U.S. Environmental Protection Agency
Region 5

Purpose: Clean Water Act National Pollutant Discharge Elimination System (NPDES) Compliance Evaluation Inspection

Facility: Village of Mifflin WWTP
17 Maine Street
Mifflin, Ohio 44805

Permittee/ Mailing Address Village of Mifflin
36 Maine Street
Mifflin, Ohio 44805

NPDES Permit: 2PA00104*BD

Federal NPDES Identifier: OH0146501

FRS ID: 110066913790

Inspection Date: May 3, 2022

EPA Representatives:
Anne Marie Vincent, Life Scientist, 440-250-1720, vincent.annemarie@epa.gov

Facility Representatives Present:
Tim Echelburger, Village Administrator (Village of Mifflin), 419-545-3756, timburger60@gmail.com
Tom Abraham, Facility Operator (Contractor), 330-466-5256, tom.awwwo21@gmail.com
Jed Hendershot, Facility Operator (Contractor), jed.awwwo21@gmail.com
Cole Casdorph, Alternate Facility Operator (Contractor), cole.awwwo21@gmail.com

Report Prepared by:
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Inspector Signature and Date: ANNE VINCENT Digitally signed by ANNE VINCENT Date: 2022.06.30 15:39:27 -04'00'

Approver Name/Title: Brooke Furio, Section Chief, Multimedia Section

Approver Signature and Date: BROOKE FURIO Digitally signed by BROOKE FURIO Date: 2022.06.30 18:30:15 -04'00'

PURPOSE OF INSPECTION

The purpose of the announced inspection by the U.S. Environmental Protection Agency (USEPA) at the Village of Mifflin Wastewater Treatment Plant (Mifflin WWTP) was to describe, evaluate, and document compliance with the Clean Water Act (CWA) and their National Pollutant Discharge Elimination System (NPDES) permit.

BACKGROUND

The Village of Mifflin (Mifflin) owns and operates a sanitary sewer system and a WWTP that was constructed in 2016. According to Mr. Abraham during the inspection interview, the Village of Mifflin WWTP serves approximately 220 residents and a small private school, Eagle Academy. The WWTP is a sequencing batch reactor system with a design flow of approximately 30,000-gallons per day, that discharges treated wastewater effluent to an unnamed tributary to Ruffner Run. Ruffner Run is a tributary to Charles Mill Lake. According to the Ohio Environmental Protection Agency (OEPA) *2022 Draft Integrated Water Quality Monitoring and Assessment Report*, Charles Mill Lake is listed as having high quality wetland areas based on the Natural Heritage Database. Ruffner Run is not specifically identified for impairment status in the *OEPA 2022 Draft Integrated Water Quality Monitoring and Assessment Report*.

According to a USEPA Enforcement and Compliance History Online (ECHO) report, the Village of Mifflin WWTP has self-reported effluent limit violations in 7 of the past 12 quarters showing Significant Noncompliance (2019 Quarters 2 and 3; 2021 Quarters 1, 2, 3 and 4; and 2022 Quarter 1). Significant Noncompliance violations were self-reported for ammonia-nitrogen, total suspended solids, and biochemical oxygen demand (5-day). ECHO also notes 5 quarters of Reportable Noncompliance/Violation Identified (2019 Quarter 4 and 2020 Quarters 1, 2, 3 and 4). During the inspection Mr. Abraham, one of the facility operators, identified design issues which are believed to be contributing to the quarters of non-compliance. Those issues are described in this report under the subsection titled Plant Operations.

The Mifflin WWTP has a NPDES Permit (#2PA00104*BD) issued by the Ohio Environmental Protection Agency with an effective date of October 1, 2020. A copy of the permit is maintained on site in the WWTP office. The federal NPDES identifier is OH0146501. The SIC code for this facility is 4952 – sewerage systems.

INSPECTION

Inspector Anne Marie Vincent (Inspector Vincent) of USEPA Region 5 arrived at the Mifflin wastewater treatment facility at 9:00 a.m. and was greeted by Tim Echelburger (Village Administrator), Tom Abraham (Facility Operator – Contractor), Jed Hendershot (Facility Operator - Contractor) and Cole Casdorph (Alternate Facility Operator – Contractor). Inspector Vincent presented her credentials to Mr. Echelburger and Mr. Abraham for identification and explained the purpose of the compliance evaluation inspection. Mr. Echelburger was present for the opening conference, that beginning of the inspection walkthrough and a portion of the inspection interview.

Opening Conference

After reviewing the scope of the inspection with the facility and Village representatives, Inspector Vincent explained that Mifflin's self-reported, monthly Discharge Monitoring Reports (DMRs) show frequent and ongoing exceedances of their NPDES permit discharge limits, most notably for total suspended solids and ammonia-nitrogen. Inspector Vincent identified the purpose of the inspection was to gain an understanding of the treatment system, including information about:

- How this wastewater treatment system functions,
- Potential or known causes of the effluent limit violations, and
- Plans to fix, upgrade, or replace any components of the treatment system.

Inspector Vincent also advised the facility representatives that they have a right at any time during or after the inspection to make a claim of confidential business information (CBI) for any facility information, inspection photographs, or document copies that may be collected during the inspection. None of the representatives made any claims of confidentiality during the opening conference discussion.

Following the opening conference, Inspector Vincent completed a site walkthrough and conducted the inspection interview. The information gathered from the site walkthrough and interview process is summarized in the remaining report sections.

General Facility Information

According to Mr. Abraham, the WWTP serves approximately 220 residents in the Village as well as Eagle Academy. The WWTP is a sequencing batch reactor (SBR) system. The average design flow (daily) is 30,000 gallons; however, the average daily flow is between 7,000 gallons and 10,000 gallons, according to Mr. Abraham. Mr. Abraham stated that he considers the issues with the plant to be design problems and not an indication of hydraulic overload. According to Mr. King, increased inflow and infiltration during larger wet weather events causes an increase in operational cycles of the SBR. There are no combined sewer overflows and no industrial users under individual industrial user permits within the collection system, according to Mr. Abraham. The WWTP does not accept septage waste.

