



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

Justin Spotted Bear
MHA Nation Public Works Director
MHA Nation Public Works Department
jlsponsoredbear@mhanation.com

Re: Inspection Report for MHA Interpretive Center Wastewater Treatment Facility, NPDES
Permit No. ND0031160

Dear Mr. Spotted Bear:

On August 31, 2021, representatives of the U.S. Environmental Protection Agency inspected the MHA Interpretive Center Wastewater Treatment Facility located in New Town, North Dakota, 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:

Emilio Llamozas
EPA Region 8
Llamozas.emilio@epa.gov

Edmund Baker
MHA Nation Environmental Department
edmundbaker@mhanation.com

Mike Boland
Indian Health Service
Michael.Boland@ihs.gov

Please contact me at 303-312-6407 or llamozas.emilio@epa.gov if you have any questions regarding this letter or the enclosed report.

Sincerely,

**EMILIO
LLAMOZAS**

Emilio Llamozas
NPDES and Wetlands Enforcement Section
Enforcement and Compliance Assurance Division

 Digitally signed by EMILIO
LLAMOZAS
Date: 2021.10.04 09:32:46 -06'00'

Enclosures:

- 1) NPDES Inspection Report – Wastewater
- 2) Photo Log

cc: Delphine Baker, Director, MHA Interpretive Center (via email)
Micheal Bintliff, Utilities Supervisor, MHA Nation Utilities Department (via email)
Edmund Baker, Environmental Director, MHA Nation Environmental Department (via email)
Lisa Lone Fight, Science Advisor, MHA Nation (via email)
Mike Boland, District Environmental Engineer, Indian Health Services (via email)

NPDES Inspection Report – Wastewater

National Database Information	
Inspection Date: August 31, 2021	Inspection Type: CEI - Wastewater Treatment Facility
Entry/Exit Time: 1:09 pm / 4:10 pm	NPDES ID Number: ND0031160
NAICS Code: 221320	Inspection ID: 202108 ND0031160
Lead inspector and affiliation: Emilio Llamozas / EPA Region 8	
Inspector and affiliation: Lisa-kay Prideaux / EPA Region 8	

Facility Location Information (Name/Location/ Mailing Address)	
Site/Facility Name & Location: MHA Interpretive Center Wastewater Treatment Facility 9386 Highway 23 New Town, North Dakota 58763	Mail Report to: Justin Spotted Bear MHA Nation Public Works Director jlsponsoredbear@mhanation.com

Contact Information	
	Name(s)/Title
Facility Contacts: <i>(indicate primary lead and present during inspection)</i>	Justin Spotted Bear / Public Works Director / MHA Nation Public Works Department / primary lead during the inspection
	Micheal Bintliff / Utilities Supervisor / MHA Nation Utilities Department / present during the inspection
	Delphine Baker / Director / MHA Interpretive Center / present during the inspection
	Jordan Longtime Sleeping / Facility Manager / MHA Interpretive Center / present during the inspection
	Bud Augst / Superintendent / Woodstone, Inc. / present during the inspection
	Lisa Lone Fight / Science Advisor / MHA Nation / present during the inspection
	Morgan Berquist / Science Tech 2 / MHA Nation / present during the inspection
Person/Company meeting definition of “Operator”	MHA Nation Public Works
Authorized Official(s)	Micheal Bintliff / Utilities Supervisor / MHA Nation Utilities Department

Permit Information		
Is the permit on site and available? Yes	Monitoring Frequency: Quarterly	
Effective Date: September 1, 2018	Expiration Date: August 31, 2023	Is the Facility under a compliance schedule? No
Is correct contact information indicated on ICIS? No	Indicate correct contact information: Micheal Bintliff, Utilities Supervisor	
Receiving Water(s): Lake Sakakawea / Missouri River		
Discharge point location (longitude, latitude): There is one outfall at the facility as indicated below: Outfall 001 – Discharges from the wastewater treatment plant goes to the Missouri River (latitude 47.973600° N, longitude 102.595200° W).		
Regulatory Inspector’s source of information: permit, statement of basis for the 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>	Laboratory	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
Emilio Llamozas	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NW Denver, Colorado 80202	9/29/2021
	303-312-6407	
Reviewer Name	Address/Phone Number	Date
Lisa-kay Prideaux	U.S. EPA Region 8 Helena Office 10 W 15 Street, Suite 3200 8-MO Helena, Montana 59626	10/1/2021
	406-457-5022	
Supervisor Signature/Name	Address/Phone Number	Date
MICHAEL BOEGLIN Digitally signed by MICHAEL BOEGLIN Date: 2021.10.04 08:05:31 -06'00'	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NW Denver, Colorado 80202	10/4/2021
	Michael Boeglin 303-312-6250	

Inspection Narrative and Site Description

The inspection was conducted at the MHA Interpretive Center Wastewater Treatment Facility (WWTF or facility) located on the Fort Berthold Reservation, in New Town, North Dakota to evaluate compliance with its National Pollutant Discharge Elimination System (NPDES) permit. The EPA is responsible for implementing the NPDES program in Indian Country within the State of North Dakota. The inspection was announced a few weeks prior to the inspection, to coordinate logistics for the inspection. On August 31, 2021, U.S. Environmental Protection Agency (EPA) inspectors Emilio Llamozas and Lisa-kay Prideaux met with Justin Spotted Bear and Micheal Bintliff with the MHA Nation Public Works Department and Lisa Lone Fight and Morgan Berquist with the MHA Nation Science Department at the Public Works Office. The EPA inspectors presented their credentials and had an opening conference to explain the purpose of the inspection. The inspectors proceeded to asked questions to the facility representatives to help the inspectors evaluate compliance with the facility's permit. The inspectors had obtained copies of the lab sampling results for July and August 2021 and the operation and maintenance manual for the facility prior to the inspection so those records were reviewed before the inspection. The inspectors, and facility representatives then went to the MHA Interpretive Center and met with the Delphine Baker and Jordan Longtime Sleeping with the MHA Interpretive Center and Bud Augst, the construction superintendent for Woodstone, Inc. for the MHA Interpretive Center. The EPA inspectors presented their credentials to the MHA Interpretive Center representatives 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 facility receives wastewater from the MHA Interpretive Center and the existing earth lodges in the area. The MHA Interpretive Center houses 10 offices and a large display of museum and interactive kiosks of the culture of the MHA Nation. The building has a 250 seat event room and a state of the art kitchen for preparing traditional meals for the public at certain events. The kitchen has a grease trap to capture and remove grease (photo 26). The inspectors observed the kitchen grease trap. There were considerable amounts of grease in the grease trap that needed to be removed. The MHA Interpretive Center has a classroom for cultural educational classes. There is also an Amphitheatre with outside seating for 350 people. The peak flow from the MHA Interpretive Center is estimated to be 43,750 gallons per day (GPD). The wastewater treatment facility design rate is for an average flow of 17,500 GPD.

