CLEAN WATER ACT COMPLIANCE EVALUATION INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Purpose: Compliance Evaluation Inspection

Facility: Keshena Wastewater Treatment Plant (WWTP)
Menominee Indian Reservation
N 700 Go Around Road
Keshena, Wisconsin 54135

Date of Inspection: October 24-25, 2023

EPA Representatives:

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Facility Representatives:

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Dave Mahkimetas, Plant Operator; dmahkimetas@mitw.org

Indian Health Service Representative:

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Report Prepared by: Ray Cullen

Inspector Signature: RAYMOND CULLEN Digitally signed by RAYMOND CULLEN Date: 2023.12.07 07:30:26 -06'00'
Ray Cullen

Approver Name and Title: Ryan J. Bahr, Section 2 Supervisor
WECAB

Approver Signature and Date: RYAN BAHR Digitally signed by RYAN BAHR Date: 2023.12.07 15:12:08 -06'00'

Purpose of Inspection

Dean Maraldo and I, from EPA Region 5's WECAB, conducted an announced compliance evaluation inspection of the WWTP operated by Menominee Tribal Utilities (MTU) to assess its compliance with the Clean Water Act (CWA) and applicable permits. The WWTP operates under National Pollutant Discharge Elimination System (NPDES) Permit No. WI-0071315-3 ("Permit"), which expired on October 4, 2023 but has been administratively extended. EPA received the permit renewal application in April 2023. The Permit authorizes MTU to discharge from the WWTP to an unnamed wetland in compliance with requirements set forth therein. EPA last conducted a CWA-NPDES inspection of the WWTP in November 2015.

Arrival Time: 10/24/23, 1:25 p.m.
Departure Time: 10/25/23, approximately 9 a.m.

☒ Credentials presented
☒ CBI protection assurances discussed

The following information was obtained verbally from Mr. Pyawasay unless otherwise noted. In addition to the Keshena WWTP, he is responsible for the Neopit and Wolf River Ranch plants that are also on the reservation. Of MTU's eight employees, two have both wastewater and water certification (Mr. Pyawasay and Mr. Mahkimetas) and one has wastewater certification (the laboratory technician).

Facility Description

At the time of the inspection, there were around 735 connections to the WWTP, including individual homes, a senior living community, a casino/hotel, a jail, a post office, a VFW hall, and various stores and restaurants, none of which are classified as an industrial user. All wastewater going to the WWTP is domestic, and the WWTP no longer receives septage from the community due to pumping issues at the headworks. The WWTP will resume accepting septage when MTU completes a headworks upgrade project that has already begun. For the last few years, MTU has hauled septage off-site when the receiving wells reach capacity.

The collection system has six lift stations. Three have backup generators and the other three are equipped with outlets for a portable backup generator. MTU cleans the lift stations monthly with a recently purchased vac truck and the collection lines as needed and when time allows; line maintenance is not on a set schedule. The lift station for the main collection system is scheduled to be replaced, and MTU replaced two other ones (for Pine Meadows and the high school) 3 years ago. Two years ago, MTU completed the first phase of a sewer line replacement and repair project, with the second phase to occur in 2024. MTU will continue repairing/replacing additional sections of its collection system, of which forty percent is comprised of older piping, depending on if it has the finances to do so. The most recent sanitary sewer overflow occurred on March 15, 2019 and was caused by a valve failing on the sludge storage tank at the WWTP, a turbine pump failure, and inflow and infiltration of rain and snow. At the time, MTU bypassed the WWTP lift station force main to the lagoon.

