WASTEWATER TREATMENT SYSTEM
COMPLIANCE EVALUATION INSPECTION REPORT

Purpose: NPDES Compliance Evaluation Inspection

Facility: Big Sand Lake/West Hertel Wastewater Treatment Plant
St. Croix Chippewa Indians of Wisconsin Reservation
P.O. Box 67
Hertel, Wisconsin 54893
(NW ¼ of Section 2, T38N, R15W)

NPDES Permit Number: WI-0062847

Date of Inspection: October 27, 2020

EPA Inspectors:
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St. Croix Chippewa Indians of Wisconsin Representatives:
David Buck, Utility Supervisor; (715) 645-2045
Trent Strapon, Operator-in-training; (715) 645-2045

Indian Health Service (IHS) Representative:
Shane Hoffmann, Tribal Utility Consultant, (715) 365-5129

Report Prepared by:
Dean Maraldo, EPA Region 5 Inspector

EPA Inspector Signature: Maraldo, Dean Digitally signed by Maraldo, Dean Date: 2020.10.29 09:22:44 -05'00'

Approver Name & Title:
Ryan Bahr, Chief, Section 2, Water Enforcement and Compliance Assurance Branch

Approver Signature/Date Bahr, Ryan Digitally signed by Bahr, Ryan Date: 2020.10.29 17:02:35 -05'00'

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I. INTRODUCTION

On October 27, 2020, I inspected the St. Croix Chippewa Indians of Wisconsin's (Tribe) Big Sand Lake/West Hertel Wastewater Treatment Plant (facility) (see Attachment A for an aerial image of the facility). I assessed the Tribe's compliance with the National Pollutant Discharge Elimination System (NPDES) permit for the facility. The inspection consisted of the following major activities:

- Inspection opening conference;
- Interview/discussions with representatives from the Tribe including the status of NPDES permit-specific reports, description of facility operations and maintenance (O&M), self-monitoring activities; and results of Discharge Monitoring Report (DMR) review;
- Physical inspection of the facility; and
- Closing conference.

This report summarizes the results of the inspection. The following organizations and representatives were involved in the inspection of the facility:

St. Croix Chippewa Tribe Utility Department:
David Buck, Utility Supervisor
Trent Strapon, Operator-in-training

EPA Inspectors:
Dean Maraldo, Inspector
Valerie Dooling, Inspector-in-training

Indian Health Service (IHS) Representative:
Shane Hoffmann, Tribal Utility Consultant

II. BACKGROUND

The Tribe is authorized to discharge from the facility under permit WI-0062847 (permit). The Tribe's Utility Department is responsible for the facility's operation and compliance with NPDES permit requirements. The Tribe is responsible for conducting monitoring activities and reporting monitoring results to EPA. Currently, one certified operator, Patty Edwards, operates the facility along with the Utility Supervisor (Mr. Buck), and an operator-in-training (Mr. Strapon). The Utility Department is responsible for the Tribe's water and wastewater utilities including the water and wastewater treatment facilities, and the water distribution and wastewater collection systems. The operators' duties include operation and maintenance of all utility assets, water and wastewater monitoring, and reporting.

The Tribe receives support and technical assistance from the U.S Public Health Service, Indian Health Service. According to its Web site, the IHS, through the Sanitation Facilities Construction (SFC) Program Division, is responsible for delivering environmental engineering services and sanitation facilities to American Indians and Alaska Natives. The SFC Program provides American Indian and Alaska Native homes and communities with essential water supply, sewage disposal, and solid waste disposal facilities. IHS environmental engineers plan, design, and manage most SFC projects.

Pre-Inspection Conference Call

EPA and the Tribe held a conference call on October 15, 2020, to discuss the inspection process and planned inspection precautions due to the COVID-19 pandemic. Also, to avoid unnecessary face-to-face discussions during the inspection, we went over the Tribe's compliance with NDPES permit reporting requirements. Based on information gathered during the call, the Tribe complied with NPDES permit reporting requirements, except for the development and implementation of a preventive maintenance program (due October 18, 2017, pursuant to NPDES Permit Part I.C.3.d). I also requested the Tribe provide operator certifications, treatment system maps, and the facility O&M Plan before the inspection to reduce review time in the field. The Tribe provided all of the requested documents prior to the inspection.

