



**DISTRICT OF COLUMBIA
WATER AND SEWER AUTHORITY
Board of Directors**

*Meeting of the
Environmental Quality and Operations Committee*

*5000 Overlook Avenue, SW, Room 407
Thursday, July 19, 2018
9:00 a.m.*

- I. **Call to Order** James Patteson
Chairperson
- 9:00 a.m. II. **Path to Achieve Asset Management:
Sewer and Stormwater Pump Stations** Diala Dandach
- 9:35 a.m. III. **Action Items** John Bosley
- Joint Use**
- 1. Contract Number: WAS-12-029-AA-JR – M.C. Dean, Electrical Power Distribution Equipment Service
- 2. Contract Number: 16-PR-SEC-23 – Enterprise Security Solutions, Security Systems Integration and Management
- Non-Joint Use**
- 1. None
- 9:45 a.m. IV. **AWTP Status Updates**
- 1. **BPAWTP Performance** Aklile Tesfaye
- 9:55 a.m. V. **Executive Session***
- 10:00 a.m. VI. **Adjournment** James Patteson
Chairperson

10:00 a.m. – 12:00 p.m. Site Visits Outside of Blue Plains – Sewer and Stormwater Pump Stations (Committee Members Only)

* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

Follow-up Items from Prior Meetings:

1. The IMA Regional Committee (RC) brief the EQ&Ops Cmte on the work of the IMA RC **[Target: October 2018 EQ&Ops Cmte Mtg]**
2. Chief Engineer, DC Water: Provide a presentation on the prioritization criteria for selection of water mains to be replaced each year **[Target: September 2018 EQ&Ops Cmte Mtg]**
3. Director, DETS: Provide additional detail regarding specific impacts to sewage pumping stations for both the 100-year and 500-year flood scenarios. **[Target: September 2018 EQ&Ops Cmte Mtg]**
4. Chief Engineer, DC Water: Conduct discussion on 'Preventative Maintenance' during the June EQ&Ops Committee meeting. **[Target: September 2018 EQ&Ops Cmte Mtg]**
5. Director, Clean Water & Technology: Reschedule presentation on Blue Plains Research & Development Overview and Update for EQ&Ops Committee meeting. **[Target: October 2018 EQ&Ops Cmte Mtg]**
6. Chief Engineer, DC Water: Reschedule site visits with Committee members to Pump Stations. **[Currently on Agenda]**
7. Chief Engineer, DC Water: Brief the Committee in detail concerning the risk assessment tool, specifically concerning the criteria and scoring used for both likelihood of failure (LOF) and consequence of failure (COF). **[Target: October 2018 EQ&Ops Cmte Mtg]**
8. Chief Engineer, DC Water: Provide the Committee with more details regarding the assumptions behind the traffic delay costs factored in the TBL analysis. **[Target: September 2018 EQ&Ops Cmte Mtg]**



Path to Achieve Asset Management Site Visits: Sewer and Stormwater Pump Stations

District of Columbia Water And Sewer Authority

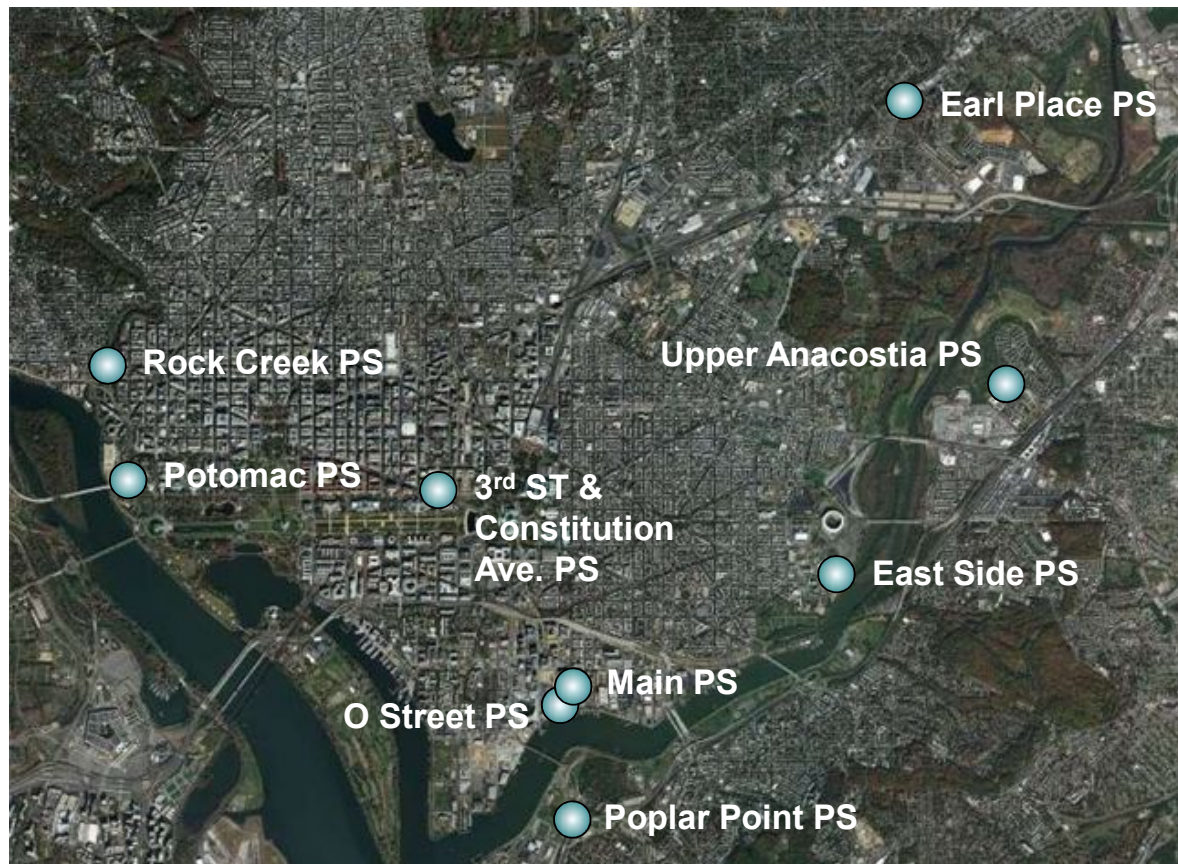
Environmental Quality & Operations Committee Meeting

July 19, 2018





Sewer Pumping Stations





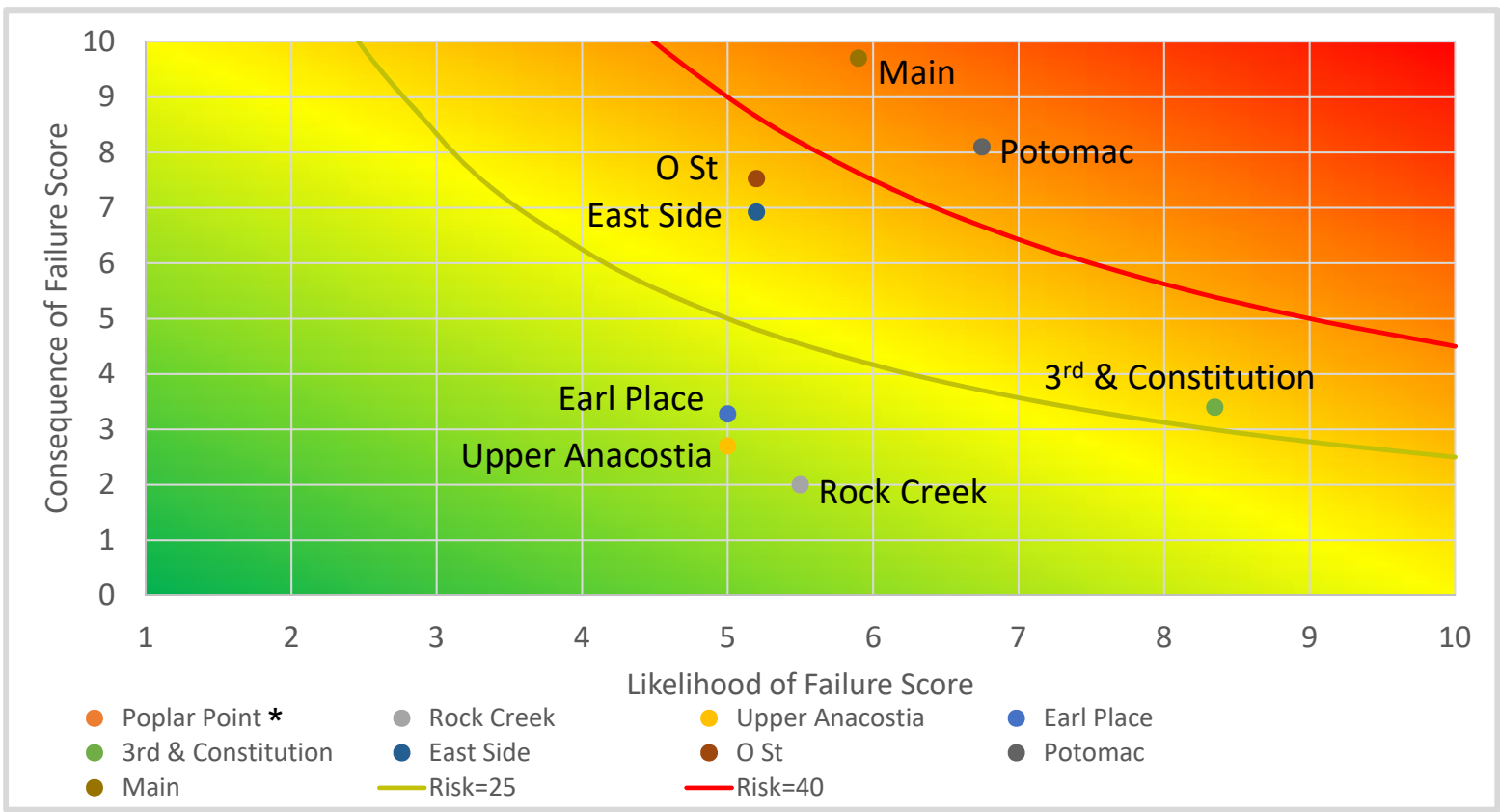
Sewer Pump Stations

1	Main* (240 MGD, storm 400 MGD)	6	Earl Place (0.43 MGD)
2	Potomac* (460 MGD)	7	Upper Anacostia (10 MGD)
3	O Street* (45 MGD, storm 500 MGD)	8	Rock Creek (50 MGD)
4	East Side* (45 MGD)	9	Poplar Point* (55 MGD)
5	3rd & Constitution (2.9 MGD)		

3 *Required firm capacity under the Nine Minimum Controls section of the Three Party Consent Decree & NPDES Permit



Sewer Pumping Station Risk Matrix



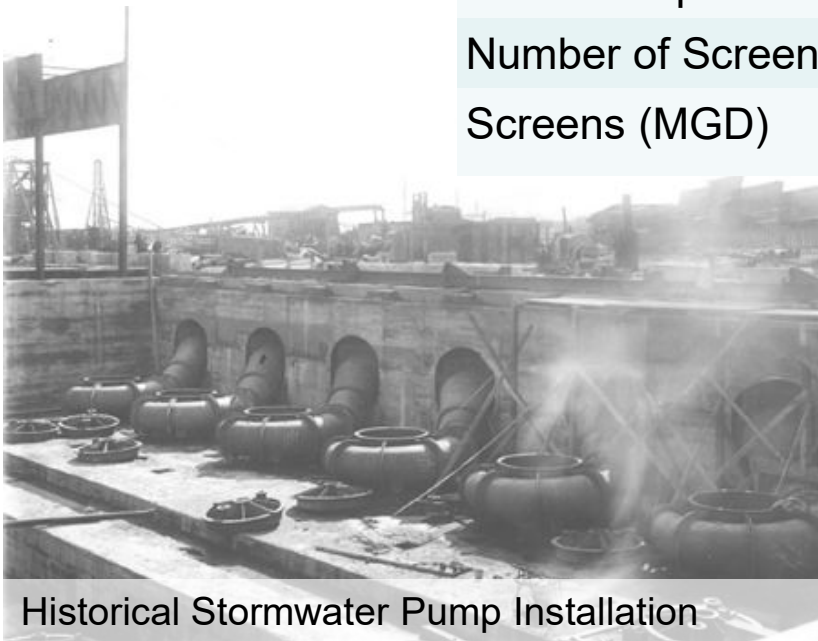
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* Poplar Point was not evaluated for risk as it is a brand new station.