The WWTP is currently comprised of a clarifier, an extended oxidation ditch system, phosphorus removal with ferric chloride, an aerobic digester, and ultraviolet (UV) disinfection. Previously, MTU operated a lagoon treatment system consisting of two primary and three secondary cells, which remains on-site. Annually every spring during WWTP maintenance work on the clarifier and oxidation ditches, in which MTU drains and cleans the clarifier, checks the dissolved oxygen (DO) probes, and removes grit from the ditches, some wastewater bypasses the ditches and goes to the primary lagoons to keep them active and prevent them from drying out. This bypass typically occurs over a week. When draining the clarifier, MTU sends the wastewater to the aerobic digester and then manually opens a valve to pump digested sludge (approximately 150,000 gallons) to the lagoon. During normal operation, MTU empties the digester, which has a capacity of 67,257 gallons, weekly. When the lagoon reaches three-quarter capacity, MTU applies for a permit to discharge from the cells and performs the required sampling. The lagoons last discharged 3 years ago. Sludge is stored in an approximately 132,000-gallon, constantly-decanted tank in which MTU maintains the volume at a minimum level of 3 feet. MTU also empties this tank in the spring as well, when the sludge volume reaches twenty feet high (which is four feet from the top of the tank). At the time of the inspection, the sludge was 5-6 feet high in the storage tank.

As part of the headworks project previously mentioned, MTU has a contract for a new fine screen and grit removal system, which will help with removing fats, oils, and grease. Other projects include installation of new electrical controls at the WWTP and construction of a new, additional clarifier, which is scheduled to be installed in 2 years, to handle additional residential developments. MTU intends to swap flow between the clarifiers during periods of maintenance. Finally, MTU had completed modifying the WWTP's outfall structure to create better effluent dispersion into the marsh where it continuously discharges. Outfall 001 now consists of a buried 18-inch culvert pipe.

The WWTP has a design flowrate of 0.335 million gallons per day (MGD), but it has actual low, average, and peak flowrates of typically 0.095 MGD, 0.115 MGD, and 0.245 MGD, respectively. The influent flowrate is measured by a Rosemount flow meter located before the headworks. MTU calibrates the influent and effluent flow meters annually on the same date and most recently did so in August 2023.

MTU has a new asset management computer program, which at the time of the inspection included a complete listing of all equipment and about sixty percent of the preventative maintenance planned for these assets. In addition to the remaining preventative maintenance scheduling, MTU still needs to input depreciation rates into this computerized maintenance management system (CMMS). Operators are able to remotely assess the CMMS via software downloaded onto tablets or their phones, as was demonstrated to me by Mr. Pyawasay. From these devices, operators are able to remotely monitor the WWTP and lift stations. Alarms are sent to the operators' phones as well.

Monitoring

As required by the Permit, MTU conducts 24-hour composite monitoring of the influent wastewater for carbonaceous biochemical oxygen demand ($CBOD_5$), total phosphorus, and total

suspended solids (TSS) three times a week, which always occurs on Monday, Wednesday, and Friday. It also samples the influent for ammonia-nitrogen (NH_3-N). An automatic sampler is located before the treatment process. The laboratory technician does the sampling for each of these parameters but analyzes only for $CBOD_5$ and TSS in the certified on-site laboratory. He provides the results to Mr. Pyawasay, who reviews and signs the Discharge Monitoring Reports (DMRs). Northern Lake Service picks up the phosphorus and NH_3-N samples from the site and analyses them in its laboratory. Northern Lake Service also conducts quarterly verification checks for $CBOD_5$ and TSS.

The Permit also requires grab sampling of the influent wastewater for pH three times a week and for total mercury quarterly in January, April, July, and October. EPA's Enforcement and Compliance History Online (ECHO) website shows, however, that while mercury sampling occurred quarterly, it did not occur in the months specified in the Permit. Mr. Pyawasay and Mr. Mahkimetas were unable to explain this discrepancy. Regarding the pH sampling, MTU performs it, along with DO sampling, by taking a grab sample from the composited wastewater from the automatic composite sampler. MTU calibrates its pH, DO, and $CBOD_5$ meters before every sampling event. In addition, MTU takes grab samples of the mixed liquor at the oxidation ditches and samples for fats, oils, and grease annually at the headworks. It also does composite sampling for chlorides annually.