The wastewater treatment for the facility consists of a Bioclere system. The inspectors inspected the Bioclere system. The first stage of treatment occurs in the primary settling tank in which the solids are settled and partially digested (photo 28). Wastewater then flows from the primary settling tank lift station (photo 27) to the Bioclere (photo 31) where treatment by the natural process of biochemical oxidation takes place followed by final clarification prior to discharge. The wastewater enters the baffled zone located in the clarifier beneath the Bioclere filter module. It is then pumped to the distribution assembly, which doses the surface of the filter media (photo 29). The oxidation process occurs as the water trickles over the biological film that grows on the media surface. The pump operates on a timed sequence that is specific to the facility's wastewater characteristics to ensure that the dosing rate optimizes filter performance. In the filter module the biological film thickens until carbonaceous material and oxygen no longer penetrates to the bacteria on the inside surface nearest the media. When this occurs the biological film sloughs from the media and passes through the media bed into the

clarifier where it settles on the bottom. A sludge return pump periodically returns the sludge to the primary tank. The treated effluent from the Bioclere system then goes to the Ultraviolet (UV) lift station (photo 30) and is then pumped to two UV treatments units that are located in series for disinfection (photo 33). On August 20, 2021, a sampling port was installed after the UV treatment system. The treated effluent is then discharged to Lake Sakakawea (photo 34). The discharge pipe is located underwater.

The inspectors then returned to the MHA Interpretive Center office and held a closing conference with the facility representatives where they discussed preliminary findings. On September 14, 2021, the EPA sent an email to Mr. Spotted Bear, Ms. Baker, Mr. Bintliff, Mr. Baker, Ms. Lone Fight and Ms. Berquist with the preliminary findings from the inspection.

The WWTF started operating on July 7, 2021. During the September 7, 2021, sampling event the MHA Nation Public Works Department noted a small hole in the ground adjacent to the electrical box by the UV lift station. AquaPoint, the wastewater treatment design contractor, was onsite at the time and was made aware of the hole. On July 13, 2021, the MHA Nation Public Works Department noted water pooling in the hole next to the electrical box by the UV lift station. The MHA Nation Public Works Department indicated that water was contained in the hole and there were no signs of an overflow. AquaPoint was informed of the water pooling in the hole. AquaPoint indicated that they would fix the leak. On July 19, 2021, the hole began to grow in size. On the same day, the MHA Nation Public Works Department turned off the pumps to the MHA Interpretive Center WWTF to prevent the hole from getting bigger and started pumping the water from the equalization basin and hauling offsite to the Four Bears Lagoon each day. On August 4, 2021, at 6:00 pm the UV lift station line leak was repaired. The MHA Nation Public Works Department indicated that there was no discharge from the MHA Interpretive Center WWTF from July 19, 2021 to August 4, 2021. The MHA Interpretive Center WWTF resume discharging after the line was repaired. The MHA Nation Public Works Department notified EPA of this issue on July 29, 2021, and again on August 6, 2021, once the UV lift station pipe leak was repaired.

Findings, Corrective Actions and Recommendations

Finding #1: There was no daily log of the summary of all operation and maintenance activities performed at the facility.

The MHA Interpretive Center WWTF started operating on July 7, 2021. It is important for the facility to conduct routine operations and maintenance activities at the facility as indicated in the Operations and Maintenance Manual. The permit requires the facility to maintain a daily log containing a summary record of all operations and maintenance activities at the facility. There was no daily log of the summary of all operation and maintenance activities performed at the facility since it began operating.

The Section 6.0 of the Operation and Maintenance Manual for the facility has the General Maintenance Procedures for the Bioclere system. Section 6.8 of the Operation and Maintenance Manual for the facility has the Process Control Field Testing Recommendations. The Operations and Maintenance Manual for the facility also states, “a Bioclere field report checklist is included at the end of this section to facilitate ongoing preventative maintenance. Please refer to section 6.6 & 6.7 for process control guidelines.”

Permit requirement:

Part 3.5.1.4 of the permit states, "Require the operator to perform the routine operation and maintenance requirements in accordance with the schedule(s)."

Part 3.5.2 of the permit states, "The Permittee shall maintain a daily log in either paper or electronic format containing a summary record of all operation and maintenance activities at the wastewater treatment facility. At a minimum, the log shall include the following information:

- 3.5.2.1. Date and time;
- 3.5.2.2. Name and title of person(s) making the log entry;
- 3.5.2.3. Name of the persons(s) performing the activity;
- 3.5.2.4. A brief description of the activity; and,
- 3.5.2.5. Other information, as appropriate."

Part 3.5.3 of the permit states, "The Permittee shall maintain the daily log in accordance with proper record-keeping procedures and shall make the log available for inspection, upon request, by authorized representatives of the U.S. Environmental Protection Agency or the Tribe."

Corrective Action:

Perform routine operation and maintenance of the facility in accordance with the Operation and Maintenance Manual. Maintain daily logs of all operation and maintenance activities. Provide the EPA, the MHA Nation Environmental Department (MHA Nation) and Indian Health Service (IHS) with a description of the corrective actions taken to address this finding.

Finding #2: The grease in the kitchen grease trap needed to be pumped out.

The grease trap in the kitchen area had considerable amounts of grease and needed to be pumped out by a grease hauler (photo 26). The grease trap should be pumped out on predetermined schedule to prevent grease from damaging the wastewater treatment facility. It is recommended that the kitchen staff be trained on what should be disposed in the garbage container versus the sink to minimize grease and food scraps going to the grease trap.

The Operation and Maintenance Manual for the facility states, "AquaPoint recommends that the grease trap(s) and primary tank(s) are checked every 3 and 6 months respectively by a certified operator or septic hauler and pumped as needed. For seasonal applications, pumping of the tanks should occur during mid-season to protect the microbiology in the filter. Failure to adhere to this pumping schedule will result in compromised treatment and will void the Bioclere warranty."

Permit requirement:

Part 3.5 of the permit states, "The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the Permit. However, the Permittee shall operate, at a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve Permit effluent compliance."

Corrective Action:

Perform routine operation and maintenance of the grease trap in accordance with the Operation and Maintenance Manual. Maintain daily logs of all operation and maintenance activities. Provide a copy of the latest grease pumping manifest from the grease trap. Provide the EPA, the MHA Nation and IHS with photos and a description of the corrective actions taken to address this finding.

Finding 3: The facility did not have spare parts for the wastewater treatment facility.

