stating in the approval letter that "[s]ampling should begin as soon as

possible." The Salish and Kootenai Housing Authority have yet to begin the ammonia study due to lack of available funds.

H. Biosolids

The use and/or disposal of sewage sludge shall be done under the authorization of an NPDES permit issued for the use and/or disposal of sewage sludge by the EPA Region 8 biosolids program.

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-DWM, District of Montana, Missoula Division.)

Although the Confederated Salish and Kootenai Tribes have adopted water quality standards, which have been approved by EPA, they have not listed water bodies as impaired or developed a 303(d) list to require development of TMDLs. When EPA approved the State of Montana's 1996 list of impaired streams and lakes, which included water bodies within reservation boundaries, EPA specifically stated that the approval did not extend to waters in Indian Country. EPA finds the issuing of this permit would not conflict with the Court's Order because the permit limits are the same or lower than limits in the previous permit and the permit contains a condition allowing the permit to be reopened to include any Waste Load Allocation applicable to Sabine or Mission Creeks, which may be developed by the Tribes and approved by EPA.

J. Whole Effluent Toxicity Monitoring

Title 40 CFR § 122.21(j)(5) specifies which publicly-owned treatment works must conduct whole effluent toxicity (WET) testing. WET testing is required for facilities with (1) a design flow greater than 1 mgd; (2) an approved pretreatment program. The Director may require other facilities to conduct WET based on the following considerations: (1) variability of pollutants; (2) ratio of effluent flow to receiving stream flow; (3) existing controls on point and nonpoint sources; (4) receiving stream characteristics; and (5) other considerations including but not limited to a history of toxic impacts. EPA's analysis indicates that the facility is not required to conduct testing at this time.

K. Miscellaneous

The effective date and the expiration date of the permit will be determined at the time of issuing. The permit will be effective for a period of approximately five years but not to exceed five years.

Prepared by David Rise
June 25, 2009
Modified by David Rise
July 28, 2009