

# **REPORT OF COMPLIANCE SAMPLING INSPECTION**

**AT**

**Columbia Environmental Research Center  
4200 E New Haven Road  
Columbia, Missouri 65201**

**Federal Permit No.: MO0003999**

**BY**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION 7  
ENFORCEMENT AND COMPLIANCE ASSURANCE DIVISION**

**January 30-31, 2024**

## **INTRODUCTION**

At the request of the Enforcement and Compliance Assurance Division (ECAD), Water Branch, I conducted a Compliance Sampling Inspection (CSI) at Columbia Environmental Research Center (CERC) on January 30-31, 2024. The inspection was conducted under the authority of Section 308 of the Clean Water Act (as amended) and in accordance with EPA Region 7 Standard Operating Procedures. This narrative report and attachments present the results of the inspection.

## **PARTICIPANTS**

Columbia Environmental Research Center  
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## **INSPECTION PROCEDURES**

I arrived, unannounced, at the Columbia Environmental Research Center at approximately 9:00 a.m. on January 30, 2024. I spoke with Vanessa Velez, Safety Officer and Mike Prince, Facility Manager. I introduced myself, presented my credentials, and explained the purpose of my visit. I then discussed the general procedures for the inspection. These procedures included conducting a facility walk-through with photos (attachment 1); reviewing self-monitoring records; collecting effluent samples; and completing an exit interview.

## **FACILITY DESCRIPTION**

The Columbia Environmental Research Center is a United States Department of the Interior US Geological Survey research center. The facility's research focuses on how aquatic and terrestrial ecosystems are affected by environmental contaminants.

## **SAMPLING PROCEDURES**

On January 30, 2024, and January 31, 2024, I collected grab samples of the wastewater effluent for permit parameters from outfall 001 (Photo 1). The samples were collected directly into a clean 1-Liter glass bottle and transferred to individual, pre-labeled polyethylene sample containers for the analysis of chemical oxygen demand (COD), non-filterable solids (NFS), hardness (CaCO<sub>3</sub>), ammonia (NH<sub>3</sub>), nitrate plus nitrite (NO<sub>3</sub>+NO<sub>2</sub>), total kjeldahl nitrogen (TKN), total phosphorus (TP), cadmium (Cd), copper (Cu) and lead (Pb). At the time of sampling, I preserved the NH<sub>3</sub>, NO<sub>3</sub>+NO<sub>2</sub>, TKN and TP samples with 5 mL of sulfuric acid. I also preserved the CaCO<sub>3</sub>, Cd, Cu and Pb samples with nitric acid to a pH of less than 2. I collected a grab sample from the same location to measure the pH and temperature using a field meter, which was completed within 15 minutes of collecting the sample. The facility is on required to collect a flow measurement once per month. The facility was not sampling at the time of my inspection, and the permit does not have any mass-based limits, so a flow measurement was not collected on either day of the inspection.

For both days of sampling, I placed the samples I collected on ice in an ice chest, sealed the container, and shipped it overnight to the EPA Region 7 Science and Technology Center (STC) for analysis. Electronic field sheets and electronic chain of custodies were emailed to the STC each day after samples were shipped, prior to delivery. I followed Region 7 Laboratory Services and Applied Science Division (LSASD) standard operating procedures in the collection, packaging, transportation, and handling of the samples.

## **FINDINGS AND OBSERVATIONS**

**Permit:** The CERC is owned and operated by the US Department of Interior (USDOI), USGS. The facility is located on the southeast side of Columbia, approximately one mile east of US Highway 63. The latitude and longitude of the facility are 38.912196° N and -92.275809° W, respectively, in Boone County, Missouri. As described in the permit, effluent from the lagoon discharges through outfall 001 (photo 1) to a tributary of Clear Creek in the Little Boone Femme Creek basin. The facility has a second discharge point through outfall 002 (photo 4) that discharges to a tributary of Clear Creek. The lagoon treats process wastewater from the CERC.

The facility's National Pollutant Discharge Elimination System (NPDES) Permit MO0003999 was issued on August 2, 2022 (attachment 2). The permit expires on July 31, 2027. The permit includes concentration effluent limits at outfall 001 for COD, total suspended solids (TSS), Cd, Cu, Pb, pH and whole effluent toxicity. The permit requires that the facility also monitor their effluent for CaCO<sub>3</sub>, Total Nitrogen (TN) TP, and flow. The permit does not have any requirements for monitoring influent.

The facility was last inspected by Missouri Department of Natural Resources (MDNR) on May 27, 2021 (attachment 3). The inspection report shows the facility was found to not be in compliance due to operating without a permit. The report also shows the inspection found the facility had not submitted discharge monitoring reports (DMR) for multiple reporting periods in 2020 and 2021.

**Wastewater Treatment:** Wastewater treatment at the facility consists of a discharging single cell wastewater stabilization lagoon. The Lagoon receives process wastewater from wet labs at the facility, and discharges from fishponds throughout the facility. At the time of inspection, Ms. Velez stated that no chemicals are used in the wet lab or added to the fishponds. All water used in the fishponds and the wet lab comes from one of two groundwater wells on-site. The facility only purchases water from the City of Columbia for sanitary purposes throughout the campus, and all sanitary wastewater is discharged to the City of Columbia Wastewater Treatment Facility. According to DMR reports submitted after the inspection, the facility averages approximately 0.50 to 0.60 million gallons per day of process wastewater.

