Maryland Department of Environment

Water and Science Administration
Compliance Program
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Inspector: Ronald Wicks
AI ID: 8449

Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224
County: Baltimore County

Start Date/Time: September 20, 2021 8:09AM
End Date /Time: October 04, 2021 8:10PM

Media Type(s): NPDES Municipal Major Surface Water

Contact(s):
Betty Jacobs Plant Manager
Michael Hallman, General Manager
Rayford McEachern, Engineer
Ronald Turner, Chief Operator
Dona Garris, Operator
Charmayne Paton, Operator
Chris Kazen, Supervisor

NPDES Municipal Major Surface Water

Permit / Approval Numbers: 15DP0581
NPDES Numbers: MD0021555
Inspection Reason: Follow-up (Non-Compliance)
Site Status: Active
Compliance Status: Noncompliance
Site Condition: Noncompliance
Recommended Action: Continue Routine Investigation
Evidence Collected: Photos or Videos Taken, Record Review, Visual Observation
Delivery Method: Email
Weather: Clear Average

Inspection Findings:

Re. Discharge permit NPDES # MD0021555 and State # 15-DP-0581, the Back River WWTP.

On September 20, 2021, I met with Ms. Betty Jacobs, Mr. Michael Hallman, Mr. Rayford McEachern, Mr. Ronald Turner, Mr. Chris Kazen, Ms. Charmayne Paton and Ms. Dona Garris representing the Back River WWTP for a follow-up evaluation and an investigation to a complaint that came with pictures regarding specific operations at the treatment works. The permit effective date is 5/1/2018, expiration date of 4/30/2023 and a reapplication date of

10/31/2021.The Department received pictures showing images of what appeared to be taken in the activator area and at the denitrification filter building. During a preliminary meeting with the above individuals, I discussed my plans and the reason for this inspection, which was a follow-up to my last inspection and to discuss the pictures sent to the Department. The concerning picture was the solids laden dark charcoal color discharge going to a tank at the filter building which probably was backwash from the filters. This was later confirmed during this meeting to be filter backwash going to the mud well. This is concerning because a review of the process data shows that the suspended solids concentration of the influent (treated waste stream from the secondary clarifiers going into the filters) and the effluent from the filters have been considerably higher in 2021 as compared to data from 2017 through 2020. For the month of April 2021, the average solids concentration of the wastewater going into the filter was 78.3 mg/L and 31.2 mg/L leaving the filter. As a comparison, for the month of November 2020, the solids concentration going into the filters was 12.1 mg/l and 2.2 mg/L, leaving the filter. *Note: August 2021 data made available on 9/28/2021 show that the solids concentrations going into and leaving the filter have dropped considerably from the previous months to 18.7 mg/L going into the filter and 4.9 mg/L going out of the filter.*

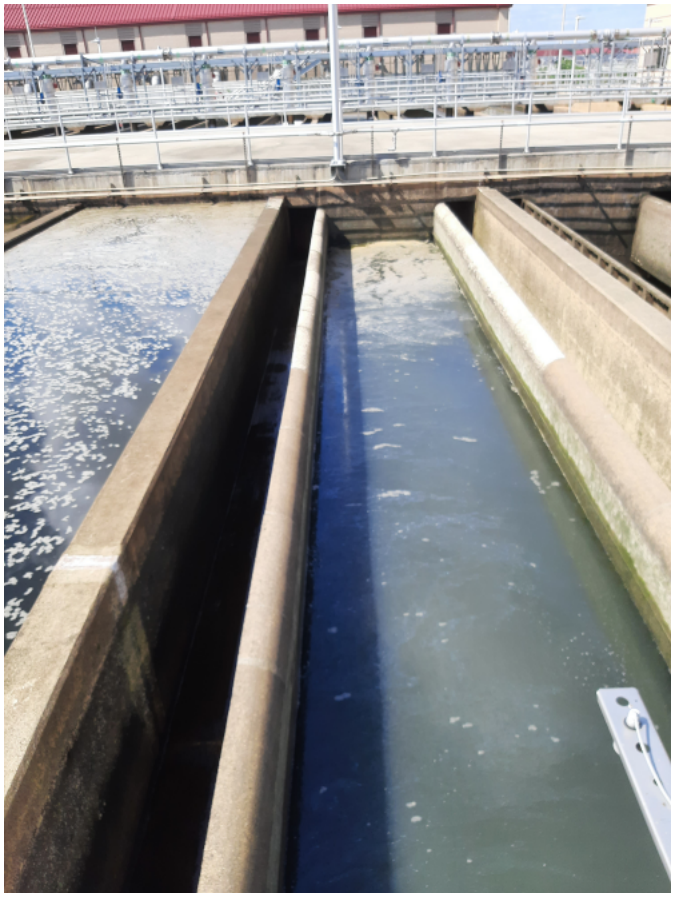
During the meeting, I asked Mr. McEachern if he could provide analytical data for the 4th week of August and the beginning of September for samples collected for total suspended solids. Mr. McEachern stated that the contract laboratory has not provided those results to date. Mr. McEachern stated that the facility has been having problems with the contract laboratory suppling the analytical results within a reasonable amount of time. The Permittee should obtain an agreement with the laboratory to provide test results within a reasonable amount of time. For operational and process control management, the laboratory's turnaround time should be modified to ensure that reports are received in time for effective decision making and public health protection. This is especially important for microbiological monitoring.