This WWTP facility is classified as a Class I facility. Mr. Tom Abraham and Mr. Jed Hendershot are the two Class II operators from Agri-Sludge, Inc. responsible for the WWTP. Mr. Cole Casdorph is the alternate Class I Operator from Agri-Sludge, Inc. for the facility. The certificates of the Operators of Record are posted in the control building of the WWTP and were visually verified by EPA during the inspection. There is one additional Village of Mifflin maintenance employee, Mr. Robert Walton, who also visits the WWTP on select days to check the plant. Mr. Walton is not a licensed operator. With the three licensed operators and one village of Mifflin employee, the operational status of the WWTP is monitored seven days per week. According to Mr. Abraham, if a new operator were brought on site, they would be trained by Jed Hendershot or himself for a period of time.

According to Mr. Abraham, he and Mr. Hendershot are the responsible officials that sign the monthly DMRs on behalf of the Village. Signing the DMRs is included as part of Agri-Sludge, Inc.'s contract with the Village to operate the WWTP. Mr. Abraham stated that DMRs have

been submitted on time in the last two years. According to Mr. Abraham, one of the Class I or Class II licensed operators is on site 4 days per week (Monday, Tuesday, Wednesday, and Friday) for at least a minimum of 3 hours per week. In Ohio, Class I facilities have a minimum staffing requirement of 1.5 hours per week as required by Ohio Revised Code. Mr. Walton, the Village of Mifflin maintenance employee, is on site 3 days per week (Thursdays, Saturdays, and Sundays). According to Mr. Abraham, the site visits conducted by the licensed operators generally occur between 6:00 am and 7:00 am Monday, Tuesday, and Wednesday. On Fridays, the licensed operators generally visit the WWTP in the late afternoon between 3:00 pm and 4:00 pm. The Ohio NPDES permit for the Village of Mifflin WWTP includes an additional staffing requirement that the treatment works be visited five days per week. Currently the site is visited 7 days per week. On-site hours are recorded by the operators in the bound operator notebook and on the log sheet maintained in the control building of the WWTP. When the plant is not staffed, the entry gate is locked and only authorized personnel from the plant or Village have keys for access to the plant. The facility is secured with a chain link fence that encompasses the facility on all sides.

According to Mr. Abraham, there is no professional operator of record for the collection system in the Village of Mifflin. In addition, Mr. Abraham explained to EPA that the current contract between the Village of Mifflin and Agri-Sludge, Inc. was effective through May 31, 2022, and a new contract had not yet been approved to begin June 1, 2022. Mr. Abraham explained that the new contract would be under Advanced Water and Wastewater Operations, LLC., an Agri-Sludge, Inc. affiliate company. Mr. Abraham stated that the new contract proposal included higher costs due to the increased time on site and general cost inflation. Mr. Echelburger verified to EPA in a June 22, 2022, email that the Village of Mifflin had entered into a new contract with Advanced Water and Wastewater Operations, LLC.

Potential Plant Improvements Discussed

According to Mr. Abraham, the Village of Mifflin received $200,000 in Covid relief funds from Ashland County to hire an engineering firm (Engineering Associates Inc., Wooster, Ohio) to design a 4,000-gallon trash trap and 4,000-gallon sludge holding tank to be added to the current WWTP. Mr. Abraham believes there could be money left over from those initial funds to also add sand filtration to the WWTP operation to help with the TSS exceedance issue. Sand filtration has not been approved to be added to the scope of the initial funds. The process is currently in the design phase, according to Mr. Abraham. According to Mr. Abraham, the new trash trap and sludge holding tank should improve the operational efficiency of the primary treatment tank that currently serves as a trash trap, grit trap, and wasted sludge holding tank in addition to serving as primary treatment.

Mr. Abraham stated during the inspection that the pan installed on the lower end of each of the floating decanters in the SBR need to be removed or have holes drilled in the pans to allow the sludge to drain out of the pans before the decanting sequence begins. As described later in this report under the subsection “Sewage Sludge Management,” during the mixing sequence, sludge solids settle in these pans. When the pumps turn on to begin the decanting sequence, and the pans are below the liquid level in the SBR, the solids settled in the pans are then decanted off with the decanted liquid from the SBR. Mr. Abraham stated that the pans either need to be removed or have holes drilled in the pans to allow the sludge to drain out of the pans to alleviate this problem of decanting sludge with the effluent.

In addition, Mr. Abraham would like for the WWTP control building power supply to be redesigned to hard wire the WWTP system controls directly into the electrical panel instead of relying on a 110-power supply unit that is plugged into the wall. Once the controls are hard wired into the electrical panel, the 110-power supply unit could be utilized as a back-up power source, instead of the main power source, according to Mr. Abraham. Issues with the power supply unit losing power due to a faulty plug have caused operational issues in the past. These are described in the operations section of this report.

Mr. Abraham has requested that a call out alarm be installed for the WWTP system to automatically notify operators remotely that the facility has experienced a shut down. There is an alarm system on site that shuts down specific units within the WWTP depending on the cause of the alarm. However, there is no system in place to remotely alert the operators that anything has shut down in the plant.

At the time of inspection, only one of the two ultraviolet (UV) disinfection system units were operational. One UV system was damaged due to a lightning strike in the summer of 2020, according to Mr. Abraham. The UV unit was not grounded when it was first installed. It took over a year to receive all the replacement parts including a new panel, bulbs, and wiring. All the parts have been received and the damaged UV system will be repaired in the coming weeks after the inspection and grounded appropriately to avoid future damage due to lightning strikes.

Mr. Abraham also explained that several years ago the Muskingum Watershed Conservancy District wanted to build a larger WWTP at the bottom of the hill, west of the Village of Mifflin WWTP near Route 430 and Charles Mill Lake. There were initial conversations regarding working with the Village of Mifflin to design and build the newer Muskingum Watershed Conservancy District extended aeration WWTP, but that collaboration did not progress. The conservancy district built the separate WWTP that does not include the Village of Mifflin.

Plant Operations

According to Mr. Abraham and Mr. Echelburger, within the sewage collection system in the Village of Mifflin, there are 5 to 6 sewage grinder pumps owned by the Village and located at private residences. There is one lift station that pumps sewage flow from the Village, uphill to the WWTP.

The Village of Mifflin WWTP is a sequencing batch reactor system. Sewage from the collection system enters the 30,000-gallon primary treatment tank (fiberglass underground tank). This primary treatment tank has one baffle on its east end. After the baffle, there are 2 float-activated automatic pumps that alternate as lead and lag pumps. Each pump is equipped with a fine screen strainer. The pumps pump sewage from the primary treatment tank to the SBR unit.