III. INSPECTION ACTIVITY SUMMARY

III. A. Opening Conference

The inspection opening conference began with introductions at 12:57 p.m. on October 27, 2020, at the Tribe's utility building garage. I presented my U.S. EPA Inspector credentials to Mr. Buck and then discussed the inspection's intended scope. Mr. Shane Hoffmann (Indian Health Service), Ms. Dooling, and Mr. Strapon, the Tribe's operator-in-training, were also in attendance. I requested that Mr. Buck provide monthly operation reports (MORs) for July thru September 2020. Mr. Buck retrieved copies of the MORs, and we began the Interview portion of the inspection.

III. B. Interview

I started the interview portion of the inspection by asking Mr. Buck if the Tribe submitted an NPDES permit reapplication package, as the facility's NPDES permit expires on April 11, 2021. He confirmed that the permit reapplication package was submitted to EPA. I then asked Mr. Buck how things were going at the facility. He said that the facility is operating well except two of the six treatment wetlands that have been offline for two years due to invasive grasses and vines. He added that the vines clog the aeration tubing in the treatment wetlands. Mr. Buck also mentioned the chronic copper and *E.coli* violations reported in the Tribes DMRs (see Appendix D). He said the Tribe has not been able to figure out the source of the copper violations but believes the *E.coli* violations may be due to worms growing in the sand filters. I offered to assist the Tribe and IHS with an investigation into the causes of the copper and *E.coli* issues.

I asked Mr. Buck to describe the facility's treatment process from the collection system to the final outfall. According to Mr. Buck, 7 lift stations help pump wastewater to the facility headworks, consisting of three 25,000-gallon septic tanks. The collection system includes 75 connections serving about 500 residents. I asked if there were any industrial users. Mr. Buck said there were not. From the headworks, wastewater flows to six treatment wetlands and then to three parallel single-pass sand filters. Treated effluent flows from the sand filters to an effluent vault and through a Parshall flume to the final outfall. Mr. Buck estimated the facility treats an average treated effluent flow of 13,000 gallons per day. The facility's final effluent discharges to an unnamed wetland.

Next, I asked Mr. Buck about lift station operations. He stated the lift stations were running well with no issues, overflows, or backups in the collection system. He also confirmed that there were no problems with power outages and that the main lift station (#5), which pumps all the flow to the headworks, has an emergency backup generator. I asked if the Tribe has an automatic alarm system to alert operators of issues. He confirmed that the facility has an alarm system with emergency call-out capability, alerting managers and operators of any problems.

We then discussed influent and effluent monitoring. Mr. Buck acknowledged that influent flow was estimated using pump run times at main Lift Station 5. Effluent flow is measured at the Parshall flume using an ultrasonic level meter. I asked about flow meter calibration. Mr. Buck confirmed that the meter was serviced and calibrated annually.

Mr. Buck then described influent sampling procedures, including the collection of samples before the headworks. Mr. Buck stated that all influent samples are collected as grab samples. I reminded Mr. Buck that the NPDES permit (Part I.B.) requires collection of influent samples using 24-hour composite samples for biochemical oxygen demand (BOD_5), copper, and phosphorus. Mr. Buck confirmed that the Tribe collects 24-hour composite samples for the appropriate effluent parameters. However, he stated that the composite sampler (ISCO) is not refrigerated. I reminded Mr. Buck that samples must be preserved (including cooling) according to test procedures approved under 40 CFR Part 136. Mr. Buck added that samples were sometimes stored in a refrigerator in the Utility Garage before shipping to the laboratory. I asked if the refrigerator had a certified thermometer to confirm the appropriate cooling per 40 CFR Part 136. He said there was not a thermometer in the refrigerator. I identified no other self-monitoring issues.

Finally, I asked about septage and sludge accumulation in the system. Mr. Buck stated that the septage was cleaned out of the first headwater tank annually and shipped to the Rice Lake Wastewater Treatment Plant. At this point in the inspection, I asked Mr. Buck if we could conduct the physical inspection of the facility. Mr. Buck agreed with the plan, and we departed for the treatment wetland facility to conduct the physical inspection.