The facility did not have spare parts for the wastewater treatment facility, for example lift station pumps and UV replacement bulbs. It is recommended that the facility have spare parts in case a part of the wastewater treatment system malfunctions.

Permit requirement:

Part 3.5 of the permit states, "The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the Permit. However, the Permittee shall operate, at a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve Permit effluent compliance."

Corrective Action:

Properly operate and maintain the facility by ensuring that the facility has back-up or auxiliary facilities or similar systems to achieve compliance with the conditions of the Permit. Provide the EPA, the MHA Nation and IHS with photos and a description of the corrective actions taken to address this finding.

Finding #4: The facility did not have an effluent flow meter.

The facility did not have a flow meter to measure the effluent flow discharged from the facility (photo 33).

Permit requirement:

Footnote b of Part 1.3.2 of the permit states, "Flow measurements with a flow measuring device (i.e. parshall flume, weirs, etc) of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained. The minimum, average and maximum flow rates (in gallons per day) during the reporting period shall be recorded in the daily log and reported."

Corrective Action:

Install a flow measuring device. Ensure that effluent flow measurements are representative of the values being discharged. Provide the EPA, the MHA Nation and IHS with photos and a description of the corrective actions taken to address this finding.

Finding #5: The facility did not have a sampling port for the outfall until one was installed on August 20, 2021.

The facility did not have a sampling port after the UV treatment station; therefore the samples were taken before the UV treatment system and were not representative of the discharge. The UV treatment system is designed to kill *Escherichia coli* (*E. coli*) bacteria. On August 20, 2021, the facility installed

the sampling valve after the UV treatment system so the effluent samples taken can be representative of the discharge (photo 33).

Permit requirement:

Part 2.1 of the permit states, “Samples taken in compliance with the monitoring requirements established under section 1 shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Sludge samples shall be collected at a location representative of the quality of sludge immediately prior to use-disposal practice.”

Corrective Action:

On August 20, 2021, the facility installed the sampling valve after the UV treatment system so the effluent samples taken can be representative of the discharge. No further action is required at this time.

Finding #6: Composite samples for biological oxygen demand (BOD₅) and total suspended solids (TSS) were not sampled in accordance with the requirements of the permit.

The BOD₅ and TSS composite samples were not collected and analyzed per the permit requirements. The July 7, 2021, July 13, 2021, August 10, 2021, and August 17, 2021, BOD₅ and TSS composite samples consisted of four grab samples taken throughout the day on each of those days; however, the four grab samples were analyzed separately. The four grab samples collected on each of the days should have been combined and analyzed as one sample for each day as required by the permit.

Permit requirement:

Part 1.1 of the permit states, “*Composite samples* shall be flow proportioned. The composite sample shall, at a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours, nor more than twenty-four (24) hours. Acceptable methods for the preparation of composite samples are as follows:

- a. Constant time interval between samples, sample volume proportional to flow rate at the time of sampling;
- b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time of the first sample was collected may be used;
- c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
- d. Continuous collection of sample with sample collection rate proportional to flow rate.”

Part 1.3.2 of the permit indicates that composite samples shall be taken from the effluent for BOD₅ and Total Suspended Solids samples.

Corrective Action:

Ensure that effluent composite samples be taken for BOD₅ and TSS in accordance with the composite sample definition found in the permit. Provide the chain of custody and sample results for the BOD₅ and TSS samples collected in September 2021. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Finding #7: The facility exceeded its 7-day average effluent permit limits for BOD₅ and TSS and the daily maximum effluent permit limit for *E. coli*.

The July 7, 2021, and July 13, 2021, grab samples exceeded the 7-day average effluent permit limits for BOD₅ and TSS and the daily maximum effluent permit limit for *E. coli*. The August 10, 2021, and August 17, 2021, samples exceeded the daily maximum effluent permit limit for *E. coli*. Please note that the BOD₅ and TSS samples were collected as grab samples instead of composite samples as required by the permit. The BOD₅ and TSS grab samples results collected on August 10, 2021 and August 17, 2021 were below the BOD₅ and TSS 7-day average effluent limit. The BOD₅, TSS and *E. coli*. exceedances occurred during the start-up of the wastewater treatment facility and the samples were taken prior to the UV treatment system since there was no sampling port after the UV treatment system at the time of the sampling. The UV treatment system is designed to kill *E. coli* bacteria. On August 20, 2021, a sampling port was added after the UV treatment system. Sample results collected after August 20, 2021 were not available at the time of the inspection.

Date and time of sample	Sample type	BOD ₅ concentration (mg/L)	BOD ₅ 7-day average limit
July 7, 2021 at 9:40	Grab	63.5	45
July 7, 2021 at 10:40	Grab	72.5	45
July 7, 2021 at 14:00	Grab	<100	45
July 7, 2021 at 16:00	Grab	71.5	45
July 13, 2021 at 10:00	Grab	118	45
July 13, 2021 at 12:00	Grab	135	45
July 13, 2021 at 14:00	Grab	146	45
July 13, 2021 at 16:00	Grab	210	45

Date and time of sample	Sample type	TSS concentration (mg/L)	TSS 7-day average limit
July 7, 2021 at 9:40	Grab	92	45
July 7, 2021 at 10:40	Grab	129	45
July 7, 2021 at 14:00	Grab	89	45
July 7, 2021 at 16:00	Grab	96	45
July 13, 2021 at 10:00	Grab	291	45
July 13, 2021 at 12:00	Grab	370	45
July 13, 2021 at 14:00	Grab	194	45
July 13, 2021 at 16:00	Grab	1,170	45

Date and time of sample	Sample type	<i>E. coli</i> . (MPN/100 ml)	<i>E. coli</i> . Daily Maximum limit (#/ 100 mL)
July 7, 2021 at 9:40	Grab	>2420	410
July 13, 2021 at 10:00	Grab	>2420	410
August 10, 2021 at 10:00	Grab	>2420	410
August 17, 2021 at 10:00	Grab	>2420	410

Permit requirement:

Part 1.3.1 of the permit states, “Effluent Limitations - Outfall 001: **Effective immediately and lasting through the life of this Permit**, the quality of effluent discharged by the facility shall, at a minimum, meet the limitations as set forth below:

Effluent Characteristic	Effluent Limitation		
	30-Day Average <u>a/</u>	7-Day Average <u>a/</u>	Daily Maximum <u>a/</u>
Biological Oxygen Demand (BOD ₅), mg/L <u>b/</u>	30	45	N/A
Total Suspended Solids (TSS), mg/L	30	45	N/A
<i>E. coli</i> , #/100 mL <u>c/</u>	126	N/A	410
The pH of the discharge shall not be less than 6.0 or greater than 9.0 in any single sample or analysis.			
The concentration of oil and grease in any single sample shall not exceed 10 mg/L nor shall there be any visible sheen in the receiving water or adjoining shoreline due to the discharge.			
There shall be no discharge of floating solids or visible foam in other than trace amounts.			

