



Maryland Department of Environment
Water and Science Administration
Compliance Program
1800 Washington Blvd, Suite 420
Baltimore, MD 21230-1719
410- 537-3510

Inspector: Wendy Huang
AI ID: 3076

Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226
County: Baltimore City

Start Date/Time: February 27, 2023, 09:00 AM
End Date /Time: February 27, 2023, 12:30 PM

Media Type(s): NPDES Municipal Major Surface Water

Contact(s): Neal Jackson- Plant Manager of Patapsco WWTP
Andrea Buie- Branam- Environmental Compliance Manager of Baltimore City DPW
Chris Saunders- Senior Associate of Hazen and Sawyers
Ron Wicks- MDE Inspector/ Administrator
Samantha Coffman- MDE Inspector

NPDES Municipal Major Surface Water

Permit / Approval Numbers: 15DP0580

NPDES Numbers: MD0021601

Inspection Reason: Follow-up (Non-Compliance)

Site Status: Active

Compliance Status: Noncompliance

Recommended Action: Continue Routine Inspection

Evidence Collected: Photos or Videos Taken, Record Review, Visual Observation

Delivery Method: Email

Weather: Cloudy and not raining

Inspection Findings:

An inspection was conducted on this day at the Patapsco Wastewater Treatment Plant (WWTP). The receiving water is the Patapsco River and is designated as Use II waters protected for estuarine and marine aquatic life. MDE representatives were accompanied by the above listed contacts during the time of the site walk through. The Patapsco WWTP is a 73 MGD capacity activated sludge wastewater treatment plant with ferric chloride for removal of phosphorus. Mr. Neal Jackson and Mr. Chris Saunders provided an overview of this wastewater treatment plant.

Industrial Plant Influent Low Level Interceptor (IPI)

The pump and blower/ IPI building has two bar screens. One of the bar screens is turned off during the time of this inspection. Industrial influent enters the wastewater treatment plant via this building. This building has approximately 2-3 MGD capacity.

Combined Influent Building

Domestic sewage and industrial influent enter this building. Solids are removed from sewage with bar screens. The combined influent building has five bar screens that are currently running, one is out of service but is in the combined

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226

influent building, and two bar screens has been removed from the combined influent building previously. Mr. Chris Saunders stated that the two removed bar screens are currently being replaced and the one that is out of service will be refurbished next. Mr. Chris Saunders and Mr. Neal Jackson also stated that Parkson Corporation is fixing the bar screens and replacing the belts, and the facility will get skirts for the belt press. Grits screened out of sewage by bar screens are placed into a dumpster that is at the end of the belt press. During the time of this inspection, grits and rags were observed to have previously been fallen off the conveyor belt, with some being stuck on the conveyor belt system and some on the ground within the combined influent building (shown in the picture below). Implement routine maintenance of the belt press system to reduce the accumulation of grits and debris on the ground and the conveyor system.



Transfer Station

Grease and grit are stored in the transfer station. The transfer station has a roof, walls on three sides, and trench drains on the ground. Liquids from the grit flow into the trench drain and back into gravity sludge thickener (GST). Sludge solids are previously stored at the transfer station when the Synagro Sludge Receiving Facility is down. I was informed by Mr. Chris Saunders and Mr. Neal Jackson that Synagro is currently receiving and processing sludge solids for approximately 9 months, and dried grit currently stored at the transfer station will be taken to Quarantine Road Municipal Landfill for disposal.

GSTs

GSTs #1 and 2 were inspected. Water is being sprayed on the water surface of both GSTs. The GSTs has an accumulation of sludge where sludge was observed at the surface of the GST and outside of the weirs. Rags were also observed to be stuck to the weirs. Mr. Neal Jackson stated that the high level of sludge in the GST is due to high flow from the past weekend. I was also informed by Mr. Neal Jackson that KES and on site CDL staff (s) will clean the GSTs.

Primary Settling Tanks (PSTs)

PSTs # 1,4,5, and 6 are in service during the time of this inspection. PSTs # 2 and 3 are not in service during the time of this inspection. PST #3 is in the process of being drained. PST #2 will be drained after the draining of PST #3 is completed. I was informed by Mr. Neal Jackson that drained liquids will flow back to the IPI channel and accumulated solids in the PST will be vacuumed by KES. PST solids can also go back to the GST. During the time of this inspection, staffs of the wastewater treatment plant are manually removing scum from the effluent side of the PSTs that are in service.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226

Pure Oxygen Reactors

Mr. Chris Saunders informed me that reactors 2, 3, 5, and 6 are currently in service and reactors 1 and 4 are currently not in service. The purpose of the reactor is for biological oxygen demand (BOD) removal.

