



## STATUS REPORT Progress and Improvements

DPW BUREAU/OFFICE: Back River Wastewater Treatment Plant (Back River) Date: 5/26/2023

Parameters	April 2023	Monthly Permit limit	Meeting Requirement
Total Suspended Solids (TSS)	4 mg/l (Outfall 001) 5 mg/l (Outfall 002)	10 mg/l (both outfalls)	Yes
Biochemical Oxygen Demand (BOD)	6 mg/l (Outfall 001) 2 mg/l (outfall 002)	10 mg/l (both outfalls)	Yes
Total phosphorus (TP) *	0.20mg/l (Outfall 001) 0.22 mg/l (Outfall 002)	0.20 mg/l (both outfalls)	Yes (Outfall 001) No (Outfall 002)
Ammonia (NH3)	2.2 mg/l (Outfall 001) 2.2 mg/l (Outfall 002)	5.1 mg/l (Nov, 1 to Apr. 30) 2.0 mg/l (May 1, to Oct. 31) both Outfalls	Yes
E-coli	2 MPN/100 ml (Outfall 001) 2 MPN/100 ml (Outfall 002)	126 MPN/100 ml (both outfalls)	Yes

\*A sustained and continuous rain event on April 28-30 caused the high TP for the month of April. Preliminary sampling results from May 1, 2023 and afterwards indicate normal TP levels.

MPN = Most Probable Number; N/A = Not Applicable

Parameters (Outfall 001)	Annual Limit	Seasonal Limit (May 1 to Oct. 31)	April Official Total	Meeting Requirements
Total Nitrogen (TN)	1,582,055 lbs./yr. cumulative	99,782 lbs./month	108,488 lbs./month	Yes**

\*\*We are meeting our permit levels because we do not have a seasonal limit for the month of April.

## Training

The City's Program Management Team (PMT), Atkins Global, has reviewed all the plant information to assist with establishing the training and certification needs of the staff. The goals are to establish robust apprenticeship training and continuing education for current staff. The City and Atkins met to discuss several topics, including training programs goals, skills/certification-based job progression, KPIs, and a Learning Management System. The City and Atkins also met with 360water to learn more about that platform's features and benefits as a Learning Management System. A risk register for the task, which includes risk mitigation measures, was developed. The City and Atkins agreed to use the KSA matrix methodology to identify gaps in the training curriculum. Atkins is developing a best-in-class roadmap for the City. Atkins provided input on the

City's Training and Continual Learning webpage on the Baltimore WWTP Program landing page. Atkins Global consulting staff continues to meet with Back River WWTP management staff to discuss operational and safety issues at the facility and give support to optimize the performance of the facility.

The City's computer-based training continues to be a focus of the Bureau of Water and Wastewater as we enhance our operations at our wastewater facilities. We have encouraged our employees to complete one 360Water course every two weeks for continuing education credits to support the Operation staff in achieving the goal of permanent certification and renewal requirements.

The city has generated and registered a list of participants for the June 04 – 09, 2023 WWOA Annual Short Course, which consists of a series of classroom training to prepare operators for the certification exam.

## Maintenance Updates



Figure 1: Back River WWTP Outfall 002 Pump Replacement

Back River WWTP currently has 4 Primary Settling Tanks in full service (#1, #7, #8, and #11). Repairs to PST #2 continue and are scheduled for completion in July 2023. PST #9 and 10 are currently under repair with July and September 2023 timelines, respectively. PST #3 will be in service in November 2023. PST #4 will be ready in January 2024. PST #5 is slated to begin repairs in Fall 2023, and PST #6 still needs to be cleaned out and assessed for repairs. This timeline would provide in-service 8 PSTs by the end of 2023.

There are 15 of 18 reactors available for the process (12 in service with three on standby). The remaining three are awaiting materials to complete the repairs. The optimal number for regular flow is ten reactors. The secondaries have 32 of 36 final clarifiers, 26 in service, with six available on standby. Plant staff continue scaling back the number of in-service reactors and clarifiers towards the optimal amount for the flow. This change will increase the overflow

rate through the process and reduce detention times which can lead to algae and phragmite growth within the process areas.

All 52 De-Nitrification Filters (DNF) filters are available for service, including 13 filters for redundancy. All methanol sensors have been replaced and calibrated, allowing the system to work automatically.

Currently, three of four centrifuges are available for operations. Parts for Centrifuge #4 are still shipping from Germany and a delivery date is yet to be determined.

Preventive maintenance efforts continue to be the primary focus of the maintenance staff.

## Compliance and Safety

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On April 26, 2023, The Office of Environmental Regulatory Compliance and Safety (ERCS) participated in MDE field inspections at Back River WWTP, with MDE environmental compliance specialists. ERCS provided compliance support in coordinating plant update reports to MDE. The City and Atkins continue implementing the Weekly Asset Management and Safety Meeting to increase efforts for current site hazards and prior MOSH 2021 violations. MOSH abatement activities included the installation of emergency exit signs, installation of emergency eyewash/quick drenching units, installation of LED lighting for PSTs, and recognition and abatement of temporary electrical heaters in the Chemical Building. They received POs for fire extinguishers, AED, fire suppression systems, and first aid station services. Atkins' Corporate Safety collaborated and conducted site visits of Back River and Patapsco and plans to submit a review of findings in May.

ERCS coordinated a joint training session on April 28, 2023, at the Back River WWTP with plant staff and Patapsco WWTP staff to review changes to the newly released 20 SW Industrial Stormwater Permit, review application form completion, monitoring requirements and components of both plants Stormwater Pollution Prevention Plans (SWPPP).

Total phosphorus for outfall 002 was an issue in April due to the sustained and continuous rains on 4/28-4/30. The plant is investigating a flow paced ferric chloride system to eliminate the need for manual calculation and adjustment for chemical addition to aid in phosphorus removal. Additionally, plant operations returned three more clarifiers to service to aid in reducing the nutrient load to the Denitrification Facility.

## Synagro Facility Update

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On March 15, an explosion event occurred at the Synagro Pelletizing facility, located on the lease land from the city- which a third-party vendor operates. The cause of the event remains unconfirmed. We understand this event resulted from an equipment issue within the Syangro plant. Thankfully, no one was injured, and the damage was limited to only a portion of the Synagro plant.

In addition, Syangro provided two temporary centrifuges for supplemental belts and suspenders-style support and is hauling biosolids, which are the by-product of wastewater treatment processes, for land application. There are two centrifuges within the Pelletech building (24/7), two temporary centrifuges(24/5), and a belt press(12/5) in operation currently. The City has been running two centrifuges (#1 and 3) but is now running#1 only while completing polymer system repairs. Once completed, all 3 City centrifuges will be placed into operation.

The Synagro and City centrifuges will be the primary solids handling process to maintain consistent solids handling operations.

## Summary

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DPW has made substantial progress toward full compliance at Back River. **From June 2022 until April 2023, we were 100% compliant with monthly permit. In April 2023, we were 99.8% (due to TP).** DPW recognizes that Back River is an asset to the Baltimore region, and we are excited and confident in the path forward and in sustaining our compliance.