”

Corrective Action:

Ensure that permit effluent limits are met by properly operating and maintaining the facility and ensuring that representative samples be taken of the discharge. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Finding #8: The facility did not notify EPA and the MHA Nation Environmental Department or provide the 5-day follow up report of daily max effluent permit limit *E. coli* exceedances and 7-day average effluent permit limits BOD₅ and TSS exceedances.

The MHA Nation Public Works Department did not notify the EPA or the MHA Nation Environmental Department of all the daily max effluent permit limit *E. coli* exceedances and 7-day average effluent permit limits BOD₅ and TSS exceedances within 24 hours of becoming aware of the above-mentioned exceedances. The MHA Nation Public Works Department did not provide the 5-day follow up reports to the EPA of the BOD₅, TSS and *E. coli* exceedances listed above.

Permit requirement:

Part 2.8 of the permit states, “The Permittee shall report any noncompliance which may endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the Permittee first became aware of the circumstances. The report shall be made to the EPA, Region 8, Site Assessment/Emergency Response Program at (303) 293-1788 and the Tribe at (701) 627-4569.

2.8.2. The following occurrences of noncompliance shall be reported by telephone to the EPA, Region 8, NPDES Enforcement Unit at (800) 227-8917 (8:00 a.m. - 4:30 p.m. Mountain Time) and the Tribe at (701) 627-4569 (8:00 a.m. - 4:30 p.m. Central Time) by the first workday following the day the Permittee became aware of the circumstances:

2.8.2.1. Any unanticipated bypass which exceeds any effluent limitation in the Permit (See section 3.7, Bypass of Treatment Facilities.);

2.8.2.2. Any upset which exceeds any effluent limitation in the Permit (See section 3.8, Upset Conditions); or,

2.8.2.3. Violation of a maximum daily discharge limitation for any of the pollutants listed in the Permit to be reported within 24 hours.

2.8.3. A written submission shall also be provided to the U.S. EPA, Office of Enforcement, Compliance and Environmental Justice, and to the Tribe within five days of the time that the Permittee becomes aware of the circumstances. The written submission shall contain:

2.8.3.1. A description of the noncompliance and its cause;

2.8.3.2. The period of noncompliance, including exact dates and times;

2.8.3.3. The estimated time noncompliance is expected to continue if it has not been corrected; and,

2.8.3.4. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

2.8.4. The Director may waive the written report on a case-by-case basis for an occurrence of noncompliance listed under section 2.8.2 above, if the incident has been orally reported in accordance with the requirements of section 2.8.2.”

Corrective Action:

Ensure that the EPA and the MHA Nation Environmental Department are notified of any exceedances of effluent limitations within 24 hours from the time the facility first becomes aware of the exceedance, and that a written report is submitted to the EPA and the MHA Nation Environmental Department within five days from the time the facility first becomes aware of the exceedance. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Finding #9: Failure to document pH, temperature and oil and grease visual observations during some sampling events.

The July 7, 2021, and the August 17, 2021, sampling events did not document the pH, temperature and the oil and grease visual observations for the samples collected on those days. The July 13, 2021, and August 10, 2021, sampling events did not document the oil and grease visual observations for the samples collected on those days.

Permit requirement:

Part 2.7 of the permit states, “The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least three years from the date of the sample, measurement, report or application. Records of monitoring required by this Permit related to sludge use and disposal activities must be kept at least five years (or longer as required by 40 C.F.R. Part 503). This period may be extended by request of the Director at any time. Data collected on site, data used to prepare the DMR, copies of DMRs, and a copy of this NPDES Permit must be maintained on site.”

Part 1.3.2 of the permit states, “At a minimum, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

Effluent Characteristic	Frequency <u>b/</u>	Sample Type <u>a/</u>
Total Flow, mgd <u>b/</u>	Daily	Instantaneous
BOD ₅ , mg/L	Weekly	Composite
Total Suspended Solids, mg/L	Weekly	Composite
<i>E. coli</i> , #/100 mL	Weekly	Grab
pH, units <u>d/</u>	Weekly	Grab or Instantaneous
Oil and grease, visual <u>c/</u>	Weekly	Visual
Total Ammonia as N, mg/L <u>d/</u>	Weekly	Grab
Temperature, °C <u>d/</u>	Weekly	Grab or Instantaneous
Total Nitrogen, mg/L <u>e/</u>	Monthly	Grab
Total Phosphorus, mg/L <u>f/</u>	Monthly	Grab

”

Corrective Action:

Ensure that pH, temperature and the oil and grease visual observations are documented for each sampling event. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Finding #10: There were some samples that did not meet the sample preservation temperature.

The July 13, 2021, and August 17, 2021, samples did not meet the temperature preservation requirements to preserve the samples at or below 6°C for *E. coli*, BOD₅, TSS, nitrate-nitrite, TKN, ammonia and phosphorus. The July 13, 2021, samples were received by the lab with a temperature of 10.8 °C. The August 17, 2021, samples were received by the lab with a temperature of 11.3 °C.

Permit requirement:

Part 2.2 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. Sludge monitoring procedures shall be those specified in 40 C.F.R. Part 503, or as specified in the Permit.”

Table II of 40 C.F.R. §136.3 indicates that *E. coli*, BOD₅, TSS, nitrate-nitrite, TKN, ammonia and phosphorus samples must be preserved at or below 6°C.

Corrective Action:

Ensure that *E. coli*, BOD₅, TSS, nitrate-nitrite, TKN, ammonia and phosphorus samples are preserved at or below 6°C. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Finding #11: The pH meter calibrations were not being documented and were not performed within the recommended schedule for the pH meter.

In-house pH meter calibrations were being performed every six months, but were not recorded. The pH meter calibrations must be recorded and kept for 3 years. The pH meter must be calibrated per the schedule in the pH meter manual.

Permit requirement:

Part 2.2 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. Sludge monitoring procedures shall be those specified in 40 C.F.R. Part 503, or as specified in the Permit."

Part 2.7 of the permit states, "The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least three years from the date of the sample, measurement, report or application. Records of monitoring required by this Permit related to sludge use and disposal activities must be kept at least five years (or longer as required by 40 C.F.R. Part 503). This period may be extended by request of the Director at any time. Data collected on site, data used to prepare the DMR, copies of DMRs, and a copy of this NPDES Permit must be maintained on site."

Corrective Action:

Ensure that pH meter calibrations are documented and performed per the manufacturer's recommendations. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.

Recommendation:

It is recommended that the pH meter be calibrated each day before it is used.