Secondary Clarifiers

The facility has eight clarifiers. Inspection of Clarifiers # 3, 4, 5a, 5b, 6a, and 6b was conducted. The surface of the clarifiers that are in operation are being sprayed with water to break up the scum. Clarifier #3 is currently not being operating and is used as a mudwell to contain backwash water of the denitrification filters. Wastewater from Clarifier #3 will then flow back into the PST. Scum was observed on the surface of Clarifiers 5a and 5b, next to both sides of the launder cover. Mr. Neal Jackson stated that there was no scum removal from the clarifiers because of a repair to a broken effluent water line that was discovered on 2/19/2023. Mr. Neal Jackson contacted MDE by phone on 2/21/2023 about this broken effluent water line, which resulted in 500 gallons of treated effluent entering a storm drain. Scum was not observed on the water surface with Clarifiers # 6a and 6b. Orange solids were observed on the launder covers of Clarifier #6b (picture shown below).



Mr. Neal Jackson attributed the presence of these orange solids from high flows coming into the plant. These orange solids should be removed from the launder covers.

Biological Activated Filters (BAF)

All BAF cells are currently being active, with air being injected into the water for nitrification and BOD removal. Mr. Chris Saunders informed me that the BAF has 24 individual cells, each cell has 7,000 nozzles at the bottom, and each nozzles hold media inside, which would theoretically allow water and not the media to flow through the nozzles and into the BAF cells from the bottom. However, the escaped media into other parts of the wastewater treatment plant is an ongoing problem since 2020 and the media were observed in the PST during the time of this inspection.

Denitrification Filters

The denitrification system has 34 individual filters. During the time of this inspection, filters # 1, 6, 33, and 34 are out of service. Methanol is added into the water before flowing into the denitrification filters. Water enters the denitrification filters from the top after overflowing the concrete weir walls. Water then exits the denitrification filters by flowing through the sand filter. Sand filters are located at the bottom of each individual filters. During the time of this inspection, the water surface was observed to be on the same level as the top of the concrete weir at Filter #18 (picture shown in next page).

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



I was informed by Mr. Chris Saunders and Mr. Neal Jackson that the sand filters are back washed automatically. Before leaving the denitrification system, the water level was observed to be below the top of the weir at filter #18.

Tertiary Pump Station

During the time of this inspection, five pumps are in operation. One pump is not in service and will be rebuilt. Parts of a pump that is being ready for repair were observed within the tertiary pump station building. Some of the media from the BAF have been intercepted at the tertiary pump station. The media were observed in a dumpster within the tertiary pump station building.

Chlorine Contact Chambers

The wastewater treatment plant has four chlorine contact chamber units. One of the units is not running during the time of this inspection. Some of the fat solids were observed to be floating on the water surface at the influent side of the chlorine contact chamber. Clear effluent was observed to be discharging out of the chlorine contact chamber and into the Patapsco River.

Self-Monitoring/ In-House Lab

The facility has two composite samplers, and both are 4.5°C. The pH 4 buffer will expire on 12/28/2023. The pH 7 buffer will expire on 9/6/2023. The pH 10 buffer will expire in October 2024. The 2/27/2023 total residual chlorine concentrations of the standards taken by the chlorine meter were compared with the total residual chlorine concentrations noted on the standard's label.

With respect to the above MDE authorization the following violations of Environment Article 9 by the Patapsco WWTP were observed on this date, with corrections (in bold text) needed immediately:

- 1) There are multiple puddles of brown liquid next to the entrance to the combined influent building where dumpsters with screened grit are taken into and out of the building (picture shown in next page).

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Mr. Neal Jackson stated that the presence of this liquid is due to the staff of the wastewater treatment plant spraying the ground surface within the combined influent building with water, resulting in some of this liquid to flow out of the building. The brown liquid is in the position likely to flow into a storm drain during a rain event. **Remove all brown liquid from the ground, possibly by vacuuming. Ensure that wastewater is contained and not puddled outdoor.**

- 2) The GSTs are overloaded with sludge and solids and is not able function as designed. The function of the GST is to allow for most of the biosolids to be at the bottom of the GST and for a relatively solids-free supernatant to be at the top. The high concentrations of biosolids in GST effluent can negatively impact the pure oxygen reactors' ability to remove BOD and can cause nitrification issues within the plant. Pictures of GST #1 are shown in Figures 2a, 2b, and 2c. Pictures of GST # 2 are shown in Figures 2d, 2e, and 2f.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 2a: Sludge at the surface of GST #1 and next to the outer side of the weir (pointed with a red arrow).



Figure 2b: Sludge next to the outer side of the weir within GST #1. Rags next to the V-notch weir. Scrapper arm is above the water surface level.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 2c: Close up view of the sludge that have previously been spilled out of the V- notch weir within GST #1.