The SBR is a single tank with no baffles. The SBR includes mixers, sludge pumps to waste sludge back to the primary treatment tank, and 2 floating decanters that pump SBR effluent into the control building. These two pumps are alternating pumps. There is also a booster pump in the control building to assist with pumping. Two blowers located within the control building pump air to the mixers in the SBR. The SBR has 6 distinct cycles (mix fill, react fill, react, settle, decant, waste and idle) that run based on timers or automatic float activated pumps.

According to Mr. Abraham, the SBR unit completes 5 to 7 cycle batches per day. During heavy storm events, due to inflow and infiltration there will be additional completed cycle batches of the SBR. During the decant cycle, the effluent is pumped from the SBR through a Forsta Filter (self-cleaning stainless steel screen water filter) in the control building and then through a UV light disinfection unit. After UV light disinfection, effluent flows through a mag meter and flow totalizer and then through a venturi system to improve dissolved oxygen. Following the venturi unit, effluent discharges to the outfall at approximately 210 gallons per minute, according to Mr. Abraham.

A bound notebook is used for the operational logbook to document activities that occur when the operators are onsite. The notebook entries include the date and times the operators or Village maintenance personnel are on-site, the initials of the operator/staff completing the entry, inspections of equipment, daily routine activities completed, facility inspection observations, any problems identified during inspections or operations, and the actions taken to mitigate any problems identified. Notebook entries also include notes when routine and preventative maintenance (i.e., operational checks of the floats for the automatic pumps, checks to ensure the air caps are not seized in place for the sludge wasting pumps, and checks to ensure the primary treatment tank pump screens are not clogged) are performed on equipment in the facility. Notebook entries are made in ink. EPA reviewed the bound notebook during the inspection. Mr. Abraham confirmed that the bound operator notebooks are kept for the required 3 years.

Operators also keep a monthly log sheet (loose paper) where they record daily data such as plant effluent flow rates in million gallons per day, direct flow meter readings from the totalizer, monitoring results for temperature, dissolved oxygen, pH, and turbidity monitoring values during the given month identified on the log sheet. The operators also log their times when they are present on site on this same log sheet (Photograph 18). These log sheets are also maintained in the control building for the plant and retained for the required 3 years. EPA reviewed the monthly log sheets for 2022 during the inspection.

According to Mr. Abraham, the Village recently purchased essential spare parts for the WWTP since many have limited availability currently and the Village maintains an inventory of the items. The emergency generator on site runs off a natural gas line plumbed directly to the generator. The generator automatically runs 1 time per week for 30 minutes; however, Mr. Abraham was not sure if this weekly test run occurred while the unit was under load. The facility does not maintain formal written procedures for responding to emergencies. However, there are operational notes posted on the control panels in the control building for how to respond to the various alarms/emergencies.

During the site walkthrough, there were no observed noxious odors at the plant. Inspector Vincent did not observe any evidence that there had been potential spills at the plant that would impact storm drains. There are no chemical feed lines utilized at this facility. Inspector Vincent did not observe any evidence of broken sewage or effluent piping. Inspector Vincent did not observe any evidence of severe corrosion on any piping or equipment within the control building for the facility. During the site walkthrough, Mr. Abraham described the primary treatment tank as having a thick floating trash mat due to the lack of a trash removal system prior to the primary treatment tank. There is no screening mechanism at the headworks of the WWTP plant and no strainer mechanism at the lift station, according to Mr. Abraham.

During the walkthrough, one of the plant operators activated the sequencing batch reactor decant cycle pumps so that Inspector Vincent could observe the effluent discharge at Outfall 001. Inspector Vincent's observations of the discharge at Outfall 001 are described in the subsection of this report titled "Effluent/Receiving Waters."

Several operational issues, both resolved and unresolved, were discussed during the inspection. These are outlined below:

1. There is no trash trap or grit trap or screening mechanism prior to the primary treatment tank. As a result, there is always a thick blanket of trash on top of the sewage and the primary treatment tank essentially becomes an anaerobic digester, according to Mr. Abraham. There is funding available for installing a 4,000-gallon trash trap and designs are currently being developed for the installation of this unit, according to Mr. Abraham.

2. There is no separate sludge holding tank for wasted sludge from the SBR. Wasted sludge is pumped back to the primary treatment tank. According to Mr. Abraham, there is funding available for installing a 4,000-gallon sludge holding tank and designs are currently being developed for the installation of this unit. This should improve the operational efficiency of the primary treatment tank that currently serves as a trash trap, grit trap and wasted sludge holding tank in addition to serving as primary treatment, according to Mr. Abraham.

3. The air caps for the pumps had been seizing and causing sewage sludge to siphon back to the primary treatment tank. According to Mr. Abraham, this was contributing to the spikes in ammonia and total suspended solids. The operators have added a more frequent check of the air caps during their site visits to ensure the air caps do not seize.

4. In 2019, when the plant was under a different operator, the Forsta Filter self-cleaning stainless steel screen filter for the effluent was not being used because the cylinder for the backflushing process would frequently seize up. According to Mr. Abraham, the Forsta Filter has been operational since 2021 when a new poly-cylinder was purchased and installed which eliminated the seizing issue during the filter's backflushing process.

5. According to Mr. Abraham, it has been approximately 2 to 2 ½ years since there was an overflow of untreated sewage from the plant. During this event, sanitary waste from the primary treatment tank flowed out of the manhole on top of the primary treatment tank and flowed off the property, west down Maine Street, and into the unnamed tributary west of the facility. There was too much sewage in the primary treatment tank because the fine screen strainer on each pump for the primary treatment tank was clogged and this hindered the pumping of sewage from the primary tank into the SBR tank. The operators implemented more frequent inspections of the pump screens to mitigate this issue.

6. During the inspection, only one of the two UV light disinfection units was operational. The second UV disinfection unit had been damaged in a lightning strike in the summer of 2020, due to the unit not being grounded properly in the original installation. Replacement parts took over a year to procure due to supply chain and shipping issues, according to Mr. Abraham. At the time of inspection, the replacement parts were on-site and expected to be installed in the coming weeks.

7. Mr. Abraham stated during the inspection that the pan installed on the lower end of each of the floating decanters in the SBR need to be removed or have holes drilled in the pans to allow the sludge to drain out of the pans before the decanting sequence begins. During the mixing sequence, sludge solids settle in these pans. When the pumps turn on to begin the decanting sequence, and the pans are below the liquid level in the SBR, the solids settled in the pans are decanted off with the decanted liquid from the SBR.