After the discussion, I conducted a site review accompanied by Ms. Paton and Ms. Garris. The first stop was at the denitrification filter building where the TETRA denitrification filters are located. Today, I inspected all the quads and all 52 filters. During this inspection, I found that not all the filters were functioning as designed. Some of the filters appeared to be clogged and the water entering the filter flowed down slowly and excess water overflowed the system. Many of the filters had a floating layer of scum that appeared to be emulsified fats oil and grease (FOG) that carried over from primary treatment. This oily scum will hinder functional operation of the filters and affect the efficiency of the filters. Quad #2 of the system appeared to have the most issues. During a discussion with the Denitrification Filter Control Operator, I found that 16 of the 52 filters were offline and requiring various types of service to be able to be brough back online. Next in inspected the mud wells for the filter backwash. Each mud well manages the back wash for 13 filters. The back wash wastewater flows from the mud wells to the tertiary clarifier for settling. This wastewater then flows back to the treatment system. During my evaluation, I inspected the mud well tanks. There were no discharges of filter back wash into the mud wells during my review and one of the filters was going through the backwash process.

The TETRA Denite system consists of a monomedia granular sand with a two-to-three-millimeter effective size. According to the specification, the system uses uniform spherical media reportedly allowing for more rolling and contact with other media grains, resulting in more effective

backwash and nitrogen-release cycles and, ultimately, lower backwash water volume requirements. As mentioned in paragraph one above the average total suspended solids concentration going into the TETRA filters has been considerably higher starting around the 1st quarter of 2021 and progressively increasing in 2021. This condition would account for the backwash appearing to contain more solids.

9/20/2021 scum layer on filter in Quad 2



9/20/2021 Emulsified oil and grease in filter

9/20/2021 scum on the surface

9/20/2021 Filter overflowing in Quad 2

9/20/2921 Mud Well containing backwash

9/20/2021 Filter showing normal operation

Next, I inspected all the secondary clarifiers to evaluate the wastewater settling process. During an inspection of these clarifiers, I found that most were in unacceptable condition due to unsatisfactory maintenance. I observed unacceptable algae growth on the weirs of the secondary clarifiers that was causing a short circuiting of the system. Because of the phosphorous in the effluent algae blooms can occur during the summer causing this problem. Algae can cause problems with total suspended solids within the treatment system and can cause problems with pumps by increasing the chances of clogging. The weirs on all secondary clarifies should be routinely scrubbed to remove the algae. This should be done at least weekly in the summer and more frequently as necessary. In addition, I found vegetative growth that blocked the weirs of some of the clarifiers causing short-circuiting of the system as well. This growth is easily removed and should not be allowed to get to the condition that I observed during this inspection.

As reported in previous reports, the skimmers arms on some of the clarifiers were not functioning as designed and require repairs or replacement.

9/20/2021 Weir of secondary clarifier showing unacceptable blockage by algae and vegetative growth. This condition is impeding proper treatment process.

9/20/2021 In this area vegetation growth has been unchecked and allowed to grow on the weir of one of the secondary clarifiers. This condition will hinder the satisfactory treatment of the wastewater leading to poor effluent quality.

