5.200 BCRSD, Oberlin Valley Wastewater Treatment Facility
Boone County
#MO-0117323

May 23, 2018

Dwayne Cooksey, Operations Manager
Boone County Regional Sewer District
1314 North Seventh Street
Columbia, MO 65201

**LETTER OF WARNING**
**NO RESPONSE REQUIRED**

Dear Mr. Cooksey:

Staff from the Missouri Department of Natural Resources conducted an inspection on May 2, 2018, of the Boone County Regional Sewer District, Oberlin Valley Wastewater Treatment Facility, located off North Oberlin Valley Road, Columbia, Missouri, in Boone County. The entity operates under the authority of Missouri State Operating Permit #MO-0117323.

Compliance with the Missouri Clean Water Law was evaluated. The enclosed report is being issued with a Letter of Warning for the violations identified. Please refer to the enclosed report for details on findings and required actions. A written response is not required at this time as you have corrected the unsatisfactory findings. Your corrective actions show that you recognize our mutual goal in providing a quality of life for Missouri's citizens through environmental compliance. The Department appreciates your voluntary efforts to comply with the laws of Missouri and your continued efforts to work with us to improve protection of Missouri citizens and our natural resources.

Fact sheets are available on the Department's website to assist entities with understanding and following environmental requirements.

If you have any questions or would like to schedule a time to meet with Department staff to discuss compliance requirements, please contact Michael Heaton at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by email at NERO@dnr.mo.gov.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/mhd

Enclosures: Report of Inspection

**Missouri Department of Natural Resources**
**Northeast Regional Office**
**Report of Inspection**
**BCRSD, Oberlin Valley Wastewater Treatment Facility**
**North Oberlin Valley Road, Columbia,**
**Missouri, 65201, Boone County**
**#MO-0117323**
**May 23, 2018**

## Introduction

Pursuant to Section 644.026.1 of the Missouri Clean Water Law, I, Michael Heaton, conducted a routine inspection of the Boone County Regional Sewer District (BCRSD), Oberlin Valley Wastewater Treatment Facility (WWTF) in Boone County, Missouri, on May 2, 2018. The following people participated in the inspection:

BCRSD, Oberlin Valley WWTF

| | | |
|---|---|---|
| Virgil Farnen | Operations Supervisor | (573) 881-9913 |
| Jason Horton | Wastewater Operator | (573) 881-9918 |

Missouri Department of Natural Resources

| | | |
|---|---|---|
| Michael Heaton | Environmental Scientist | (660) 385-8000 |

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0117323, the Missouri Clean Water Law, and the Missouri Clean Water Commission Regulations. This report presents the findings and observations made during the inspection.

## Entity Description and History

Missouri State Operating Permit (MSOP) #MO-0117323 was last issued on September 1, 2013, and expired on March 31, 2015. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow. A renewal application was received by the Department on May 12, 2014. The facility must continue to follow the conditions of the MSOP that expired on March 31, 2015, until the facility MSOP is terminated or the MSOP is renewed.

The Oberlin Valley WWTF is owned and operated by BCRSD. The facility consists of an extended aeration plant. Sludge from the facility is hauled to another permitted facility. The facility has a design flow of 25,000 gallons per day with an actual flow of 3,351 gallons per day. The design population equivalent is listed on the permit as 250. Design sludge production is 4.5 dry tons per year.

The UTM Coordinates of the BCRSD, Oberlin Valley WWTF are listed on the permit as the Easting 555718 and Northing 4316136, in Boone County. The receiving stream for this facility is a tributary to Cow Branch and it is located in the 10300102 HUC 8 watershed.

Prior to the inspection, I reviewed the files for the BCRSD, Oberlin Valley WWTF, including the Permit Conditions of MSOP #MO-0117323, to familiarize myself with the requirements specific to this facility.

The regional office performed a previous inspection on December 17, 2014. At the time of the inspection, the facility was found to be operating in non-compliance and a Notice of Violation (NOV), dated January 16, 2015, was sent to the facility. The unsatisfactory findings detailed in the January 16, 2015, NOV, was the facility failed to attain compliance with the effluent limit for E-coli by December 31, 2013, and exceeding effluent limits on various dates for E-coli.

On October 6, 2017, the facility received notification from the Department that State Revolving Funds were available for the construction of a pump station and force main interconnection to the City of Columbia's wastewater collection system. The letter stated that the current application would expire on September 30, 2018.

The file review also found several letters from the Department to the BCRSD for exceedances for the effluent limitation for E-coli. The most recent letter was a Letter of Warning dated March 20, 2018, for effluent limitation violations for E-coli for the reporting periods ending on September 30, 2017, and December 31, 2017. The facility is not required to collect E-coli samples in the non-recreational season. April 1, 2018, was the beginning of the recreational season for 2018. A response to the Letter of Warning was received by the Northeast Regional Office on April 20, 2018. The response stated the facility would be closed and a pump station would be constructed to pump the wastewater to the City of Columbia WWTF. The response also had time lines for each step of the project.

**Discussion of Inspection and Observations**

The inspection was conducted during normal business hours. I provided notification prior to the inspection to ensure timely access to the site. Upon arrival at the facility, I met with Mr. Farnen and the purpose and scope of the inspection were outlined. Mr. Farnen granted permission to access the site and Mr. Farnen and Mr. Horton accompanied me throughout the tour of the facility.

As I arrived at the facility, I observed that an all-weather access road to the facility was available. The facility gate was equipped with a lock to prevent unauthorized access. A perimeter fence around the facility was observed and appeared to be in good condition. Warning signs were observed posted on all four sides of the perimeter fence (Photograph #1).

I then observed the outfall location. A sign marking the outfall was observed (Photograph #2). Effluent was observed discharging at the time of the inspection. The effluent appeared relatively clear with no odors detected in the area (Photographs: #3 and 4). Below the outfall, in the

tributary to Cow Branch, I observed sludge deposits and algae growth in the receiving stream for approximately 20 feet below the outfall. The sludge deposits were relatively light and appeared to be approximately ¼ to ½ inch in depth (Photographs #3 and 5).

I then observed the WWTF. The facility's extended aeration basin appeared to have proper aeration, as there were no non-aerated sections in the basin (Photograph #7). The clarifier was then observed. The water in the clarifier appeared clear and some solids were observed going over the weir. The weir appeared level as all the flow through the weir appeared consistent (Photograph #6). Mr. Horton explained that they need to remove some sludge from the plant and plan on removing the sludge soon. I asked about disinfection for the facility. Mr. Farnen explained that disinfection was not installed since the facility will be closed and a pump station will be installed to pump the wastewater to the City of Columbia WWTF.

I then observed the bar screen where the influent enters the plant. Mr. Horton stated that the bar screen is cleaned regularly. A five gallon bucket was observed near the bar screen. The five gallon bucked is used to store the material removed off the bar screen for proper disposal (Photograph #8). Mr. Horton stated that the bar screen was too level with the influent, which caused some issues with toiletries building up on the bar screen.

**Sampling and Monitoring**

The appropriate sampling materials were taken on the inspection, including a copy of the Missouri Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. Ammonia test strips for water quality monitoring were also taken on the inspection.

Water quality field monitoring was conducted at the following location for the listed parameters. The effluent was observed to be clear with no odors detected. Sludge deposits were observed in the receiving stream. Some solids accumulation was also observed in the composite sampler when the samples were collected.

| **Sample #180130<br>Outfall #001<br>Composite Sample** | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| pH | 8.46 | s.u. |
| Temperature | 16.6 | °C |
| Dissolved Oxygen | 5.43 | mg/L |
| Conductivity | 1297 | Microsiemens |

| Sample #180131<br>Outfall #001<br>Grab Sample | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| pH | 8.07 | s.u. |
| Temperature | 16.7 | °C |
| Dissolved Oxygen | 1.84 | mg/L |
| Conductivity | 1310 | Microsiemens |

| Sample #180132<br>Outfall #001<br>Grab Sample<br>Duplicate Sample for Sample #180131 | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| pH | 8.11 | s.u. |
| Temperature | 16.8 | °C |
| Dissolved Oxygen | 1.78 | mg/L |
| Conductivity | 1324 | Microsiemens |

A composite sampler was set on May 1, 2018, and the samples were collected during the May 2, 2018, inspection. Sampling was conducted and submitted for laboratory analysis. The Department's Environmental Services Program results of Sample Analysis # 180130 - 180132 were not complete at the time of the report. However, preliminary results for E-coli were received and showed that E-coli was >2,419.6 mpn/100ml for Sample # 180131 and 180132. The results will be provided to the facility when they are available.

Based upon information received from BCRSD, E-coli was sampled on April 11, 2018, and the result for E-coli was 2,359 mpn/100ml. Based on the result of the sample collected on April 11, 2018, the facility exceeded the effluent limitation for E-coli which is 206 mpn/100ml for the monthly average and 1030 mpn/100ml for the weekly average.

**Compliance Determination and Required Actions**

The facility was found to be in **non-compliance** with MSOP #MO-0117323, the Missouri Clean Water Law, and the Missouri Clean Water Commission Regulations, based upon the observations made at the time of the inspection.

**Letter of Warning**

1. Caused pollution of the tributary to Cow Branch, waters of the state [Sections 644.051.1(1) and 644.076.1, RSMo].

**NO FURTHER ACTION REQUIRED:** On May 14, 2018, the Northeast Regional Office received a response stating that sludge was removed from the receiving stream on May 3, 2018.

2. The facility discharged water contaminants (sludge in the receiving stream) into waters of the state, which reduced the quality of such waters below the Water Quality Standards established by the Missouri Clean Water Commission [Sections 644.051.1(2) and 644.076.1, RSMo, and 10 CSR 20-7.031 or applicable subsections of 10 CSR 20-7.031].

**NO FURTHER ACTION REQUIRED:** On May 14, 2018, the Northeast Regional Office received a response stating that sludge was removed from the receiving stream on May 3, 2018.

3. Failed to operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions [Sections 644.051.1(3) and 644.076.1, RSMo]. Solids were observed in the effluent.

**NO FURTHER ACTION REQUIRED:** On May 14, 2018, the Northeast Regional Office received a response stating that sludge was removed from the facility on May 3, 2018. The facility shall monitor the sludge levels and take proper actions to manage the sludge to prevent a discharge of the sludge from the facility.

4. Failed to attain compliance with the final effluent limitation for E-coli by December 31, 2013, as required in part "C" Standard Conditions, and part "E", Schedule of Compliance of MSOP #MO-0117323 [Sections 644.076.1 RSMo, and 10 CSR 20-6.010(7)(A)].

**NO FURTHER ACTION REQUIRED:** On April 16, 2018, the facility submitted a written response to the March 20, 2018, Letter of Warning notifying the facility of previous E-coli exceedances. The April 16, 2018, response stated that BCRSD will be closing the facility and connecting to the City of Columbia WWTF and the response also had projected timelines for completion of each step of the project.

5. Since/On April 11, 2018, failed to comply with the effluent limits contained in Part "A" of MSOP #MO-0117323 [Sections 644.051.1(3) and 644.076.1, RSMo].

**NO FURTHER ACTION REQUIRED:** On April 16, 2018, the facility submitted a written response to the March 20, 2018, Letter of Warning which notified the facility of previous exceedances. The April 16, 2018, response stated that BCRSD will be closing the facility and connecting to the City of Columbia WWTF and the response also had projected timelines for completion of each step of the project.

**Recommendations**

1. Routinely examine the receiving stream to ensure that no pass through of solids is occurring from the facility. If pass through of solids has occurred, the facility should take appropriate actions to clean out the receiving stream and take actions to reduce the pass through of solids.