Finding #12: Influent samples have not been collected to perform the TSS and BOD₅ removal calculation.

Influent samples have not been collected to perform the TSS and BOD₅ 85% removal calculation. Influent composite samples for BOD₅ and TSS need to be collected on a weekly basis at approximately the same date as the effluent BOD₅ and TSS samples. The permit indicates that "In addition to the concentration limits for TSS and BOD₅ indicated above, the arithmetic mean of the concentration for effluent samples collected in a 30-day consecutive period shall not exceed 15 percent of the arithmetic mean of the concentration for influent samples collected at approximately the same times during the same period (85 percent removal)."

Permit requirement:

Footnote b of Part 1.3.1 of the permit states, "Percentage Removal Requirements (TSS and BOD₅ Limitation): In addition to the concentration limits for TSS and BOD₅ indicated above, the arithmetic mean of the concentration for effluent samples collected in a 30-day consecutive period shall not exceed 15 percent of the arithmetic mean of the concentration for influent samples collected at approximately the same times during the same period (85 percent removal)."

Corrective Action:

Ensure that influent composite samples for BOD₅ and TSS are collected on a weekly basis. Provide the chain of custody and sample results for the BOD₅ and TSS influent samples collected in September 2021. Provide the EPA, the MHA Nation and IHS with a description of the corrective actions taken to address this finding.



United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

National Enforcement Investigations Center

NEIC

NEICVP1598E01

NEIC CIVIL INVESTIGATION REPORT

Holcim Portland Plant

Florence, Colorado

Investigation Dates:

September 9-12, 2024

MICHAEL
LUKOWICH

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Mike Lukowich, P.E., Project Manager, NEIC

Authorized for Release by:

Linda Tekrony

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Linda Tekrony, Field Branch Manager, NEIC

Report Prepared for:

Region 8

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APPENDICES (*NEIC-created)

A	Holcim Portland Plant Organizational Chart (1 page)
B	Individual NPDES Permit No CO0000671 (49 pages)
C	NPDES General Permit No COR900000 (123 pages)
D	NPDES General Permit Certification (1 page)
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**This Contents page shows all the sections contained in this report
and provides a clear indication of the end of this report.**

INVESTIGATION OVERVIEW

PROJECT OBJECTIVE

U.S. Environmental Protection Agency (EPA) Region 8 (Region) requested EPA's National Enforcement Investigations Center (NEIC) to conduct a Clean Water Act (CWA) compliance evaluation investigation of the Holcim Portland Plant (Holcim, facility) located at 3500 State Highway 120, Florence, Colorado. The investigation assessed the facility's compliance with federal environmental statutes and permit requirements.

Table 1 lists the project team members.

Table 1. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Mike Lukowich P.E.	NEIC	Project manager
David Mahoney	NEIC	Field team member
REGIONAL AND OTHER CONTACTS		
Stephanie Meyers	EPA Region 8	Regional contact
Emilio Llamozas	EPA Region 8	Regional supervisor

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contact.

Table 2. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Shad Shapiro, Area Environmental and Public Affairs Manager, Holcim (US) Inc.	859-221-8903	shad.shapiro@holcim.com

Holcim is owned and operated by Holcim (US) Incorporated. A corporate organizational chart is in **Appendix A**.

FACILITY OVERVIEW

Holcim is authorized to discharge into the Arkansas River under an individual National Pollutant Discharge Elimination System (NPDES) permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

The facility is also authorized to discharge into the Arkansas River under general NPDES permit No. COR900000 (**Appendix C**) and Certification No. COR900923 (**Appendix D**). The general permit was effective July 1, 2024, and expires on June 30, 2029. The general permit covers discharges of storm water associated with non-extractive industrial activity.

According to EPA's Enforcement and Compliance History Online (ECHO) website, the facility was last inspected for CWA requirements on May 21, 2021, and is listed as a state inspection base program – evaluation. No formal enforcement actions have been taken for CWA violations in the last five years. Holcim is engaged in surface mining of limestone and sandstone as well as the manufacturer of cement.

According to the EPA ECHO website, this facility has the following North American Industry Classification System (NAICS) and/or Standard Industrial Classification (SIC) codes (**Table 3**):

Table 3. APPLICABLE NAICS CODES	
NAICS/SIC Code	Description
3241 (SIC)	Cement, Hydraulic

CWA REGULATORY SUMMARY

The individual NPDES Permit authorizes the discharge of process water, storm water, quarry pit dewatering, domestic sanitary effluent, and wastewater treatment plant effluent into the Arkansas River. The facility is also required to monitor internal outfalls for domestic wastewater and process wastewater associated with the cement manufacturing point source category.

The following outfalls for Holcim are currently covered under the individual NPDES permit No. CO0000671 as outlined in **Table 4**. According to the Individual NPDES permit, the outfall locations described below serve as the points of compliance for the permit and are located after all treatment and prior to discharge to the receiving water.

Table 4. NPDES INDIVIDUAL PERMIT NO. CO0000671 - OUTFALLS			
Outfall	Design Flow (MGD)	Wastewater source	Receiving Water
002A	0.2	Domestic Wastewater Treatment Facility (WWTF) effluent, process water, cooling water, underflow/backwash, storm water (logistics area), and wastewater are normally reused in process.	Arkansas River
003A	0.15	Domestic WWTF effluent, process water, cooling water, underflow/backwash, storm water (logistics area), and wastewater are normally reused in process.	Arkansas River
010A	N/A	Storm water runoff from Quarry haul roads.	Arkansas River
011A	1.8	Quarry pit dewatering and comingled storm water.	Arkansas River
009A	0.15	Internal permitted feature (WWTF sump pump) for Domestic WWTF effluent to prior to discharge at external Outfalls 002A and 003A discharge.	Arkansas River
012A	N/A	Internal permitted feature before wastewater treatment plant to accommodate Cement Manufacturing Point Source Category ELG monitoring.	Arkansas River

A block flow diagram of the outfalls listed above are contained in **Appendix E**.

The general NPDES permit No. COR900000 authorizes discharges of storm water associated with non-extractive industrial activity from Outfall 006. This is the only storm water outfall covered under the general permit. The permit requires the facility to comply with sector specific requirements listed in Part III.E in addition to requirements under Parts I and II of the general permit, requires visual monitoring in accordance with Table 4 and Part I.I.2 of the general permit, applies numeric limitations for pH (6.0 – 9.0 standard units) and Total Suspended Solids (TSS) (50 milligrams [mg]/liter [L] daily maximum) to the discharge to be sampled annually, and requires annual reports to be submitted to the division.