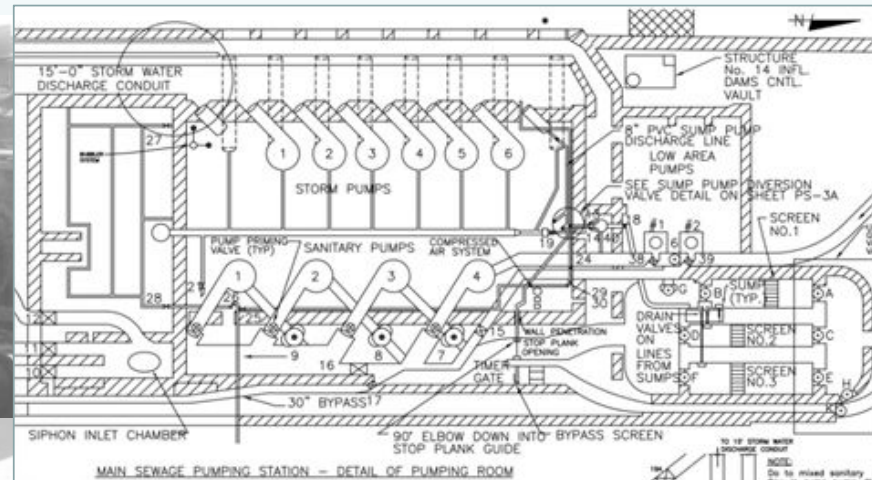


Main PS (Risk Score 57)

	Sanitary	Stormwater	Low Area Pumps
Station Capacity (MGD)	240	400	6
Number of Pumps	3	1	6
Pump capacity (MGD)	90	60	80
HP of Pump	700	600	300
Number of Screens	3	1	--
Screens (MGD)	100	Trash Rack	--



Historical Stormwater Pump Installation





Asset	Main PS (Risk Score 57)	
Originally Built	1908	
Last Upgrade	2005 <ul style="list-style-type: none"> Rehabilitation of Sanitary Pumps #1-4 New Low Area Pumps New HVAC systems Rehabilitation of gates and valves New mechanical screens New washer/compactors Odor control upgrade 	
Current CIP	EK01 – \$16,000,000 (2021 - 2026) FQ01 – \$917,000 (2009 – 2019) EK02 - \$2,760,000 (2023 – 2029) FQ02 – \$14,700,000 (2015 - 2022) EK03 - \$4,190,000 (2025 – 2028) FQ03 - \$3,540,000 (2019 – 2023)	
Estimated Cost of Needs	\$54,700,000	
Needs	<ul style="list-style-type: none"> Replace inoperable gates New low area pumps Replace stormwater pumps Ventilation and odor control upgrades Stormwater discharge conduit upgrade Screenings and conveyance upgrades Stormwater Chamber upgrades 	
Risk Consequence	<ul style="list-style-type: none"> Overflow to Anacostia River Health and safety related to inadequate ventilation Inability to control upstream flooding Collapse of stormwater conduit and chamber NPDES Permit and Consent Decree violation 	



▶ Main PS (Risk Score 57)



7 Low area pumps



Lack of conveyance, washing and compacting



▶ Main PS (Risk Score 57)



8

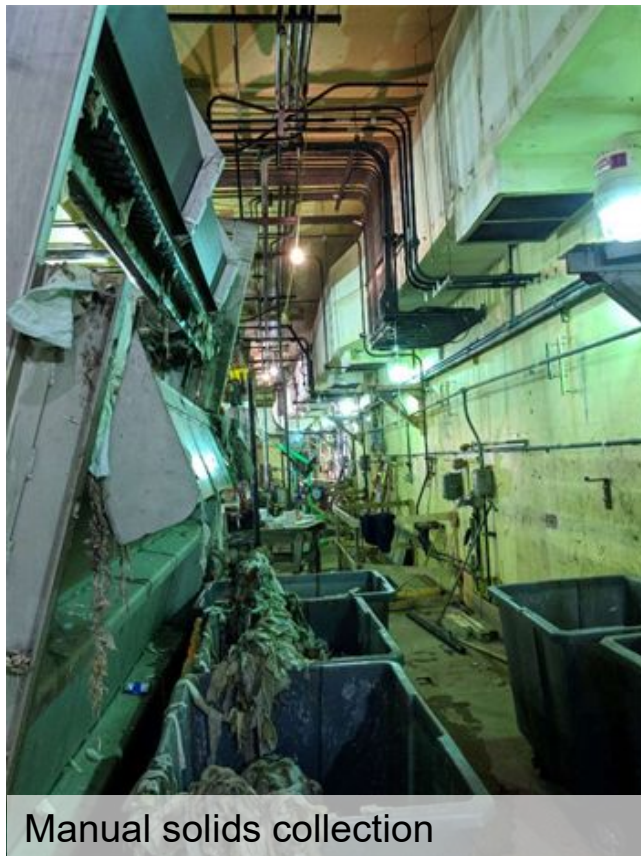


Stormwater Discharge Conduit



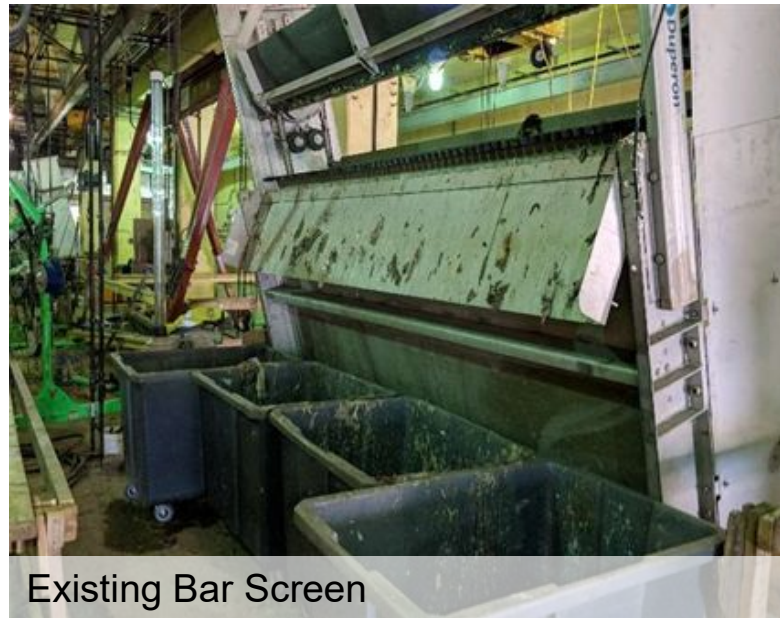
Potomac PS (Risk Score 55)

Station Capacity (MGD)	460	
Number of Pumps	3	2
Pump capacity (MGD)	110	144
HP of Pumps	1,750	
Number of Screens	4	
Screen Capacity (MGD)	159	142



9

Manual solids collection



Existing Bar Screen



Asset	Potomac PS (Risk Score 55)
Originally Built	1963
Last Upgrade	2007 2018 <ul style="list-style-type: none"> • Replaced influent screens • Replaced gate valves • Replaced sluice gates • Major electrical upgrade • Upgraded instrumentation
Current CIP	EQ01 \$1,300,000 2021 Conveyor/compactor originally scheduled to be completed 2018. Deferred to 2021
Estimated Cost of Needs	\$7,500,000
Needs	<ul style="list-style-type: none"> • Replace seal water system • New access platforms • Pump Rehabilitation • Vibration problems • Install air release valves on force main • New screenings conveyor and washer/compactor • Upgrade pump control system
Risk Consequence	<ul style="list-style-type: none"> • Catastrophic failure due to hydraulic transients leading to regulatory violations • Overflow to Potomac River • Inefficient solids collection/disposal leading to additional operational cost

Potomac PS (Risk Score 55)





O Street PS (Risk Score 39)

	Sanitary	Stormwater
Station Capacity (MGD)	45	500
Number of Pumps	4	6
Pump capacity (MGD)	17	100
HP of Pump	250	500
Number of Screens	2	
Screen Capacity (MGD)	45	



12



Asset	O Street PS (Risk Score 39)
Originally Built	1963
Last Upgrade	2005 <ul style="list-style-type: none"> • New sanitary pumps, intermediate shafting, motors with 2 VFDs • New odor control • New mechanical screens • New screening conveyance equipment • New HVAC systems • Replacement of electrical distribution system
Current CIP	FQ01 – \$1,400,000 (2009 – 2019) FQ03 – \$4,900,000 (2019 – 2023) EK02 - \$10,000,000 (2023 – 2029) Originally scheduled to be completed 2018. Deferred to 2022.
Estimated Cost of Needs	\$55,800,000
Needs	<ul style="list-style-type: none"> • Ventilation and odor control upgrades • New screens • Automation of air release valves on stormwater pumps • Life safety generator • Replace washer/compactor system • Replace inoperable valves • Stormwater Pump replacement
Risk Consequence	<ul style="list-style-type: none"> • Inefficient operations/high maintenance for failing equipment • Health and safety related to inadequate ventilation • Inability to isolate station in an emergency

O Street PS (Risk Score 39)



Inoperable valves on sanitary discharge piping



Influent Screens and Washer Compactor



▶ O Street PS (Risk Score 39)



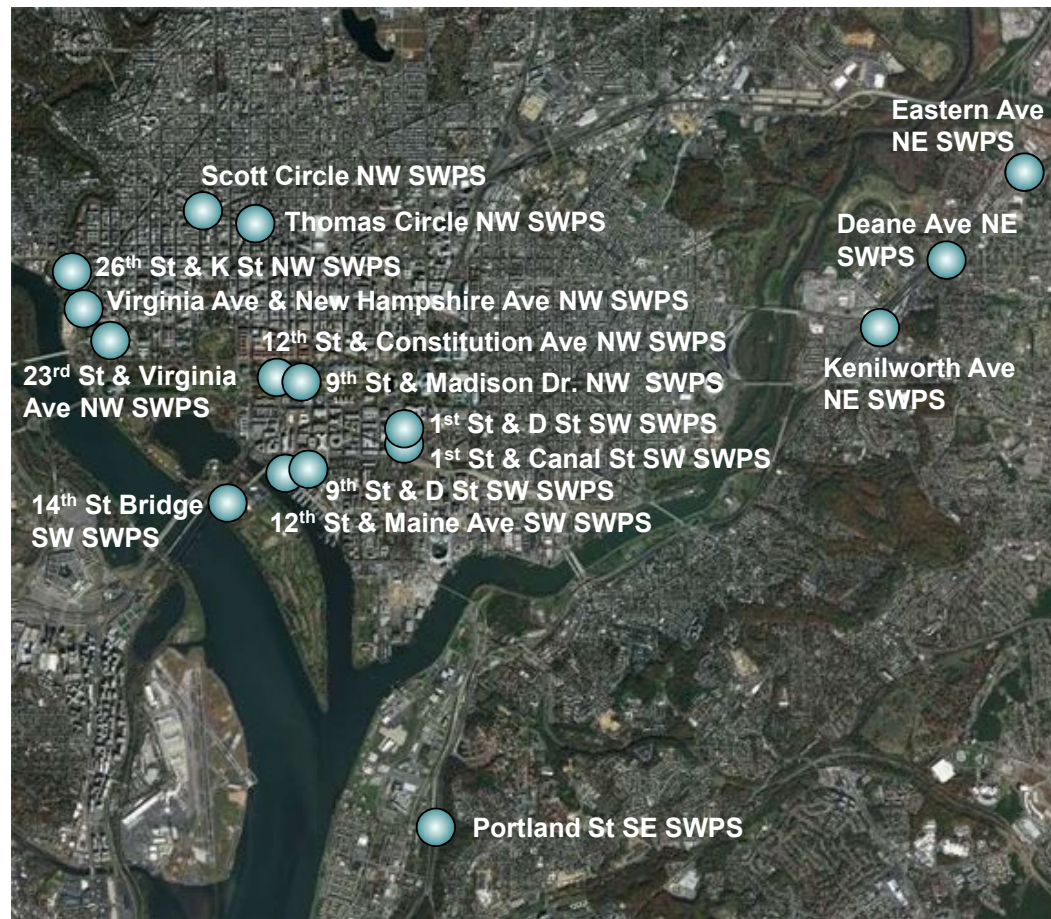
Odor Control Cannisters



Washer Compactor (Out of Order)