**Additional Comments/Conclusion**

None

**Signatures**

SUBMITTED BY:

Michael Heaton
Environmental Scientist
Northeast Regional Office

REVIEWED BY:

Jamie Shinn
Environmental Supervisor
Northeast Regional Office

MH/dm

**Attachments**

**Attachment # 1 – Photos 1 - 8**
**Attachment # 2 -- Sludge Checklist**
**Attachment # 3 -- Aerial Photo**

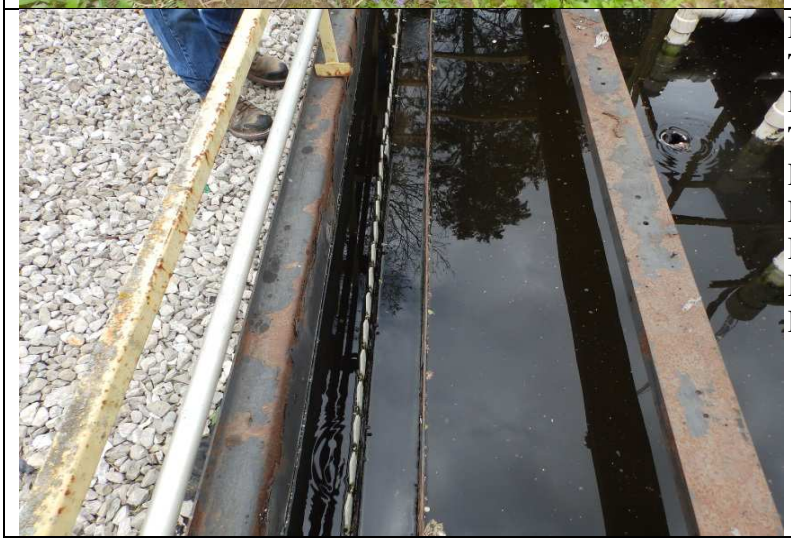
**Attachment # 1**
**BCRSD, Oberlin Valley WWTF**
**May 23, 2018**
**Page 1**

Photograph #: 1
Taken by: Michael Heaton
Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility
Permit: #MO-0117323
Location: Boone County
Description: Front entrance to the facility. Gate to facility with an all-weather access road.
Date Taken: May 2, 2018
Program: WPC Unit


Photograph #: 2
Taken by: Michael Heaton
Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility
Permit: #MO-0117323
Location: Boone County
Description: Sign marking the outfall location.
Date Taken: May 2, 2018
Program: WPC Unit

Photograph #: 3
Taken by: Michael Heaton
Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility
Permit: #MO-0117323
Location: Boone County
Description: View of the outfall location. Sludge and algae was observed in the stream below the outfall.
Date Taken: May 2, 2018
Program: WPC Unit

Initial MH

| | |
|---|---|
|  | Photograph #: 4<br>Taken by: Michael Heaton<br>Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility<br>Permit: #MO-0117323<br>Location: Boone County<br>Description: Outfall #001<br>Date Taken: May 2, 2018<br>Program: WPC Unit |
|  | Photograph #: 5<br>Taken by: Michael Heaton<br>Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility<br>Permit: #MO-0117323<br>Location: Boone County<br>Description: View of the algae and sludge in the receiving stream below the outfall.<br>Date Taken: May 2, 2018<br>Program: WPC Unit |
|  | Photograph #: 6<br>Taken by: Michael Heaton<br>Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility<br>Permit: #MO-0117323<br>Location: Boone County<br>Description: Clarifier weir.<br>Date Taken: May 2, 2018<br>Program: WPC Unit |

Initial MH

| | |
|---|---|
|  | Photograph #: 7<br>Taken by: Michael Heaton<br>Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility<br>Permit: #MO-0117323<br>Location: Boone County<br>Description: Extended aeration facility.<br>Date Taken: May 2, 2018<br>Program: WPC Unit |
|  | Photograph #: 8<br>Taken by: Michael Heaton<br>Entity: BCRSD, Oberlin Valley Wastewater Treatment Facility<br>Permit: #MO-0117323<br>Location: Boone County<br>Description: View of bar screen at the facility.<br>Program: WPC Unit |

Initial MH

# Sludge Handling Checklist for Wastewater Treatment Facilities

| **Facility Name:** BCRSD, Oberlin Valley Wastewater Treatment Facility | **MSOP #:** #MO-0117323 | | |
|---|---|---|---|
| **Issue to be addressed** | **Options** | | **Not Inspected** |
| What method (land application, incineration, landfill, etc) is used for sludge management? | Sludge removed and taken to a permitted facility | | ☐ |
| | **Date** | | |
| How often is sludge removed from the facility? | As needed | | ☐ |
| When was the last time sludge was removed? | | | ☐ |
| | **Yes** | **No** | **Not Applicable** |
| Has the Form S annual report been submitted? | ☒ | ☐ | ☐ |
| Have the applicable additional sections been submitted? (If not, please describe deficiencies below in the comments field) | ☒ | ☐ | ☐ |
| Is the form filled out correctly? (If not, please describe deficiencies below in the comments field) | ☒ | ☐ | ☐ |
| Is the monitoring frequency for metals, pathogens and vectors (WQ 423) being met? | ☐ | ☐ | ☒ |
| Are the requirements for pathogens and vector attraction (WQ 424) being met? | ☐ | ☐ | ☒ |
| Are land applied biosolids below the ceiling concentration for metals (WQ 425)? | ☐ | ☐ | ☒ |
| Are the nitrogen, soil pH and soil phosphorus limitations (WQ426) being met? | ☐ | ☐ | ☒ |
| Other Comments: | | | |

**Attachment # 3**
**BCRSD, Oberlin Valley WWTF**
**May 23, 2018**
**Page 1**

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
dnr.mo.gov

CERTIFIED MAIL
7014 1200 0001 0386 8146

5.200 BCSD, Oberlin Valley WWTF
Boone County
#MO-0117323
NOV #NER 2015060308203000

January 22, 2016

Dwayne Cooksey, Operations Manager
Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201

**NOTICE OF VIOLATION**

Dear Mr. Cooksey:

Missouri State Operating Permit (MSOP) #MO-0117323 was issued for the Boone County Regional Sewer District (BCSD), Oberlin Valley Wastewater Treatment Facility (WWTF) in Boone County. This permit sets forth specific effluent limitations, monitoring requirements, and specific permit conditions regarding the facility.

A review of your Discharge Monitoring Reports (DMRs) for the 1st and 2nd Quarter 2015 monitoring periods shows that the effluent limitations established in your MSOP have been exceeded. The effluent limits and the values that have exceeded those effluent limits are listed below.

| Outfall | Monitoring Period | Parameter | Permitted Limitations | Reported Values |
|---|---|---|---|---|
| 001 | 2nd Quarter 2015 | E. coli | 206 #/100 mL Monthly Average | 5810 #/100 mL |
| 001 | 3rd Quarter 2015 | E. coli | 206 #/100 mL Monthly Average | 12445 #/100 mL |

Therefore, Notice of Violation #NER 2015060308203000 is hereby issued to BCSD, Oberlin Valley WWTF for failure to comply with the aforementioned effluent limitations. Per state regulation 10 CSR 20-7.015(9)(D)(4), please provide a written report by **February 15, 2016**, which explains the cause for the non-compliance, exact dates of non-compliance, date upon which you returned to compliance, and what steps your operation performed to prevent a reoccurrence of the violation. BCSD, Oberlin Valley WWTF will be considered in non-compliance with this violation until the documentation is submitted to this office. Our files will reflect the continued non-compliance regarding this violation until the required documentation is submitted for review.

Be advised that violation of your State Operating Permit conditions, including effluent limits, schedules of compliance, or standard and special conditions, is a serious matter. It is our hope that through conference, conciliation, and persuasion, violations can be corrected. We ask for your urgent cooperation.

If you have any questions, please contact Mr. David Ruby at (660) 385-8000, in the Northeast Regional Office 1709 Prospect Drive, Macon, MO 63552 or by email at NERO@dnr.mo.gov. Responses to this letter may be sent via email, however printed copies of Discharge Monitoring Reports with the original signatures must be submitted.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/drm

5.200 BCSD, Oberlin Valley
Boone County
#MO-0117323

November 2, 2012

Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201

**LETTER OF WARNING**

Dear Permittee:

Missouri State Operating Permit #MO-0117323 was issued for BCSD, Oberlin Valley in Boone County. This permit sets forth specific effluent limitations, monitoring requirements, and specific permit conditions regarding the facility.

The Missouri Department of Natural Resources' Northeast Regional Office has received your 1st Quarter 2012 Discharge Monitoring Report (DMR) for BCSD, Oberlin Valley. It was noted that the effluent data you reported from Outfall #001 exceeded the effluent limitation parameter of Total Suspended Solids (TSS). A monthly average TSS concentration of 36.5 mg/L was reported, whereas permit #MO-0117323 sets forth a monthly average limit of 30 mg/L.

Please provide a written report by **November 26, 2012**, to the Department which explains the cause(s) for the non-compliance, the exact dates of non-compliance, the date anticipated to return to compliance, and what steps your operation will take to prevent a reoccurrence of this violation. BCSD, Oberlin Valley will be considered in non-compliance with this violation until the documentation is submitted to this office. Our files will reflect the continued non-compliance regarding this violation until the required documentation is submitted for review.

Be advised that violation of your State Operating Permit conditions, including effluent limits, schedules of compliance, or standard and special conditions, is a serious matter. It is our hope that through conference, conciliation, and persuasion, violations can be corrected. We ask for your urgent cooperation.

If you have any questions, please contact Mary Culler at (660) 385-8000, in the Northeast Regional Office 1709 Prospect Drive, Macon, MO 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/mcm

CERTIFIED MAIL
7012 2210 0001 5015 7695

5.200 BCSD, Oberlin Valley WWTF
Boone County
#MO-0117323
NOV# NER2014123113194794

January 16, 2015

Dwayne Cooksey, Operations Manager
Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201

**NOTICE OF VIOLATION**

Dear Mr. Cooksey:

A routine compliance inspection of the Boone County Regional Sewer District (BCSD), Oberlin Valley Wastewater Treatment Facility located in Boone County, Missouri, was conducted on December 17, 2014. The inspection was conducted by Stephen Moss, with the Missouri Department of Natural Resources' Northeast Regional Office. Enclosed is a copy of the inspection report.

Based upon the findings of the inspection, Notice of Violation (NOV) #NER2014123113194794 is being issued to the BCSD, Oberlin Valley Wastewater Treatment Facility. Please direct your attention to the Required Actions for the Notice of Violation and Unsatisfactory Features sections of the report. The report is being forwarded to the Compliance and Enforcement Section of the Water Pollution Control Branch for possible progressive enforcement actions.

If you have any questions regarding the enclosed inspection report, please contact Stephen Moss at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by email at NERO@dnr.mo.gov.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/smb

Enclosures: Report of Compliance Inspection
NOV #NER2014123113194794
Sample Analysis #149093

c: Paul Dickerson, Water Pollution Control Branch, Compliance and Enforcement Section

**REPORT OF COMPLIANCE INSPECTION**
**BCSD, OBERLIN VALLEY WWTF**
**BOONE COUNTY**
**#MO-0117323**
**NOV # NER2014123113194794**
**January 16, 2015**

## INTRODUCTION

Pursuant to Section 644.026.1 RSMo of the Missouri Clean Water Law, a routine compliance inspection of the Boone County Regional Sewer District (BCSD), Oberlin Valley Wastewater Treatment Facility in Boone County, Missouri, was conducted by Stephen Moss of the Missouri Department of Natural Resources' Northeast Regional Office on December 17, 2014. Dwayne Cooksey, Operations Manager, participated in the inspection.

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0117323, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the compliance inspection.

## FACILITY DESCRIPTION/HISTORY

Missouri State Operating Permit (MSOP) #MO-0117323 was last issued on September 1, 2013, and expires on March 31, 2015. The facility submitted a renewal application on May 12, 2014. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow.