FACILITY OPERATIONS SUMMARY

Mining Operations

Holcim has an onsite quarry. Mining operations are used to produce limestone and sandstone which is used in the cement manufacturing process. A process flow diagram of the Holcim quarry mining operations is contained in **Appendix F**. The process Holcim typically follows includes the following steps:

1. Clear the land removing trees and vegetation.
2. Remove topsoil and store onsite for reclamation after mining operations have ceased.
3. Drill and blast using explosives to break up the hard strata and expose the limestone/sandstone.
4. Load and transport the fragmented overburden material, called spoil.
5. Expose rock using heavy equipment like power shovels and draglines to remove the remaining layers of soil and rock.
6. Mine the limestone/sandstone and load onto trucks for processing onsite.
7. Backfill and grade the area with spoil material.
8. Reclaim the area by spreading topsoil over the graded area and establish vegetation to control erosion and restore the area to original use.

The rock that is quarried from the mine is either stockpiled for later use or transported to the onsite crushers. The main crushing system includes an apron feeder, a wobbler feeder, and an impact crusher, designed to produce minus 100-millimeter material for the raw mill. An older crushing system is used for producing minus 20-millimeter limestone used in additive rock production. Raw material components are stored in the blending hall and conveyed to the cement plant across the river.

The quarry or pit can accumulate water which is pumped out to maintain operations. The accumulated water inside the pit is due to ground water seepage. Rainwater can also accumulate inside the pit after a precipitation event.

Mine drainage from the quarry collects in a pit in a low-lying area which is named the “million-dollar hole.” Mine drainage that collects in the million-dollar hole is pumped directly to the Arkansas River through outfall 011A.

In the past, Bear Creek, a tributary to the Arkansas River, was rerouted so that it would not flow into the quarry. Bear Creek now runs parallel to the existing quarry operations. Some of the water from upstream of Bear Creek along with normal ground water seepage still collects in a pond, the Bear Creek runoff seepage pond (Diversion Pond), just upstream of the existing quarry operations. Water from the pond is pumped from the Bear Creek runoff seepage pond directly to Bear Creek. There is no outfall in the NPDES individual permit which authorizes the discharge (see observation number 1).

Cement Processing Plant

Cement is a key construction material, composed primarily of limestone (calcium carbonate) and other raw materials like sandstone (a source of silica). The production process involves several steps, including extraction, preparation, blending, heating, and grinding, resulting in a fine powder that, when mixed with water, forms a paste that hardens into a solid mass. Below is a detailed description of the cement manufacturing process when using limestone and sandstone as primary raw materials.

1. Raw Material Extraction

The first step in the cement manufacturing process is the extraction of raw materials. Limestone is typically the primary raw material, providing the necessary calcium carbonate (CaCO_3), while sandstone contributes silica (SiO_2), which is critical for the strength and durability of the final product. Both limestone and sandstone are extracted from quarries through drilling and blasting. The size of the mined materials is reduced by crushers.

2. Raw Material Preparation

After extraction, the limestone and sandstone are transported to the plant and undergo further size reduction through primary and secondary crushing. These materials are stored in large, open stockpiles or silos, which help ensure a continuous supply to the next stages of production.

3. Proportioning and Blending

To achieve the desired chemical composition of cement, the limestone and sandstone are mixed in specific proportions. These proportions are determined by the required composition of the clinker, which is the intermediate product in cement production. The target is typically around 75-80% limestone and 20-25% sandstone, though the exact blend may vary depending on the specific properties of the raw materials and the desired cement type.

The materials are carefully blended and homogenized in large silos or blending beds, ensuring consistency. The goal is to produce a uniform raw meal with the correct chemical balance of calcium, silica, alumina, and iron oxide, which are necessary for the clinker formation process.

4. Preheating and Calcination

The blended raw materials, or raw meal, are fed into a preheater tower where they are heated using hot gases from the kiln. This preheating stage brings the temperature of the raw materials up to around 900 degrees Celsius (°C). During this process, a significant amount of moisture and volatile components are driven off, and the calcination of calcium carbonate occurs. Calcination is a crucial chemical reaction in which limestone (CaCO_3) is converted into calcium oxide (CaO) and carbon dioxide (CO_2).

5. Clinker Formation in the Kiln

After preheating, the raw meal enters the rotary kiln, a large cylindrical furnace that rotates and operates at temperatures between 1,400 and 1,500 °C. Inside the kiln, a series of complex chemical reactions occur, leading to the formation of clinker, the intermediate product of cement manufacturing.

The kiln operates at high temperatures, causing the calcium oxide from the limestone to react with the silica from the sandstone, forming calcium silicates (the primary compounds in cement). Small amounts of alumina and iron oxide, either from impurities in the raw materials or added intentionally, contribute to the formation of additional compounds like tricalcium aluminate and calcium aluminoferrite. These compounds are essential for the cement's final properties.

6. Clinker Cooling

Upon leaving the kiln, the hot clinker enters a cooler where it is rapidly cooled to around 100-200 °C. The rapid cooling is necessary to stabilize the chemical compounds formed during the

kiln phase and to prepare the clinker for further processing. Clinker cooling also helps recover heat for reuse in the kiln, improving the plant's energy efficiency.

7. Cement Grinding

The cooled clinker is mixed with a small amount of gypsum (typically 3-5 percent [%]), which regulates the setting time of the cement. This mixture is fed into large grinding mills, where the clinker and gypsum are ground into a fine powder known as Portland cement.

Depending on the type of cement production, other materials like pozzolans or fly ash are also added during the grinding phase to enhance specific properties, such as durability or workability.

8. Packaging and Distribution

Once the cement is ground to the desired fineness, it is stored in silos for bulk distribution or packaged in bags for sale. The final product is ready for use in concrete production and other construction applications.

Waste Water Treatment Plant (WWTP)

Holcim operates an onsite package treatment plant to treat sanitary wastewater generated onsite from the use of bathrooms and showers. The WWTP is designed for 0.15 MGD. A process flow diagram of the WWTP is contained in **Appendix H**. Wastewater enters the WWTP and is fed into an Imhoff tank which acts as a primary clarifier to reduce organic solids. The solids are anaerobically digested in the bottom of the tank. After primary treatment, wastewater is sent to a trickling filter which uses biological treatment on the surface media to reduce organics and total suspended solids. Wastewater is disinfected with chlorine in a chlorine contact chamber. After disinfection the water is stored onsite and reused in the cement making process. If pumps were to fail and the water cannot be pumped for reuse in the cement process, it may be discharged through outfall 003A.

Industrial Storm Water

According to the facility's Storm water Management Plan dated August 2024, storm water runoff at the site is managed through the use of storm water retention that allows for the diversion, infiltration, evaporation, reuse, and treatment of storm water runoff.

The general grade of the plant site slopes downward from west to east. Accordingly, there is a berm on the west side of the plant, including in the coal storage area, that directs storm water from west of the plant northward to a retention basin along the south side of the facility.