III. C. Physical Facility Inspection

The physical inspection of the treatment wetland facility began at 1:47 p.m. on October 27, 2020. The weather was cold and sunny. Mr. Buck led the tour, and Ms. Dooling, Mr. Hoffmann, and Mr. Strapon joined us. The physical inspection is summarized below. Photos referenced below are included in the Photo Log (Attachment B). A plan view flow diagram of the facility is provided in Attachment C.

We began the inspection at the influent vault (Photograph 1; STWH0001.jpg) before the headwork septic tanks. We then viewed the headworks area, including septic tanks 1 and 2 (Photograph 2; STWH0002.jpg) and septic tank 3 and the diverter tank (Photograph 3; STWH0003.jpg). Photograph 4 shows the inside of the headwork diverter tank, including diversion weirs (STWH0004.jpg). Next, we viewed treatment wetlands 1-3 (Photograph 5; STWH0005.jpg; noted cattails in the offline treatment wetlands 1 and 2), treatment wetland 4 (Photograph 6; STWH0006.jpg), treatment wetland 5 (Photograph 7; STWH0007.jpg), and treatment wetland 6 (Photograph 8; STWH0008.jpg). We walked to the effluent sampling shed (Photograph 9; STWH0009.jpg) and viewed the ISCO effluent composite sampler Photograph 10; STWH0010.jpg) and the system process control panels (Photograph 11; STWH0011.jpg, and Photograph 12; STWH0012.jpg). Next, we viewed the effluent vault, which contained the effluent flume, effluent composite sampler tubing, and sonic flow meter. I observed worms along the bottom of the effluent flume, and Ms. Dooling noted that the composite sampler tube inlet was covered by a screen (Photograph 13; STWH0013.jpg). Mr. Buck stated that the screen was in place to keep worms from being drawn into the composite sampler.

The group then drove across Rt. 70 to the final effluent Outfall 001. Effluent Outfall 001 is distributed through four outfall pipes to reduce channeling at the head end of the unnamed wetland (Photograph 14; STWH0014.jpg). The effluent was clear, and no issues were observed in the receiving water. On the way back to the Utility Garage, we stopped to observe main Lift Station 5 (Photograph 15; STWH0015.jpg) and the backup power generator for Lift Station 5 (Photograph 16; STWH0016.jpg).

I completed the physical inspection, and the group returned to the Utility Garage to prepare for the closing conference.

IV. CLOSING CONFERENCE AND AREAS OF CONCERN

After taking some time to review notes with Ms. Dooling, I began the closing conference at the Tribe's Utility Garage. Before reviewing preliminary areas of concern, I asked Mr. Buck if he had copies of the chain of custody (COC) forms for samples sent to the laboratory for analysis. Mr. Buck said he did not retain copies of COCs. I recommended he contact the laboratory regarding COC records and start retaining copies of COCs as evidence of proper sampling documentation and management. I started by reviewing some of the preliminary areas of concern with Mr. Buck, Mr. Strapon, Ms. Dooling, and Mr. Hoffmann. I noted that other areas of concern might be identified after further review of inspection notes and documents received as part of the inspection. The preliminary areas of concern included:

- A review of Tribe's certified DMRs revealed chronic exceedances of permit effluent limits [Permit Part I.A] for *E.coli* (monthly average and daily max) and copper (monthly average and daily maximum). See Attachment D for a detailed summary of *E.coli* and copper effluent limit violations from November 2015 to September 2020;
- Two treatment wetlands have been offline for two years due to invasive grass and vines, and worms were observed in the effluent flume. Pursuant to Permit Part I.C.3 and Part II.B.1, the Tribe shall at all times properly operate and maintain all facilities and systems of treatment and control;
- Influent samples are collected as grab samples. Composite samples are required for BOD_5, copper, and total phosphorus. [Permit Part I.B];
- Effluent samples collected via 24-composite sampler must be preserved (e.g., refrigerated) in accordance with 40 CFR Part 136;
- Effluent composite sampler tube inlet was covered by a screen to keep worms from being drawn into the composite sampler. Pursuant to Permit Part I.A.b, representative samples shall be collected in the effluent line after the single-pass filter effluents combine;
- To meet the test procedure and sample preservation requirements of 40 CFR Part 136.3, the Tribe should invest in a NIST certified thermometer, install a thermometer in the Utility Garage refrigerator used as part of the self-monitoring program, and log temperatures regularly;
- No preventive maintenance program. [Permit Part I.C.3.d]; and
- The Tribe does not retain copies of the chain of custody forms for samples sent to the laboratory for analysis. Pursuant to Permit Part II.C.4, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application.