The BCSD, Oberlin Valley Wastewater Treatment Facility operates as an extended aeration plant. Sludge is stored on site and hauled to the Columbia Regional Wastewater Treatment Plant. The permit lists the design flow through this system as 25,000 gallons per day with an actual flow of 3,351 gallons per day from a population equivalent of 250.

The legal description of the BCSD, Oberlin Valley Wastewater Treatment Facility is listed on the permit as the SE ¼, NW ¼, NW ¼, Section 35, Township 49 North, Range 13 West, in Boone County. The receiving stream for this facility is an unnamed tributary to Cow Branch.

A previous compliance inspection was conducted on August 25, 2009. At the time of the inspection, the facility was found to be operating in compliance. However, the following unsatisfactory feature was cited in the report: failed to provide an outfall so that a sample of the effluent can be obtained at a point after the final treatment process and before discharge to or mixing with the receiving stream.

## DISCUSSION OF INSPECTION AND OBSERVATIONS

Prior to the inspection, the files for the BCSD, Oberlin Valley Wastewater Treatment Facility were reviewed, including the Permit Conditions of Missouri State Operating Permit (MSOP) #MO-0117323, to familiarize the inspector with the requirements specific to this facility.

The inspection was conducted during normal business hours. Prior notification of the inspection was provided while the inspector was in route to ensure timely access to the site. Upon arrival at the facility, the inspector met with Dwayne Cooksey, Operations Manager, and the purpose and scope of the inspection were outlined. Mr. Cooksey granted permission to access the site and accompanied the inspector throughout the tour of the facility.

Upon arrival, Mr. Moss observed the facility had an all-weather access road. There was a perimeter fence that surrounds the entire facility. Mr. Moss observed warning signs were posted on each side of the facility's perimeter fence. The entrance gate was observed to be locked at the time of the inspection. Mr. Moss continued the inspection with observations of the treatment facility. Mr. Moss observed that the aeration and clarifier basins are located within a rock berm and the sludge holding basin is located on the top of the rock berm in the northwest corner of the site. Mr. Moss observed that wastewater passes through an influent pipe and a bar screen on the east side of the facility prior to entering the aeration basin. A trash can was observed next to the bar screen containing solids removed from the bar screen. Mr. Moss observed that the bar screen was damaged and needed to be repaired for it to function properly. Mr. Moss did not observe any dead spots in the tank, and the mixed liquor was light brown in color and exhibited an earthy odor.

Mr. Moss continued the inspection with observations of the outfall location. Mr. Moss observed that the facility has a V-notch weir that is contained within a concrete weir box just west of the clarifier basin. At the time of the inspection, the V-notch weir plate was not in place in the concrete weir structure. Mr. Cooksey put the V-notch weir plate back in the concrete structure. The effluent passes through the V-notch weir and is then discharged through Outfall #001. Mr. Moss observed that the outfall location is marked with a sign. Mr. Moss observed that the outfall pipe was submerged in the mud. Mr. Cooksey stated that sampling is conducted in the concrete weir structure. At the time of the inspection, Outfall #001 was observed to be discharging and a 24-hour composite sampler was set at the facility's concrete weir structure to collect a 24-hour composite sample, as specified in MSOP #MO-0117323. Mr. Moss did not observe any water quality impacts caused by previous discharges in the receiving stream. No odors were noted at the outfall location. On December 18, 2014, Mr. Moss returned to the facility to collect the 24-hour composite sample. The sample collected by the composite sampler was light brown in color with no odors noted.

Following the inspection, Mr. Moss discussed the findings with Mr. Cooksey. Mr. Moss stated that the bar screen was damaged and should be repaired. Mr. Moss asked what the future plans were for the facility. Mr. Cooksey stated that the facility is planning to connect to the City of Columbia. Mr. Cooksey stated the current plan is for planning and project design in 2015 and construction and connection to the City of Columbia in 2016. Mr. Moss asked whether the facility had an Operations and Maintenance Manual. Mr. Cooksey stated that each facility has an Operations and Maintenance Manual.

Upon review of the files, Mr. Moss found that the facility has submitted all inflow and infiltration reports. Mr. Moss found that the facility has conducted influent sampling as required by Missouri State Operating Permit #MO-0117323. The facility has submitted all sludge reports. Mr. Moss found that the facility exceeded effluent limits for E. coli in the 2nd Quarter 2014, 3rd Quarter 2014, and 4th Quarter 2014. The facility has submitted all progress reports as required in the Schedule of Compliance section of Missouri State Operating Permit #MO-0117323.

## WATER QUALITY MONITORING

The appropriate sampling materials were taken on the inspection, including a copy of the Missouri Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. HACH® ammonia test strips for water quality monitoring were also taken on the inspection.

Water quality field monitoring was conducted at the following location for the listed parameters. The effluent was light brown in color with no odors noted.

| **Outfall #001** | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| pH | 7.12 | s.u. |
| Temperature | 2.4 | °C |
| Dissolved Oxygen | 10.35 | mg/L |
| Conductivity | 1206 | Microsiemens |

| **Sample #149093**<br>**Outfall #001**<br>**Composite** | | | | | |
|---|---|---|---|---|---|
| **Results of Sample Analyses** | | | **Permit Limits** | | |
| **Parameters** | **Sample Result** | **Units** | **Weekly Average** | **Monthly Average** | **Units** |
| Biochemical Oxygen Demand | 5.90 | mg/L | 45 | 30 | mg/L |
| Total Suspended Solids | 25 | mg/L | 45 | 30 | mg/L |

## COMPLIANCE DETERMINATION

The facility was found to be in **non-compliance** with the Missouri Clean Water Law, the Clean Water Commission Regulations, and Missouri State Operating Permit #MO-0117323, based upon the observations made at the time of the inspection.

**NOTICE OF VIOLATION**

1. Failed to attain compliance with the final effluent limitations for E. coli by December 31, 2013, as required in part "B" Standard Conditions, and part "E", Schedule of Compliance of MSOP #MO-0117323 [Sections 644.076.1 RSMo, and 10 CSR 20-6.010(7)(A)].

**REQUIRED ACTIONS:** The facility must coordinate with the Water Pollution Control Branch, Compliance and Enforcement Section, to resolve the unsatisfactory feature.

2. On April 17, 2014, July 22, 2014, July 23, 2014, and October 16, 2014, failed to comply with the effluent limits contained in Part "A" of Missouri State Operating Permit (MSOP) #MO-0117323 [Sections 644.051.1(3) and 644.076.1, RSMo].

The Missouri Department of Natural Resources' Northeast Regional Office received the facility's sample results for the 2nd Quarter 2014, 3rd Quarter 2014, and 4th Quarter 2014. The effluent data from Outfall #001 collected on April 17, 2014, July 22, 2014, July 23, 2014 and October 16, 2014, exceeded the effluent limitation parameters of E. coli.

An E.coli concentration of 1,395 #/100mL was reported on April 17, 2014, an E. coli concentration of 8,390 #/100mL was reported on July 22, 2014, an E. coli concentration of 17,850 #/100mL was reported on July 23, 2014, and an E. coli concentration of 34,335 #/100mL was reported on October 16, 2014, whereas permit #MO-0117323 sets forth a monthly average limit of 206 #/100mL and a weekly average limit of 1,030 #/100mL.

**REQUIRED ACTION**: See Required Action #1.

**RECOMMENDATIONS – Actions that are being recommended by the inspector but are not required to bring the facility into compliance at the time of the inspection.**

1. Consider repairing the bar screen so that it functions properly.

SUBMITTED BY:

Stephen Moss
Environmental Specialist
Northeast Regional Office

SM/bb

| | |
|---|---|
|  | Photo #: 1<br>By: Stephen Moss<br>Facility: BCSD, Oberlin Valley WWTF<br>Permit: #MO-0117323<br>Location: Boone County<br><br>Description: View of the mechanical plant. The concrete weir structure can be observed with the weir plate lying on the ground near the concrete structure.<br><br>Date Taken: December 17, 2014<br>Program: WPC Unit |
|  | Photo #: 2<br>By: Stephen Moss<br>Facility: BCSD, Oberlin Valley WWTF<br>Permit: #MO-0117323<br>Location: Boone County<br><br>Description: View of the concrete weir structure. The V-notch weir plate was not in place.<br><br>Date Taken: December 17, 2014<br>Program: WPC Unit |
|  | Photo #: 3<br>By: Stephen Moss<br>Facility: BCSD, Oberlin Valley WWTF<br>Permit: #MO-0117323<br>Location: Boone County<br><br>Description: View of the clarifier basin.<br><br>Date Taken: December 17, 2014<br>Program: WPC Unit |

Initial SM

P.O. BOX 176
JEFFERSON CITY MO 65102

MISSOURI DEPARTMENT OF NATURAL RESOURCES

# NOTICE OF VIOLATION

TRACKING NUMBER: NER 20141231 13194794

| DATE ISSUED | TIME ISSUED | REGION/PROGRAM |
|---|---|---|
| 01-16-2015 | | Northeast Regional Office (NERO) |

SOURCE (NAME, ADDRESS, PERMIT NUMBER, LOCATION)
BCSD, Oberlin Valley WWTF

Obermiller Road, Columbia, MO 65201

#MO-0117323

SE ¼, NW ¼, NW ¼, Section 35, Township 49 North, Range 13 West, in Boone County

| MAILING ADDRESS | CITY | STATE | ZIP CODE |
|---|---|---|---|
| 1314 North 7th Street | Columbia | MO | 65201 |

| NAME OF OWNER OR MANAGER | TITLE OF OWNER OR MANAGER | COUNTY |
|---|---|---|
| Dwayne Cooksey | Operations Manager | Boone |

LAW, REGULATION OR PERMIT VIOLATED

Sections 644.076.1 RSMo, and 10 CSR 20-6.010(7)(A)

Sections 644.051.1(3) and 644.076.1, RSMo

NATURE OF VIOLATION — DATE(S): — TIME(S):

1. Failed to attain compliance with the final effluent limitations for

E. coli by December 31, 2013.

2. On April 17, 2014, July 22, 2014, July 23, 2014 and October 16, 2014,

failed to comply with the effluent limits.

| SIGNATURE (PERSON RECEIVING NOTICE) | SIGNATURE (PERSON ISSUING NOTICE) |
|---|---|
| Sign Here | Stephen Moss |
| TITLE OR POSITION | TITLE OR POSITION |
| | Environmental Specialist |

MO 780-1647 (2-07) **DISTRIBUTION:** CENTRAL OFFICE, REGIONAL OFFICE, SOURCE

**ADDENDUM**

| LOCATIONAL DATA | |
|---|---|
| UTM EASTING | UTM NORTHING |
| HORIZONTAL COLLECTION METHOD | ESTIMATED POSITION ERROR OR PDOP |
| REFERENCE POINT | COORDINATE DATA SOURCE |

**ADDITIONAL COMMENTS**

| IMAGE 1 | IMAGE 2 |
|---|---|

# Missouri Department of Natural Resources
## Environmental Services Program

**Order ID** 141218002 **Program, Contact:** WPC Linda Mebruer

**Report Date:** 12/31/2014 **LDPR/JobCode:** FEINS

**Sample:** AC40202

**Customer #:** 149093

**Facility ID:** MO0117323 **Site:** BCSD, Oberlin Valley
**County:** Boone **Sample Reference ID:**
**Collector:** STEPHEN MOSS **Affiliation:** NERO **Collect Date:** 12/18/2014 10:00:00AM
**Entry Point:**
**Sample Comment:** Composite; Outfall #001.

