Water/NPDES Compliance Evaluation Inspection

Department of the Army, Baltimore District,
Corps of Engineers, Washington Aqueduct Division
Washington, DC.

NPDES Permit No. DC0000019

July 12, 2016

DOEE Representatives:	Robert Burnett Environmental Protection Specialist
	Isaac Kelley Environmental Protection Specialist
Washington Aqueduct Representatives:	Thomas Jacobus Regional Manager
	Mel Tesema Chief, Operations Branch
	John Peterson Superintendent
	Robert Hoffa Lab Manager

1. Introduction

On July 12th 2016, inspectors from the Water Quality Division (WQD) of the Department of Energy and Environment (DOEE) conducted a National Pollutant Discharge Elimination System (NPDES) Compliance Evaluation Inspection (CEI) at the Army Corps of Engineers Washington Aqueduct Station (the facility). The facility was inspected to determine the accuracy and reliability of the permittee self-monitoring program/data and compliance with their NPDES permit. NPDES program and permits derive authority from the Clean Water Act (CWA).

DOEE Inspectors Robert Burnett and Isaac Kelly reviewed records, interviewed site representatives, conducted an inspection tour of the facility, and completed EPA Form 3560-3 Water Compliance Inspection Report. The facility was represented by Mel Tesema Chief, Operations Branch; John Peterson, Superintendent; Robert Hoffa, Laboratory Manager; and Thomas Jacobus, General Manager. The weather at the time of inspection was hot and humid with a temperature of approximately 85° F.

2. Facility Description

The Washington Aqueduct water treatment facility produces drinking water for approximately one million people living, working, or visiting the District of Columbia, Arlington County, and the City of Falls Church in Virginia (**Figure 1**). The facility is a Federally-owned water treatment agency and produces an average of 180 million gallons of water per day (MGD) from its two treatment plants (Dalecarlia and McMillan) located in the District of Columbia. The facility draws all its raw water from the Potomac River at two locations: Great Falls Dam and Little Falls Dam in Maryland. At the Great Falls Dam intake point, raw water flows under gravity to the Forebay Reservoir. At Little Falls Dam intake point, there are six pumps with a capacity of 525 MGD that pump raw water to the Dalecarlia Reservoir. The Little Falls Dam intake point is used only when needed.

3. Records and Reports

3.1 Discharge Monitoring Reports

Discharge Monitoring Reports (DMRs) and laboratory reports for the period of April 2015 to June 2016 were reviewed as a component of this inspection. The review included a comparison of reported monitoring results versus requirements and limitations contained in the permit and a check of raw data from laboratory reports and what was reported on the DMRs. The 2016 facility interview of DMRs found no exceedances or missing reports for this period.

The facility planned to stop discharging to the Potomac River through their outfalls, with the exception of Outfall 002Q, when it started operating the RPF in January 2012. During the 2014 to 2015 monitoring period an approved bypass was granted by EPA Region III and DOEE due to a build-up of sediment due to dredging problems described below. The facility discharged from outfall 003A in December 2014 and from outfall 004A in December 2014, January 2105, and February 2015. The Aqueduct's DMRs indicated exceedances of permit limits for Total Suspended Solids (TSS) and total metals (Fe, Cu, and Al) at Outfalls 003A and Outfall 004A associated with these discharges.

3.2 Best Management Plan

The facility uses large quantities of different chemicals to treat the water. Such chemicals include lime, methanol, ferric, ferrous, polymer, caustic soda, sodium hypochlorite, and bisulfate. The chemicals are properly stored inside buildings in primary storage containers with secondary containment to prevent spills and release. One storage building is designated for sodium hypochlorite.

Part II, Section E of the NPDES permit (Best Management Practices) requires the permittee to have a Best Management Practices (BMP) plan. In addition to the BMP plan, the Aqueduct has a Spill Prevention, Control and Countermeasure Plan (SPCC) which the facility refers to as a Spill Prevention and Response Plan (SPRP). The SPRP addresses: (a) procedures the facility implements to prevent oil spills; (b) control measures installed to prevent oil from entering navigable waters (i.e. secondary containment); (c) countermeasures to contain, clean up and mitigate the effects of oil spills. The inspectors reviewed both the BMP and SPCC plans as part of this inspection. The most recent plans were dated April 2016 and April 2014, respectively. The plans contain the requirements and BMPs as specified in the permit and were found to be satisfactory.

4. Permit Verification

Discharges from the water treatment facility are regulated by NPDES Permit No. DC0000019 (Permit). The Permit was issued to Washington Aqueduct on November 20, 2008, and authorizes the discharge of wastewater and sediments through six NPDES outfalls. The outfalls (002Q, 003A, and 004A) were used to discharge to the Potomac River when the sedimentation basins were cleaned. Outfall 002Q also discharges groundwater seepage from under the Dalecarlia sedimentation tanks and is the only consistently discharging outfall.