After sharing the areas of concern, I asked Mr. Buck if he had any questions. With no questions from Mr. Buck, I provided an estimated timeframe for completion of the inspection report, and we concluded the closing conference. I departed the Tribe's Utility Garage at 3:05 p.m. on October 27, 2020.

V. DOCUMENTS RECEIVED AND REFERENCES

Documents received during the inspection:

- Monthly Operation Reports (July-September, 2020).

Specific resources included by reference:

- Big Sand Lake/West Hertel WWTP NPDES Permit# WI-0062847; issued by U.S. EPA; expiration date April 11, 2021.

Attachment A: Aerial Image of the Big Sand Lake/West Hertel WWTP

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Attachment B: Photo Log
Big Sand Lake/West Hertel WWTP
EPA Inspection October 27, 2020
All photos taken by Valerie Dooling, Inspector, U.S. EPA
Camera: Ricoh WG-4

1: STWH0001
Description: Influent vault prior to first septic tank.
Location: Headworks. N45° 48′ 50″, W 92° 11′ 29″
Camera Direction: 266°
Date/Time: October 27, 2020; 13:49

2: STWH0002
Description: Area of septic tanks 1 and 2, and influent vault shed (small blue shed on the left of photo).
Location: Headworks septic tank area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 345°
Date/Time: October 27, 2020; 13:51

3: STWH0003
Description: Area of septic tank 3 (foreground), and diverter tank vault doors (adjacent to white vent pipes) in background.
Location: Headworks septic tank area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 48°
Date/Time: October 27, 2020; 13:51

4: STWH0004
Description: Diverter tank with diversion weirs visible.
Location: Headworks septic tank area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 347°
Date/Time: October 27, 2020; 13:53

5: STWH0005
Description: Treatment wetlands 1-3 (in order left to right). Note cattails growing in offline treatment wetlands 1 and 2.
Location: Treatment wetlands area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 39°
Date/Time: October 27, 2020; 13:54

6: STWH0006
Description: Treatment wetland 4.
Location: Treatment wetlands area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 61°
Date/Time: October 27, 2020; 13:55

7: STWH0007
Description: Treatment wetland 5.
Location: Treatment wetlands area. N45° 48′ 51″, W 92° 11′ 29″
Camera Direction: 75°
Date/Time: October 27, 2020; 13:55