Stormwater Pumping Stations





Stormwater Pumping Stations

1 1st Street & Canal Street SW (2.9 MGD)

2 Portland Street SE (2.2 MGD)

3 9th Street and D Street SW (15.8 MGD)

4 1st Street & D Street SW (23 MGD)

5 Scott Circle NW (3.6 MGD)

6 Thomas Circle NW (2.9 MGD)

7 14th Street Bridge SW (14.4 MGD)

8 Deane Avenue NE (24.5 MGD)

9 Kenilworth Ave NE (5 MGD)

10 12th Street and Maine Avenue SW
(2.2 MGD)

11 23rd Street and Virginia Avenue NW
(2.2 MGD)

12 Virginia Avenue and New Hampshire
Avenue NW (10.4 MGD)

13 26th Street and K Street NW (19.6 MGD)

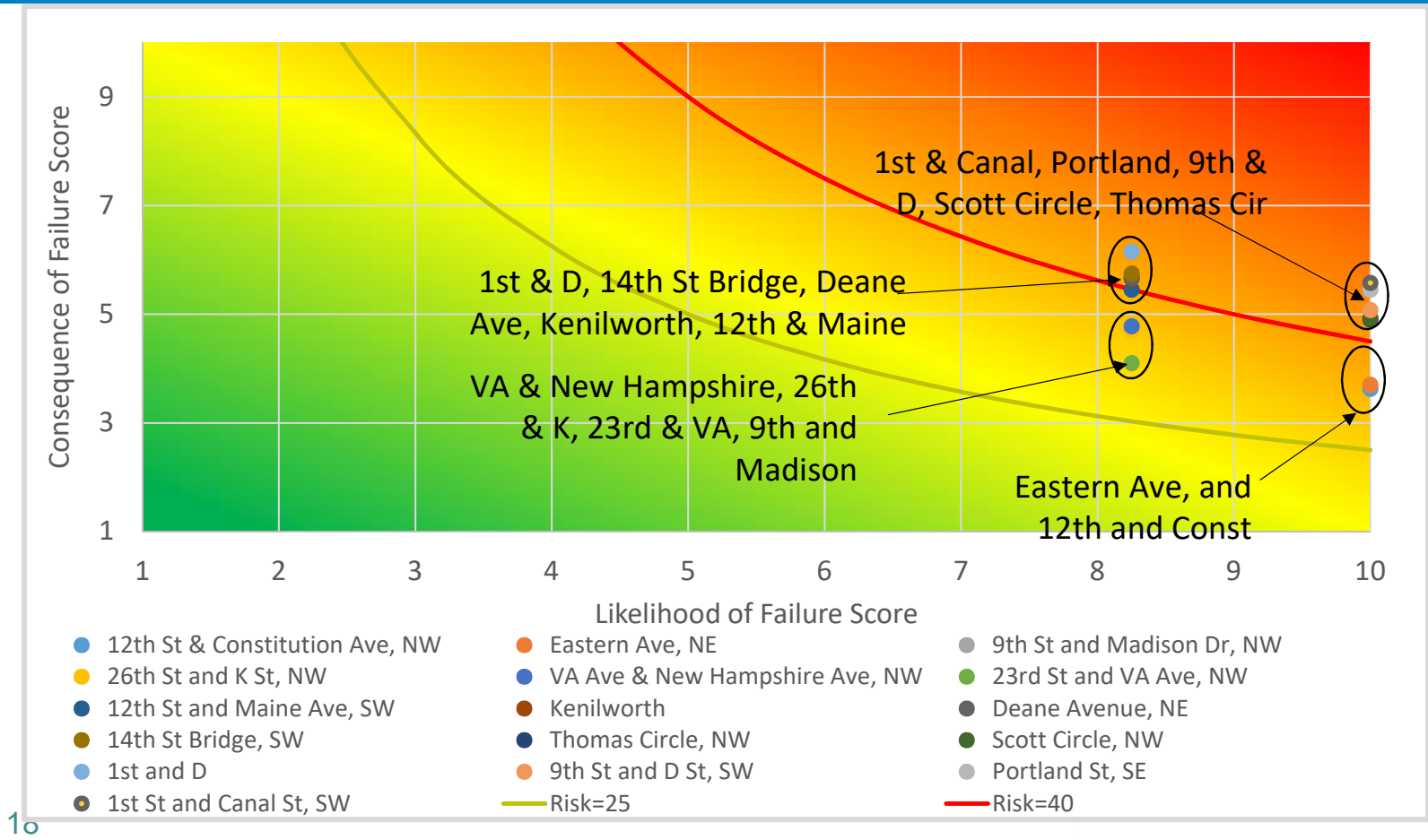
14 9th Street and Madison Drive NW

15 Eastern Avenue NW (5.8 MGD)

16 12th Street and Constitution Avenue NW
(2.2 MGD)

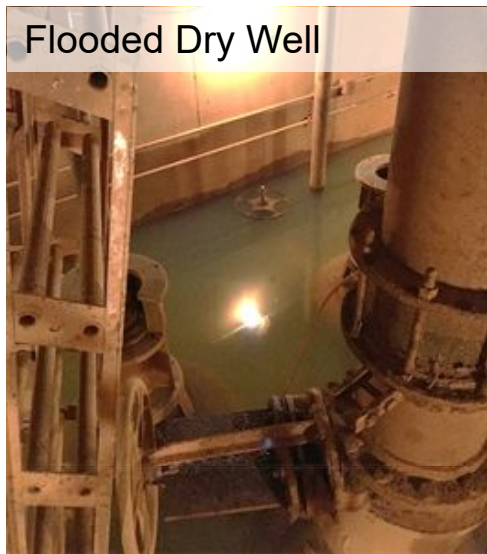


Stormwater Pumping Station Risk Matrix



1st St & Canal St
(Risk Score 56)

Station Capacity (MGD)	2.9	
Number of Pumps	2	1
Pump capacity (MGD)	2.9	0.29
HP of Pump	60	7.5





Asset	1st St & Canal St SWPS (Risk Score 56)
Originally Built	1968
Last Upgrade	2018 <ul style="list-style-type: none"> • Pump replacement under emergency repairs
Current CIP	NG02 – \$2,490,000 (2021 – 2022)
Estimated Cost of Needs	\$2,670,000
Needs	<ul style="list-style-type: none"> • Replace piping and valves • Dewatering pump replacement • Replace ventilation equipment • Replace control panel and SCADA • Retrofit wet well • Replace MCC • Repair elevator • SCADA replacement
Risk Consequence	<ul style="list-style-type: none"> • Flooding of I-395 underpass at 3rd Street tunnel • Health and safety related to inadequate ventilation • Electrical hazard safety

▶ 1st St & D St
(Risk Score 50)

Station Capacity (MGD)	23	
Number of Pumps	3	1
Pump capacity (gpm)	8,000	600
HP of Pump	100	15



Leaking Stormwater Pumps

21



Inoperable Dewatering Pump



Stormwater pump motors, dehumidifier and MCCs



Asset	1st St & D St SWPS (Risk Score 50)
Originally Built	1962
Last Upgrade	In Design
Current CIP	NG05 – \$3,540,000 (2016 – 2020)
Estimated Cost of Needs	\$5,140,000
Needs	<ul style="list-style-type: none"> • Replacement of pump and valves • HVAC equipment replacement • Electrical equipment replacement • Electrical Room construction • Screen replacement • Replace incoming service
Risk Consequence	<ul style="list-style-type: none"> • Flooding of I-395 underpass at 3rd Street tunnel – this is a listed evacuation route for the City • Electrical hazard safety • Health and safety related to inadequate ventilation

1st St & D St
(Risk Score 50)



Valve leaking in dry well



Water intrusion through the electrical service line



Water intrusion from equipment hatch



Influent bar screen



DC WATER
Thank you!

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

ACTION REQUESTED

GOODS AND SERVICES CONTRACT OPTION YEAR

**Electrical Power Distribution Equipment Service
(Joint Use)**

Approval to add funding to option year four (4) for electrical power distribution equipment service contract in the amount of \$460,000.00

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: M.C. Dean Inc. 1765 Greensboro Station Place Tysons, VA 22102	SUBS: N/A	PARTICIPATION: N/A
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$2,490,000.00
Original Contract Dates:	03-26-2013 - 03-25-2014
No. of Option Years in Contract:	4
Option Year 1 Value:	\$2,490,000.00
Option Year 1 Dates:	03-26-2014 - 03-25-2015
Option Year 2 Value:	\$2,960,000.00
Option Year 2 Dates:	03-26-2015 - 03-25-2016
Option Year 3 Value:	\$2,527,000.00
Option Year 3 Dates:	03-26-2016 - 03-25-2017
Option Year 4 Value:	\$2,490,000.00
Option Year 4 Dates:	03-26-2017 - 03-25-2018
Prior Modification Value:	\$0.00
Prior Modification Dates:	03-26-2018 - 10-09-2018
This Modification Value:	\$460,000.00
This Modification Dates:	09-10-2018 - 10-09-2018

Purpose of the Contract:

DC Water's Department of Maintenance Services (DMS) has a continuing need for annual maintenance of high voltage switchgear (power distribution) equipment throughout DC Water facilities. Switchgear is the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream.

Scope and Reason for Change:

To provide up to thirteen (13) experienced power distribution test technicians and one (1) supervisor, along with replacement parts for repair, calibration and annual maintenance of high voltage switchgear equipment and other associated devices at various DC Water facilities.

DC Water is resoliciting the contract and the expected start date of new contract is mid-October 2018. This contract action is to ensure sufficient funding through the end of contract as current funding is expected to run short. The requested amount has contingency of 2 months to address any issues during solicitation.

Spending Previous Year:

Cumulative Contract Value:	03-26-2013 to 10-09-2018: \$12,957,000.00
Cumulative Contract Spending:	03-26-2013 to 06-05-2018: \$12,525,747.48

Contractor's Past Performance:

According to the COTR, the Contractor's quality of workmanship; timeliness of deliverables; conformance to DC Water's policies, procedures and contract terms; and invoicing all meet expectations.

No LBE/LSBE participation.