For effluent monitoring, MTU complies with the Permit requirement to conduct 24-hour composite sampling of the wastewater for $CBOD_5$, total phosphorus, TSS, and NH_3-N three times a week. It takes these samples at the UV disinfection trough. UV disinfection occurs from May to October, which corresponds to when *E. coli* Permit limits apply. At the time of the inspection, MTU was waiting to receive an incubator it had ordered for *E. coli* analysis. Also, like it does for the influent monitoring, MTU takes effluent grab samples from the wastewater in the automatic sampler. Outside of the Permit-required sampling, MTU takes process control samples weekly and adjusts the treatment system accordingly.

Additional effluent monitoring required by the Permit includes 24-hour composite sampling at Outfall 001 in January 2019, April 2020, July 2021, and October 2022 for total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and total dissolved solids and grab sampling for oil and grease. MTU did the oil and grease monitoring but had failed to do the others until April 2023, when it submitted its permit renewal application.

Exceedances

Before the inspection, I had summarized the exceedances at Outfall 001 over the last few years using information gathered from ECHO. This included exceedances of the daily maximum and 30-day average limits for total phosphorus in October 2022, the 7-day average limit for TSS in November 2022 and April 2023, and the 30-day average limit for DO. The total phosphorus exceedance was caused by the pump for a new ferric chloride tank, which MTU replaced due to its age and not operating at its usual constant rate of 0.07-0.09 milligrams per liter. The TSS exceedances are believed to have been probably caused by heavy rain, with snowmelt also contributing to the April 2023 event. Lastly, MTU explained the DO exceedance was caused by DO probe calibration issues.

The Permit also requires that MTU observe Outfall 001 three times a week during discharges for unusual characteristics and shall call EPA within 24 hours and submit a follow-up written report within 5 days if such a discharge occurs. ECHO shows that for virtually every month available, unusual characteristics for the outfall were reported as being observed. Mr. Pyawasay confirmed that this is erroneous, and the outfall has always appeared normal during the observations.

Facility Tour

We toured the facility starting at approximately 2:55 p.m. in a building containing the effluent flow meter. When we first observed the flow meter, the display showed that no wastewater was moving through the piping (*See* Attachment 2, Photo 1). The treated wastewater is collected in a chamber before the flow meter until a level transducer senses that the volume is six feet, at which point the wastewater is pumped out to Outfall 001 (Photo 6). This occurs about every 20 minutes. A few minutes after our arrival to this area, wastewater began pumping, and the flow meter display began showing a reading (Photo 4). The pumping lasted for approximately 5 minutes, stopping at 3:04 p.m. In this building, we also saw the effluent composite sampler, which had a refrigeration temperature of 3.9°C (Photos 2 and 3).

We then went to the Process Building immediately southeast, which contains the headworks, blowers, ferric chloride tanks, and backup generator. A bar screen on the upper floor separates out debris from the influent wastewater, and this debris falls down to a bin on the ground floor (Photo 7). When the bin is two-thirds full, MTU empties it into a nearby outside dumpster (Photo 8). Northeast of the headworks building and immediately southeast of this dumpster is a splash pad, under which are three separate chambers for septage, clarifier scum, and decant from the digester (Photo 9). Septage is aerated here before MTU sends it to a storage tank. After observing the splash pad, we went into the Process Building. There, we saw the blowers that feed the digester and then the screening system. Then, we went to a room with the ferric chloride tanks that MTU uses for phosphorus control, alternating dosing monthly between two pumps (Photo 10). In another room in the Process Building, we saw the backup generator (Photo 14) along with the influent composite sampler, which was pulling a sample at the time (Photos 11 and 12). The temperature within the sampler was 3.5°C (Photo 13). The sample tubing appeared to be new or recently cleaned.

