



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

Ref: 8ENF-W-NW

SENT VIA EMAIL
DIGITAL READ RECEIPT REQUESTED

Bryon Long
Operator
Mesa Verde National Park
Bryon_Long@nps.gov

Re: Inspection Report for Mesa Verde National Park Water Treatment Plant, NPDES Permit
No. CO0034622

Dear Mr. Long:

On July 15, 2021, representatives of the U.S. Environmental Protection Agency inspected the Mesa Verde National Park (MVNP) Water Treatment Plant located in Montezuma County, Colorado, to evaluate compliance with the facility's National Pollutant Discharge Elimination System permit for wastewater. The inspection was conducted under the authority of Section 308 of the Clean Water Act (Act). Enclosed is a report of the inspection.

Inspection findings are summarized within the enclosed inspection report in a table titled "Findings, Corrective Actions and Recommendations." Within **thirty (30) days** of receipt of this report, please provide the EPA with a summary of corrective actions taken to address each of the findings identified in the report and any information that may change the findings or content of the report. This summary should be sent to:

Stephanie Meyers
meyers.stephanie@epa.gov

Please contact me at 303-312-6938 or meyers.stephanie@epa.gov if you have any questions regarding this letter or the enclosed report.

Sincerely,

STEPHANIE
MEYERS

Stephanie Meyers

NPDES and Wetlands Enforcement Section

Enforcement and Compliance Assurance Division

Digitally signed by
STEPHANIE MEYERS
Date: 2021.08.31
08:19:41 -06'00'

Enclosures:

- 1) MVNP WTP NPDES Inspection Report – Water Treatment Facility
- 2) MVNP WTP Photo Log

cc: Leslie Ramone, Intern/Operator, Mesa Verde National Park (via email)
Wade Jordon, Operator, Mesa Verde National Park (via email)
Michael Rubin, Facility Manager, Mesa Verde National Park (via email)

NPDES Inspection Report – Water Treatment Plant

National Database Information	
Inspection Date: July 15, 2021	Inspection Type: CEI - Water Treatment Plant
Entry/Exit Time: 7:20 am / 10:35 am	NPDES ID Number: CO0034622
NAICS Code: 221310	Inspection ID: 202107_CO0034622
Lead inspector and affiliation: Stephanie Meyers / EPA Region 8	
Inspector and affiliation: Emilio Llamozas / EPA Region 8	
Inspector and affiliation: Michelle Lanzoni / EPA Region 10	

Facility Location Information (Name/Location/ Mailing Address)	
Site/Facility Name & Location: Mesa Verde National Park Water Treatment Plant Service Road 160 Montezuma County, Colorado	Email Report to: Mr. Bryon Long Operator Mesa Verde National Park Bryon_Long@nps.gov

Contact Information	
	Name(s)/Title
Facility Contacts: <i>(indicate primary lead and present during inspection)</i>	Bryon Long / Operator / MVNP / primary lead during the inspection
	Leslie Ramone / Intern & Operator / MVNP / present during inspection
Person/Company meeting definition of “Operator”	Mesa Verde National Park
Authorized Official(s) (Per NOI?)	Cliff Spencer / Superintendent / Mesa Verde National Park

Permit Information		
Is the permit on site and available? Yes	Monitoring Frequency: Quarterly	
Effective Date: January 1, 2021	Expiration Date: December 31, 2025	Is the Facility under a compliance schedule? No
Is correct contact information indicated on ICIS? No	Indicate correct contact information: Owner – Michael Rubin	
Receiving Water(s): Unnamed tributary of McElmo Creek		
Discharge point location (longitude, latitude): There are two outfalls at the facilities as indicated below: Outfall 001 – Lat. 37.34052° N, Long. -108.41308° W Outfall 002 – Lat. 37.34103° N, Long. -108.41335° W		
Regulatory Inspector’s source of information: Statement of basis for the permit, permit, facility representatives and facility observations.		

Areas Evaluated During Inspection		
<u>Permit</u>	<u>Self-Monitoring Program</u>	Pretreatment
<u>Records</u>	Compliance Schedule	Pollution Prevention
<u>Facility Site Review</u>	<u>Laboratory</u>	Stormwater
<u>Effluent/Receiving Waters</u>	<u>Operations and Maintenance</u>	Combined Sewer Overflow
<u>Flow Measurement</u>	Sludge Handling/Disposal	Sanitary Sewer Overflow