PROCUREMENT INFORMATION


Contract Type:	Fixed Price	Award Based On:	Best Value
Commodity:	Services	Contract Number:	WAS-12-029-AA-JR
Contractor Market:	Open Market with Preference Points		

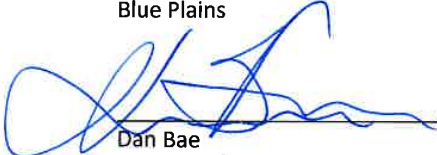
BUDGET INFORMATION

Funding:	Operating	Department:	DMS
Service Area:	Blue Plains	Department Head:	Salil Kharkar

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.9	\$192,740.00
Washington Suburban Sanitary Commission	43.1	\$198,260.00
Fairfax County	9.59	\$44,114.00
Loudoun Water	4.64	\$21,344.00
Other (PI)	0.77	\$3,542.00
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$460,000.00


 _____ 7/10/18
 Date
 Aklile Tesfaye
 Assistant General Manager,
 Blue Plains


 _____ 7/11/18
 Date
 Dan Bae
 Director of Procurement


 _____ 7/11/18
 Date
 Matthew T. Brown
 Chief Financial Officer

 Date
 David L. Gadis
 CEO, General Manager

**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

ACTION REQUESTED

**GOODS AND SERVICES CONTRACT EXERCISE OPTION YEAR
Security Systems Integration and Management Services
(Joint Use)**

Approval to execute option year one for security systems integration and management services in the amount of \$1,587,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME: Enterprise Security Solutions 40 East Henrietta St. Smithburg, MD 21783	SUBS: Telecommunications Development Co. 1919 13 th St. NW Washington, DC 20009 LSBE	PARTICIPATION: 30%
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DESCRIPTION AND PURPOSE

Original Contract Value:	\$5,943,868.00
Base Contract Period:	10-01-2016 – 09-30-2018
Number of Option Years:	3
Contract Modification No 1 Value	\$1,100,000.00
Contract Modification No 1 Dates	10-01-2017 – 09-30-2018
This Option Year 1 value:	\$ 1,587,000.00
This Option Year 1 Dates:	10-01-2018 – 09-30-2019

Purpose of the Contract:

The Department of Security has a need for security systems integration and management services in support of DC Water’s designation by the Department of Homeland Security as a critical infrastructure national asset, in accordance with the 2013 Presidential Policy Directive/ PPD 21, “Critical Infrastructure Security and Resilience”.

This Contract extension to exercise option year 1 shall provide ongoing and new Security related Project installations, integration and management services for electronic security systems and devices throughout all DC Water facilities. This work is directly associated with physical security involving access control, perimeter monitoring, and monitoring of remote, isolated and/or unmanned facilities via security technology for projects.

Contract Scope:

To provide security systems integration and management services at DC Water facilities including:

- Capital equipment: Security infrastructure, cameras, card readers, door/window/hatch sensors, fence-line detection systems, automated entry/exit data capture and other elements plus all software support.
- Operating Services include: routine maintenance and repairs of all pre-existing security systems.

Contract Modification Scope: DC Water will exercise option year 1 from October 1, 2018 until September 30, 2019. The additional funds needed to exercise this option year totals \$ 1,587,000.00: the breakdown of funds for the option year is:

- \$ 550,000 for Security Operations and Maintenance
- \$ 513,000 for Capital Equipment
- \$ 524,000 for Capital Improvement

Spending Previous Year:

Cumulative Contract Value:	10-01-2016 to 09-30-2018:	\$ 7,043,868.00
Cumulative Contract Spending:	10-01-2016 to 06-27-2018:	\$ 6,199,795.75

Contractor's Past Performance:

According to the COTR, the Contractor's quality of workmanship; timeliness of deliverables; conformance to DC Water's policies, procedures and contract terms; and invoicing all meet expectations and requirements.

PROCUREMENT INFORMATION

Contract Type:	Fixed Hourly Rate	Award Based On:	Highest Ratings
Commodity:	Good and Services	Contract Number:	16-PR-SEC-23
Contractor Market:	Open Market with Preference Points for LBE and LSBE Participation		

BUDGET INFORMATION

Funding:	Operating	Department:	Security
Project Area:	DC Water Wide	Department Head:	Steve Caldwell

ESTIMATED USER SHARE INFORMATION

User - Operating	Share %	Dollar Amount
District of Columbia	41.90%	\$230,450.00
Washington Suburban Sanitary Commission	43.10%	\$237,050.00
Fairfax County	9.59%	\$52,745.00
Loudoun Water	4.64%	\$25,520.00
Other (PI)	0.77%	\$4,235.00
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$550,000.00


BUDGET INFORMATION

Funding:	Capital Equipment & Improvement	Department:	Security
Project Area:	DC Water Wide	Department Head:	Steve Caldwell

User - Capital Improvement (CW44411000)	Share %	Dollar Amount
District of Columbia	41.22%	\$215,992.80
Washington Suburban Sanitary Commission	45.84%	\$240,201.60
Fairfax County	8.38%	\$43,911.20
Loudoun Water	3.72%	\$19,492.80
Other (PI)	0.84%	\$4,401.60
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$524,000.00

User - Capital Equipment (EQP3610)	Share %	Dollar Amount
District of Columbia	41.25%	\$211,612.50
Washington Suburban Sanitary Commission	45.69%	\$234,389.70
Fairfax County	8.45%	\$43,348.50
Loudoun Water	3.78%	\$19,391.40
Other (PI)	0.83%	\$4,257.90
TOTAL ESTIMATED DOLLAR AMOUNT	100.00%	\$513,000.00

 / 7/13/18
 Rosalind R. Inge Date
 Assistant General Manager

 7/12/18

Dan Bae
Director of Procurement

Date

 7/13/18

Matthew T. Brown
Chief Financial Officer

Date

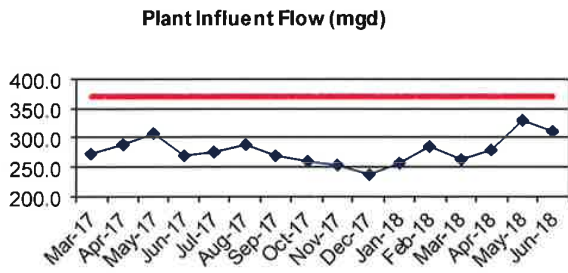
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David L. Gadis

CEO, General Manager

Date

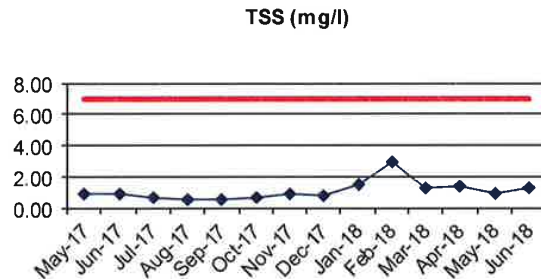
BLUE PLAINS ADVANCED WASTEWATER TREATMENT PLANT PERFORMANCE REPORT – JUNE 2018

Average plant performance for the month was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average influent flow to complete treatment was 310 MGD. There was 164 million gallons of treated captured combined flows directed to Outfall 001 during this period. The following figures compare the plant performance with the corresponding NPDES permit limits.



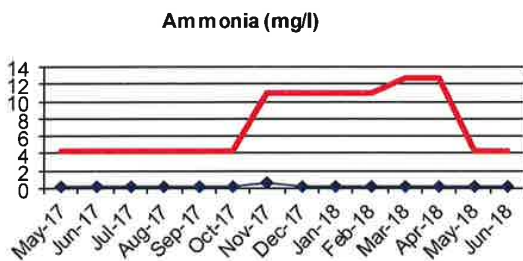
■ Influent Flow — Average Design Capacity

This graph illustrates the monthly average influent flow to the plant. The design average flow is 384 MGD. Blue Plains has a 4-hour peak flow capacity of 555 MGD through complete treatment. Once the plant is at capacity, additional captured combined system flows from the tunnel up to 225 MGD receive enhanced clarification, disinfection and dechlorination.



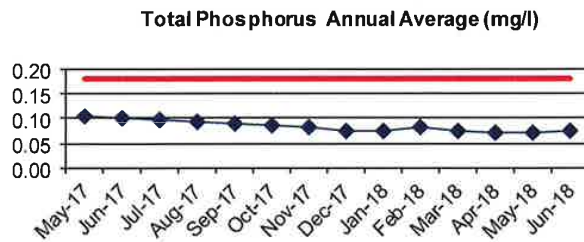
■ Effluent TSS — Permit Limit

Effluent Total Suspended Solids (TSS) is a measure of the amount of solid material that remains suspended after treatment. The effluent TSS concentration for the month averaged 1.26 mg/L, which is below the 7.0 mg/L permit limit.



■ Effluent NH3 — Permit Limit

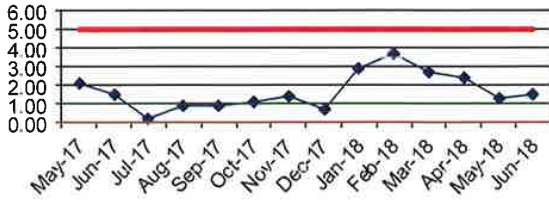
The Ammonia Nitrogen (NH₃-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH₃-N concentration averaged 0.12 mg/L and is below the average 4.2 mg/L limit.



■ Effluent TP — Permit Limit

The Total Phosphorus (TP) is a measure of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.08 mg/L, which is below the 0.18 mg/L annual average limit.

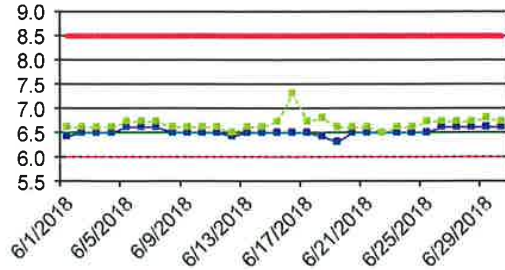
CBOD (mg/l)



■ Effluent CBOD — Permit Limit

Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 1.56 mg/L (partial month), which is below the 5.0 mg/L limit.

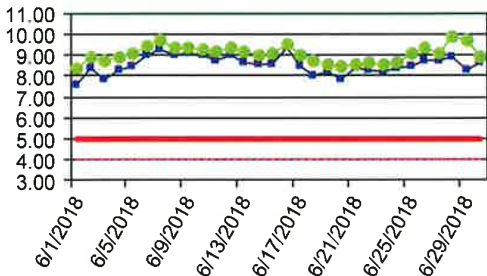
Min and Max Instantaneous pH



● MAX pH ■ MIN pH — Upper Limit - - Lower Limit

pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.3 and 7.3 standard units, respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.

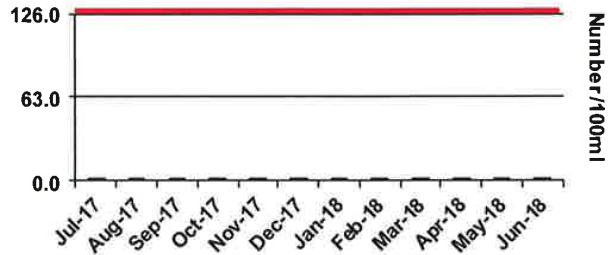
Daily and Instantaneous Min DO



● MIN Daily Average ■ Instant MIN DO
 — MIN Daily Average Limit - - Instant MIN Limit

Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 8.4 mg/L. The minimum instantaneous DO reading is 7.6 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.