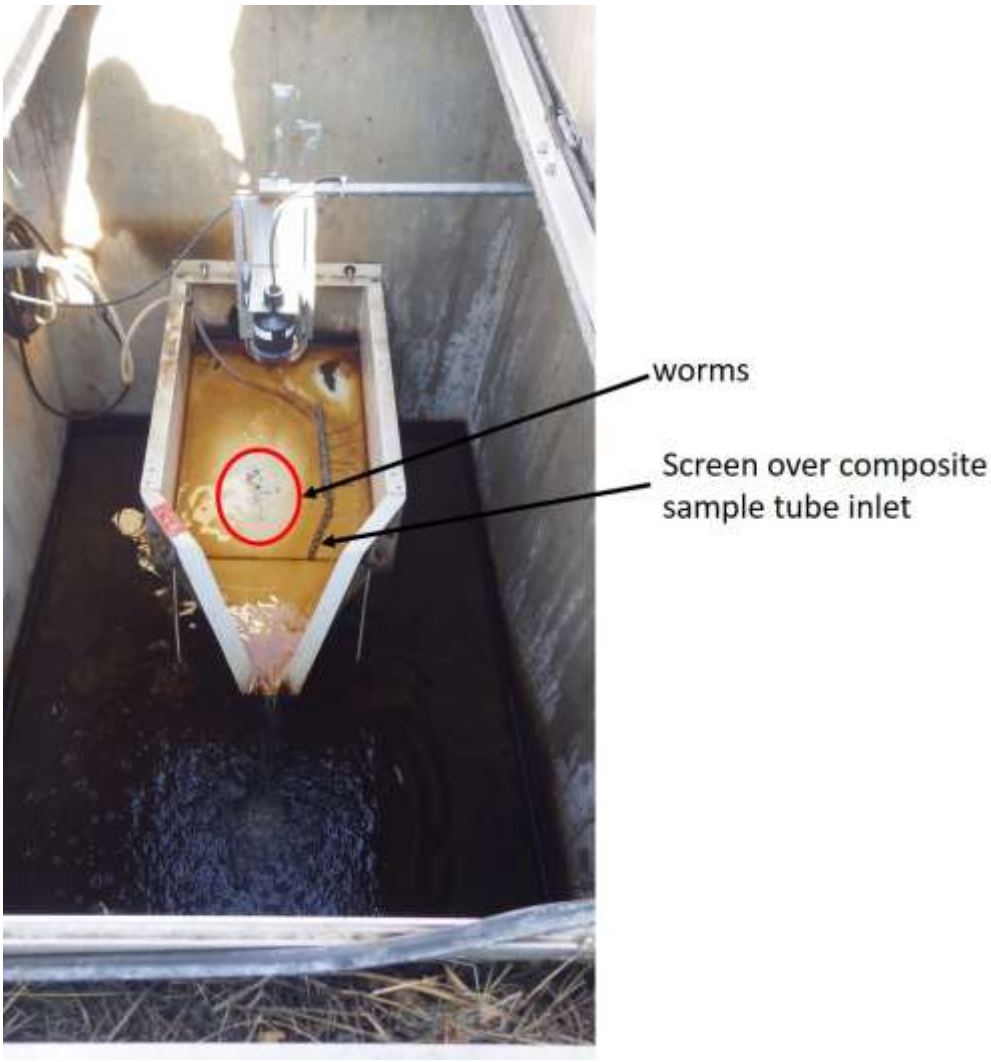
8: STWH0008
Description: Treatment wetland 6.
Location: Treatment wetlands area. N45° 48′ 50″, W 92° 11′ 29″
Camera Direction: 202°
Date/Time: October 27, 2020; 13:56

9: STWH0009
Description: Effluent ISCO composite sampler.
Location: Effluent shed. N45° 48′ 48″, W 92° 11′ 33″
Camera Direction: 296°
Date/Time: October 27, 2020; 14:01

10: STWH0010
Description: Effluent ISCO composite sampler control panel.
Location: Effluent shed. N45° 48′ 48″, W 92° 11′ 33″
Camera Direction: 232°
Date/Time: October 27, 2020; 14:01

11: STWH0011
Description: Process pump control panel.
Location: Effluent shed. N45° 48′ 48″, W 92° 11′ 33″
Camera Direction: 7°
Date/Time: October 27, 2020; 14:02

12: STWH0012
Description: Process blower control panel.
Location: Effluent shed. N45° 48′ 48″, W 92° 11′ 33″
Camera Direction: 7°
Date/Time: October 27, 2020; 14:02