| Test | Parameter | Result | Qualifier | Units | Method |
|---|---|---|---|---|---|
| Biochemical Oxygen Demand | Biochemical Oxygen Demand | 5.90 | | mg/L | SM 5210-B |
| Field Dissolved Oxygen | Field Dissolved Oxygen | 10.35 | | mg/L | SM 4500-O-G |
| Field pH | Field pH | 7.12 | | pH Units | EPA 150.1 |
| Field Specific Conductivity | Field Specific Conductivity | 1206 uS/cm | | | SM 2510 |
| Field Temperature | Field Temperature | 2.4 C | | | EPA 170.1 |
| Total Suspended Solids (TSS) / NFR | Total Suspended Solids (TSS) / NFR | 25.0 | | mg/L | SM 2540-D |

**The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S Environmental Protection Agency.**

Chris Boldt

**Chris Boldt, Laboratory Manager**
**Environmental Services Program**
**Division of Environmental Quality**

Department of Natural Resources
Northeast Regional Office
RECEIVED
JAN 5 2015
US MAIL
___Email ___FAX ✓UPS
___Hand Delivery ___Fed Ex

### Qualifier Descriptions

01 Improper collection method
02 Improper preservation
03 Exceeded holding time
04 Analyzed by Contract Laboratory
05 Estimated value, detected below PQL
06 Estimated value, QC data outside limits
07 Estimated value, analyte outside calibration range
08 Analyte present in blank at > 1/2 reported value
09 Sample was diluted during analysis
10 Laboratory error
11 Estimated value, matrix interference
12 Insufficient quantity
13 Estimated value, true result is >= reported value
14 Estimated value, non-homogeneous sample
15 No Result - Failed Quality Controls Requirements
16 Not analyzed - related analyte not detected
17 Results in dry weight
18 Sample pH is outside the acceptable range
19 Estimated value
20 Not analyzed - Instrument failure
21 No result - spectral interference
22 pH was performed at the Laboratory
23 Contract Lab specific qualifier - see sample comments
24 No result - matrix interference
25 No Result: Excessive Chlorination
26 No Result: Excessive Dechlorination
27 Sample temperature outside acceptable range
28 Headspace (air bubbles) present in sample vial
29 Estimated value, QC data biased low
30 Estimated value, QC data biased high
ND Not detected at reported value



141218002

# Land Application of Sludge Checklist

## Sludge handling checklist for wastewater treatment facilities

| Facility Name: BCSD, Oberlin Valley WWTF | MSOP #: MO-0117323 | | |
|---|---|---|---|
| **Issue to be addressed** | **Options** | | **Not Inspected** |
| What method (land application, incineration, landfill, etc) is used for sludge management? | **Hauled to Columbia Municipal Treatment Plant** | | ☐ |
| | | | |
| How often is sludge removed from the facility? | **As Needed** | | ☐ |
| When was the last time sludge was removed? | **December 2013** | | ☐ |
| | **Yes** | **No** | **Not Applicable** |
| Has the Form S annual report been submitted? | X | ☐ | ☐ |
| Have the applicable additional sections been submitted? (If not, please describe deficiencies below in the comments field) | X | ☐ | ☐ |
| Is the form filled out correctly? (If not, please describe deficiencies below in the comments field) | X | ☐ | ☐ |
| Is the monitoring frequency for metals, pathogens and vectors (WQ 423) being met? | ☐ | ☐ | X |
| Are the requirements for pathogens and vector attraction (WQ 424) being met? | ☐ | ☐ | X |
| Are land applied biosolids below the ceiling concentration for metals (WQ 425)? | ☐ | ☐ | X |
| Are the nitrogen, soil pH and soil phosphorus limitations (WQ426) being met? | ☐ | ☐ | X |
| Other Comments: | | | |

5.200 BCRSD, Quarter Mile Hills Subdivision
Boone County
#MO-0126446

August 30, 2016

Mr. Tom Ratermann, General Manager
Boone County Regional Sewer District
1314 North 7th Street
Columbia, MO 65201

**UNSATISFACTORY FINDINGS**
**RESPONSE REQUIRED**

Dear Mr. Ratermann:

An inspection was conducted by Department of Natural Resources staff pursuant to Section 644.026.1 of the Missouri Clean Water Law on July 27, 2016. The enclosed report is being issued with Unsatisfactory Findings for the violations identified.

Please refer to the enclosed report for details on findings and required actions. **A written response documenting actions taken to correct the violations is required by the date specified in the report.**

If you have any questions or would like to schedule a time to meet with department staff to discuss compliance requirements, please contact Mr. Leland Maize at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by email at NERO@dnr.mo.gov.

Sincerely,

NORTHEAST REGIONAL OFFICE

*for*
Irene Crawford
Regional Director

IC/lmj

Enclosures: Report of Inspection

c: Dwayne Cooksey, Boone County Regional Sewer District

**Department of Natural Resources**
**Northeast Regional Office**
**Report of Inspection**
**BCRSD, Quarter Mile Hills Subdivision**
**⅓ Mile North of Barnes School Road & Highway 124, Hallsville, Missouri, 65255,**
**Boone County**
**#MO-0126446**
**August 30, 2016**

## Introduction

Pursuant to Section 644.026.1 of the Missouri Clean Water Law, I, Mr. Leland Maize, conducted a routine inspection of the Boone County Regional Sewer District (BCRSD), Quarter Mile Hills Subdivision in Boone County, Missouri, on July 27, 2016. The following people participated in the inspection:

BCRSD, Quarter Mile Hills Subdivision
Mr. Virgil Farnen Operations Supervisor

Department of Natural Resources
Mr. Leland Maize Environmental Specialist

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0126446, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the inspection.

## Entity Description and History

Missouri State Operating Permit (MSOP) #MO-0126446 was last issued on August 3, 2007, and expired on August 2, 2012. The department received an application for renewal on January 19, 2012. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow. The facility must follow the conditions of the expired permit until a new permit is issued.

The BCRSD, Quarter Mile Hills Subdivision is owned and operated by the Boone County Regional Sewer District. The facility is located approximately ⅓ mile north of the intersection of Barnes School Road and Highway 124, Hallsville, Missouri 65255. The facility consists of a three cell lagoon with sludge retained in the lagoon. The design population equivalent for the facility is 57. The design flow for the facility is 5,480 gallons per day and the actual flow is 2,960 gallons per day. The design sludge production for the facility is 0.87 dry tons per year.

The UTM coordinates of the BCRSD, Quarter Mile Hills Subdivision are listed on the permit as 563482, 4330639**,** in Boone County. The receiving stream for this facility is a tributary to Kelley Branch and it is located in the 10300102 HUC 8 watershed.

Prior to the inspection, I reviewed the files for the BCRSD, Quarter Mile Hills Subdivision, including the Permit Conditions of MSOP #MO-0126446, to familiarize myself with the

requirements specific to this facility.

On July 18, 2008, the department sent a letter to the Boone County Regional Sewer District approving the facility's request to conduct operational monitoring at the facility twice per month.

The regional office performed the previous inspection on August 9, 2013. At the time of the previous inspection, the facility was found to be in non-compliance. A report was sent to the owner on September 5, 2013, with the following Unsatisfactory Feature: Deep-rooted vegetation in the form of cattails was discovered growing in all three lagoon cells. On September 20, 2013, the Northeast Regional Office received a letter from the Boone County Regional Sewer District stating staff had removed the cattails (deep-rooted vegetation).

On June 13, 2014, the owner was issued a Letter of Warning for not reporting pH, temperature, Total Suspended Solids, Biochemical Oxygen Demand, and Ammonia of the effluent during the 2nd Quarter of 2013. The owner was also cited for not submitting influent sampling results in 2013. On July 2, 2014, the Northeast Regional Office received a letter from the Boone County Regional Sewer District, stating staff had been asked to adjust the schedule for grabbing quarterly samples to ensure that this did not occur again. The letter also stated that not collecting an influent sample during 2013 was an oversight and efforts had been made to prevent a reoccurrence.

A review of the facility's records was conducted as part of the inspection. Discharge Monitoring Reports were reviewed from 3rd Quarter 2013 to 2nd Quarter 2016. The facility's Discharge Monitoring Reports were complete and up to date. Influent sampling has been conducted on an annual basis, and the facility has been meeting a 65% removal efficiency for Biochemical Oxygen Demand and Total Suspended Solids. The required information for operational monitoring has been submitted except in the months when the primary lagoon cell is frozen, including December 2013, January 2014, February 2014, January 2015 and February 2015. In March 2015, operational monitoring was conducted one time. When the primary lagoon cell is frozen, the facility must still record flow, ambient temperature, cloud cover, and precipitation. The facility has been submitting inflow and infiltration reports annually. Missouri State Operating Permit #MO-0126446 requires the facility to submit inflow and infiltration reports in April and October of each year (Unsatisfactory Finding #1).

**Discussion of Inspection and Observations**

I conducted the inspection during normal business hours. Prior notification of the inspection was provided to ensure timely access to the site. Upon arrival at the facility, I met with Mr. Virgil Farnen and I outlined the purpose and scope of the inspection. Mr. Farnen granted me permission to access the site and accompanied me throughout the tour of the facility.

As I approached the facility, an all-weather access road was observed. The facility was surrounded by a fence with a locked gate at the entrance (Photo #1). Warning signs were in place on all four sides of the perimeter fence.

The facility consists of a three cell lagoon, with sludge retained in the lagoon. I walked around the perimeter of each of the lagoon cells during the inspection. I did not observe any signs of leaks or damage to the lagoon berms. Each of the lagoon cells was completely covered with duckweed during the inspection (Photo #3 and #4). The vegetation on the outer lagoon berms was short in height and well maintained; however, cattails were observed along the inner lagoon berm of the primary lagoon cell (Unsatisfactory Finding #2 and Photo #2). Each of the lagoon cells had greater than two feet of storage remaining. I observed the inlet side of the discharge pipe, which was above the water level (Photo #5).

The inspection then proceeded with observations of the facility's outfall. The outfall was marked in the field with a sign (Photo #6). The outfall was not discharging during the inspection. Mr. Farnen explained that there are three different levels the facility can discharge from. The bottom two pipes are regulated with valves, which were closed during the inspection. The top pipe does not have a valve and discharges if the level is high enough. I observed the receiving stream upstream and downstream from the facility's outfall. I did not observe any impact on the receiving stream. Samples were not collected for water quality field monitoring and laboratory analyses since the facility was not discharging during the inspection.

**Sampling and Monitoring**

The appropriate sampling materials were taken on the inspection, including a copy of the Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. Ammonia test strips for water quality monitoring were also taken on the inspection.

I did not conduct water quality field monitoring as the site was not discharging at the time of the inspection.

**Compliance Determination and Required Actions**

The facility was found to be **not in compliance** with Missouri State Operating Permit #MO-0126446, the Clean Water Commission Regulations, and the Missouri Clean Water Law based upon the observations made at the time of the inspection.

**Unsatisfactory Findings**

1. Failed to submit inflow and infiltration reports in April and October of each year, as required by Special Condition #9 of Missouri State Operating Permit #MO-0126446 [Section 644.076.1, RSMo].

**REQUIRED ACTION:** The facility has been submitting inflow and infiltration reports on an annual basis instead of twice per year. On August 19, 2016, the Northeast Regional Office received a letter from the owner stating inflow and infiltration reports would be submitted twice per year. Along with the letter, an inflow and infiltration report was enclosed. No further action is required.

2. Deep-rooted vegetation was discovered on the lagoon berms [10 CSR 20 8.020(13)(A)3.D.].

**REQUIRED ACTION:** The operation is to remove all deep-rooted vegetation from the lagoon berms and within 100 feet of the toe of the lagoon berms if possible. By **September 30, 2016,** the facility shall provide documentation to the Northeast Regional Office, which may include photographs and/or receipts describing the actions taken, or intended to take, to correct the non-compliance.