E. coli

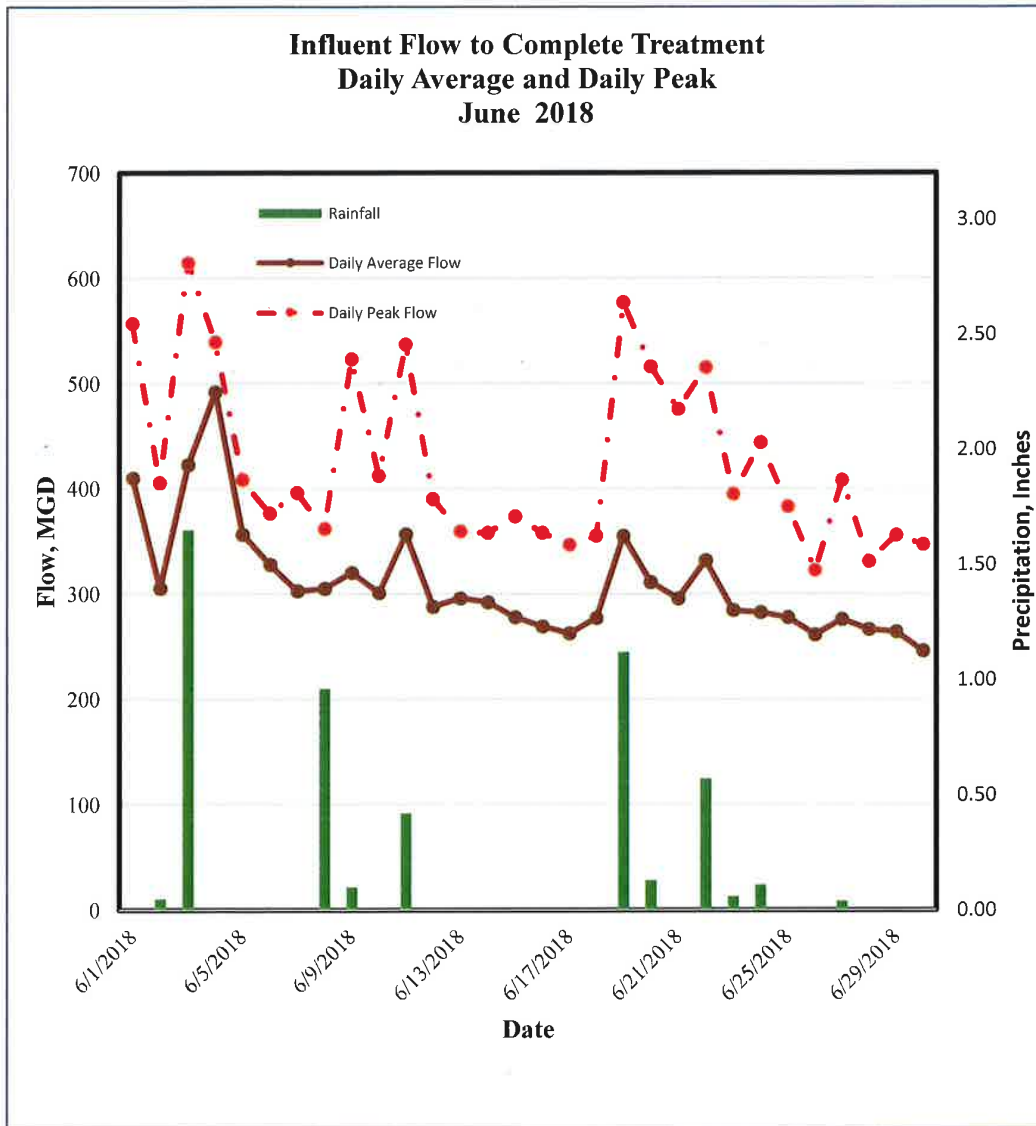


■ E. Coli Geomean — Permit Limit

E.coli is an indicator of disease causing organisms (pathogens). The E.coli permit limit is 126/100mL. The E coli geometric mean is 2.5 /100mL, and well below the permit limit.

Wet Weather Impact on Plant Performance

During the month of June 2018, the Washington Metropolitan Region received above normal total rainfall (5.21 inches vs normal of 3.78 inches) as measured at the National Airport. The wet weather event that occurred during the first week of June, resulted in peak flows through complete treatment exceeding 614 MGD. The plant's performance was excellent and the event had minimal impact on the quality of the effluent discharge through the complete treatment outfall. All effluent quality parameters were below the weekly and monthly average NPDES permit limits.



Wet Weather Treatment Facility (WWTF) at Blue Plains

Brief Description

The Wet Weather Treatment Facility at Blue Plains provides treatment for Combined Sewer Overflows (CSO) conveyed through the Long Term Control Plan (LTCP) tunnel systems to Blue Plains. With a design capacity of 250 MGD, the facility consists of sub systems including- a flow surcharge wet well and coarse screens, upstream of five 3,000 Horse Power (HP) Tunnel Dewatering Pumps (TDPs). The TDPs lift the flow 156 ft to the above ground Enhanced Clarification Facility (ECF), which comprises of fine screening, grit removal, and high rate clarification (HRC). The effluent from HRC is disinfected and dechlorinated before it's discharged through Outfall 001. When flow rates to the main plant are below the permitted peak flow rates of 555 OR 511 MGD, the effluent from the HRC (or a portion of it) is directed to the main plant for complete treatment. On an average year, the facility is designed to receive approximately 2.6 billion gallons of CSOs and provide treatment with effluent total suspended solids quality comparable to that of Secondary Treatment effluent. The WWTF, along with the first section of the Anacostia Tunnel System were placed in operation, three days in advance of the March 23rd Consent Decree date.



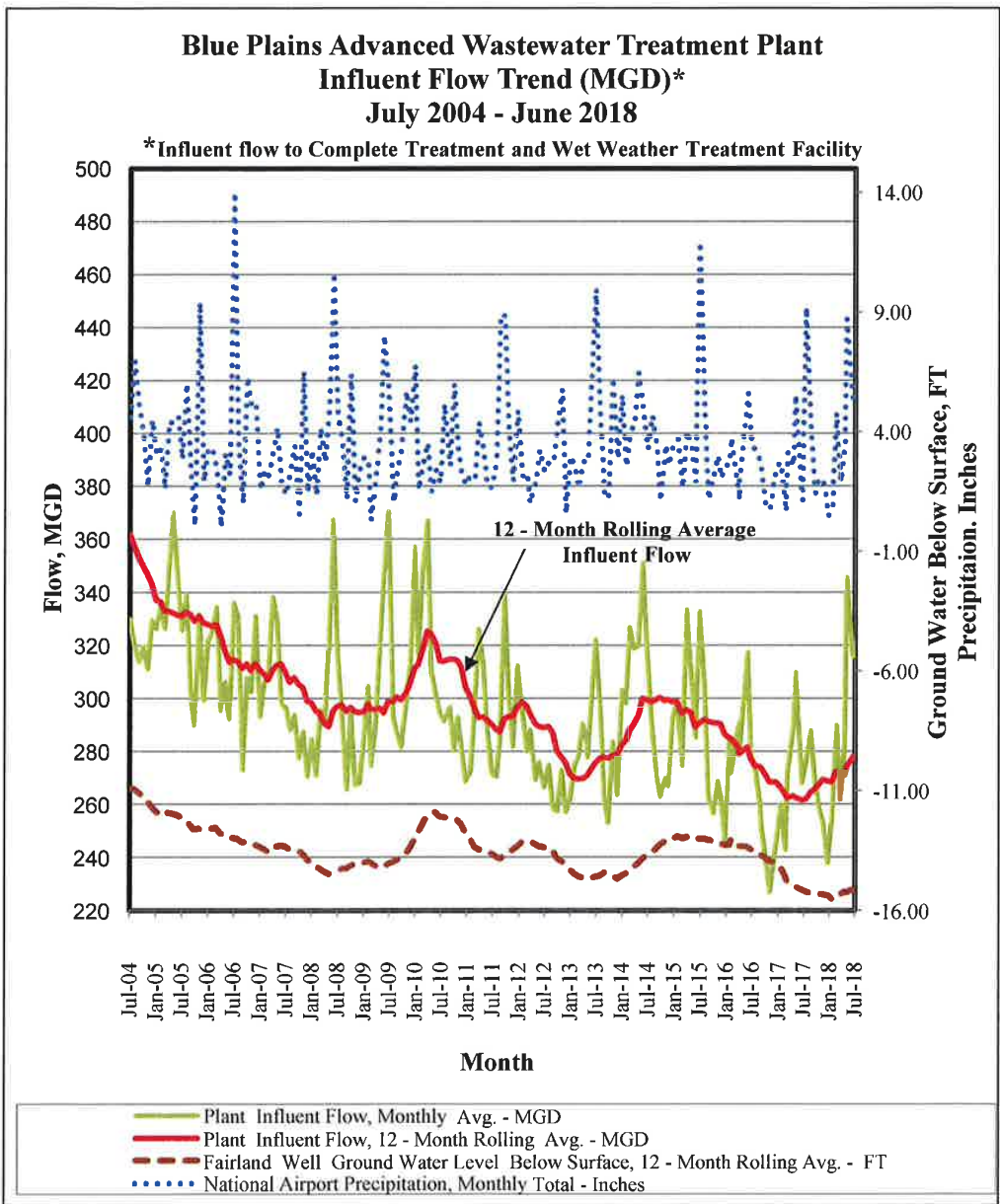
Aerial rendering of the Wet Weather Treatment Facility

Performance

During the month, a total of 377 million gallons (MG) of CSO captured in the tunnel system, was pumped, and treated using the ECF. A portion of the treated flow or 213 MG was directed to the main plant to maximize complete treatment and the remaining portion of the treated captured combined flow, or 164 MG, was disinfected, dechlorinated and discharged through Outfall 001. The quality of the effluent discharged was within anticipated ranges. Since the commissioning of the first section of the Anacostia River Tunnel Systems and the WWTF on March 20, 2018 and including the wet weather events that occurred in June 2018, the total volume pumped and treated through the WWTF is 1,431 MG.

Plant Influent Flow Trend

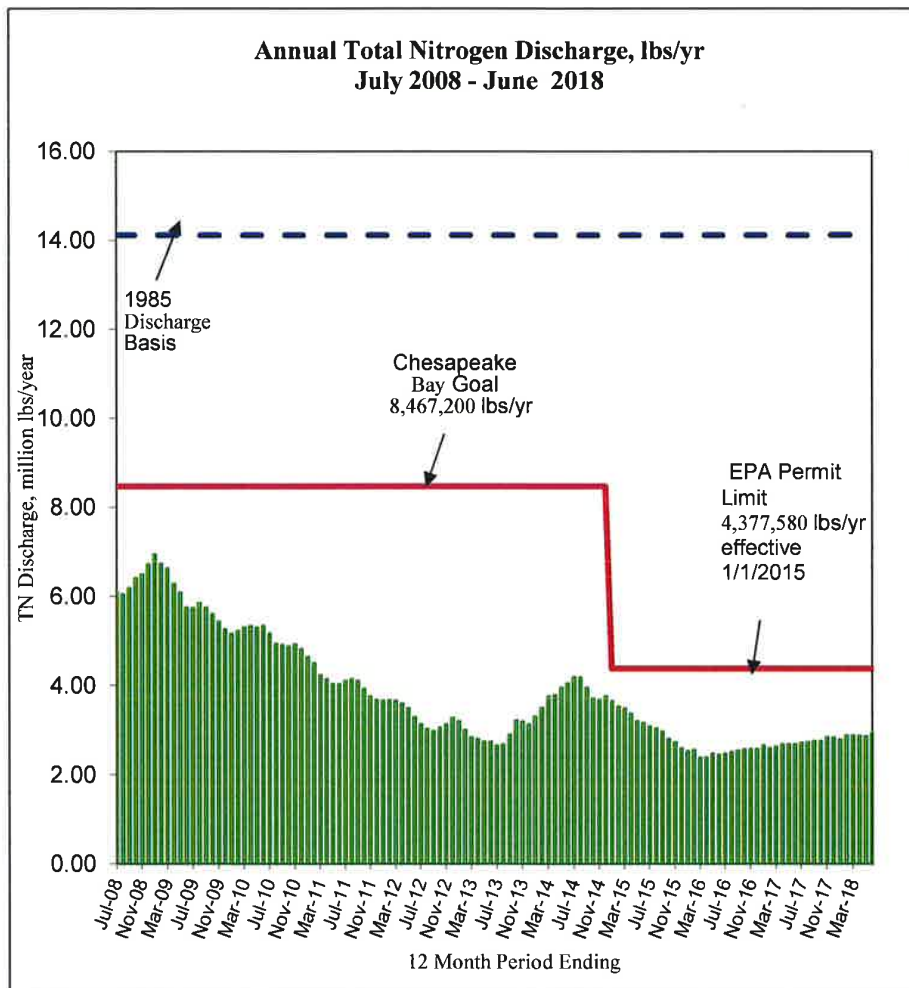
The graph below shows a long-term influent flow trend to the plant ending June 2018. While for any given month the flow is weather dependent, the 12-month rolling average influent flow has remained at or below 300 MGD since February 2011.