Report Review and Signature		
Drafter Name	Address/Phone Number	Date
Stephanie Meyers	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NW Denver, Colorado 80202	8/19/2021
	303-312-6938	
Reviewer Name	Address/Phone Number	Date
Emilio Llamozas	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NW Denver, Colorado 80202	8/23/2021
	303-312-6407	
Supervisor Signature/Name	Address/Phone Number	Date
MICHAEL BOEGLIN Digitally signed by MICHAEL BOEGLIN Date: 2021.08.31 08:08:58 -06'00'	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NW Denver, Colorado 80202	8/31/2021
	Michael Boeglin 303-312-6250	

Inspection Narrative and Site Description

The inspection was conducted at the Mesa Verde National Park Water Treatment Plant (WTP or facility) located in Montezuma County, Colorado to evaluate compliance with its National Pollutant Discharge Elimination System (NPDES) permit. The EPA is responsible for implementing the NPDES program at Federal Facilities within the State of Colorado. The inspection was announced a few weeks prior to the inspection to coordinate logistics for the inspection. On July 15, 2021, U.S Environmental Protection Agency (EPA) inspectors Stephanie Meyers, Emilio Llamozas, and Michelle Lanzoni met with operators Bryon Long and Leslie Ramone with Mesa Verde National Park. The EPA inspectors presented their credentials and had an opening conference to explain the purpose of the inspection. The inspectors proceeded to inspect the facility and asked questions to the facility representatives to help the inspectors evaluate compliance with the facility's permit. Throughout the inspection, the inspectors noted their observations in a checklist. Photographs taken during the inspection are included in the attached photo log.

The Mesa Verde National Park Water Treatment Plant (WTP) serves the park visitor services, campground, and several residences with potable water. Water demand is highly seasonal, with the highest demand occurring during the summer. The WTP produces a total of 12 to 14 million gallons of finished water per year and has about 3.5 million gallons of finished water storage capacity within the park. Water is diverted from the West (Fork) Mancos River and is transported about 18 miles via an underground pipeline to an underground storage tank. From the underground storage tank, the intake water is gravity fed to the WTP via another pipeline.

The WTP consists of an underground storage tank for raw intake water, a microfiltration system, granular activated carbon (GAC) filters, a clearwell, and four settling basins (two inside the building and two outside the building), along with two outfalls.

Inspectors first observed the water treatment process inside the building. The WTP uses a membrane filtration process to treat the drinking water. The GAC system is downstream of the microfiltration membranes prior to chlorine addition, which helps to further improve water quality. The current membrane filtration unit is a model AP4 Microza Filter from the Pall Corporation (photos 78 and 79). Wastewater is generated from flux maintenance (FM), or backwashing of the membrane filters, which is performed approximately each hour. After approximately one million gallons of water has been produced, the enhanced flux maintenance cycle (EFM) is performed, where sodium hypochlorite is injected manually to remove biological films from the surface of the membrane. A clean in place cycle (CIP) is conducted two times a year where a caustic wash, acid wash, and rinse are performed to remove foulants that are not removed by backwashing and the EFM cycle. Backwash from both the FM and CIP processes flows to the two indoor basins where settling occurs (photo 80). Wastewater from the indoor basins is then pumped to the outdoor basins where further settling occurs (photos 81 and 82). The two outdoor basins contain depth markers where six feet is equivalent to 51,000 gallons (photo 82). The depth of both the indoor and outdoor basins is monitored by operators, and butterfly valves on the outflow lines of the outdoor basins are used to control the discharge flow to Outfall 002 (photo 83). Outfall 001 is only used in the event of an emergency (photo 84).

After the facility walk-through, the inspectors then conducted a records review of sampling and laboratory records from the second quarter of 2019 to evaluate the facility's compliance with effluent limits and use of EPA approved sampling and analysis methods.

At the end of the day, the inspectors held a closing conference with Mr. Long and Ms. Ramone where they discussed preliminary findings. On July 27, 2021, the EPA sent an email to Mr. Long with the preliminary findings from the inspection.

Findings, Corrective Actions and Recommendations

Finding #1: Inspections of the WTP's settling basins and outfalls were not being conducted on a weekly basis.

After review of the facility's logbook, and discussion with facility representatives, it was noted that inspections of the settling basins and outfalls were not being conducted at the required weekly inspection schedule.

Permit requirement:

Part 7.5.1 of the permit states, "On at least a weekly basis when operating, unless otherwise approved by the EPA, the Permittee shall inspect its water treatment facility, at a minimum, for the following:

7.5.1.1. A visual inspection of the outside basins to identify any potential problems such as the basins overflowing due to excessive inflow, the accumulation of excess sediment, and leaks due to cracks in the concrete walls of the basins.

7.5.1.2. The water level in each settling basin (both inside and outside) shall be observed to ensure that the settling basin is not likely to overflow before the next inspection occurs.

7.5.1.3. A visual inspection of both outfalls to determine if a discharge has occurred and if there are any signs of pollutants or other materials that would be cause for concern."