I continued this inspection with an evaluation of the biological reactors. For the most part the biological reactors were functioning as designed. However, in a few sections of the reactors there were small areas where reed grasses e.g., phragmites have begun to take root. This vegetation will thrive in this area due to the phosphorous and nitrogen available. To ensure optimal wastewater treatment, the permittee should maintain this area in better condition. These reed grasses should be removed, and vegetation not allowed to grow within the treatment components. This situation is preventable and should not be allowed to continue.

9/20/2021 Biological reactor.

9/20/2021 Reed grass in the reactor

The next area that I inspected was the solids handing area. Today the #1 centrifuge was online, #2 was out of service, # 3 was on standby and #4 was out for repairs. In addition, the facility's portable centrifuges were in operations just outside of the solids handling building.

The solids are stored in silos for later removal. There are seven storage silos to hold the solids and each silo holds 120 tons. According to Ms. Garris, dewatering operations will stop if the silos are filled to capacity. Ms. Garris also told and showed me an emergency tank with 1 MG capacity if needed in emergency situations. In addition, I was informed that the facility now has two sludge hauling contracts.

I inspected the outside and inside solids handling areas. No visible problems seen with the portable centrifuge being used on the outside. In addition, the operations in the building were in much

better condition than I observed during my last inspection on June 16, 2021. During the last inspection the solids conveying system and belts were backed up and impeded due to the large amount of solids on the belts. Today the conveyance system was operational and moving satisfactorily.

9/20/2021 Outside dewatering operation. No visible problems observed in this area.

9/20/2021 Outside dewatering operation

9/20/2021 Solids handling building. Belt moving without impediments.

During the last phase of this inspection, I returned to the administration building to discuss my inspection findings with the above facility representatives.

With respect to the above MDE authorization, the following violations were observed under Environment Article Title 9 for the Back River WWTP:

1. Analytical results are not being supplied to the Back River WWTP by their contract laboratory within an acceptable timeframe for effective decision making and public health protection.
2. Emulsified FOG was observed on the surface of the water in the denitrification filters, which can lead to problems.
3. Sixteen of the denitrification filters require service due to various reasons.
4. Total suspended solids concentrations of the waste stream going into the denitrification filters or influent has increased considerably compared to past operational data.
5. Unacceptable algae growth was observed on the weirs of the secondary clarifiers that was causing the short circuiting of the system. This condition can impact total suspended solids in the waste stream being treated.
6. Vegetation was observed growing on the weirs of the secondary clarifiers, which was also causing a short circuiting of the clarifiers and impede treatment performance.
7. Reed grasses are growing in the biological reactors preventing impeding the performance and preventing satisfactory operations.

To bring this site into compliance with Environment Article Title 9, the Back River WWTP should make the following corrections:

A. With respect to item #1 above, for operational and process control management, the laboratory's turnaround time should be decreased to ensure that reports are received in time for effective decision making and public health protection.

B. With respect to item #2 above, the Back River WWTP should address the problem with FOG beginning at primary treatment. The skimming systems should be repaired or replaced on all nonfunctioning FOG skimming systems.

C. With respect to item #3 above, the Back River WWTP should evaluate and determine the cause for the problems with the out of service denitrification filters and make the necessary repairs.

D. With respect to item #4 above, The Back River WWTP should improve operational maintenance, evaluate wasting practices and make changes as necessary and provide better preventive maintenance practices to improve the solids concentrations throughout the treatment processes.

E. With respect to item #5 above, the weirs on the secondary clarifiers should be routinely scrubbed to prevent aggressive algae growth.

F. With respect to item #6 above, vegetation should not be allowed to grow in the secondary clarifiers.

G. With respect to item #7 above, reed grasses or any type of vegetation should not be allowed to grow in the biological reactors.

H. With regards to items 5, 6 and 7, the problem with vegetation and algae in the treatment system is easily preventable. These conditions can impact total suspended solids removal. Within 30 days of the receipt of this report all reed grass, algae and other vegetation should be removed from all clarifiers and activators and these areas should be properly maintained going forward.

The Department is currently working with Baltimore City DPW to make corrections previously noted and develop effective operational and maintenance SOPs to improve overall operations and effluent quality at the WWTP.