8. Mr. Abraham explained that if the WWTP loses power, the primary treatment tank will overflow due to the lift station being on a separate electric system which keeps the lift station operational even when the WWTP loses power.

9. According to Mr. Abraham, the floor drain in the control building is tied to the primary treatment tank. Therefore, it is possible for the primary treatment tank to overflow into the control building via the floor drain; and once the control building floor area is full the primary treatment tank can then overflow from its western manhole cover onto the ground outside.

10. A 110-power supply unit in the control building operates the WWTP control systems. According to Mr. Abraham, in May 2021, the outlet that the 110-power supply was plugged into went bad. According to Mr. Abraham and Inspector Vincent's review of the June 17, 2021, Ohio Environmental Protection Agency (OEPA) Notice of Violation (NOV) for this event, the power loss caused by the faulty outlet for the control system power supply caused the WWTP to shut down, which in turn caused wastewater to fill the primary tank and flow up through the floor drain in the control building and flood the floor area with several inches of wastewater. The power loss also prevented the WWTP alarm system from being activated at the plant. When the power was restored at the outlet the day after the power loss, the WWTP was brought back online. The operators immediately started decanting from the SBR tank to allow wastewater from the primary treatment tank to pump into the SBR. All wastewater went through the entire treatment train according to Mr. Abraham. However, the system was overloaded due to the power outage, and this resulted in discolored, black, partially treated sewage effluent (decanted SBR effluent with sludge solids) to discharge for approximately one hour. According to the June 17, 2021, OEPA NOV correspondence, the WWTP plant had no extra storage capacity, and this contributed to the partially treated sewage discharge.

    The outlet was replaced, and a new power supply unit was installed the day after the power loss. Mr. Abraham stated that the power set-up needs a redesign to hard wire

the WWTP system controls directly into the electrical panel in the control building instead of relying on a 110-power supply unit that is plugged into the wall. Once the controls are hard wired into the electrical panel, Mr. Abraham stated that the 110-power supply unit could be utilized as a back-up power source. According to Mr. Abraham, the original design engineers for the WWTP plant, earthTek Environmental, have not been responsive to him in his efforts to address the needed improvements to hard wire the control system directly into the electrical panel in the control building.

According to an October 15, 2021, OEPA NOV letter, there were self-reported violations of effluent limits for total suspended solids and nitrogen, ammonia (NH_3). During the inspection, Mr. Abraham stated that because of the 110-power supply failure in May 2021, the WWTP had to reseed the biomass in both tanks, and it took some time for this to take full effect.

11. During the inspection, Mr. Abraham stated that he believes variable flow devices on the effluent pumps would allow the operators to reduce the gallons per minute discharge rate at Outfall 001 at the creek, and therefore, reduce turbulence in the creek. Additionally, variable flow devices for the SBR mixer pumps would also allow the operators to reduce turbulence when the mixers are activated in the SBR.

12. There is an alarm system for the WWTP, and it will shut down equipment within the plant when activated. Mr. Abraham stated that there is no call out system for the alarm to notify Village personnel or the operators that the alarm system has been activated. For example, if the SBR high level alarm is activated, then the primary treatment tank pumps will shut down and pumping to the SBR will stop. There is no system in place to automatically notify anyone remotely that this has occurred.

Flow Measurement

According to Mr. Abraham, there is no influent flow monitoring. The plant receives flow from the Village of Mifflin, including one small, private school, but does not receive flow from any other municipalities. The WWTP effluent flow is measured using a 4-inch mag meter. The flow totalizer is located on the effluent mag meter inside the facility control building.

According to Mr. Abraham, the mag meter manufacturer does not recommend calibrating the mag meter annually. Mr. Abraham also stated that mag meters either work or fail; and there is no required maintenance on mag meters. According to Mr. Abraham, the totalizer comes calibrated from the factory upon installation and no further calibration is required by the manufacturer. Facility personnel do not periodically check the calibration of the mag meter or the totalizer. The flow totalizer and mag meter are visually checked by facility personnel when they are on site. During the inspection, EPA did not observe any leaking or evidence of leaking around the flow monitoring device.

Sampling/Analysis

Permit required effluent samples are collected from 3 locations within the effluent flow. The automatic sampler for collecting the composite effluent samples is located in the WWTP control building, and collects the effluent aliquots from the effluent pipe, after the UV disinfection units

and the venturi device, before the effluent flows to the outfall. There is a separate sampling port after the UV disinfection units where operators collect the grab samples for E. coli analysis. According to Mr. Abraham, the operators collect the grab samples for temperature, pH, dissolved oxygen, and turbidity from the outfall (Outfall 001) discharge point at the unnamed tributary. The effluent sampling locations vary depending on the parameter and type of sampling (grab/composite) being conducted, but they appear to be representative of the waste stream.

A refrigerated automatic sampler (Photograph 19) has been programmed by the on-site licensed operators to collect sample aliquots from each SBR batch once the SBR unit begins pumping decanted wastewater to the final treatment units (Forsta Filter, UV disinfection and the venturi device) and the final plant effluent begins flowing. According to Mr. Abraham, if a decant cycle for any batch runs longer than 5 minutes, then the automatic sampler will pull another sample aliquot from the effluent flow. Mr. Abraham stated that the automatic sampler pulls approximately 500 milliliters of sample volume for each aliquot collected. Based on the information provided during the inspection interview, this is not a flow proportionate composite sampling protocol. Part II., Item G of the permit for the WWTP requires that "composite samples be comprised of at least three grab samples proportionate in volume to the sewage flow rate at the time of sampling and collected at intervals of at least 30 minutes, but no more than 2 hours…."

Inspector Vincent observed the automatic sampler refrigerated compartment. There was no thermometer present to monitor and verify the temperature of the composite sample. Composite sampler tubing appeared to be free of debris and loops.