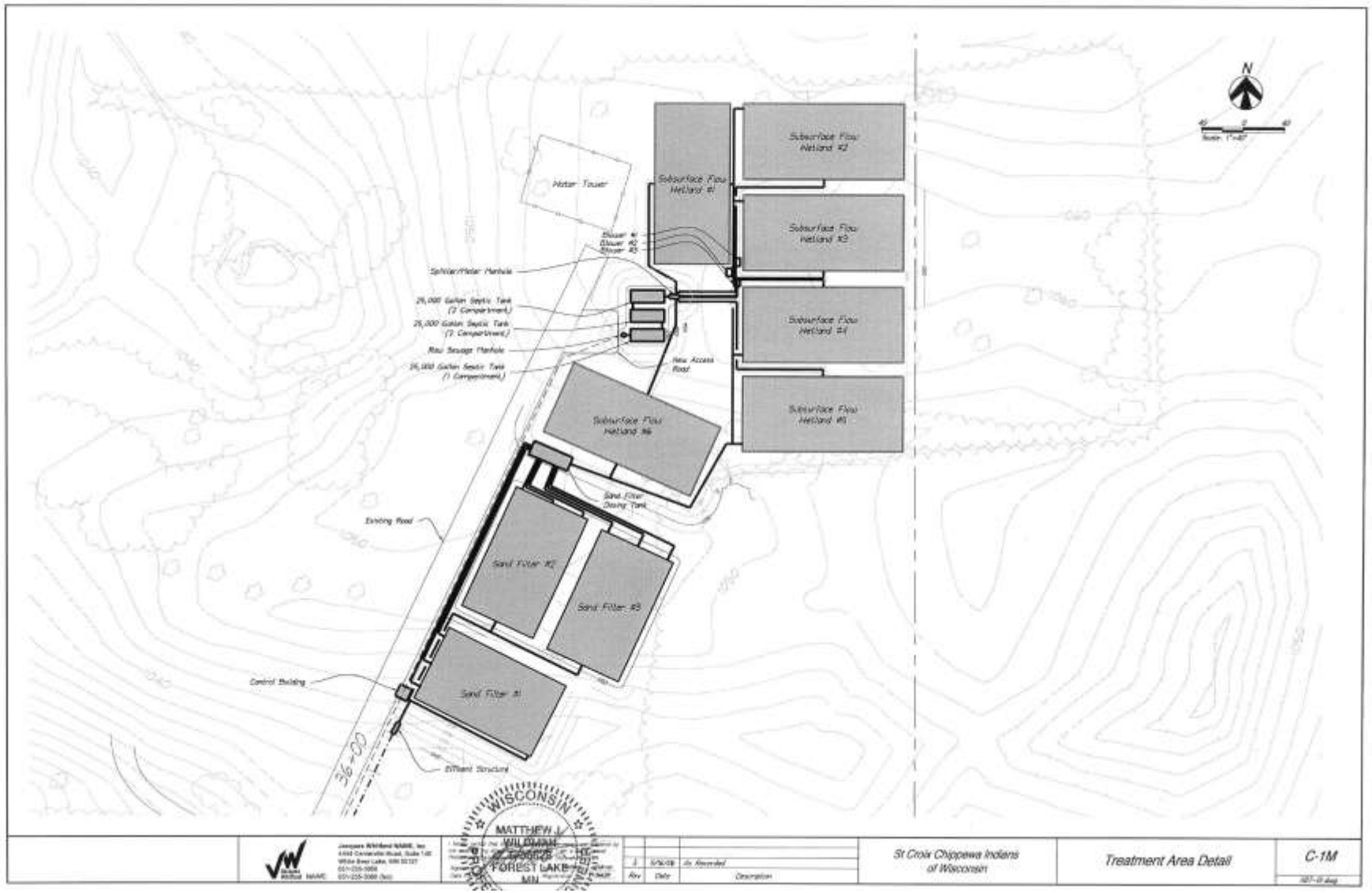
13: STWH0013
Description: Effluent parshall flume. Note worms along the bottom of the flume, and screen covering composite sampler tube inlet.
Location: Effluent vault. N45° 48′ 48″, W 92° 11′ 33″
Camera Direction: 50°
Date/Time: October 27, 2020; 14:04

14: STWH0014
Description: Diffused outlets to final effluent Outfall 001.
Location: Unnamed wetland south of Rt. 70. N45° 48′ 29″, W 92° 11′ 52″
Camera Direction: 30°
Date/Time: October 27, 2020; 14:15

15: STWH0015
Description: Lift station 5 vault and vent.
Location: Area just north of Rt. 70 shoulder. N45° 48′ 32″, W 92° 11′ 53″
Camera Direction: 284°
Date/Time: October 27, 2020; 14:20

16: STWH0016
Description: Lift station 5 backup generator and controls.
Location: Area just north Rt. 70 shoulder. N45° 48′ 32″, W 92° 11′ 53″
Camera Direction: 18°
Date/Time: October 27, 2020; 14:20

Attachment C: Plan view flow diagram of the Big Sand Lake/West Hertel WWTP



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Attachment D: Summary of effluent limit violations (11/1/2015-9/30/2020).