**Recommendations**

1. Consider monitoring the sludge levels in the lagoon to ensure that the lagoon has enough wastewater treatment holding time.

2. According to the renewal application received by the department on January 19, 2012, this facility has nine service connections. Please be aware that if your facility serves a population equivalent of less than 200 and has less than 25 service connections, Operational Monitoring is not required.

**Additional Comments/Conclusion**

None

**Signatures**

SUBMITTED BY:

Leland Maize
Environmental Specialist
Northeast Regional Office

REVIEWED BY:

Jamie Shinn
Environmental Supervisor
Northeast Regional Office

LM/jb

**Attachments**

**Attachment # 1 – Photos 1 through 6**
**Attachment # 2 – Aerial Map**

**Attachment # 1**
**BCRSD, Quarter Mile Hills Subdivision**
**August 30, 2016**
**Page 1**


Photograph #: 1
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Gate at the entrance to the facility with a warning sign.
Date Taken: July 27, 2016
Program: WPC Unit

Photograph #: 2
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Primary lagoon cell with cattails observed along the inner berm. Primary cell was covered with duckweed.
Date Taken: July 27, 2016
Program: WPC Unit

Photograph #: 3
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Secondary lagoon cell covered with duckweed.
Date Taken: July 27, 2016
Program: WPC Unit

Initial LM

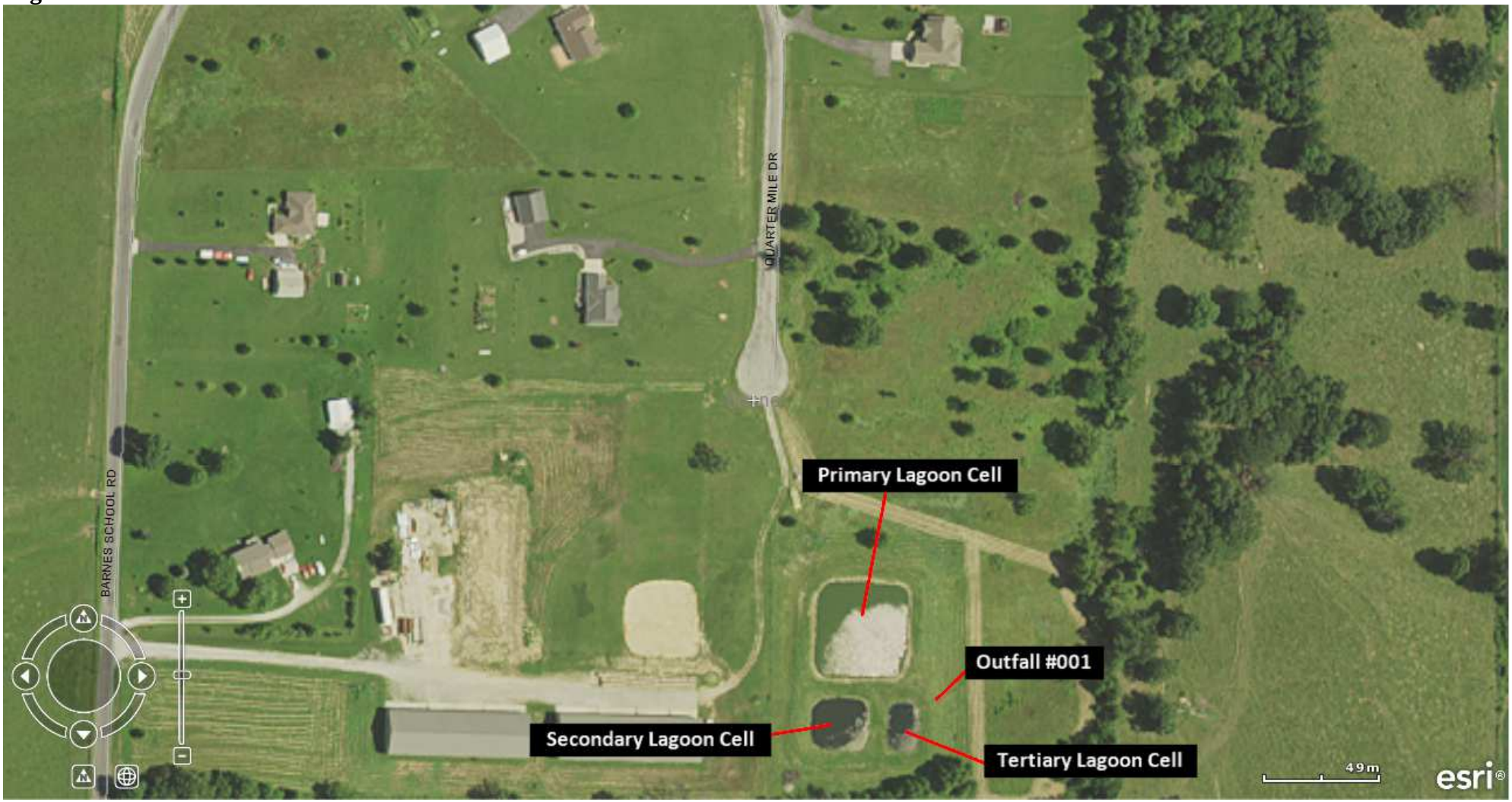
Photograph #: 4
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Tertiary lagoon cell covered with duckweed.
Date Taken: July 27, 2016
Program: WPC Unit

Photograph #: 5
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Inlet side of the discharge pipe with a T-fitting on the end.
Date Taken: July 27, 2016
Program: WPC Unit

Photograph #: 6
Taken by: Leland Maize
Entity: BCRSD, Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County
Description: Location of the outfall with a sign marking the location.
Date Taken: July 27, 2016
Program: WPC Unit

Initial LM

**Attachment # 2**
**BCRSD, Quarter Mile Hills Subdivision**
**August 30, 2016**
**Page 1**



# Sludge Handling Checklist for Wastewater Treatment Facilities

| **Facility Name:** BCRSD, Quarter Mile Hills Subdivision | **MSOP #:** MO-0126446 | | |
|---|---|---|---|
| **Issue to be addressed** | **Options** | | **Not Inspected** |
| What method (land application, incineration, landfill, etc) is used for sludge management? | Sludge is retained in the lagoon. | | ☐ |
| | **Date** | | |
| How often is sludge removed from the facility? | As needed | | ☐ |
| When was the last time sludge was removed? | Sludge has not been removed from the lagoon | | ☐ |
| | **Yes** | **No** | **Not Applicable** |
| Has the Form S annual report been submitted? | ☐ | ☐ | ☒ |
| Have the applicable additional sections been submitted? (If not, please describe deficiencies below in the comments field) | ☐ | ☐ | ☒ |
| Is the form filled out correctly? (If not, please describe deficiencies below in the comments field) | ☐ | ☐ | ☒ |
| Is the monitoring frequency for metals, pathogens and vectors (WQ 423) being met? | ☐ | ☐ | ☒ |
| Are the requirements for pathogens and vector attraction (WQ 424) being met? | ☐ | ☐ | ☒ |
| Are land applied biosolids below the ceiling concentration for metals (WQ 425)? | ☐ | ☐ | ☒ |
| Are the nitrogen, soil pH and soil phosphorus limitations (WQ426) being met? | ☐ | ☐ | ☒ |
| Other Comments: | | | |

5.200 BCRSD Quarter Mile Hills Subdivision
Boone County
#MO-0126446

June 13, 2014

Mr. Dwayne Cooksey, Operations Manager
Boone County Regional Sewer District
1314 North Seventh Street
Columbia, MO 65201

**LETTER OF WARNING**

Dear Mr. Cooksey:

Missouri State Operating Permit (MSOP) #MO-0126446 was issued for the BCRSD Quarter Mile Hills Subdivision in Boone County. This permit sets forth specific effluent limitations, monitoring requirements, and specific permit conditions regarding the facility.

The Missouri Department of Natural Resources' Northeast Regional Office has received the 2nd Quarter 2013 Discharge Monitoring Reports (DMRs) for BCRSD Quarter Mile Hills Subdivision. The April and May 2013 DMRs report effluent flow during both months. The June 2013 DMR reports "No discharge" for the month. The following deficiencies were noted:

- pH, Temperature, TSS, BOD, and Ammonia of effluent were not reported for either April or May.

In addition, the Missouri Department of Natural Resources' Northeast Regional Office has not received the 2013 Influent Monitoring Report for BOD and TSS for the BCRSD Quarter Mile Hills Subdivision.

Please provide a written report by **July 7, 2014**, to the department which explains the causes for the non-compliance, the exact dates of non-compliance, the date anticipated to return to compliance, and what steps your operation will take to prevent a reoccurrence of the violations. BCRSD Quarter Mile Hills Subdivision will be considered in non-compliance with these violations until the documentation is submitted to this office. Our files will reflect the continued non-compliance regarding these violations until the required documentation is submitted for review.

Be advised that violation of your State Operating Permit conditions, including effluent limits, schedules of compliance, or standard and special conditions, is a serious matter. It is our hope that through conference, conciliation, and persuasion, violations can be corrected. We ask for your urgent cooperation.

If you have any questions, please contact Ms. Emily Grace at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552 or by email at NERO@dnr.mo.gov. Responses to this letter may be sent via email, however printed copies of Discharge Monitoring Reports with the original signatures must be submitted.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/egm

*Celebrating 40 years of taking care of Missouri's natural resources.*
*To learn more about the Missouri Department of Natural Resources visit dnr.mo.gov.*

5.200 BCSD - Quarter Mile Hills Subdivision
Boone County
#MO-0126446

September 5, 2013

Tom Ratermann P.E., General Manager
Boone County Regional Sewer District
1314 North Seventh Street
Columbia, MO 65201

Dear Mr. Ratermann:

A routine compliance inspection of the Boone County Regional Sewer District (BCSD) - Quarter Mile Hills Subdivision, located in Boone County, Missouri was conducted on August 9, 2013. The inspection was conducted by Mr. Mike Smith, with the Missouri Department of Natural Resources' Northeast Regional Office. Enclosed is a copy of the inspection report.

Please direct your attention to the Required Actions for the Unsatisfactory Features section of the report. The information requested by the department is to be submitted to the Northeast Regional Office by **September 26, 2013**. Your cooperation in this matter will be appreciated.

If you have any questions, please contact Mr. Smith or me at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by e-mail at NERO@dnr.mo.gov. Responses to any Required Actions may be sent via e-mail.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/msa

Enclosures: Report of Compliance Inspection

**REPORT OF COMPLIANCE INSPECTION**
**BCSD - QUARTER MILE HILLS SUBDIVISION**
**BOONE COUNTY**
**#MO-0126446**
**September 5, 2013**

## INTRODUCTION

Pursuant to Section 644.026.1 RSMo of the Missouri Clean Water Law, a routine compliance inspection of the Boone County Regional Sewer District (BCSD) - Quarter Mile Hills Subdivision in Boone County, Missouri, was conducted by Mr. Mike Smith of the Missouri Department of Natural Resources' Northeast Regional Office on August 9, 2013. Mr. Kevin Sublett, Operator, participated in the inspection.

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0126446, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the compliance inspection.

## FACILITY DESCRIPTION/HISTORY

Missouri State Operating Permit #MO-0126446 was last issued on August 3, 2007, and expired on August 2, 2012. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow. A permit renewal application was received from the facility on January 19, 2012. The facility must follow the requirements of the expired permit until a new permit is issued.

The BCSD – Quarter Mile Hills Subdivision consists of a three-cell lagoon system with sludge retained in the lagoon. The permit lists the design population equivalent as 57 with a design flow of 5,480 gallons per day. Actual flow is listed as 2,960 gallons per day. Design sludge production is 0.87 dry tons/year.