Operators collect daily grab samples for temperature, pH, dissolved oxygen (DO) and turbidity measurements from the outfall (Outfall 001) discharge point at the unnamed tributary. Operators use a pH Testr30 meter for pH measurements and a YSI Pro20i dissolved oxygen meter for the DO and temperature measurements. There is also a HACH pH meter on site, but it doesn't calibrate appropriately, so the operators are using the pH Testr30 meter. The operators use the turbidity severity units defined in the permit to note the turbidity observations from the daily samples. Mr. Casdorph confirmed that the field parameter measurements on site are measured within 15 minutes of the sample collection time. The DO and pH meters are calibrated by the licensed operators once a week with each use. A 3-point calibration is used for the pH meter and the buffer solutions were present on site for the 3-point calibration. Monitoring results for pH, DO, temperature and turbidity are recorded on the monthly log sheets maintained in the control building.

Inspector Vincent observed the calibration reagents for the pH meter and the reagents were not expired. The measurement and calibration work area was orderly and clean to avoid contamination.

For the effluent samples sent to Alloway Environmental Testing for analysis, Alloway provide the WWTP with pre-preserved sample bottles for the individual parameters that need preservation. Alloway is located in Mansfield, Ohio which is approximately 15 minutes away from the WWTP which enables E. coli samples to be analyzed within the required holding time.

Chain of custody (COC) forms for the effluent samples sent to Alloway Environmental Testing are completed on site by the operator sampling as the samples are collected.

Sludge sampling is discussed in the next report section "Sewage Sludge Management."

Sewage Sludge Management

According to Mr. Abraham, there are multiple operational problems involving sludge management in the WWTP. First, after the SBR decants liquid, the SBR automatically wastes sludge for approximately 50 seconds back into the primary treatment tank because the WWTP does not have a separate sludge holding tank. Mr. Abraham estimated the sludge age in the SBR to be approximately 8 days. Mr. Abraham stated that the WWTP needs to install a sludge holding tank to eliminate the wasting of sludge back into the primary treatment tank. Secondly, the air caps on the pumps in the SBR have a tendency to become stuck and this causes the sludge in the SBR to siphon back into the primary tank. According to Mr. Abraham, this in turn causes the spikes in ammonia and total dissolved solids. The operators have implemented a program to check the air caps more frequently in order to ensure that the air caps do not become stuck. A third issue, according to Mr. Abraham, is that the pan installed on the lower end of each of the floating decanters in the SBR does not drain. Therefore, during mixing sequence, sludge solids settle in the pans. The pumps for the decanters are mounted to the bottom of the pans. According to Mr. Abraham, when the pans (filled with sludge during the mixing sequence) are below the liquid level in the SBR tank and the decanting sequence begins, these solids in the pans are then decanted off with the decanted liquid. Mr. Abraham stated that the pans either need to be removed or have holes drilled in the pans to allow the sludge to drain out of the pans to alleviate this problem.

According to Mr. Abraham, Agri-Sludge Inc. hauls the complete contents of the primary treatment tank off site approximately every 6 months, when the tank has approximately 4 feet of sludge in it, to one of four publicly owned treatment works (POTW) or to Advanced Dewatering LLC (associated with Agri-Sludge, Inc). The WWTP operators use a sludge judge to measure the amount sludge in the primary treatment tank and the SBR. The four POTWs regularly used are Ashland, Wooster, Lodi, Holmesville which are all located in Ohio. The effluent from the Advanced Dewatering facility goes to the City of Canton's POTW. According to Mr. Abraham, once the new trash trap and sludge holding tank are installed, the material in those units will be transported for disposal to these same facilities.

Before sludge is disposed at a POTW or Advanced Dewatering LLC, a sample is collected from the tanker truck tank. According to Mr. Abraham, either the driver for the vacuum truck or one of the WWTP operators will collect the sludge sample for analysis. If there are multiple tanker trucks used to empty the primary treatment tank, then a grab sample of sludge from each tanker truck is collected into a 5-gallon bucket and mixed together. The sludge sample for percent solids analysis is then taken from the composite mixture in the 5-gallon bucket. According to Mr. Abraham, the samples are refrigerated or iced during transport for analysis and a chain of custody is used. Mr. Abraham stated that Alloway Environmental Testing or Ream & Haager Environmental Laboratory Inc. are the two laboratories used for the sludge analysis. The digital copies of the chain of custody records are kept on a computer-based portal which Mr. Abraham has access to. Agri-Sludge Inc. calculates the dry weight for sludge for the monthly reports.

Sanitary Sewer Overflows

During pre-inspection research, Inspector Vincent reviewed a February 2019 Sanitary Sewer Overflow (SSO) 5-Day Follow-up Report for an event which occurred on February 12, 2019, through February 14, 2019. The report indicates that 0.342 million gallons were discharged directly to a receiving water from the pump station due to heavy rains. This 2019 5-Day Report was submitted on February 21, 2019, seven days after the SSO event ended.

Mr. Abraham stated that he is responsible for submitting immediate notifications to the State of Ohio and follow-up written reports anytime there is an SSO event. Mr. Abraham explained that he used to call the spill number noted in the permit but was advised by OEPA to only submit the written report and not report the event by telephone for small SSO events. Mr. Abraham also stated that he submits the annual SSO reports as required. Copies of the annual SSO reports were not available at the WWTP to review during the inspection.

During pre-inspection research, Inspector Vincent reviewed a February 2019 SSO 5-Day Follow-up Report for an event which occurred on February 12, 2019, through February 14, 2019. The report indicates that 0.342 million gallons were discharged directly to a receiving water from the pump station due to heavy rains. This 2019 5-Day Report was submitted on February 21, 2019, seven days after the SSO event ended.

Effluent/Receiving Waters

During the site walkthrough, EPA walked to the location of the effluent discharge into the unnamed tributary to Ruffner Run. The final effluent outfall discharge point is located outside of the facility fence to the west of the facility control building on the bank of the unnamed tributary.

EPA observed a permanent sign installed on the streambank at the outfall discharge. The sign is positioned such that the wording faces north towards Maine Street and would not be visible to persons viewing the outfall from the unnamed tributary unless they were standing in the creek at the outfall on the east side of the stream. To anyone observing the outfall from the west bank of the creek, the sign would not be readable from all vantage points. Refer to photograph 9 of the photograph log.

There were no observable oil sheen, color, foam, or recognizable plumes in the receiving waters (Photographs 10 and 11) observed by EPA. Inspector Vincent observed two pieces of small white cloth or plastic trapped on debris adjacent to the outfall; however, it could not be determined if the cloth/plastic was from the outfall or general litter from the adjacent roadway area (Photographs 9, 11, and 12). The receiving waters are accurately described in the permit. During the inspection, the one of the plant operators activated the sequencing batch reactor pumps so that EPA could observe the effluent discharge at Outfall 001. EPA did not observe any oil sheen, floating solids, or abnormal color in the effluent discharging into the unnamed tributary (Photographs 11 and 12).