After leaving the Process Building, we went to the two oxidation ditches, which operate simultaneously. The wastewater within appeared to have good, steady flow and aeration (Photo 15). There was a small amount of scum on the surface. From the top of the ditches, we saw the clarifier, sludge storage tank, and digester (Photos 16 and 17). We then looked more closely at the clarifier, where we saw grease on the water surface that Mr. Pyawasay explained was due to heavy rain (Photo 18). The weirs appeared clean. The additional clarifier that it intends to install in 2 years will be located adjacent to this one to the north. When the new one is available, MTU will transfer the wastewater from the existing one to it and reseal the weirs, recoat the walls, and rebuild the clarifier drive.

We went back to the Process Building to a room with the influent, return activated sludge, and waste activated sludge flow meters (Photos 19-21, respectively). A sticker was affixed to each showing that they were all most recently calibrated on August 18, 2023. MTU wastes

approximately 1,000 gallons every 2 hours. The flow transducers are located on the opposite side of the room from the flow meter displays (Photo 22). In this room, MTU plans on adding another pump for the new clarifier.

Finally, we walked to the north primary cell for the lagoon treatment system, which is located 300-400 feet east of the oxidation ditches (Photos 24 and 25). Unfavorable conditions prevented us from seeing Outfall 001, but one of the operators had taken a picture of it, which I looked at the following day while reviewing records. The outfall appeared normal. We finished our tour at 3:50 p.m. and left the site shortly thereafter.

Records Review

We arrived at the site the following day at 8 a.m. and proceeded to review a box of records that EPA had requested be made available during the inspection. These include:

1. WWTP schematics;
2. Influent, effluent, return activated sludge, and waste activated sludge daily flowrates (for the past year);
3. Policies and Procedures Manual;
4. Backup generator maintenance records with completed inspection checklists;
5. Operations and Maintenance Manual (completed September 26, 2019; revised October 13, 2023), including equipment manufacturer manuals;
6. Northern Lake Service sampling results (since January 2023);
7. Sludge disposal and handling plan (June 2, 2020);
8. DMRs (for the past year);
9. Completed influent, effluent, return activated sludge, and waste activated sludge flow meter calibration forms (August 18, 2023);
10. Sanitary sewer overflow response plan (effective January 1, 2017), including the completed form for the March 2019 spill at the WWTP;
11. Collection system maps; and
12. NPDES permit renewal application (April 12, 2023).

At approximately 8:45 a.m., after reviewing the above records, we walked to the in-house laboratory, which is also located in the office building across the hall. There, we saw binders with sampling logs, laboratory standard operating procedures, and completed chain of custodies.

Areas of Concern

We identified the following areas of concern after reviewing the information obtained during and after the inspection:

1. The method MTU uses to collect grab samples (taking samples from the composite sampler) may not follow 40 C.F.R. Part 136 procedures. During the inspection, Mr. Pyawasay said MTU will correct this issue and begin taking grab samples directly from the influent and effluent streams.

2. From the data available in ECHO, it appears MTU erroneously reported in its DMRs that it observed unusual characteristics of the discharge from Outfall 001 when none existed.

Attachments

1. Satellite view of the WWTP.
2. Photo log.

Attachment 1
Satellite view of the WWTP


Menominee Tribal Utility
Go Around Rd
Go Around Rd

Attachment 2

Photo Log

Keshena WWTP
Photo Log
EPA Inspection October 24, 2023
All photos taken by Ray Cullen, Environmental Engineer, EPA

1: IMG_0371
Description: Effluent flow meter (on left), no flow
Location: Building southeast of main office ("Garage")
Camera Direction: N/A
Date/Time: 10/24/23, 2:56 p.m.

2: IMG_0372
Description: Effluent composite sampler
Location: Next to effluent flow meter
Camera Direction: N/A
Date/Time: 10/24/23, 2:57 p.m.

3: IMG_0373
Description: Thermometer displaying temperature inside effluent composite sampler
Location: On top of sampler
Camera Direction: N/A
Date/Time: 10/24/23, 2:57 p.m.