Effluent Limit Exceedances Report
WI0062847: ST. CROIX TRIBAL COUNCIL, WEBSTER, WI 54893
Monitoring Period Date Range: 11/01/2015 to 9/30/2020

Exceedance Details

Monitoring Period Date	Parameter Description	Limit Type	DMR Value	Limit Value Qualifier	Limit Value	Value Unit	% Exceed
7/31/2016	Copper, total recoverable	DAILY MX	0.078	<=	0.044	mg/L	77
7/31/2016	Solids, suspended % removal	MN % RMV	84.04	>=	85	%	6
8/31/2016	Copper, total recoverable	DAILY MX	0.077	<=	0.044	mg/L	75
5/31/2017	Copper, total recoverable	DAILY MX	0.371882	<=	0.011791	kg/d	3054
5/31/2017	E. coli	MO GEO	345.32	<=	126	MPN/100mL	174
6/30/2017	Copper, total recoverable	DAILY MX	0.05	<=	0.044	mg/L	14
7/31/2017	Copper, total recoverable	DAILY MX	0.056	<=	0.044	mg/L	27
8/31/2017	Copper, total recoverable	DAILY MX	12.69841	<=	0.011791	kg/d	107592
8/31/2017	E. coli	MO GEO	400.93	<=	126	MPN/100mL	218
9/30/2017	Copper, total recoverable	DAILY MX	9.977324	<=	0.011791	kg/d	84515
9/30/2017	E. coli	MO GEO	209.28	<=	126	MPN/100mL	66
5/31/2018	E. coli	MO GEO	177.58	<=	126	MPN/100mL	41
5/31/2018	E. coli	DAILY MX	2000	<=	410	MPN/100mL	388
6/30/2018	Copper, total recoverable	DAILY MX	0.085	<=	0.044	mg/L	93
6/30/2018	E. coli	DAILY MX	740	<=	410	MPN/100mL	80
7/31/2018	Copper, total recoverable	DAILY MX	0.091	<=	0.044	mg/L	107
7/31/2018	Copper, total recoverable	MO AVG	0.0815	<=	0.044	mg/L	85
7/31/2018	E. coli	DAILY MX	740	<=	410	MPN/100mL	80
8/31/2018	Copper, total recoverable	DAILY MX	0.048	<=	0.044	mg/L	9
8/31/2018	E. coli	MO GEO	152	<=	126	MPN/100mL	21
8/31/2018	E. coli	DAILY MX	2000	<=	410	MPN/100mL	388
9/30/2018	Solids, total suspended	WKLY AVG	47	<=	30	mg/L	57
9/30/2018	E. coli	MO GEO	131	<=	126	MPN/100mL	4
5/31/2019	E. coli	DAILY MX	700	<=	410	MPN/100mL	71
6/30/2019	Copper, total recoverable	DAILY MX	0.055	<=	0.044	mg/L	25
6/30/2019	E. coli	MO GEO	170	<=	126	MPN/100mL	35
6/30/2019	E. coli	DAILY MX	2000	<=	410	MPN/100mL	388
7/31/2019	Copper, total recoverable	DAILY MX	0.059	<=	0.044	mg/L	34
7/31/2019	Copper, total recoverable	MO AVG	0.057	<=	0.044	mg/L	30
5/31/2020	E. coli	DAILY MX	2000	<=	410	MPN/100mL	388
5/31/2020	E. coli	MO GEO	1195	<=	126	MPN/100mL	848
6/30/2020	Copper, total recoverable	DAILY MX	0.048	<=	0.044	mg/L	9
6/30/2020	E. coli	DAILY MX	2000	<=	410	MPN/100mL	388
7/31/2020	Copper, total recoverable	DAILY MX	0.054	<=	0.044	mg/L	23
7/31/2020	Copper, total recoverable	MO AVG	0.0455	<=	0.044	mg/L	4