STATE LAW PROVIDES FOR PENALTIES FOR VIOLATIONS OF MARYLAND ENVIRONMENT ARTICLE TITLE 9 FOR EACH DAY THE VIOLATION CONTINUES. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MAY SEEK PENALTIES FOR THE AFOREMENTIONED VIOLATIONS OF TITLE 9 ON THIS SITE FOR EACH DAY T

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	***Status***	***Comments***
Does the facility have a discharge permit?	No Violations Observed	
Is the discharge permit current?	No Violations Observed	
If the permit is not current, has facility applied for renewal?	No Violations Observed	
Does the facility operate as authorized bytheir current permit?	No Violations Observed	
Has the Permitee exceeded the permitted capacity of the WWTP?	No Violations Observed	
Is the number and location of discharge points as described in the discharge permit?	No Violations Observed	

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	***Status***	***Comments***
Has permittee submitted correct name and address of receiving waters?	No Violations Observed	
Is the permittee meeting the compliance schedule per permit requirements?	No Violations Observed	
Has the operator or superintendent been certified by the Board in the appropriate classification for the facility?	No Violations Observed	
Are adequate records being maintained for the sampling date, time, and exact location; analysis dates and times; individual performing analysis; and analytical results?	4 - Not Evaluated	
Are adequate records being maintained for the analytical methods/techniques used?	4 - Not Evaluated	
Does the permittee retained a minimum of 3 years worth of monitoring records including raw data and original strip chart recordings; calibration and maintenance records; and reports?	No Violations Observed	
Do lab records reflect that lab and monitoring equipment are being properly calibrated and maintained?	4 - Not Evaluated	
Does the permittee/laboratory use suitable QA/QC procedures and operate a formal quality assurance (QA) program using appropriate controls?	4 - Not Evaluated	
Has the permittee submitted the monitoring results on the proper Discharge Monitoring Report form?	No Violations Observed	
Do the Discharge Monitoring Reports reflect permit conditions?	No Violations Observed	
Has the permittee submitted these results within the allotted time electronically?	No Violations Observed	
Is the facility being properly operated and maintained including:(a) stand-by power or equivalent provisions available, (b) adequate alarm system for power or equipment failure available, (c) all treatments units are in service, .	Out of Compliance	See narrative section
Is sewage sludge managed correctly per permit requirements?	Corrective Actions Required	
If a by-pass occurred since last inspection, has the permittee submitted notice of the by-pass within the allotted time?	No Violations Observed	
If a non-complying discharge occurred since	No Violations	effluent violations were observed and the Department was

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	***Status***	***Comments***
the last inspection, was the regulatory agency notified within the allotted time?	Observed	notified
If applicable, has the permitee complied with all special conditions of their permit?	No Violations Observed	
Have overflows occurred since the last inspection?	Out of Compliance	Overflows occurred and were reported
Have records of overflows been maintained at the facility for at least five years?	No Violations Observed	
Are flow measuring devices properly installed and operated, calibration frequency of flow meter adequate, flow measurement equipment adequate to handle expected ranges of flow?	4 - Not Evaluated	
Are discharge monitoring points adequate for representative sampling?	No Violations Observed	
Do parameters and sampling frequency meet the minimum requirements?	No Violations Observed	
Does the permittee use the method of sample collection required by the permit?	No Violations Observed	
Are analytical testing procedures used approved by EPA?	No Violations Observed	
If alternate analytical procedures are being used, has proper approval been obtained?	No Violations Observed	
Has the permittee notified the Department of the name and address of the commercial laboratory?	No Violations Observed	
Were discharges observed at the authorized outfalls?	No Violations Observed	
If discharges were observed, do the discharges or receiving waters have any visible pollutants observed?	No Violations Observed	grey color
Were discharge samples collected?	4 - Not Evaluated	
Does this facility have coverage under a a NPDES stormwater discharge permit?	No Violations Observed	
If the permittee has coverage under a NPDES storm water permit, has a storm water pollution prevention plan been developed and implemented as required?	No Violations Observed	
Are the permit conditions being met?	Out of Compliance	See narrative section

Inspector: Ronald Wicks 10/4/2021
Ron, Wicks/Date
ron.wicks@maryland.gov
410-537-3510

Received by: _____
Signature/Date

_____
Print Name