Self-Monitoring Records/Records Review

Inspector Vincent observed that a copy of the OEPA NPDES permit for the WWTP was available on site per 40 CFR122.41. As stated earlier in this report. Mr. Abraham and Mr. Hendershot are the responsible officials that sign the monthly DMRs on behalf of the Village of

Mifflin. Signing the DMRs is included as part of Agri-Sludge, Inc.'s contract with the Village to operate the WWTP.

While reviewing completed COCs for the effluent samples, Inspector Vincent noted that sample collection details including the time of collection, sampler name, location of sample and the date are recorded on the COCs. The operators include a general note in their bound notebook entries that samples were collected that day, but there are no sampling details documented in the bound operator notebook or on the separate monthly log sheets. The COCs are the primary documentation for sampling collection details, as they are filled out as the sampling occurs.

Inspector Vincent noted that although the temperature, turbidity, pH and DO monitoring results conducted on site are recorded on the log sheets in the WWTP control building, the sample collection times for the on-site monitoring samples used for the measurements and the times when the measurements were taken do not appear to be noted on the log sheet or in the entries in the bound operator notebook. The operator notebook includes general entries that the samples were collected or monitoring measurements were conducted on a specific day. Inspector Vincent was unable to verify if the on-site measurements were completed within 15 minutes of collection for pH and DO. Mr. Casdorph stated during the inspection interview that the on-site field parameter measurements are measured within 15 minutes of the sample collection time.

Inspector Vincent reviewed the bound operator notebook and the log sheets from 2022. Mr. Abraham provided Inspector Vincent with copies of the analytical results (not full analytical reports) from Alloway Environmental Testing for samples collected February 23, 2022, March 9, 2022, March 23, 2022, April 6, 2022, April 13, 2022, and April 20, 2022. In reviewing the analytical result pages provided by Mr. Abraham as examples, Inspector Vincent noted that the results pages include the date of analysis performed, type of analysis performed, standard method used for the analysis, the analyst's initials, and the results as required by the permit under Part III, Item 6.

Closing Conference

USEPA staff relayed the following preliminary comments during the closing conference:

- Although there is a current plan in place to add a sludge holding tank for wasted sludge and a trash trap to the WWTP in order to improve the effectiveness of the system, there are still ongoing effluent violations resulting in self-reported noncompliance.

- USEPA noted that there was no visible thermometer in the automatic sampler refrigerated compartment to verify the temperature.

Inspector Vincent explained to Mr. Abraham that additional compliance concerns may be identified following the inspection based on the information provided during the inspection, and those concerns would also be noted in the final report. Inspector Vincent reviewed with Mr. Abraham that the Village of Mifflin would receive a copy of the final inspection report. Mr. Abraham stated that the final inspection report should be sent to Ms. Vicki Coon, as the Mayor for the Village of Mifflin, at 36 Maine Street, Mifflin, Ohio 44805. Mr. Abraham also requested that copies of the final report be sent to him and Mr. Tim Echelburger, the Village Administrator.

Inspector Vincent left the facility at approximately 1:30 p.m.

Areas of Concern

- There are on-going effluent violations resulting in self-reported significant noncompliance.

- There is no professional operator of record identified specifically for the collection system in the Village of Mifflin. According to Part II., Item A.1.b of the NPDES permit for this facility, "The permitee shall designate one or more professional operator of record to oversee the technical operation of the sewerage (collection) system with a valid certification of a class equal to or greater than the classification of the sewerage (collection) system.

- There is an approved plan and funding in place to add a 4,000-gallon sludge holding tank for wasted sludge from the SBR and a 4,000-gallon trash trap to the WWTP to improve plant operations. The plan is still in the design phase and a timetable for installation of these additional units was not identified at the time of the inspection. The primary treatment tank continually has a thick floating trash mat due to the lack of a trash removal system at the head of the plant. The SBR is designed to waste sludge back to the primary treatment tank which hinders operational efficiency. According to Part III., Item 3.A. of the NPDES permit for this facility, "At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit."

- One of two UV disinfection units was not operating at the time of inspection. The replacement parts for the damaged UV disinfection unit were on site and expected to be installed in the coming weeks. According to Part III., Item 3.A. of the NPDES permit for this facility, "At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit."

- The pans on the lower end of the floating decanters collect sludge solids when the mixers in the SBR are activated. Sludge cannot drain from the pans. Therefore, when the pumps turn on to begin a decanting sequence and then pans are below the liquid level in the SBR, to sludge in the pans is decanted off with the decanted liquid from the SBR. Mr. Abraham stated that removing the pans or drilling holes in the pans for drainage would help alleviate this issue of decanting sludge with the SBR decanted liquid.

- The 110-power supply unit that powers the WWTP control systems is plugged into an outlet that has been repaired once due to failure. That failure of the outlet led to a total shut down of the plant. Once the plant shut down, the lift station which still had power, continued to pump sewage from the collection system to the primary treatment tank. Once power was restored to the outlet, the event caused a discharge of partially treated wastewater due to an overloaded WWTP as it restarted, and subsequent self-reported

effluent limit violations, according to Mr. Abraham. This was not a main power outage as the control building and the Village still had power, only the wall outlet had failed, so the emergency generator on site was of no use to mitigate this power loss. Mr. Abraham stated that the WWTP system controls should be hard wired directly into the electrical panel in the control building instead of relying on an electrical outlet for the main power for plant controls.

- The on-site alarm system for the WWTP is designed to shut down equipment when an alarm is activated. This alarm system does not have the capability to notify operators or Village personnel remotely via phone or e-mail that an alarm has been activated at the WWTP which generally indicates a treatment unit at the plant has shut down or the entire plant is off-line. Mr. Abraham indicated that he has requested that a remote notification/call-out alarm capability be added to the alarm system.

- The composite sampling through the automatic sampler is not flow proportionate as required according to Part II., Item G. of the NPDES permit.

- There was no visible thermometer in the refrigerated compartment of the automatic sampler in order to verify the temperature maintained for the composite sample as required under 40 CFR Part 136.