The facility applied for a permit renewal on 14 May 2013; however, the permit had not been finalized and reissued as of the inspection date. The permit is currently administratively extended.

5. Operation and Maintenance

5.1 McMillan Water Treatment Plant

McMillan Water Treatment Plant has a total capacity of 120 MGD. Raw water from Dalecarlia Reservoir is pumped to the three Georgetown Reservoir sedimentation basins via the Georgetown Conduit. Carbon, fluoride, aluminum sulfate, and pre-chlorine are added in the Georgetown Conduit. According to the facility representatives, the residence time in the Georgetown sedimentation basins is between 1.25 and 3 days. From the Georgetown sedimentation basins, raw water is pumped to the McMillan Reservoir through the McMillan Raw Water Pump Station. Sodium hypochlorite and filter aid polymers are added upstream of the twelve McMillan rapid sand filters. The resulting filter backwash is returned to McMillan Reservoir. Sodium hypochlorite, lime, and sulfur dioxide are added to the filtered water prior to storage in the clear water basins.

5.2 Dalecarlia Water Treatment Plant

Dalecarlia Water Treatment Plant has a total treatment capacity of 240 MGD. Raw water is pumped from Dalecarlia Reservoir through four flow measuring hydraulic flumes, and then onto

the Dalecarlia sedimentation basins. Carbon, pre-chlorine, sodium permanganate, aluminum sulfate, and polymer are added upstream at different stages of the sedimentation process **(Figure 2)**. According to the facility representative, the four sedimentation basins have a hydraulic retention time of 4 to 5 hours. Sedimentation is followed by the addition of filter-aid polymer and sodium hypochlorite prior to rapid sand filtration. There are a total of 48 rapid sand filters. Filters are periodically backwashed and the backwash water is returned to the Forebay Reservoir, and then onto Dalecarlia Reservoir. Ultimately fluoride, post hypochlorite, and lime are added prior to storage in the clear water basins.

5.3 Sludge Handling and Disposal

The facility's former cleaning process involved opening the basin drain valves, allowing the water column to drain and then flushing the sediment with finished source water. Chlorinated wash water was subsequently dechlorinated with sodium bisulfate prior to discharge. A final step included flushing the discharge pipe for two hours with raw water. The facility representatives indicated that the draining, washing, and flushing process used to take about 6 to 8 hours.

During historic operation, sedimentation basin cleaning events at Georgetown Basins #1 and #2 were accomplished by discharging all water, sediments, and sludge to outfalls 003 and 004 to the Potomac River. Typically, each basin was drained over a period of approximately 36-hours. Once the liquids and flocculated sediments were drained from the basins and the facility used front-end loaders and fire hoses to remove sediments from the basin floors and walls. The sediment from the basin floor and walls was directed to each basin's respective discharge point and flushed to outfalls 003 and 004. This practice resulted in the Aqueduct exceeding permit limitations for total suspended solids, copper, and aluminum. To solve the problem, the Aqueduct entered into a Federal Facility Compliance Agreement (FFCA) to construct a residues processing facility (RPF). The RFP became operational in January of 2012.

During the previous CEI on July 31, 2013, facility representatives indicated that because the RPF had begun operation, no discharge from the basins would be required. The last basin cleaning and discharge using the process described above occurred between December 2014 and February 2015. Discharge from basin leakage and groundwater seepage from under the Dalecarlia sedimentation tanks through Outfall 002Q is the only current regular discharge.

The RPF collects and treats (through a combination of solids concentration and drying processes) all sediments/residues from the sedimentation basins, reservoir dredging, and filter backwash. The facility representative stated that the sediment treatment process involves scraping the sediments from the bottom of sedimentation tanks, or dredging from the reservoirs, followed by pumping them into the Thickener Influent Splitter Chamber (TISC) (also known as influent residuals blending tank **(Figure 3)**. At this point, the percent solid is less than 0.5%; the contents of the blending TISC are transferring into four Gravity Thickeners (GTs) where the percentage solid is increased. The residuals from the GTs are subsequently pumped to centrifuges where all remaining water is removed and the dried sediment (cake) is dropped into storage silos and the spent water that was removed returned to the splitter box. After drying, the residuals (cake) are sent to storage bins - ready to be weighed and trucked offsite. The treated residual is about 25 percent solids and is trucked to a landfill for disposal. The Aqueduct pays contractors to transport and dispose of the residuals.