Blue Plains Total Nitrogen (TN) Removal – Performance

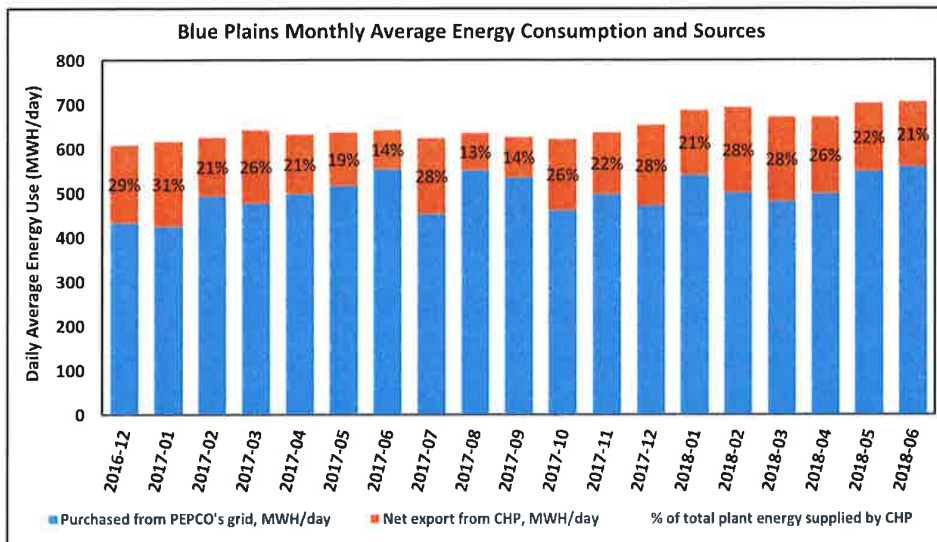
The graph below shows 12-month rolling TN discharge, in million pounds per year, over a 10-year period ending June 2018. In June 2018, the monthly average TN concentration and total load in the complete treatment effluent were 3.28 mg/L and 275,070 lbs., respectively.

The total pounds of nitrogen discharged in the complete treatment effluent during the current calendar year (through June 30, 2018) is 1,599,000 lbs and on track to remain below the NPDES permit discharge limit of 4,377,580 lbs. /year. The performance corresponds to average flow of 288 MGD, maximum month flow of 330 MGD, and average wastewater temperature above 16 °C observed during the period. The Blue Plains Enhanced Nitrogen Removal Facility (ENRF) is designed to meet the TN discharge limits at influent loads corresponding to annual average flows of 370 MGD, maximum month flows of 485 MGD, and operating wastewater temperatures below 12°C.



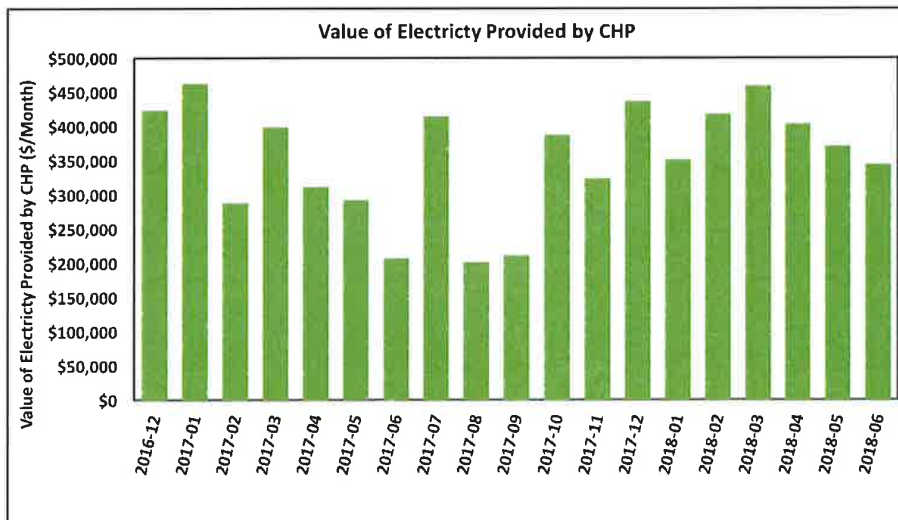
Blue Plains Electricity Generation and Usage

In June 2018, the average energy consumed at Blue Plains was 705 megawatt hours per day (MWH/day) or 2.27 MWH of electricity per million gallon of wastewater processed through complete treatment. The Combined Heat and Power (CHP) facility generated an average of 147 MWH/day, making up for 21% of total energy consumed at Blue Plains. The remaining 558 MWH/day was purchased from PEPSCO.



The graph above is based on power monitors installed at the Main Substation and CHP, and reflects average energy consumed at Blue Plains in MWH/day. Of the total use, the energy purchased from PEPSCO and net energy supplied by CHP are indicated by the blue and orange highlights, respectively.

The graph below shows the monthly value of the net electricity exported by CHP by assuming unit price of \$78/MWH of electricity.



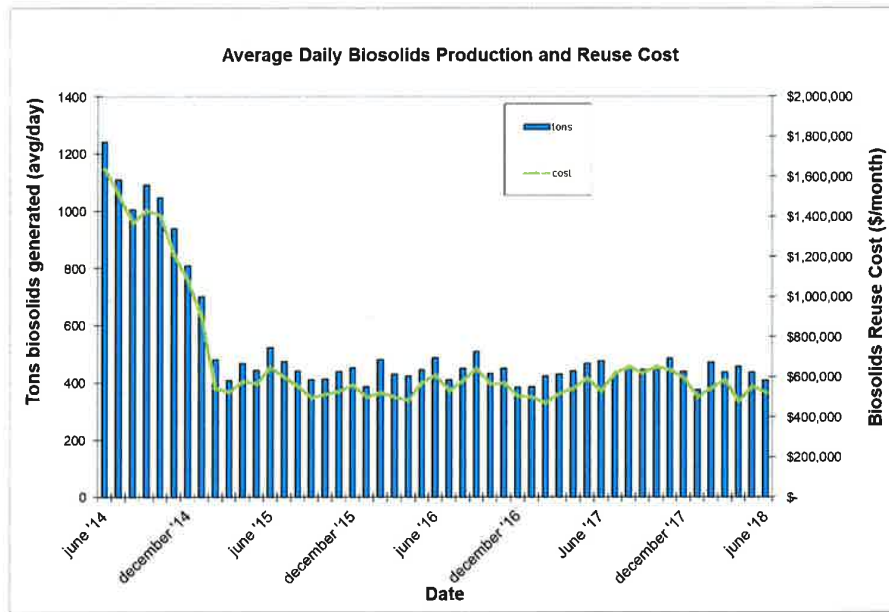
CHP Operation and Maintenance Status

The recent repair works, completed on all three Heat Recovery Steam Generators (HRSG), have significantly improved the reliability of the CHP to produce and supply adequate high pressure steam to the Thermal Hydrolysis Process (THP) and maximize use of digester gas for electricity production. The average net electrical power production during the February 1 – June 30, 2018 time period was 172 MWH/day (7.2 MW) and is higher than the 129 MWH/day (5.4 MW) achieved during the same time period in 2017.

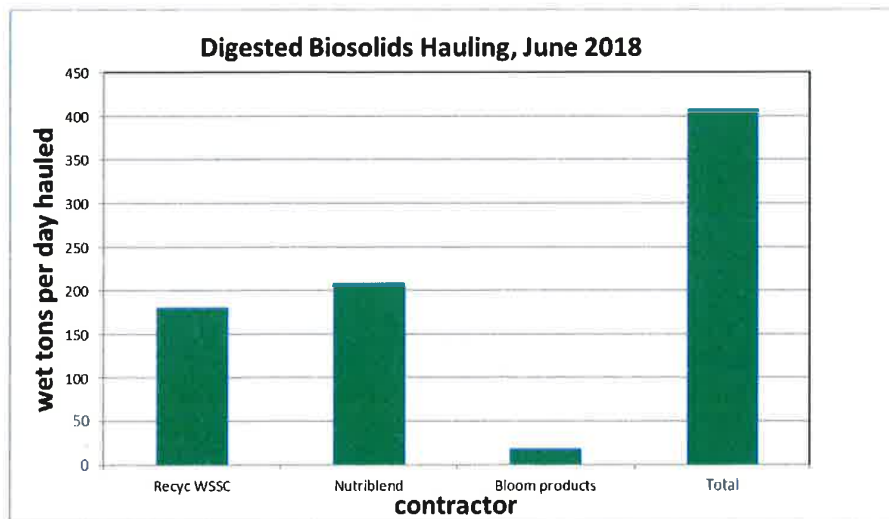
The annual reconciliation of the contract operation period that ended on September 30, 2017 is still in progress. The reconciliation will include, amongst other items, reimbursement payments for any power production shortfalls under the Digester Gas Electrical Power Production Guarantee, as set forth in the contract.

RESOURCE RECOVERY

In June, biosolids hauling averaged 407 wet tons per day (wtpd). The average percent solids for the Class A material was 34.2%. The graph below shows average daily biosolids produced and the associated monthly cost for reuse (transportation and application cost) for a three-year period ending June 2018. In June, diesel prices averaged \$3.41/gallon, and with the contractual fuel surcharge, the weighted average biosolids reuse cost (taking into account the marketed material) was \$42.82 per wet ton.

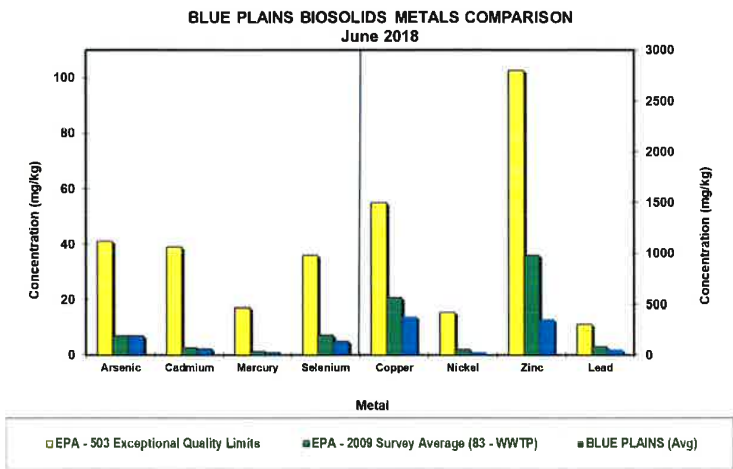


The average quantities of Class A biosolids transported and applied on farms by the two major contracts (WSSC's Recyc and DC Water's Nutriblend) and the quantities marketed as Bloom are shown on the graph below. In June, 529 wet tons of Bloom were distributed to 17 customers.