- Although the temperature, turbidity, pH and DO monitoring results are recorded on the log sheet in the WWTP control building, the specific sample collection times for the grab samples used for these measurements and the times when the measurements were taken do not appear to be noted on the log sheets or in the entries in the bound operator notebook. It could not be verified if the measurements occurred within 15 minutes of the samples being collected.

- The Outfall 001 discharge location notification sign is positioned such that the wording faces north towards Maine Street and would not be visible to persons viewing the outfall from the unnamed tributary unless they were standing in the creek at the outfall on the east side of the stream. To anyone observing the outfall from the west bank of the creek, the sign would not be readable from all vantage points (NPDES permit Part II, O).

List of Appendices

Appendix A – Photograph Log

APPENDIX A

Photograph Log

Village of Mifflin WWTP
EPA Inspection 5/3/2022
All photos taken by Anne Marie Vincent, Life Scientist/Inspector, U.S. EPA
Camera: Nikon CoolPix W300/Serial Number 31034297

1: DSCN3841
Description: East floating decanter (first decanter) in the sequencing batch reactor.
Location: Sequencing batch reactor
Camera Direction: South (Down)
Date/Time: 5/3/2022 / 9:40 a.m.

2: DSCN3842
Description: EPA observed that the west floating decanter (second decantor) in the sequencing batch reactor tank was off its guide rails at the time of inspection. Plant operators began realigning the decantor back on the guide rails immediately after the issue was observed during the facility walk-through.
Location: Sequencing batch reactor
Camera Direction: South (Down)
Date/Time: 5/3/2022 / 9:40 a.m.

3: DSCN3843
Description: View looking over the undeground location of the 30,000-gallon primary treatment tank for the facility.
Location: East side of facility control building.
Camera Direction: Northeast/East
Date/Time: 5/3/2022 / 9:41 a.m.

4: DSCN3844
Description: View looking over the undeground location of the sequencing batch reactor for the facility.
Location: East side of facility control building, sequencing batch reactor
Camera Direction: East/Southeast
Date/Time: 5/3/2022 / 9:41 a.m.

5: DSCN3845
Description: Overview of the exterior plant area where the primary treatment tank (to the left) and the sequencing batch reactor (to the right) are located. The corner of the facility control building is visible off the right side of the photograph.
Location: North side of facility control building
Camera Direction: East
Date/Time: 5/3/2022 / 9:42 a.m.

6: DSCN3846
Description: Interior of facility control building. The Forsta Filter unit (vertical cylinder) and two UV treatment units (horizontal cylinders (lower left corner of photograph) are visible in the photograph. Only one UV tube is operational due to a lightening strike that damaged the unit. Replacement parts for repairs are on site to be installed.
Location: Facility control building.
Camera Direction: Southwest
Date/Time: 5/3/2022 / 9:43 a.m.

7: DSCN3847
Description: West floating decanter removed from sequencing batch reactor for reattachment to guide rails. During mixing sequences, sludge solids settle in the pans. Due to the design, the pans on the lower ends of the decanters do not drain. When the pans are below the liquid level in the tank and the decanting sequence begins, these solids are decanted off with the decanted liquid.
Location: Sequencing batch reactor
Camera Direction: South
Date/Time: 5/3/2022 / 9:59 a.m.

8: DSCN3848
Description: View looking towards the west end of the facility property from the location of the primary treatment tank.
Location: North side of facility.
Camera Direction: West
Date/Time: 5/3/2022 / 10:00 a.m.

9: DSCN3849
Description: Outfall signage at Outfall 001 did not appear to meet the minimum permit requirement of 2 feet by 2 feet. The sign is positioned such that it would not be readable from the opposite bank across from the outfall.
Location: Outfall 001
Camera Direction: Southwest
Date/Time: 5/3/2022 / 10:04 a.m.

10: DSCN3850
Description: View looking towards Outfall 001 and the backside of the Outfall 001 signage. The concrete bulkhead for Outfall 001 is visible in the lower left of the photograph. The surface waterbody flows from the lower left corner of the photograph towards the center right of the photograph.
Location: Outfall 001
Camera Direction: West/Northwest
Date/Time: 5/3/2022 / 10:04 a.m.

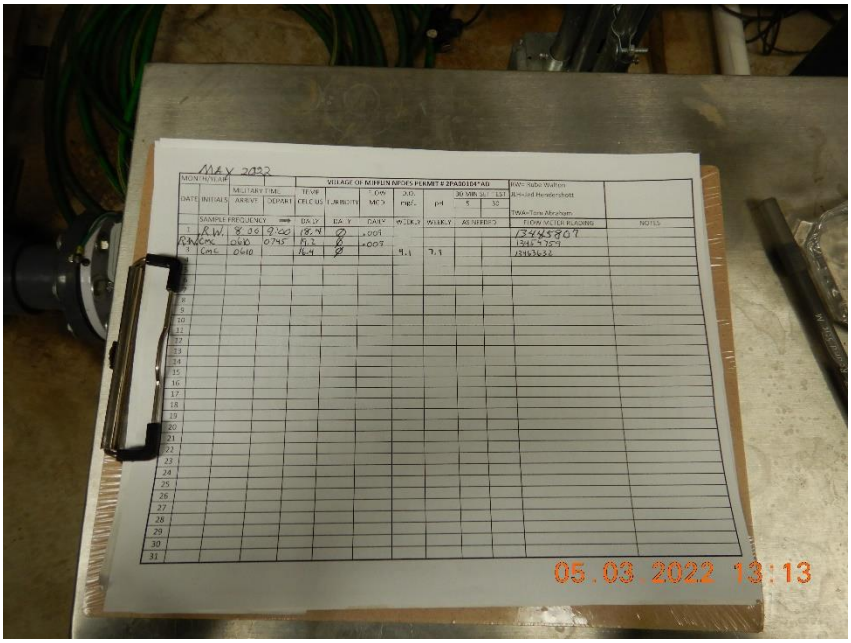
11: DSCN3851
Description: Being a batch system, the operators activated the pumps so that EPA could observe effluent flow at the outfall. Operators estimate that the effluent flow at the outfall is approximately 210 gallons per minute.
Location: Outfall 001
Camera Direction: Northwest
Date/Time: 5/3/2022 / 10:10 a.m.

12: DSCN3852
Description: Close-up photograph of Outfall 001 effluent.
Location: Outfall 001
Camera Direction: Northwest (Down)
Date/Time: 5/3/2022 / 10:10 a.m.