In addition, the South Ditch is a vegetated ditch that runs generally along the south perimeter of the cement plant process area intercepting storm water from south of the plant. There is no need for a control on the east and north sides of the plant as precipitation that falls outside the process area in those directions flows away from the process area.

In the plant, there are three ditches (South, Middle, and North) that convey storm water from process areas. The South Ditch drains the Plant 2 area (west of the main plant) and the tire shredder area to Outfall 003A. The Middle Ditch drains the Kiln, Cooler, Preheater Tower, Scrubber and Substation areas to a large concrete detention basin southwest of the wastewater treatment plant. The North Ditch drains the Clinker Dome, Finish Mill, and the south shipping silos (Group 2 and Group 3) areas to a detention basin northeast of the oil storage building.

In addition, there are two storm water sewers (North and South) that convey storm water from the north shipping silo area (Group 1, Silo 35) underground to the wastewater return sump where the water is pumped to the process water tank for use in the manufacturing process.

A catch basin is used to retain storm water from the nonhazardous waste containment and Quonset areas. Storage in this area includes nonhazardous waste, empty drums, and spill pallets. The wastewater treatment plant catch basin, east tire stockpile catch basin and railroad berm catch basin contain storm water from the area southeast of the plant where the tire stockpiles are currently stored.

Storm water from the Quarry Garage, quarry fueling area, and entrance areas drain to a detention basin along the south side of the quarry entrance. Storm water from the area west of the raw material feed-bins drains to a retention basin then to Outfall 010A. Storm water from the main pit drains to the southeast corner of the pit to the east pit sump where it is periodically pumped into the water truck for use watering the quarry roads for dust control.

Storm water from haul and access roads on the west side of the quarry areas, blending haul area, explosives area, and stockpiles drain to the Duck Pond. Water from the Duck Pond is used to water the roads in the quarry.

The North Pit Sump is a mined-out pit that is used as a retention pond in the northwest section of the quarry. The retention pond is utilized as a storm water storage location for water that is used to water the roads in the quarry for dust control.

Additional berms are maintained in the following locations to contain and redirect storm water runoff and minimize exposure:

- Tire stockpile areas
- Equipment and parts storage yard
- South of quarry garage and entrance area
- Around tire stockpiles
- Near the Blend Hall
- Explosives areas
- Bear Creek sump
- Along pit roads

FIELD ACTIVITIES SUMMARY

NEIC conducted the field inspection from September 9-12, 2024. NEIC inspectors, along with one Colorado Department of Public Health and Environment state inspector, arrived at the facility at approximately 10 a.m. on September 9, 2024, at which time credentials were presented to the facility contact listed in **Table 2** of this report. NEIC conducted an opening conference that explained the purpose and scope of the inspection.

During the inspection, NEIC inspectors reviewed discharge monitoring reports (DMRs), laboratory data, process flow diagrams, and self-reported noncompliance notifications. Inspectors also interviewed personnel at the facility.

In addition, NEIC inspectors conducted a walk-through inspection of the facility and observed the treatment systems, along with the outfalls. NEIC took photographs of the mining operations, cement processing plant and associated areas, as well as all permitted outfalls. A photo log is contained in **Appendix I**. After completing the inspection, on September 12, 2024, NEIC inspectors and facility representatives had a closing conference and discussed initial observations. NEIC inspectors departed the closing conference at approximately 3 p.m. on September 12, 2024.

INVESTIGATION OBSERVATIONS

NEIC identified the following observations during the CWA compliance evaluation inspection. NEIC field team members discussed all observations with facility representatives during the closeout meeting unless otherwise noted in the observation description.

These observations are not final compliance determinations. EPA Region 8 will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

Observation: 1
Observation Summary: Ground water seepage and runoff collected upstream of the Quarry is discharged to Bear Creek. A discharge into Bear Creek is not authorized under the Individual NPDES permit No. CO0000671. (unauthorized discharge)
Citation: <i>Clean Water Act Section § 301(a): except as in compliance with this section and sections 302, 306, 307, 318, 402 and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.</i>
<i>40 C.F.R. § 122.1(b)(1): The NPDES program requires permits for the discharge of “pollutants” from any “point source” into “waters of the United States.”</i>
<i>40 C.F.R. § 122.2: Pollutant: means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.</i>
<i>40 C.F.R. § 122.2: Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.</i>
<i>40 C.F.R. § 120.2: Waters of the United States means: (1) Jurisdictional waters. For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (2) of this section, the term “waters of the United States” means: (i) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the</i>

Observation: 1

ebb and flow of the tide; (ii) Tributaries; (iii) Lakes and ponds, and impoundments of jurisdictional waters; and (iv) Adjacent wetlands.

Evidence:

Appendix B - Individual NPDES Permit No CO0000671

Appendix E – Outfall Block Flow Diagram

Appendix F – Quarry Process Flow Diagram

Appendix I – Holcim Photo Log

Interviews

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

In the past, Bear Creek, a tributary to the Arkansas River, was rerouted so that it would not flow into the quarry. Bear Creek now runs parallel to the existing quarry operations. Some of the water from upstream of Bear Creek along with normal ground water seepage still collects in a pond, Bear Creek runoff seepage pond (Diversion Pond), just upstream of the existing quarry operations. Water from the Diversion Pond is pumped directly to and discharged into Bear Creek. There is no outfall in the NPDES individual permit which authorizes the discharge (see observation number 1).

The Outfall block Flow Diagram (**Appendix E**) and the Quarry Process Flow Diagram (**Appendix F**) displays the water being pumped from the Bear Creek Run Off Seepage Pond (Diversion Pond) directly into Bear Creek. There is no associated outfall that authorizes the discharge in the individual NPDES permit.

Appendix I Picture P9110046.JPG displays the pumps in the Diversion Pond that pumps water out of the pond and discharges into Bear Creek.

Observation: 2

Observation Summary: Holcim is not accurately reporting cooling tower blowdown as required by the NPDES permit.

Citation: NPDES Individual Permit No. CO0000671, Part I, C. Effluent Limitations and Monitoring Requirements,

OUTFALLS 302CW- 316(B) MONITORING

ICIS Code	Influent Parameter	Effluent Limitations Maximum Concentrations			Monitoring Requirements	
		30-Day Average	7-Day Average	Daily Maximum	Frequency	Sample Type
50050	Blowdown Flow (MGD), beginning September 1, 2021	Report		Report	Daily	Recorder or In situ

Evidence:

Appendix B – Individual NPDES Permit No CO0000671
Interviews

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

The facility is subject to effluent limitations and monitoring requirements under the individual permit. Holcim is required to report “Blowdown Flow (MGD) beginning September 1, 2021.” Blowdown flow is from the onsite cooling tower. Shad Shapiro, Area Environmental and Public Affairs Manager, Holcim (US) Inc. stated during the inspection that there is no way to monitor only the blown down from the cooling tower. Instead, the facility is reporting the total influent flow into the WWTP on the monthly Discharge Monthly Reports (DMRs), which is not accurate.