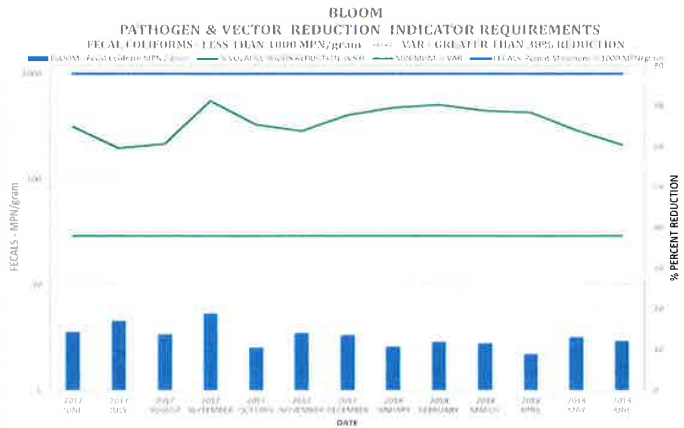


Product Quality

All biosolids produced during the month of June met Class A Exceptional Quality (EQ) requirements required by EPA. The graph below shows the EPA regulated heavy metals average concentrations in the Class A biosolids. The concentrations are considerably below the regulated exceptional quality limits (EPA-503 Exceptional Quality Limits) and the national average (EPA-2009 Survey Average).

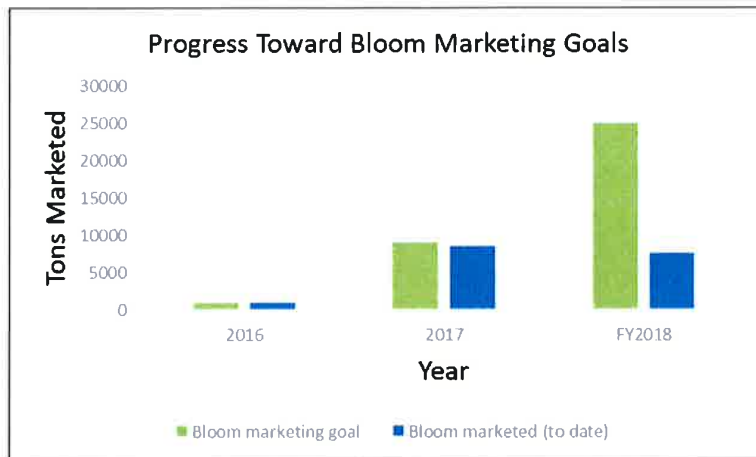


The graph below shows both Vector Attraction Reduction (VAR) and Fecal Coliform (FC) results in the Class A product, both of which are required to maintain the Class A Exceptional Quality (EQ) status. Vector Attraction Reduction is measured by the reduction in Volatile Solids (VS) or organic compounds that may be odorous and attract nuisance vectors such as flies and rodent. DC Water anaerobic digesters reduced VS by over 65%, well above the required 38% minimum. In addition, the graph shows fecal coliforms levels in the Class A product. Fecal coliforms are indicators of disease causing organism (pathogens), and must be below 1,000 MPN/g to meet Class A standards. The FC levels in the Class A product are two orders of magnitude less than the maximum allowable level.



Bloom Marketing

Bloom sales as of July 1st total 7,486 tons for the calendar year. This represents 30% of the 25,000 tons goal for the calendar year.



Growth Trials in Farm Fields

The Bloom team visited a farm in MD where we delivered Bloom in early May. The farmer had used Bloom on some acreage to compare corn growth against a pilot plot, without Bloom. The results shown below are dramatic, and show the benefit of Bloom in an agricultural setting.

Sweet Corn – 4 weeks after seeding

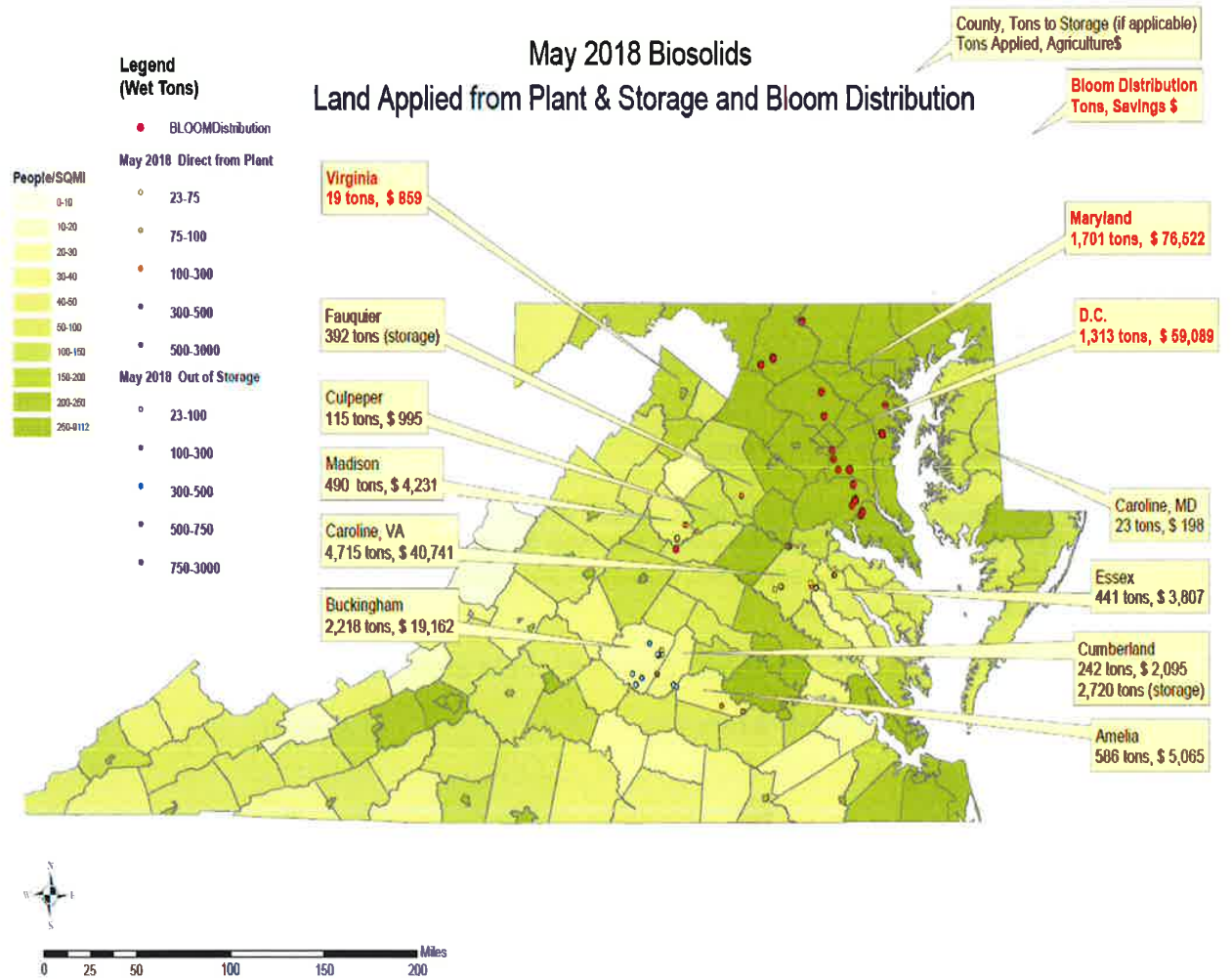
BLOOM - 3 tons/acre

Control



Bloom Reuse and Value Map

This map shows where Bloom was reused on agricultural land and sold into the market as a soil amendment product, during the month of May 2018 (distribution data for June will be included in the July report). We now possess our Distribution and Marketing permit for the state of VA, and are beginning to make deliveries to VA.



CLEAN WATER QUALITY AND TECHNOLOGY

The Department of Clean Water Quality and Technology includes the research and development, pretreatment and laboratory programs. A summary of activities for each group is provided below.

Research and Development

The research and development team focuses on research topics associated with the planning and operation of Blue Plains. The current focus of research is to optimize treatment process capacity and to work toward achieving energy neutral operations. Activities include continued work by our research team in the carbon removal/redirection, nitrogen removal, and solids treatment focus areas. In addition, DC Water encourages collaborative research with national and international entities including academic institutions and similar large municipal utilities. The following is a highlight of recent research progress from one of the collaborative research projects with the university of Queensland (UQ) and other Australian utility partners related to odors and corrosion mitigation.

A novel Method for controlling microbial concrete corrosion:

This collaborative research project aims at evaluating using a novel method to control concrete resulting from sulfuric acid production in the crowns of gravity sewer pipes. The method relies on inhibiting the buildup of biofilm, which is the source of corrosion caused by sulfuric acid, a product of hydrogen sulfide bio-oxidation. **Figure 1** shows a schematic of a gravity sewer and the typical alternatives used to prevent or mitigate the formation of hydrogen sulfide in the liquid and gas phases. The novel method of spraying free nitrous acid has the potential to control both sulfur reducing bacteria and methanogens which produce methane in the sewer system. **Figure 2** shows some initial results from the exposure to free nitrous acid in 24 hrs. **Figure 3** shows results from a 33-hour batch test with short term acidified nitrite dosing. The biofilm activity was stopped during dosing and it took approximately 35 hours to fully recover the activity. This suggest that an intermittent dosing strategy can be effective for biofilm control with the potential of being less costly. The testing of this novel method is carried out at the University of Queensland at the Advanced Water Management Center (AWMC) facilities. Long term testing is conducted in a chamber simulating actual sewers corrosive environment with hydrogen sulfide, high humidity (100%) and varied temperature. **Figure 4** shows a schematic of the chamber and its components. Concrete coupons are used to measure corrosion and the impact of treatment strategies. Another update will be given in six months to report on the progress of testing and recent findings.

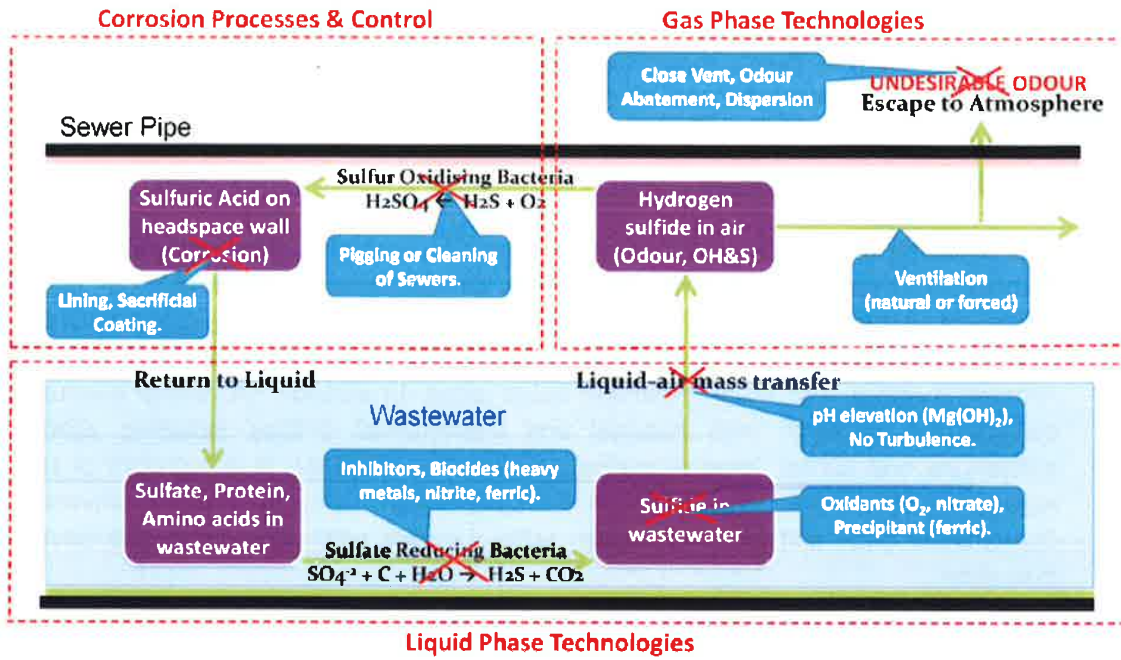


Figure 1. Schematic of gravity sewer and typical mitigation alternatives to control odors and corrosion.