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. A new form was created for inspections of settling basins and outfalls that includes the required items above. Provide the EPA with the facility inspections performed in August 2021.

Finding #2: The methods used to analyze Total Residual Chlorine and pH were not documented in sample log sheets.

Review of sample log sheets indicated that the methods used to analyze Total Residual Chlorine and pH were not recorded or documented.

Permit requirement:

Part 6.7 of the permit states, "Records of monitoring information shall include:

6.7.1 The date, exact place, and time of sampling or measurements;

6.7.2 The name(s) of the individual(s) who performed the sampling or measurements;

6.7.3 The date(s) analyses were performed;

6.7.4 The time(s) analyses were initiated;

6.7.5 The name(s) of individual(s) who performed the analyses;

6.7.6 References and, when available, written procedures for the analytical techniques or methods used; and,

6.7.7 The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.”

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. A new form was submitted, which includes the analytical techniques or methods used for sampling. No further action is needed.

Finding 3: A thermometer is not kept in refrigerators where composite samples for total suspended solids are stored.

A thermometer is not kept in refrigerators where composite samples for total suspended solids are stored. Thermometers should be kept in refrigerators containing samples to ensure samples are preserved at $\leq 6^{\circ}\text{C}$ as required by 40 C.F.R. 136.

Permit Requirement:

Part 6.2 of the permit states, “Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136, unless other test procedures have been specified in this Permit.”

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. A lab certified thermometer has been placed in each refrigerator where composite samples are stored. No further action is needed.

Finding #4: The total suspended solids value reported for May of 2019 was reported as an estimated value.

The total suspended solids sample collected on May 8, 2019 was reported by the San Juan Basin Public Health Lab as <10 mg/L and estimated as 3 mg/L. Mesa Verde National Park used the 3 mg/L estimated value for TSS instead of the <10 mg/L value for May of 2019 to perform a calculation to report their DMRs.

Permit Requirements:

Table 3 of the permit outlines monitoring requirements:

Table 3 – Monitoring Requirements for Outfall 001 and 002

Effluent Characteristic	Frequency	Sample Type <u>a/</u>
Total Volume Discharged, million gallons	Each Discharge	<u>b/</u>
30-Day Average Flow, MGD <u>c/</u>	Monthly	Calculated
Total Suspended Solids (TSS), mg/L	Monthly <u>d/</u>	Composite <u>e/</u>
Oil and grease, Visual	Monthly <u>d/</u>	Visual
Oil and grease, mg/L	<u>f/</u>	Grab
Total Residual Chlorine (TRC), mg/L <u>g/</u>	Each Discharge	Grab
pH, standard units <u>h/</u>	Each Discharge	Grab/Instantaneous

Total Dissolved Solids (TDS), mg/L	Quarterly	Grab
Total Annual TDS Load, tons/year <u>j</u> /	Annually	Calculated
Arsenic (As), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Cadmium (Cd), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Chromium (Cr), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Iron (Fe), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Lead (Pb), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Molybdenum (Mo), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Nickel (Ni), Total Recoverable, µg/L <u>j</u> /	Annually	Grab
Copper (Cu), Dissolved, µg/L <u>j</u> /	Annually	Grab
Manganese (Mn), Dissolved, µg/L <u>j</u> /	Annually	Grab
Selenium (Se), Dissolved, µg/L <u>j</u> /	Annually	Grab
Silver (Ag), Dissolved, µg/L <u>j</u> /	Annually	Grab
Zinc (Zn), Dissolved, µg/L <u>j</u> /	Annually	Grab
Hardness, mg/L as CaCO ₃ <u>k</u> /	Annually	Grab