Figure 2d: Scrapper arm above the water surface within GST #2.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 2e: Sludge that have previously been spilled out of the V- notch weir within GST #2.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 2f: Sludge at the surface of GST #2.

The Patapsco WWTP shall operate and process sludge in the GSTs in a manner that functions per designed. Rags and solids should be removed from the GSTs regularly.

- 3) The belt conveyors are not being functioned per designed. A pile of solids (pointed with a red arrow) was observed on the ground and looks to have been fallen out of the belt press within the combined influent building (picture found in the next page). Although the belts were observed to be running and screened debris are being transported into the dumpster by the belt press, the missing skirts causes the some of the debris to fall out of the conveyor belts and impacting the ability of the conveyors to transport all trash into a dumpster. Also, the accumulation of debris on and around the belts causes some of the mechanical parts to be clogged.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Implement better maintenance and housekeeping measure to clean up and prevent trash from falling off the conveyor belt system. The Patapsco WWTP shall implement a plan to keep rags, paper, plastics, and other debris from clogging the transport belt. The plan should also include procedures for regular manual cleaning of the belt transport system.

- 4) Rags and escaped media from the BAF, comingled with scum on the water surface were observed by the effluent side of PST #1 (picture below). Media comingled with scum is shown at the bottom of the picture.



Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226

The PST should be maintained to prevent and minimize potential problems and maintenance issues further downstream of the plant by ensuring that larger solids (i.e. rags) are removed from wastewater. Implement a plan to clean up all escaped media from the BAF and prevent media from escaping the BAF.

- 5) The secondary clarifiers are not operating per designed. Scrapper arms are missing in all operating clarifiers that were inspected during the time of this inspection. The purpose of the scrapper is to skim off any solids that accumulated on the water surface and into a trough. Mr. Neal Jackson stated that due to a supply chain issue, the plant is having trouble in getting parts. Pictures of Clarifier #4 are shown in Figures 5a and 5b. Picture of Clarifier #5a is shown in Figure 5c. Pictures of Clarifier #5b are shown in Figures 5d and 5e. The missing scrapper arms may contribute to the buildup of excessive amounts of solids on the surface of the clarifier.



Figure 5a: Scrapper arm in Clarifier #4 is missing.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 5b: Surface of the scum trough (pointed with a red arrow) at the same level as the water surface within Clarifier #4.



Figure 5c: Scum on the water surface at both sides of the launder cover within Clarifier # 5a.

Inspection Date: February 27, 2023
Site Name: Patapsco WWTP
Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226



Figure 5d: Scum accumulation within Clarifier #5b.



Figure 5e: Scum accumulation within Clarifier # 5b.

Repair and maintain the clarifiers to ensure that they are functioning per design. Install scrapper arms to the clarifiers immediately, once the parts are available.

Inspection Date: February 27, 2023
 Site Name: Patapsco WWTP
 Facility Address: 3501 Asiatic Ave, Curtis Bay, MD 21226

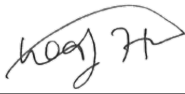
- 6) The total residual chlorine concentrations of the standards taken by the chlorine meter on 2/27/2023 is out of range, compared to the total residual chlorine numbers noted on the standards' label. The table below shows the comparison of total residual chlorine concentrations of the standards between the readings taken by the meter and numbers noted on the label and the difference between the two numbers:

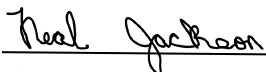
Standards	Chlorine concentrations according to label	Chlorine concentrations taken by the meter	Difference between the label and readings taken by the meter
Blank	0 mg/L	0 mg/L	0
A	0.2±0.02 mg/L	0.17 mg/L	-0.01
B	1±0.03 mg/L	0.94 mg/L	-0.03
C	2.5±0.1	2.61 mg/L	+0.01

Ms. Andrea Buie Branam stated that the chlorine meter and standards are new and were replaced recently. **The facility should investigate the reason for the above noted discrepancies/ out of range readings of total residual chlorine.**

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 the violation continues.

Contact this inspector upon implementation of the requested corrective actions, reasonably necessary to bring this site into compliance. If the corrective actions cannot be completed within the prescribed time frames above, you should continue to advise this inspector at least every 30 days of the status of the measures taken to complete the corrective actions. If you have any questions, needed assistance, or to request a re- inspection, please contact this inspector at wendy.huang@maryland.gov.

Inspector:  3/28/2023
 Wendy Huang /Date
 wendy.huang@maryland.gov
 410-537-3526

Received by:  3/28/2023
 Signature/Date
 Neal Jackson
 Print Name