Dead cells (red) after 24h dosing

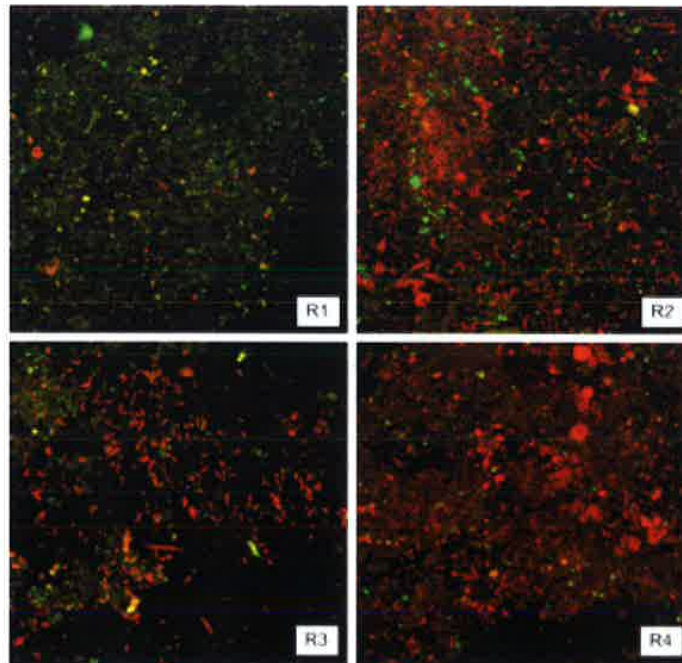


Figure 2. Effect of free nitrous acid dosing on sulfur reducing bacteria and methanogens after 24-hour dosing

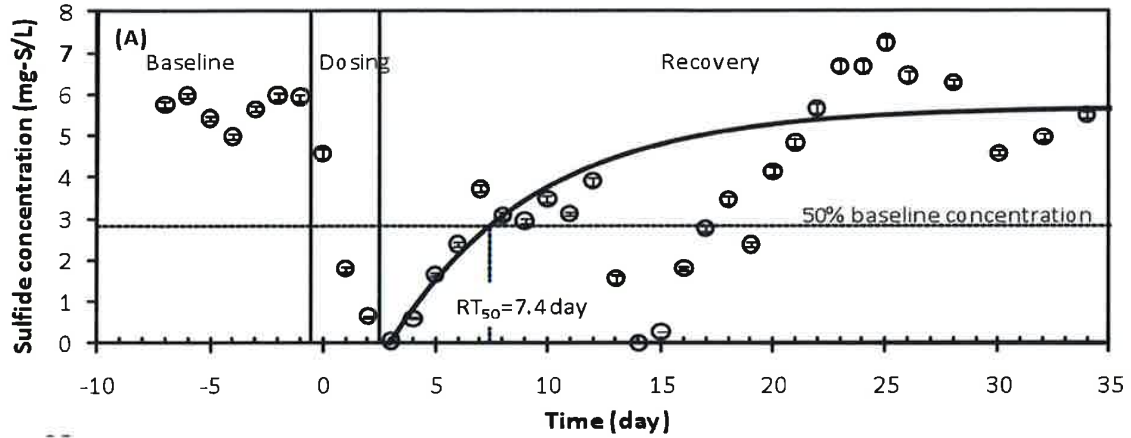


Figure 3. Short term dosing of acidified nitrite in a full-scale rising main sewer.

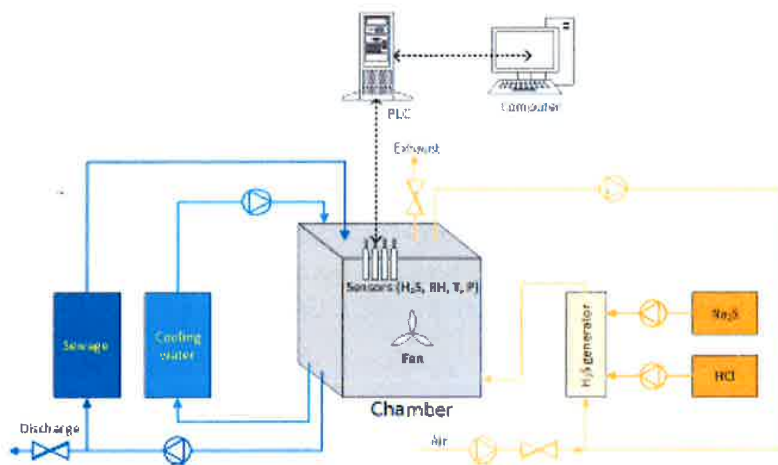


Figure 4. Schematic of the sewer simulator chamber and auxiliary components used at UQ AWMC, Brisbane Australia.

Blue Plains Main Laboratory

The Main Laboratory staff conducts analyses on Blue Plains AWTP effluent for NPDES Permit requirements, as well as on biosolids, pretreatment samples, storm water runoff, and process samples, on a daily basis, 365 days a year. The laboratory currently analyzes approximately 2,800 samples each month and conducts approximately 8,000 analyses, including Total Suspended Solids; Volatile Suspended Solids; Total and

Volatile Solids; Ammonia Nitrogen; Nitrite and Nitrate Nitrogen; Total, Soluble, and Ortho Phosphorus; Total and Soluble Kjeldahl Nitrogen; Carbonaceous Biochemical Oxygen Demand; Chemical Oxygen Demand; Total Alkalinity and Hardness; and Fecal Coliform and E. Coli microbiological testing.

In addition to comprehensive testing to support operation of liquid stream processes, the laboratory analyzes Belt Filter Press cake samples for fecal coliform bacteria for DC Water's Class A Biosolids reporting, as well as digester samples from the new Cambi Thermal Hydrolysis and Anaerobic Digestion facility, including Total and Volatile Solids, Total and Volatile Suspended Solids, Ammonia Nitrogen, alkalinity and pH. Fecal coliforms in the BFP dewatered cake and TS and VS upstream and downstream of the digestion process are monitored to show compliance with 40 CFR 503 Pathogen and Vector Attraction Reduction requirements.

This month the laboratory continued analysis of samples from the new Filtrate Treatment Facility which removes nitrogen from the belt press dewatering filtrate. Parameters analyzed include ammonia, nitrate, and nitrite nitrogen; ortho-phosphorus; COD; TSS; VSS and alkalinity.

The laboratory also assisted the Department of Sewer Services conducting microbiological analysis of water samples for E. coli bacteria, as well as monitoring the Northeast Boundary Swirl Facility Effluent for NPDES compliance. Laboratory staff also participated in the WWOA Executive Board.

The laboratory is currently completing the analysis of parameters for the USEPA's DMR-QA Study 38, which began on March 23, 2018 and will end on July 6, 2018. Parameters analyzed include Alkalinity, Total Hardness, Total Suspended Solids, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, ortho-Phosphate, Total Kjeldahl Nitrogen, Total Phosphorus, Nitrite Nitrogen, CBOD, COD, Total Residual Chlorine, and E. Coli.

Water Quality & Pretreatment

The Blue Plains Water Quality & Pretreatment group manages the Industrial Pretreatment Program, including temporary dewatering dischargers from construction and other activities and dental dischargers, and the Hauled Waste Program. Staff also provide specialized sampling and program management support for the Blue Plains NPDES permit, including PCB monitoring and storm water management. Additional activities, with contractor support, include development of a Spill Prevention and Countermeasures Control (SPCC) Plan, inspections of storm water structures and facilitation of cleaning and repairs, as well as coordination of quarterly Blue Plains Storm Water Committee meetings and other SWPPP compliance activities. Staff attended the national NACWA Pretreatment conference this month in Providence, RI.

Industrial Pretreatment Program

DC Water currently manages 12 Significant Industrial User (SIU) 18 Non-Significant Industrial User (NSIU) wastewater discharge permits. Staff conducted two SIU

inspection and sampling events this month at the Watergate and District Apartments (groundwater remediation sites). DC Water reviewed monthly self-compliance monitoring reports for six (6) SIUs and one NSIU. All SIUs and NSIUs are in compliance with discharge standards for the current month.

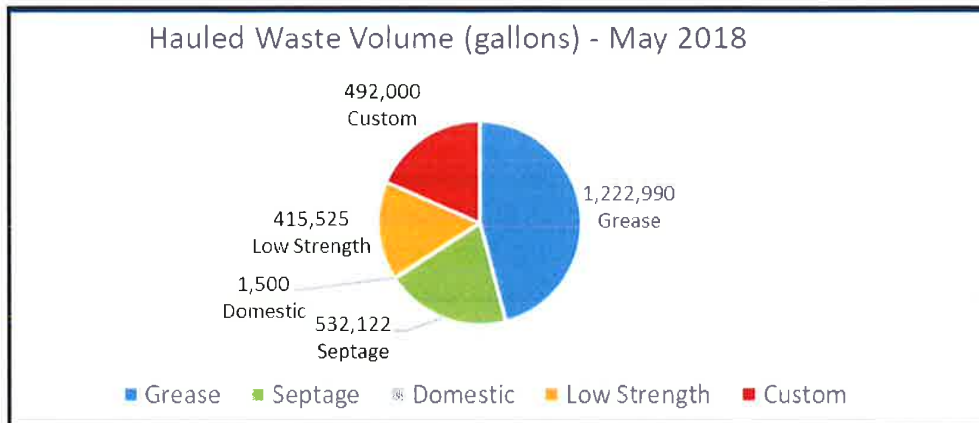
DC Water currently manages 83 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. Eleven new TDA permits were issued this month. All TDA permits are currently in compliance with discharge standards.

Dental Discharger questionnaires are currently being collected from all dental facilities in DC to determine applicability to the regulation. These surveys are required to be submitted by July 16, 2018. As of the end of the current month, of the approximately 700 mailings to DC licensed dentists sent out in May 2018, 75 dentists do not have offices in DC or are not required to complete the paperwork, 29 dentists are exempt from the regulation based on their specialty or other circumstances, 42 dentists are non-exempt but not required to install an amalgam separator, and 36 dentists are required to install an amalgam separator or have already installed an amalgam separator. To date, 32 forms have been returned requiring follow-up resolution.

Hauled Waste Program

As of the end of the current month, the hauled waste program had 36 permitted haulers authorized to discharge domestic septage, portable toilet waste, grease trap waste, groundwater or surface runoff, and other types of waste, if approved in advance and have been characterized and meet pretreatment standards. Staff renewed three hauled waste permits this month under the new volumetric fee structure.

DC Water received 1,215 hauled waste loads (2,664,137 gallons) from permitted haulers this month. Manifest forms from each truck entering the plant are collected by the security guards and picked up daily by Pretreatment staff and information is manually entered into an access database. Two hauled waste samples were collected this month to check compliance with discharge standards.



Revenue Generation

The hauled waste program had a total of \$66,647.67 billed and \$51,005.36 received for the month of May. There was no revenue generation in May for the industrial pretreatment program or groundwater/sewer retail (TDA permits).

NPDES Permit Sampling

Staff collected two dry weather and one wet weather composite samples at outfall 002 and one grab sample at outfall 001 this month for low level PCBs. Staff also collected the bimonthly metals at outfall 002 including low level mercury and the quarterly influent, effluent, and biosolids samples, including low level influent mercury.