At the time of inspection, the lagoon berms were mowed, the insides of the berm were lined with rip-rap and I did not observe any animal burrows or other damage to the berms (photos 2-3). The lagoon was properly fenced and had proper signage as required by the NPDES permit. The lagoon had approximately three feet of freeboard at the time of inspection. The facility's permit requires they maintain at least two feet of freeboard at all times.

**Discharge Monitoring Reports:** Prior to my inspection, I obtained a spreadsheet of the discharge DMR data for the facility from the EPA Region 7 data team. The spreadsheet containing the DMR reports included data from January 2019 through January 2024. Facility personnel provided the facility's DMRs on-site at the time of inspection and submitted them to me electronically after the inspection. All DMR data obtained for this report can be found on ECAD's electronic file management system.

My review of the DMR data provided by the EPA showed the facility had multiple violations in March and April of 2021. As discussed in the MDNR inspection report, the data for the reports was available at the facility but was not submitted to the MDNR as required. Since the MDNR inspection, the data has been submitted for most of the reporting periods, but the report is still showing violations. The facility needs to work with MDNR to ensure this data is submitted as required and violations are corrected as needed. This is noted in the summary of this report as finding 1.

During my inspection, I also found that the facility had received a Letter of Warning (LOW) from MDNR for exceeding their Cd limits in March and April of 2023. The facility's permit limit for Cd is 0.7 ug/L, and they reported <1.0 ug/L (attachment 4). The facility responded to the LOWs explaining it was a lab analysis issue (attachment 5), addressing the violations. I asked Ms. Velez if the facility had documentation that the violations were corrected, and she stated she was told on a phone call that the corrective action was sufficient, but no written follow-up correspondence was received from MDNR. Ms. Butler explained that MDNR does not typically send written follow-up correspondence when a violation is corrected. The facility has not had any violations of the same nature since April 2023.

**Sample Results:** The analytical results from the inspection were received on February 27, 2024, from the R7 STC laboratory. This data was not discussed during the exit interview. The analytical results from effluent sampling conducted during the inspection at CERC for BOD, TSS (identified as NFS, non-filterable solids, in EPA's laboratory sheets), NH<sub>3</sub>, TKN, NO<sub>3</sub>+NO<sub>2</sub>, TN, TP, temperature, pH and flow are presented in Table 1 below. See attachment 6 for the complete analytical data packet including the analytical results from samples collected during the inspection.

As described in attachment 6, for results followed by a J, the analyte is acceptable; the reported value is an estimate. For results followed by a U, the analyte was not detected at or above the reporting limit. The number that is shown is the reporting limit. For results followed by an O, the parameter was not analyzed.

**Table 4: Analytical Results for Effluent Samples Collected During Inspection**

| Parameter                     | (January 30, 2024)<br>Sample #1 | (January 31, 2024)<br>Sample #2 | Permit<br>Limits <sup>3</sup> |
|-------------------------------|---------------------------------|---------------------------------|-------------------------------|
| COD5 (mg/L)                   | ND                              | ND UJ                           | 60/40                         |
| TSS (mg/L)                    | 6.14                            | ND UJ                           | 80/60                         |
| NH3 (mg/L)                    | ND                              | ND UJ                           | NA                            |
| CaCO3 (mg/L)                  | 259                             | ND                              | NA                            |
| TKN (mg/L)                    | 0.441                           | ND UJ                           | Monitor                       |
| NO3+NO2 (mg/L)                | 0.081                           | ND UJ                           | NA                            |
| TN (mg/L)                     | 0.522                           | ND UJ                           | Monitor                       |
| TP (mg/L)                     | ND                              | ND UJ                           | Monitor                       |
| Cd (ug/L)                     | ND                              | ND                              | 10.9                          |
| Cu (ug/L)                     | ND                              | ND                              | N/A                           |
| Pb (ug/L)                     | ND                              | ND                              | 14.7/10.3                     |
| Temperature (°C) <sup>2</sup> | 7.1                             | 9.1                             | NA                            |
| pH <sup>2</sup>               | 8.3                             | 8.1                             | 6.5-9.0                       |

<sup>1</sup>mg/L = milligrams per liter, ug/L = micrograms per liter

<sup>2</sup>°C = degrees Celsius, pH is not to be averaged, pH and temperature were measured in the field.

<sup>3</sup>Permit limits are daily maximum followed by monthly average.

Effluent samples collected during my inspection showed no exceedances of the permit effluent limits.

**Summary:** On January 31, 2024, I conducted an exit briefing with Ms. Velez. In the exit briefing, I explained the preliminary findings that I observed during the inspection. I went over the facility's rights to claim confidential business information. The facility did not make any claims of confidentiality (attachment 7) A NOPF was left on site with no findings at the time of inspection (Attachment 8). After the inspection, the following finding was determined:

- 1) The facility needs to work with MDNR to ensure that all historical DMR data is up to date and correct.

**BRIAN  
D'ALFONSO**

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Brian D'Alfonso  
Life Scientist

**JODI  
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**Attachments:**

1. Digital Photographs with Photo Log (5pages)
2. NPDES Permit MO0003999 issued on August1, 2022 (52 pages)
3. May 27, 2021, MDNR Inspection (12 pages)
4. MDNR Letters of Warning (6 pages)
5. Facility Responses to LOWs (2 pages)
6. Laboratory Analytical Report for BPD2304 (15 pages)
7. Confidential Business Information Form (4 pages)
8. Notice of Preliminary Findings (1 pages)