4: IMG_0374
Description: Effluent flow meter showing wastewater flow
Location: See Photo 1
Camera Direction: N/A
Date/Time: 10/24/23, 2:59 p.m.

5: IMG_0375
Description: Wastewater flowing through effluent channel
Location: Near effluent flow meter
Camera Direction: Down
Date/Time: 10/24/23, 3:02 p.m.

6: IMG_0376
Description: Effluent level transducer and wastewater containment
Location: Between effluent channel in Photo 5 and flow meter
Camera Direction: N/A
Date/Time: 10/24/23, 3:02 p.m.

7: IMG_0377
Description: Bin collecting debris separated from the influent via a bar screen located above
Location: Building southeast of Garage ("Process Building")
Camera Direction: Southwest
Date/Time: 10/24/23, 3:06 p.m.

8: IMG_0378
Description: Dumpster for screened and other debris
Location: Approximately 25 feet north of Process Building
Camera Direction: Northeast
Date/Time: 10/24/23, 3:07 p.m.

9: IMG_0379
Description: Splash pad with septage, clarifier scum, and digest decant storage (left to right)
Location: Northeast of the Process Building, immediately southeast of dumpster in Photo 8
Camera Direction: Northeast
Date/Time: 10/24/23, 3:09 p.m.

10: IMG_0380
Description: Ferric chloride pumps
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:14 p.m.

11: IMG_0381
Description: Influent composite sampler
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:16 p.m.

12: IMG_0382
Description: Influent composite sampler
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:16 p.m.

13: IMG_0383
Description: Thermometer displaying temperature inside influent composite sampler
Location: Next to influent sampler
Camera Direction: N/A
Date/Time: 10/24/23, 3:18 p.m.

14: IMG_0384
Description: Backup generator, next to influent composite sampler
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:20 p.m.

15: IMG_0385
Description: Oxidation ditches
Location: South end of WWTP
Camera Direction: West
Date/Time: 10/24/23, 3:23 p.m.

16: IMG_0386
Description: (Left to right) clarifier, office, Garage, Process Building, sludge storage tank
Location: South end of WWTP, looking northwest
Camera Direction: Northwest
Date/Time: 10/24/23, 3:24 p.m.

17: IMG_0387
Description: Sludge storage tank on left, digester on right.
Location: Panning right from Photo 16
Camera Direction: North
Date/Time: 10/24/23, 3:25 p.m.

18: IMG_0388
Description: Clarifier with some grease on surface
Location: Clarifier building
Camera Direction: Down
Date/Time: 10/24/23, 3:29 p.m.

19: IMG_0389
Description: Influent flow meter
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:35 p.m.

20: IMG_0390
Description: Return activated sludge flow meter
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:35 p.m.

21: IMG_0391
Description: Waste activated sludge flow meter
Location: Process Building
Camera Direction: N/A
Date/Time: 10/24/23, 3:35 p.m.

22: IMG_0392
Description: Transducers on return activated sludge and waste activated sludge lines
Location: Process Building, opposite wall from Photos 19-21
Camera Direction: N/A
Date/Time: 10/24/23, 3:37 p.m.

23: IMG_0393
Description: Piping for sludge flow to storage tank from digester
Location: Process Building, next to flow meters in Photos 19-21
Camera Direction: N/A
Date/Time: 10/24/23, 3:39 p.m.

24: IMG_0394
Description: North primary lagoon cell
Location: Primary lagoon cell, east of WWTP
Camera Direction: South
Date/Time: 10/24/23, 3:46 p.m.

25: IMG_0395
Description: North primary lagoon cell
Location: Panning left from Photo 25
Camera Direction: Southeast
Date/Time: 10/24/23, 3:46 p.m.

26: IMG_0396
Description: Black hose for transporting sludge to lagoon
Location: West side of north primary lagoon cell
Camera Direction: West
Date/Time: 10/24/23, 3:49 p.m.