- a/ See section 1 of the Permit for definition of terms.
 - b/ The total volume of water discharged during the quarterly reporting period shall be estimated based on the total number of discharges that occurred during the reporting period and the approximate volume of water discharged with each discharge. The volume of water discharged with each discharge may be estimated by the change in the amount of water in a settling basin before the discharge started and after the discharge stopped.
 - c/ The calculation for 30-day average flow will be the total volume discharged that month (in millions of gallons) divided by 30.
 - d/ Samples shall be taken and visual observations made a minimum of each 30-day period or calendar month if there is a discharge. The highest weekly value and average monthly value shall be reported for each month in the quarterly reporting period.
 - e/ A composite sample shall consist of a minimum of four (4) grab samples. They should be spread out over the discharge period so that samples from the beginning of the discharge, the approximate midpoint of the discharge, and the end of the discharge are captured. The grab samples shall be composited in equal volumes.
 - f/ If a visible sheen or floating oil is detected or observed in the discharge, a grab sample shall immediately be taken, analyzed and recorded in accordance with the requirements of 40 CFR Part 136. If no visible sheen or floating oil is detected or observed, report the code for "Conditional Monitoring - Not Required This Period" on the Discharge Monitoring Report.
 - g/ The TRC monitoring requirements apply only for discharges associated with the use of chlorine, such as the enhanced flux maintenance cycle, the clean in place cycle, and any other times where chlorine or a chlorine compound is used in the cleaning process. When chlorine is not used, report "N/A" to the TRC field on the Discharge Monitoring Report (DMR). For the purposes of the permit, the minimum limit of analytical reliability in the analysis for TRC is considered to be 0.05 mg/L. For purposes of calculating averages and reporting in the Discharge Monitoring Report form, analytical values less than 0.05 mg/L shall be considered to be in compliance with this permit.
 - g/ The TRC monitoring requirements apply only for discharges associated with the use of chlorine, such as the enhanced flux maintenance cycle, the clean in place cycle, and any other times where chlorine or a chlorine compound is used in the cleaning process. When chlorine is not used, report "N/A" to the TRC field on the Discharge Monitoring Report (DMR). For the purposes of the permit, the minimum limit of analytical reliability in the analysis for TRC is considered to be 0.05 mg/L. For purposes of calculating averages and reporting in the Discharge Monitoring Report form, analytical values less than 0.05 mg/L shall be considered to be in compliance with this permit.
 - h/ The maximum and minimum pH observed shall be reported each quarter.
 - i/ The reported value for this parameter is the total mass of dissolved solids discharged by this facility per year. The calculation for this parameter is the sum of the products of the TDS (mg/L) and total volume discharged (TVD) (million gallons/quarter) for each quarter (q = 1 through 4) converted to tons/year using the equation below. If more than one TDS sample is collected from an outfall during a quarter, the TDS results shall be averaged for the quarter.
- (1) *Total Annual TDS Load (tons / year) =*

$$4.17 \times 10^{-3} * [TDS_{q1} * TVD_{q1} + TDS_{q2} * TVD_{q2} + TDS_{q3} * TVD_{q3} + TDS_{q4} * TVD_{q4}]$$
- j/ The annual metals sampling shall take place during the summer months (June through August).
 - k/ The annual hardness sample shall be taken at the same time as the annual metals sampling.

Part 6.2 of the permit states, "Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136, unless other test procedures have been specified in this Permit."

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. No further action is needed.

Finding #5: Total suspended solids samples were not preserved at $\leq 6^{\circ}\text{C}$ as required by 40 C.F.R. 136. Chain of custody forms and laboratory results from 2019 indicated that total suspended solids samples received by the lab were not preserved at $\leq 6^{\circ}\text{C}$ as required by 40 C.F.R. 136. The TSS sample collected on May 8, 2019 was received by the lab on May 9, 2019 at 1:30 pm with a temperature of 19.9°C . The TSS sample collected on June 12, 2019 was received by the lab on June 13, 2019 at 11 am with a temperature of 20.3°C .

Permit Requirement:

Part 6.2 of the permit states, "Monitoring must be conducted according to test procedures approved under 40 C.F.R. Part 136, unless other test procedures have been specified in this Permit."

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. Mr. Long will ensure samples are delivered on ice and has also spoken with the laboratory and has ensured the laboratory will properly preserve samples once they are received. No further action is needed.

Finding #6: The maximum pH for the second quarter of 2019 was reported incorrectly. The maximum pH was reported as 7.5 for the second quarter of 2019; however, the records indicate that the highest pH for the second quarter of 2019 was 7.7.

Permit requirement:

Table 3 of the permit outlines monitoring requirements as noted above.

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. Mr. Long has acknowledged this error and will ensure the correct value is reported going forward. No further action is needed.

Finding #7: The facility reported the incorrect average for total suspended solids for the second quarter of 2019.

The facility reported the total suspended solids (TSS) quarterly average for the second quarter of 2019, instead of the highest 30-day average for TSS for the quarter. The TSS 30-day average for May 2019 was <10 mg/L with an estimated value of 3 mg/L and the TSS 30-day average for June 2019 was 14 mg/L. There was no discharge in April 2019. The facility took the average of the 30-day average for May and June 2019 and reported 8.5 mg/L (the average of 3 mg/L and 14 mg/L is 8.5 mg/L). The highest 30-day average for the second quarter of 2019 was 14 mg/L (June 2019), which is the 30-day average that should be reported for the 2nd quarter of 2019.

Permit requirement:

Table 3 of the permit outlines monitoring requirements as noted above.

Corrective Action:

On August 19, 2021, EPA received information from Bryon Long with Mesa Verde National Park that this corrective action has been addressed. Mr. Long has acknowledged this error and will ensure the correct value is reported going forward. No further action is needed.