The legal description of the BCSD - Quarter Mile Hills Subdivision is listed on the permit as the SE ¼, NW ¼, NE ¼, Section 16, Township 50 North, Range 12 West, in Boone County. The receiving stream for this facility is an unnamed tributary to Kelley Branch (U).

A previous routine compliance inspection was conducted by the Northeast Regional Office on October 17, 2005. At the time of that inspection, the facility was found to be operating in compliance. However, unsatisfactory features were observed that needed to be addressed to ensure continued compliance. The following two unsatisfactory features were cited in the report: 1. The inner lagoon berms had developed erosion, causing the berms slopes to be steeper than three to one (3:1); and 2. Deep-rooted vegetation was discovered growing on the interior of the lagoon berms.

## DISCUSSION OF INSPECTION AND OBSERVATIONS

Prior to the inspection, the files for the BCSD - Quarter Mile Hills Subdivision were reviewed, including the Permit Conditions of Missouri State Operating Permit #MO-0126446, to

familiarize the inspector with the requirements specific to this facility.

The inspection was conducted during normal business hours. Prior notification was not provided to the facility. Upon arrival at the facility, the inspector met with Mr. Kevin Sublett, Operator, and the purpose and scope of the inspection were outlined. Mr. Sublett granted permission to access the site and accompanied the inspector throughout the tour of the facility.

An all-weather access road to the facility was available. The perimeter fence around the facility was observed (Photo #1). The fence appeared to be in good condition. No damage to the fence that could allow unauthorized access to the facility was observed. Warning signs were observed posted on all four sides of the perimeter fence. The facility gate was observed. A warning sign was also observed posted on the gate (Photo #2). The gate was locked upon arrival at the facility.

The first cell of the three-cell lagoon system was observed. Rip-rap was observed on the inner lagoon berms of the first cell. The water in the first cell appeared dark green in color. Cattails were observed growing within the first lagoon cell (Photos #3 & 4).

The second lagoon cell was observed. Rip-rap was observed on the inner lagoon berms. Algae were observed on the surface of the second cell (Photo #5). Cattails were observed growing in the second cell (Photo #6).

The third lagoon cell was observed. Cattails were also growing in the third cell (Photo #7). Three discharge pipes at varying heights were observed in the third cell (Photo #8). Mr. Sublett stated the facility has valves that can be shut on and off for each pipe to control the height of the third cell. Mr. Sublett stated the second pipe was currently open. No holes or leaks in any of the lagoon berms were observed during the inspection. T-fittings were observed on the transfer pipes between lagoon cells as well as the discharge pipes in the third lagoon cell.

Mr. Smith observed the facility's outfall location, which was marked with a sign (Photo #9). None of the three discharge pipes were discharging at the time of inspection (Photo #10). No concerns below the outfall were observed.

Mr. Smith discussed influent monitoring with Mr. Sublett. Mr. Smith stated he observed the annual influent sampling conducted in the previous two years were not during the same month or quarter the facility discharged. Mr. Smith recommended that influent sampling be conducted in conjunction with an effluent discharge at the facility, to be more representative of the facility's removal efficiency for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). Mr. Smith discussed his observations of the facility with Mr. Sublett. Mr. Smith stated that the cattails observed in the lagoons should be removed.

Mr. Smith reviewed the facility's records. The facility has been submitting Discharge Monitoring Reports (DMRs) as required and has been meeting permitted effluent limits. Mr. Smith reviewed the facility's draft permit, which includes a Schedule of Compliance for meeting E. Coli and Ammonia limits. The facility should review all the requirements of the new permit when issued.

## WATER QUALITY MONITORING

The appropriate sampling materials were taken on the inspection, including a copy of the Missouri Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. A HACH® ammonia test kit for water quality monitoring was also taken on the inspection.

The facility was not discharging at the time of inspection. Therefore, no water quality monitoring or sampling was conducted.

## COMPLIANCE DETERMINATION

The facility was found to be in **non-compliance** with the Missouri Clean Water Law, the Clean Water Commission Regulations, and Missouri State Operating Permit #MO-0126446, based upon the observations made at the time of the inspection.

## UNSATISFACTORY FEATURES

1. Deep-rooted vegetation in the form of cattails was discovered growing in all three lagoon cells [10 CSR 20 8.020(13)(A)3.G.].

   **REQUIRED ACTION**: The operation is to remove all cattails from the three lagoon cells. By **September 26, 2013** the facility shall provide written documentation to the Northeast Regional Office, which may include photographs and/or receipts, describing the actions taken, or intended to take, to correct the non-compliance.

## RECOMMENDATIONS – Actions that are being recommended by the inspector but are not required to bring the facility into compliance at the time of the inspection.

1. Review all the requirements of the facility's new operating permit when issued, and contact the department with any questions regarding the permit.

2. Consider monitoring the sludge levels in the lagoon to ensure that the lagoon has enough wastewater treatment holding time.

3. Ensure that the vegetation on the inner lagoon berms is routinely reduced in height; six inch height is recommended.

4. Routinely examine the storm water diversion system to ensure that additional storm water is not entering the lagoon system or pooling and saturating the lagoon berms.

SUBMITTED BY:

Mike Smith
Environmental Specialist
Northeast Regional Office

REVIEWED BY:

Jamie Shinn
Environmental Specialist
Northeast Regional Office

MS/aa

| | |
|---|---|
|  | Photo #: 1<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of perimeter fence around the facility. Fence appeared to be in good condition.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 2<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of warning sign posted on facility gate. Facility gate was locked upon arrival.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 3<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of cattails growing within the first lagoon cell.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |

Initial MDS

| | |
|---|---|
|  | Photo #: 4<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of additional cattails growing within the first lagoon cell.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 5<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of second lagoon cell. Rip-rap on inner lagoon berms. Algae observed on lagoon surface.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 6<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of cattails growing within the second lagoon cell.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |

Initial MDS

| | |
|---|---|
|  | Photo #: 7<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: Cattails observed growing in the third lagoon cell.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 8<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of inlet side of three discharge pipes at different levels in the third lagoon cell.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |
|  | Photo #: 9<br>By: Mike Smith<br>Facility: BCSD - Quarter Mile Hills Subdivision<br>Permit: #MO-0126446<br>Location: Boone County<br><br>Description: View of sign marking the outfall location.<br><br>Date Taken: August 9, 2013<br>Program: WPC Unit |

Initial MDS

Photo #: 10
By: Mike Smith
Facility: BCSD - Quarter Mile Hills Subdivision
Permit: #MO-0126446
Location: Boone County

Description: View of three outfall pipes. No discharge occurring at the time of inspection. No concerns below the outfall observed.

Date Taken: August 9, 2013
Program: WPC Unit

Initial MDS

Sludge handling checklist for wastewater treatment facilities

BCSD – Quarter Mile Hills Subdivision, #MO-0126446, Boone County

1) What method (land application, incineration, landfill, etc) is utilized for sludge management?

   Sludge is retained in the lagoon

2) How often is sludge removed from the facility?

   Never

3) When is the last time that sludge was removed?

   Never

4) Has the Form S annual report been submitted?

   NA

5) Is the monitoring frequency for metals, pathogens, and vectors (WQ 423) being met?

   NA

6) Are the requirements for pathogens and vector attraction (WQ 424) being met?

   NA

7) Are land applied biosolids below the ceiling concentration for metals (WQ 425)?

   NA

8) Are the nitrogen, soil pH, and soil phosphorus limitations (WQ 426) being met?

   NA

5.200 BCRSD Richardson Acres WWTF
Boone County
#MO-0115185

October 12, 2016

Tom Ratermann, General Manager
Boone County Regional Sewer District
1314 North Seventh Street
Columbia, MO 65201

**LETTER OF WARNING**
**RESPONSE REQUIRED**

Dear Mr. Ratermann:

An inspection was conducted by Department of Natural Resources staff pursuant to Section 644.026.1 of the Missouri Clean Water Law on September 20, 2016. The enclosed report is being issued with a Letter of Warning (LOW) for the violations identified. Violations include:

- Failed to meet a removal efficiency of 65% for Biochemical Oxygen Demand and Total Suspended Solids, as required by the Influent Monitoring Requirements of MSOP #MO-0115185.

Please refer to the enclosed report for details on findings and required actions. **A written response documenting actions taken to correct the violations is required by the date specified in the report.**

Failure to address the required actions will result in the issuance of a Notice of Violation. If you have any questions or would like to schedule a time to meet with department staff to discuss compliance requirements, please contact Mr. Mike Smith at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by email at NERO@dnr.mo.gov.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/msj

Enclosures: Report of Inspection

**Department of Natural Resources**
**Northeast Regional Office**
**Report of Inspection**
**BCRSD Richardson Acres WWTF**
**Flamingo Road and Route B, Hallsville, Missouri, 65255, Boone County**
**#MO-0115185**
**October 12, 2016**

## Introduction

Pursuant to Section 644.026.1 of the Missouri Clean Water Law, I, Mr. Mike Smith, conducted a routine inspection of the Boone County Regional Sewer District (BCRSD) Richardson Acres Wastewater Treatment Facility (WWTF) in Boone County, Missouri, on September 20, 2016. The following people participated in the inspection:

BCRSD Richardson Acres WWTF
Virgil Farnen Operations Supervisor

Department of Natural Resources
Mike Smith Environmental Specialist

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0115185, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the inspection.

## Entity Description and History

Missouri State Operating Permit (MSOP) #MO-0115185 was last issued on September 1, 2013, and expired on March 31, 2015. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow. A permit renewal application was received by the department on May 12, 2014. The facility must follow the requirements of the expired permit until a new permit is issued.

The BCRSD Richardson Acres WWTF consists of a two-cell lagoon system with an aerated first cell and STEP (Septic Tank Effluent Pump) system. Sludge is retained in the septic tanks and lagoon. The design population equivalent is listed on the permit as 85 with a design flow of 8,510 gallons per day. Actual flow is 3,198 gallons per day. Design sludge production is 1.3 dry tons per year.

The UTM coordinates for the BCRSD Richardson Acres WWTF are listed on the permit as Easting 563991 and Northing 4324561**,** in Boone County. The receiving stream for this facility is a tributary to Clays Fork and it is located in the 10300102 HUC 8 watershed.

Prior to the inspection, I reviewed the files for the BCRSD Richardson Acres WWTF, including the Permit Conditions of MSOP #MO-0115185, to familiarize myself with the requirements specific to this facility.

The regional office performed a previous inspection on March 20, 2014. As a result of that inspection, the facility was issued a Letter of Warning. The following Unsatisfactory Features were cited in the report: 1. Failed to collect an influent sample in order to ensure a removal efficiency of 65% is being met by the wastewater treatment facility, as required by the effluent limitations and monitoring requirements of MSOP #MO-0115185; 2. Failed to submit a timely Form S – Domestic Sludge Reporting form, as required in the Standard Conditions of MSOP #MO-0115185; and 3. Failed to maintain the inner berm slopes of the lagoon to be no less than three to one (3:1) as required by Special Conditions #17 of MSOP #MO-0115185. On April 23, 2014, a response to the inspection report was received addressing the Unsatisfactory Features.

I observed the facility's Discharge Monitoring Reports (DMRs) since the previous inspection. The facility has been in compliance with permitted effluent limits. I observed the facility has submitted Form S – Domestic Sludge Reporting forms each year since the previous inspection as required. Annual inflow and infiltration (I&I) reports have been received since the previous inspection as required.

The facility's permit contains a Schedule of Compliance to meet final effluent limits for Ammonia by September 1, 2019. Progress reports towards meeting the schedule of compliance have been received from the facility as required. The facility plans to connect to the City of Columbia's sanitary sewer system between 2019 and 2029.