Observation: 3

Observation Summary: Annual reports detailing the dates that weekly inspections were conducted on the cooling water intake structure were not submitted as required by the NPDES permit.

Citation: NPDES Individual Permit No. CO0000671, Part I, C. Effluent Limitations and Monitoring Requirements,

2. Visual Inspections - 316(b) Monitoring: Cooling Water Intake Structure and Cooling Water System

The permittee must either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. Such inspections must be conducted at least weekly to ensure that any technologies operated to meet the BPJ BTA determination are maintained and operated to function as designed.

ICIS Code	Description	Inspection Frequency	Reporting Frequency
00308	The permittee shall submit documentation to the division that the required weekly inspections were conducted. The documentation shall contain: A. A summary of the dates the weekly inspections were conducted, and B. Specific weeks when the required inspections were not conducted.	Weekly	Annually; Due January 31 for the previous year- Beginning January 31, 2022.

Evidence:

Appendix B – Individual NPDES Permit No CO0000671
Interviews

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

The facility is subject to effluent limitations and monitoring requirements under the individual permit. Holcim is required to report annually a summary of the weekly inspections on the cooling water intake to ensure that any technologies operated will meet Best Professional Judgement (BPJ) and Best Technology Available (BTA) determinations are maintained and operated to function as designed. Shad Shapiro, Area Environmental and Public Affairs Manager, Holcim (US) Inc. stated during the inspection that inspections were conducted but no annual reports were submitted as required by the NPDES permit.

Observation: 4

Observation Summary: Holcim is not properly operating and maintaining all facilities and systems of treatment and control.

Citation: NPDES Individual Permit No. CO0000671, Part II

E. PROPER OPERATION AND MAINTENANCE

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit. See 40 C.F.R. §122.41(e).

Evidence:

Appendix B – Individual NPDES Permit No CO0000671

Appendix I – Holcim Photo Log

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

The NPDES permit requires the facility to properly operate and maintain all facilities and systems of treatment and control that are installed or used by the permittee to achieve compliance with the conditions of the permit. The WWTP, flow monitoring devices (parshall flume), and the concrete lined scrubber pond are not being properly maintained as described below:

1. The Imhoff tank used for primary treatment at the WWTP is full of vegetation and duck weed. The tank is also in disrepair and shows signs of severe corrosion (**Appendix I Picture P9100023.JPG**).
2. The trickling filter rotating arm and water distribution is in disrepair and improperly maintained. The arm does not rotate, and the wastewater is not distributed evenly across the media. There is also vegetation growing in the trickling filter (**Appendix I Picture P9100024.JPG**).
3. The parshall flume used to monitor flow from outfall 003 is covered with vegetation (**Appendix I Picture P9100028.JPG**).
4. The concrete lined scrubber pond is full of algae and the pond is at a high level with very little freeboard (**Appendix I Picture P9100031.JPG**).

Observation: 5

Observation Summary: Holcim did not monitor outfall 009A as required by the NPDES permit.

Citation: NPDES Individual Permit No. CO0000671, Part I, C. Effluent Limitations and Monitoring Requirements,

PERMITTED FEATURE 009A (INTERNAL DOMESTIC)

ICIS Code	Effluent Parameter	Effluent Limitations Maximum Concentrations				Monitoring Requirements ¹	
		30-Day Average	7-Day Average	Daily Maximum	2-Year Average	Frequency	Sample Type
50050	Effluent Flow (MGD)	0.15		Report		Continuous	Recorder
00400	pH (su)			6.0-9.0		Daily	Grab
00310	BOD5, effluent (mg/l)	30	45			3 days/week	Grab
00310	BOD5, effluent (lbs/day)	37.5	56.3			3 days/week	Calculated
50060	TRC (mg/l)	0.5		0.5		Daily	Grab
00530	TSS, effluent (mg/l)	30	45			3 days/week	Grab
00530	TSS, effluent (lbs/day)	37.5	56.3			3 days/week	Calculated
84066	Oil and Grease (visual)			Report		Daily	Visual
03582	Oil and Grease (mg/l)			10		Contingent	Grab

¹ Monitoring is only required at this feature when there is a discharge to a state water from Outfall 002 or 003.

Evidence:

Appendix B – Individual NPDES Permit No CO0000671

Appendix J - Discharges From Outfall 002 or 003

Interviews

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

The facility is subject to effluent limitations and monitoring requirements under the individual permit. Holcim is required to monitor outfall 009A, the discharge from the internal domestic sanitary WWTP, only when there is a discharge from either outfall 002A or 003A. During normal operations, all the stormwater and treated wastewater is captured and reused in the cement manufacturing process. The only time that water is discharged from outfall 002A or 003A is when there is a pump failure.

Observation: 5

In the past three years, the facility has discharged multiple times from outfalls 002A or 003A.

When discharging from outfall 002A the facility failed to monitor at outfall 009A.

When discharging from outfall 003A, the facility has only partially monitored outfall 009A because outfall 009A and outfall 003A share a common sampling point. The results from sampling outfall 003A were used to report for outfall 009A but BOD5 was not monitored.

Appendix J Discharges from Outfall 002 or 003 lists the dates of discharge.

Observation: 6

Observation Summary: Holcim is not following the spill prevention and response procedures required by the NPDES permit.

Citation: NPDES Individual Permit No. CO0000671, Part I, C. Effluent Limitations and Monitoring Requirements,

d. Spill Prevention and Response Procedures

The permittee must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such potential spills. The permittee must at minimum implement:

- 1. Procedures for regularly inspecting, testing, maintaining, and repairing all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.*
- 2. Procedures for plainly labeling containers that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;*
- 3. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, or procedures for material storage and handling;*

Evidence:

Appendix B – Individual NPDES Permit No CO0000671

Appendix I – Holcim Photo Log

Description of Observation:

Holcim is engaged in cement manufacturing and mining of raw materials used in the cement manufacturing process. The facility is authorized to discharge into the Arkansas River under a NPDES individual permit No. CO0000671 (**Appendix B**). The permit was effective March 1, 2021, modified on January 1, 2023, and on September 1, 2023, and expires on February 28, 2026.

Observation: 6

The facility is not properly labeling containers that are susceptible to spillage or leakage. They are also not using preventative measures such as barriers or secondary containment for material storage and handling (**Appendix I Pictures P9110037.JPG, P9110042.JPG**).