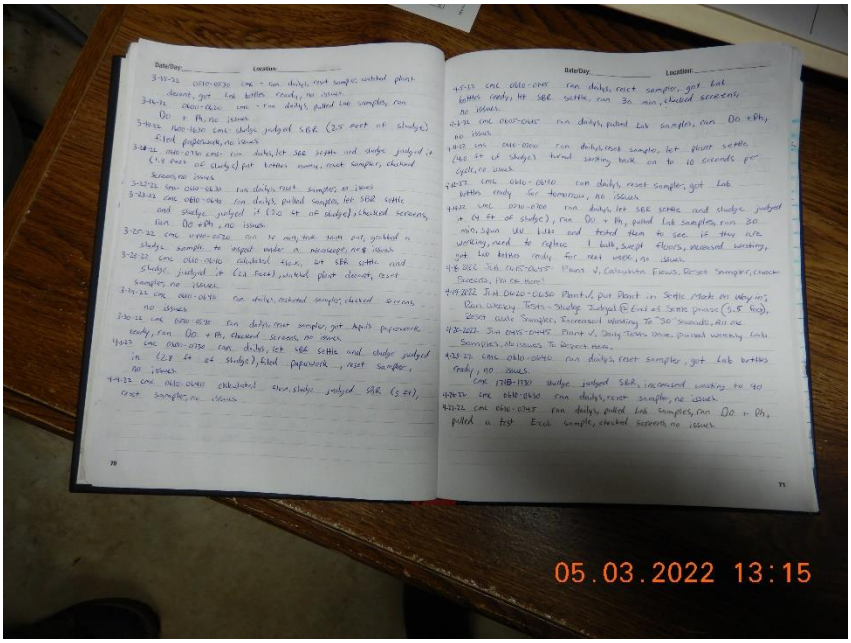
13: DSCN3853
Description: Flow totalizer and magmeter for effluent flow.
Location: Interior east end of facility control building.
Camera Direction: Down
Date/Time: 5/3/2022 / 10:53 a.m.

14: DSCN3854
Description: Oakton pHTestr 30 pH meter is used by the operators to collect on-stie pH readings of samples. pH meter is calibrated using a three point calibration before each use.
Location: Interior west end sample monitoring area in facility control building.
Camera Direction: West (Down)
Date/Time: 5/3/2022 / 11:20 a.m.

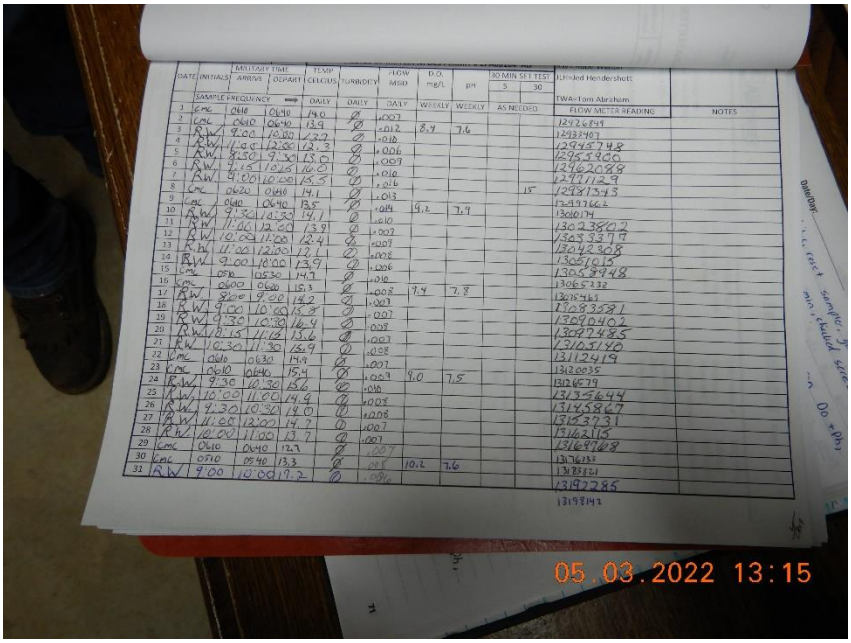
15: DSCN3855
Description: Monitoring bench for DO and pH within the facility control building. The Hach pH meter (left side of bench) does not calibrate approriately, therefore, the operators are using the Oakton pHTestr 30 pH meter (right side of bench).
Location: Interior west end sample monitoring area in facility control building.
Camera Direction: West
Date/Time: 5/3/2022 / 11:20 a.m.



16: DSCN3856
Description: May log sheet used to document operator site hours; pH, DO, turbidity, and temperature readings; general daily flow and flow totalizer readings.
Location: Inside facility control building.
Camera Direction: South (Down)
Date/Time: 5/3/2022 / 1:13 p.m.



17: DSCN3857
Description: On-site bound operator notebook that the operators use to document specific site activities conducted and hours on site with each site visit.
Location: Interior west end office desk in facility control building.
Camera Direction: West/Southwest (Down)
Date/Time: 5/3/2022 / 1:15 p.m.



18: DSCN3858
Description: March log sheet used to document operator site hours; pH, DO, turbidity, and temperature readings; general daily flow and flow totalizer readings.
Location: Interior west end office desk in facility control building.
Camera Direction: South/Southwest (Down)
Date/Time: 5/3/2022 / 1:15 p.m.

19: DSCN3859
Description: Refridgerator unit for the composite sample jug from the automatic sampler. No thermometer present to verify temperature.
Location: Interior east end of facility control building.
Camera Direction: East
Date/Time: 5/3/2022 / 1:19 p.m.

20: DSCN3860
Description: Exterior view of the east side of the Village of Mifflin WWTP. Facility control building also visible. A chain link fence surrounds the facility.
Location: North fenceline of facility.
Camera Direction: Southeast
Date/Time: 5/3/2022 / 1:21 p.m.

21: DSCN3861
Description: View of the facility control building and the emergency generator.
Location: North fenceline of facility.
Camera Direction: Southwest
Date/Time: 5/3/2022 / 1:22 p.m.

22: DSCN3862
Description: View of the north fenceline in front of the Village of Mifflin WWTP.
Location: Property gate along north fenceline at front of facility.
Camera Direction: West
Date/Time: 5/3/2022 / 1:22 p.m.