I reviewed the facility's influent monitoring data reported on the DMRs since the previous inspection. The facility is required to meet a removal efficiency of 65% for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). The facility has failed to meet the 65% removal efficiency on several occasions. The following table summarizes influent monitoring data reported on the facility's DMRs that failed to meet the 65% removal efficiency.

| BCRSD Richardson Acres WWTF, #MO-0115185<br>Removal Efficiency Values Below 65% | | | | |
|---|---|---|---|---|
| Monitoring Period | Parameter | Influent (mg/L) | Effluent (mg/L) | Removal Efficiency |
| 2nd Quarter 2016 | TSS | 38 | 54 | 0% |
| 1st Quarter 2016 | TSS | 28 | 27 | 3.6% |
| 4th Quarter 2015 | TSS | 42 | 26 | 38.1% |
| 3rd Quarter 2015 | BOD | 47 | 19 | 59.6% |
| | TSS | 36 | 38 | 0% |
| 2nd Quarter 2015 | TSS | 41 | 33 | 19.5% |
| | TSS | 53 | 34 | 35.8% |
| 1st Quarter 2015 | TSS | 56 | 33 | 41.1% |
| 4th Quarter 2014 | BOD | 26 | 10 | 61.5% |
| | TSS | 34 | 12 | 64.7% |
| 2nd Quarter 2014 | TSS | 52 | 22 | 57.7% |
| 1st Quarter 2014 | TSS | 28 | 33 | 0% |

**Discussion of Inspection and Observations**

I conducted the inspection during normal business hours. Prior notification of the inspection was provided in route to the facility to ensure timely access to the site. Upon arrival at the facility, I met with Mr. Virgil Farnen, who granted me permission to access the site and accompanied me throughout the tour of the facility.

I asked Mr. Farnen if he had an Operation and Maintenance (O&M) manual for the facility. Mr. Farnen stated he didn't and he wasn't sure if they had one for the site or not. I stated that during a review of the facility's files, I noticed the facility has failed to meet the removal efficiency of 65% for BOD and TSS on several occasions. I asked Mr. Farnen if he knew why the facility wasn't meeting the removal efficiency. Mr. Farnen stated the facility is a STEP (Septic Tank Effluent Pump) system, so most of the sludge is being removed before the wastewater reaches the lagoon. He said there is no way the lagoon will meet the 65% removal efficiency for this reason. I asked where influent sampling takes place and Mr. Farnen stated influent samples are taken from a clean-out in the line before the lagoon. I asked if sludge has ever been removed from the facility. Mr. Farnen stated sludge has never been removed from the lagoons. He stated the septic tanks are cleaned out about every five years.

I made observations of the two-cell lagoon system. An all-weather access road to the facility was available. The entrance gate to the facility was locked upon my arrival. A perimeter fence surrounds the facility and appeared adequate to prevent unauthorized access (Photo #1). Warning signs were observed posted on all sides of the fence.

The primary lagoon cell was observed (Photo #2). Approximately half of the lagoon surface was covered in duckweed. The aerator appeared to be functioning properly. Some rip-rap was observed on the inner berms of the lagoon. No major erosion damage was observed. No deep-rooted vegetation was observed on the lagoon berms. No evidence of an unpermitted discharge through the lagoon berms was observed. About four feet of freeboard appeared available in the lagoon.

The secondary lagoon cell was then observed (Photo #3). The surface of the secondary cell was completely covered with duckweed. No deep-rooted vegetation was observed on the lagoon berms. No major erosion damage was observed. No evidence of an unpermitted discharge through the lagoon berms was observed. About four feet of freeboard also appeared available in the secondary lagoon.

I observed the outfall location (Photo #4). A sign marking the outfall was observed. Effluent was observed discharging (Photo #5). The effluent appeared clear. A strong sulfur odor was detected at the outfall. I observed sulfur bacteria growing directly beneath the outfall and for approximately 10 feet downstream of the outfall (Photo #6). Further downstream, the water appeared clear (Photo #7). No evidence of a discharge of sludge or duckweed was observed. No water was observed upstream of the outfall location.

I conducted water quality field monitoring of the facility's effluent, the results of which can be found under the Sampling and Monitoring section of this report. Samples were also collected for Biochemical Oxygen Demand, Total Suspended Solids, and Ammonia. The samples were delivered to the Environmental Services Program laboratory in Jefferson City for analysis. The sample results were not available at the time of this report and will be provided to the facility when they become available.

On September 21, 2016, I sent an email to Mr. Dwayne Cooksey, Operations Manager, asking if he had a copy of the facility's Operation and Maintenance (O&M) manual, if one was available. Mr. Cooksey provided me a copy of the facility's O&M manual via email later that day.

**Sampling and Monitoring**

The appropriate sampling materials were taken on the inspection, including a copy of the Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. Ammonia test strips for water quality monitoring were also taken on the inspection.

Water quality field monitoring was conducted at the following location for the listed parameters.

| BCRSD Richardson Acres WWTF<br>Outfall #001, Sample #161194 | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| Dissolved Oxygen | 2.0 | mg/L |
| pH | 7.17 | s.u. |
| Conductivity | 1589 | µS/cm |
| Temperature | 22.3 | °C |

Sampling was conducted and submitted for laboratory analysis. The department's Environmental Services Program results of Sample Analysis #161194 were not completed at the time of the report. The results will be provided to the facility when they are available. Additional violations may be documented upon receipt of the sample analysis results.

| BCRSD Richardson Acres WWTF, #MO-0115185, Outfall #001, Sample #161194 | | | | | | |
|---|---|---|---|---|---|---|
| **Results of Sample Analyses** | | | **Permit Limits** | | | |
| **Parameters** | **Sample Result** | **Units** | **Daily Max** | **Weekly Average** | **Monthly Average** | **Units** |
| Biochemical Oxygen Demand | * | mg/L | -------- | 65 | 45 | mg/L |
| Total Suspended Solids | * | mg/L | -------- | 110 | 70 | mg/L |
| Ammonia** | * | mg/L | 3.6 | ---------- | 1.4 | mg/L |

* Sample results unavailable
** Monitoring requirement only

**Compliance Determination and Required Actions**

The facility was found to be in **non-compliance** with Missouri State Operating Permit #MO-0115185, the Clean Water Commission Regulations, and the Missouri Clean Water Law, based upon the observations made at the time of the inspection and the document review.

**Letter of Warning**

1. Failed to meet a removal efficiency of 65% for Biochemical Oxygen Demand and Total Suspended Solids, as required by the Influent Monitoring Requirements of MSOP #MO-0115185 [Section 644.076.1, RSMo].

**REQUIRED ACTION:** As displayed in the table under the Entity Description and History section of this report, the facility has failed to meet a removal efficiency of at least 65% for Biochemical Oxygen Demand and Total Suspended Solids on multiple occasions. The facility must submit a written statement to the Northeast Regional Office by **November 14, 2016,** explaining what actions have been taken to correct this violation and prevent a reoccurrence in the future.

**Recommendations**

1. Routinely examine the storm water diversion system to ensure that additional storm water is not entering the lagoon system or pooling and saturating the lagoon berms.

2. Ensure that routine mowing of the lagoon berms is conducted on a regular schedule.

3. Maintain a sufficient spare parts inventory so that effective maintenance may occur in a timely manner.

**Additional Comments/Conclusion**

None.

**Signatures**

SUBMITTED BY:

Mike Smith
Environmental Specialist
Northeast Regional Office

REVIEWED BY:

Jamie Shinn
Environmental Supervisor
Northeast Regional Office

MS/jb

**Attachments**
**Attachment #1 – Photos 1-7**
**Attachment #2 – Sludge Handling Checklist for Wastewater Treatment Facilities**
**Attachment #3 – Aerial Map**

**Attachment #1**
**BCRSD – Richardson Acres WWTF**
**October 12, 2016**
**Page 1**

| | |
|---|---|
|  | Photograph #: 1<br>Taken by: Mike Smith<br>Entity: BCRSD Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of perimeter fence and a warning sign posted on the fence.<br><br>Date Taken: September 20, 2016<br>Program: WPC Unit |
|  | Photograph #: 2<br>Taken by: Mike Smith<br>Entity: BCRSD Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of primary lagoon cell. Aerator appeared to be functioning properly. Approximately half of the lagoon covered in duckweed.<br><br>Date Taken: September 20, 2016<br>Program: WPC Unit |
|  | Photograph #: 3<br>Taken by: Mike Smith<br>Entity: BCRSD Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of secondary lagoon cell. Lagoon surface covered in duckweed.<br><br>Date Taken: September 20, 2016<br>Program: WPC Unit |

Initial MDS


Photograph #: 4
Taken by: Mike Smith
Entity: BCRSD Richardson Acres WWTF
Permit: #MO-0115185
Location: Boone County

Description: View of outfall location with a sign posted.

Date Taken: September 20, 2016
Program: WPC Unit

Photograph #: 5
Taken by: Mike Smith
Entity: BCRSD Richardson Acres WWTF
Permit: #MO-0115185
Location: Boone County

Description: View of effluent discharging. Strong sulfur odor detected. Sulfur bacteria observed directly below the outfall.

Date Taken: September 20, 2016
Program: WPC Unit

Photograph #: 6
Taken by: Mike Smith
Entity: BCRSD Richardson Acres WWTF
Permit: #MO-0115185
Location: Boone County

Description: View of sulfur bacteria observed approximately 10 feet downstream of the outfall.

Date Taken: September 20, 2016
Program: WPC Unit

Initial MDS

Photograph #: 7
Taken by: Mike Smith
Entity: BCRSD Richardson Acres WWTF
Permit: #MO-0115185
Location: Boone County

Description: View of receiving stream approximately 20 feet below the outfall. Water appeared clear.

Date Taken: September 20, 2016
Program: WPC Unit

Initial MDS

# Sludge Handling Checklist for Wastewater Treatment Facilities

| **Facility Name: BCRSD Richardson Acres WWTF** | **MSOP #: MO-0115185** | | |
|---|---|---|---|
| **Issue to be addressed** | **Options** | | **Not Inspected** |
| What method (land application, incineration, landfill, etc) is used for sludge management? | Sludge is hauled to a permitted WWTF. | | ☐ |
| | **Date** | | |
| How often is sludge removed from the facility? | Approximately once every five years. | | ☐ |
| When was the last time sludge was removed? | 2012. | | ☐ |
| | **Yes** | **No** | **Not Applicable** |
| Has the Form S annual report been submitted? | ☒ | ☐ | ☐ |
| Have the applicable additional sections been submitted? (If not, please describe deficiencies below in the comments field) | ☒ | ☐ | ☐ |
| Is the form filled out correctly? (If not, please describe deficiencies below in the comments field) | ☒ | ☐ | ☐ |
| Is the monitoring frequency for metals, pathogens and vectors (WQ 423) being met? | ☐ | ☐ | ☒ |
| Are the requirements for pathogens and vector attraction (WQ 424) being met? | ☐ | ☐ | ☒ |
| Are land applied biosolids below the ceiling concentration for metals (WQ 425)? | ☐ | ☐ | ☒ |
| Are the nitrogen, soil pH and soil phosphorus limitations (WQ426) being met? | ☐ | ☐ | ☒ |
| Other Comments: | | | |


North
E. Flamingo Drive
Access Road
Route B
Primary Lagoon
Secondary Lagoon
Outfall #001
81 m
Position 564028.16 4324711.88 m
© 2008 Microsoft Corp.

5.200 BCRSD, Richardson Acres WWTF
Boone County
#MO-0115185

April 15, 2014

Dwayne Cooksey, Operations Manager
Boone County Regional Sewer District
1314 North Seventh Street
Columbia, MO 65201

**LETTER OF WARNING**

Dear Mr. Cooksey:

A routine compliance inspection of the Boone County Regional Sewer District (BCRSD), Richardson Acres Wastewater Treatment Facility (WWTF), located in Boone County, Missouri, was conducted on March 20, 2014. The inspection was conducted by Stephen Moss, with the Missouri Department of Natural Resources' Northeast Regional Office. Enclosed is a copy of the inspection report.

Please direct your attention to the Required Actions for the Unsatisfactory Features and Recommendations sections of the report. The information requested by the department is to be submitted to the Northeast Regional Office by **May 6, 2014**. Your cooperation in this matter will be appreciated.

At the time of the report the results of sample analysis 140455 were not completed. Additional violations may be documented upon receipt of the sample analysis results. The results will be provided to the facility when they are available.

If you have any questions regarding the enclosed inspection report or would like to schedule a time to meet with department staff to discuss actions required to bring your facility into compliance, please contact Stephen Moss at (660) 385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552-2602 or by email at NERO@dnr.mo.gov. Responses to any Required Actions may be sent via email.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/smb

Enclosures: Report of Compliance Inspection
Sample Analysis #140455

**REPORT OF COMPLIANCE INSPECTION**
**BCRSD, RICHARDSON ACRES WWTF**
**BOONE COUNTY**
**#MO-0115185**
**April 15, 2014**

## INTRODUCTION

Pursuant to Section 644.026.1 RSMo of the Missouri Clean Water Law, a routine compliance inspection of the Boone County Regional Sewer District (BCRSD), Richardson Acres Wastewater Treatment Facility (WWTF) in Boone County, Missouri, was conducted by Stephen Moss of the Missouri Department of Natural Resources' Northeast Regional Office on March 20, 2014. Dwayne Cooksey, Operations Manager, participated in the inspection. Mr. David Gullic, of the Missouri Department of Natural Resources' Environmental Services Program, accompanied Mr. Moss during the effluent sampling portion of the inspection.

This inspection was conducted to determine the facility's compliance with Missouri State Operating Permit #MO-0115185, the Missouri Clean Water Commission Regulations, and the Missouri Clean Water Law. This report presents the findings and observations made during the compliance inspection.

## FACILITY DESCRIPTION/HISTORY

Missouri State Operating Permit (MSOP) #MO-0115185 was last issued on September 1, 2013, and expires on March 31, 2015. This permit sets forth effluent limitations, monitoring requirements, and permit conditions, both standard and specific, that the permittee is to follow.

The facility consists of a two-cell lagoon with sludge retained in the lagoon. The design population equivalent is 85 with a design flow of 8,510 gallons per day. The actual flow is 3,198 gallons per day. The legal description of the BCRSD, Richardson Acres WWTF is listed on the permit as the SW ¼, SW ¼, SW ¼, Section 34, Township 50 North, Range 12 West, in Boone County. The receiving stream for this facility is an unnamed tributary to Clays Fork.

A previous compliance inspection was conducted on July 10, 2010. At the time of the inspection the facility was found to be operating in non-compliance and a Letter of Warning was issued for the following unsatisfactory features: failed to submit a complete Form S-Annual Sludge Report, failed to provide a minimum of two feet of freeboard, and failed to maintain the inner berm slopes.

## DISCUSSION OF INSPECTION AND OBSERVATIONS

Prior to the inspection, the files for the BCRSD, Richardson Acres WWTF were reviewed, including the Permit Conditions of Missouri State Operating Permit (MSOP) #MO-0115185, to familiarize the inspector with the requirements specific to this facility.

The inspection was conducted during normal business hours. Prior notification of the inspection was provided to ensure timely access to the site. Upon arrival at the facility, the inspector met with Dwayne Cooksey, Operations Manager, and the purpose and scope of the inspection were

outlined. Mr. Cooksey granted permission to access the site and accompanied the inspector throughout the tour of the facility.

Upon arrival at the facility, Mr. Moss observed that the facility has a perimeter fence with warning signs posted on each side. Mr. Moss observed the facility's entrance gate to be locked. The facility has an all-weather access road that leads to the facility. The vegetation around the facility was observed to be well-maintained. No deep-rooted vegetation was observed growing on the lagoon berms. The aerator was not operating at the time of the inspection. Mr. Cooksey stated that the aerator was functioning properly earlier in the morning, but a blown fuse had caused the aerator to shut off. Mr. Cooksey stated that it appeared that a squirrel was the cause of the blown fuse. Mr. Cooksey stated that the aerator would be back in operation as soon as possible. Mr. Moss observed that sections of both cells had riprap on the inner berm slope. However, Mr. Moss observed erosion damage on the sections of the inner berm slopes that had not been riprapped and on top of the berms. Mr. Cooksey stated that each house in the subdivision had its own septic tank. Mr. Moss asked how the sludge in the septic tanks is managed. Mr. Cooksey stated that the BCRSD pumps the sludge out of the septic tanks once every five years.

Mr. Moss continued the inspection with observations of Outfall #001. Mr. Moss observed that the outfall was marked with a sign. Mr. Moss observed Outfall #001 discharging and samples were taken of the effluent for analysis. The effluent was observed to be light green in color with no odors noted. Mr. Moss did not observe any water quality impacts caused by previous discharges in the receiving stream.

Following the inspection, Mr. Moss discussed the findings of the inspection with Mr. Cooksey. Mr. Moss also reviewed the facility's Operations and Maintenance Manual.

On April 10, 2014, Mr. Moss contacted Mr. Vigil Farnen, Operations Supervisor, and asked when the last time sludge was pumped from the septic tanks. Mr. Farnen stated that sludge was removed in 2012. Mr. Moss stated that Form S- Domestic Sludge Reporting had not been submitted for 2012. Mr. Moss stated that Form S should be completed as soon as possible and submitted to the Northeast Regional Office. Mr. Farnen stated that he would submit the form immediately.

Upon review of the facility's files, Mr. Moss found that the facility failed to submit an influent sample for the 4$^{th}$ Quarter 2013. The facility is required to collect an influent sample on a quarterly basis. Mr. Moss found that the remaining Discharge Monitoring Reports to be complete and up-to-date. The facility has also submitted all inflow and infiltration reports.

According to the Schedule of Compliance section of the Missouri State Operating Permit #MO-0115185, the BCSRD, Richardson Acres WWTF was required to submit a progress report by March 1, 2014, regarding the progress made in attaining compliance with the final effluent

limits. The facility is required to attain compliance with the final effluent limits for ammonia by September 1, 2019. On September 20, 2013, the facility submitted a progress report for meeting the upcoming ammonia limits. According to the progress report, the BCRSD plans to eliminate this facility and connect to the City of Columbia's sanitary sewer system. The report states that a facility plan will be completed in 2014, the design will be completed in 2015, and land acquisition will be completed in 2016. The report states that a revenue bond election will take place in 2018 and construction will take place between 2023 and 2028. The facility's current plan for meeting the required upgrades does not meet the timelines listed in the Schedule of Compliance section of Missouri State Operating Permit #MO-0115185.

## WATER QUALITY MONITORING

The appropriate sampling materials were taken on the inspection, including a copy of the Missouri Department of Natural Resources' Standard Operating Procedures for Sampling. Instruments for field monitoring were taken on the inspection that are capable of testing pH, temperature, conductivity, and dissolved oxygen. HACH® ammonia test strips for water quality monitoring were also taken on the inspection.

Water quality field monitoring was conducted at the following location for the listed parameters. The effluent was observed to be light green with no odors noted.

| **Outfall #001** | | |
|---|---|---|
| **Parameter** | **Result** | **Units** |
| pH | 9.18 | s.u. |
| Temperature | 9.7 | °C |
| Dissolved Oxygen | 20.86 | mg/L |
| Conductivity | 1541 | Microsiemens |

Sampling was conducted and submitted for laboratory analysis. The department's Environmental Services Program results of Sample Analysis #140455 were not completed at the time of the report. The results will be provided to the facility when they are available

## COMPLIANCE DETERMINATION

The facility was found to be in **non-compliance** with the Missouri Clean Water Law, the Clean Water Commission Regulations, and Missouri State Operating Permit #MO-0115185, based upon the observations made at the time of the inspection. At the time of the report the results of sample analysis #140455 were not completed. Additional violations may be documented upon receipt of the sample analysis results.

**UNSATISFACTORY FEATURES**

1. Failed to collect an influent sample in order to ensure a removal efficiency of 65% is being met by the wastewater treatment system, as required by the effluent limitations and monitoring requirements of Missouri State Operating Permit (MSOP) #MO-0115185 [Section 644.076.1, RSMo].

**REQUIRED ACTION**: The facility is required to collect a wastewater influent sample, at least once per quarter while discharging, for five day Biochemical Oxygen Demand (BOD5) and Total Suspended Solids (TSS) in order to ensure a removal efficiency of 65% is being met by the wastewater treatment facility. Influent testing should occur in conjunction with one or more of the monthly effluent tests as the facility discharges. The facility shall submit a written statement by **May 6, 2014,** explaining what actions have been taken to correct the unsatisfactory feature.

2. The facility failed to submit a timely Form S – Domestic Sludge Reporting, as required in the standard conditions of MSOP #MO-0115185 [Section 644.076.1, RSMo, and 10 CSR 20-7.015(9)(H)1.].

**NO FURTHER ACTION REQUIRED**: The facility is to include any sludge that is removed from the septic tanks that are considered part of the wastewater treatment facility's collection system on the enclosed Form S- Domestic Sludge Reporting. On April 11, 2014, Mr. Virgil Farnen submitted the Form S-Domestic Sludge Report via email. Ensure that Form S is submitted each year that sludge is removed from the septic tanks.

3. Failed to maintain the inner berm slopes of the lagoon to be no less than three to one (3:1) as required by Special Conditions #17 of Missouri State Operating Permit (MSOP) #MO-0115185 [10 CSR 20-8.020(13)(A)3.C.].

**REQUIRED ACTION**: The lagoon berms have developed erosion damage from wave erosion, bank dens and tunnels from muskrats. The owner must repair the damaged berms. Inner and outer slopes are to be no less than 3:1. Clay soil is to be compacted into the damaged areas. Riprap or vegetate the repaired areas. The department recommends the use of riprap to cover the repaired areas to prevent future damage to the site. By **May 6, 2014**, the facility shall provide documentation to the Northeast Regional Office, which may include photographs and/or receipts describing the actions taken, or intended to take, to correct the non-compliance.

**RECOMMENDATIONS – Actions that are being recommended by the inspector but are not required to bring the facility into compliance at the time of the inspection.**

1. Consider placing riprap on the entire inner berm slope of each lagoon cell to prevent muskrat and wind/wave erosion damage in the future.

2. Ensure that the vegetation on the inner lagoon berms is routinely reduced in height; six inch height is recommended.

3. Ensure that the aerator is repaired and returned to service as soon as possible.

4. The facility's current plan for meeting the required upgrades does not meet the timelines listed in the Schedule of Compliance section of Missouri State Operating Permit #MO-0115185. The facility should revise their schedule to meet the permit schedule.

SUBMITTED BY:

Stephen Moss
Environmental Specialist
Northeast Regional Office

REVIEWED BY:

Jamie Shinn
Environmental Specialist
Northeast Regional Office

SM/bb

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|---|---|
|  | Photo #: 1<br>By: Stephen Moss<br>Facility: BCRSD, Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of the primary cell. The aerator can be observed in the middle of the lagoon.<br><br>Date Taken: March 20, 2014<br>Program: WPC Unit |
|  | Photo #: 2<br>By: Stephen Moss<br>Facility: BCRSD, Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of the primary cell.<br><br>Date Taken: March 20, 2014<br>Program: WPC Unit |
|  | Photo #: 3<br>By: Stephen Moss<br>Facility: BCRSD, Richardson Acres WWTF<br>Permit: #MO-0115185<br>Location: Boone County<br><br>Description: View of erosion damage on the inner berm slope of the secondary cell.<br><br>Date Taken: March 20, 2014<br>Program: WPC Unit |

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