The facility representatives stated that, under normal operations, the Aqueduct does not need to drain the water when cleaning the sedimentation basins. The sediment in the basins is continually removed and sent to the RFP. The Dalecarlia Plant sediment tanks are equipped with scrapers that remove accumulated sediments. The Georgetown Basins are serviced by barges equipped with suction arms that remove accumulated sediment. The entire process is centrally managed via the SCADA system located in the RPF control room.

When the RFP facility became operational the FFCA prohibited any further discharge of residual solids from outfalls 003 and 004. However, because of several unanticipated technical difficulties the Washington Aqueduct requested several extensions which allowed the continued cleaning and discharge from the outfalls. Even after the completion of the sediment removal systems several engineering issues were encountered and necessitated the need for complete drainage of the basins for cleaning in 2012 and 2014 **(Photos 1 and 2)**. The initial sediment removal system operated at the Georgetown basin consisted of a barge that moves across the basin removing sediments via a suction arm intended to ride along the bottom of the basin. Facility representatives stated that a combination of factors have caused the sediment removal system to be ineffective. The suction arm of the barge does not reach the surface of the basins and the contours of the basin floor do not allow for a fixed length suction arm to be installed. Additionally, a catastrophic failure of the guidance system required a complete redesign of the control system using GPS technology. Other technologies were explored, but these "off the shelf" systems have either failed or were not designed for this intended use and proved ineffective.

During the 2015 inspection, facility representatives stated that the RPF was operating between 30 and 40% of design capacity and that conveyance of solids to the facility and lack of storage capacity of dewatered solids prior to removal by truck (sediment can only be trucked out of the facility during early morning hours) are limiting factors that are contributing to excess sedimentation in the Georgetown Basin's. Also during the 2015 inspection, one of the sediment tanks at the Dalecarlia plant (Georgetown Basin #1) was out of service for maintenance and repair. Facility representatives stated that the sediment removal barge for Georgetown Basin #2 has been in service for the previous four weeks; inspectors noted that the barge in basin #2 was not in operation during the inspection.

During the 2016 inspection, facility representatives stated operation and maintenance of the RPF and dredging system was moved from the maintenance department to the operations department. The operations department has staff on-site 24 hours a day and can perform both daytime and night time dredging operations increasing sediment removal and improving the effectiveness of the system. The facility is still working to address design issues which do not allow the dredging system to reach the deepest parts of the reservoir. They have hired an independent dredging operation which is scheduled to begin dredging activities in late July or early August 2016. The facility has also installed a real-time monitoring system of sediment levels and removal activities **(Photos 3 and 4)**. Inspectors could see on-screen when the dredging operations started and stopped and when residuals were being collected and hauled away. During the inspection, the dredging equipment was being reset and was not seen in operation **(Photo 5)**.

The facility is now required to provide monthly dredging reports **(Photo 6)** to EPA region III following the February 2016 discharges. To date the dredging operations have removed:

June – July 430,190
May – June 423,655
Apr – May 408,372
Mar – April 217,047

The dredging data provides evidence that the system is operational and that dredging activities have improved since the bypasses.

6. Compliance Schedules
Residuals Processing Facility (RPF)
The Aqueduct entered into FFCA with USEPA Region III. The FFCA was put into place to ensure that the Aqueduct takes any and all necessary steps within its power to achieve compliance with the numeric discharge limitations (especially for suspended solids and metals) as set forth in the NPDES permit. To meet the requirements of the FFCA and comply with the NPDES permit limitations the facility constructed an RPF (**Figure 3**). As previously stated, the RFP was completed and put into service in January 2012. The plant is operational and operating within capacity. The sediment removal and conveyance system has been greatly improved since the 2015 inspection but still has some design flaws and the facility is still not consistently meeting compliance goals set out in the permit.

7. Self-Monitoring Program
The facility is conducting its self-monitoring program in accordance with the Permit Part II, Section C.3, which requires that monitoring be conducted according to procedures approved under 40 CFR 136.

7.1 Sampling
The facility is conducting its self-monitoring program in accordance with Permit Part II, Section C.3, which requires that monitoring be conducted consistent with procedures approved under 40 CFR 136. Raw and processed waters are monitored at different stages of the treatment process. Samples are collected, stored, and processed according to the permit requirements. Refrigerators for sample storage were found operational and at proper temperatures **(Photos 7, 8, and 9)** and logs were properly maintained.

7.2 Flow Measurement
The facility does not measure the effluent it discharges as indicated in the permit. Instead, discharges are estimated from the basin capacities and the amount of water used during the cleaning process. The facility representatives stated that since the facility started treating residuals/sediments, they do not measure discharge flow because they do not discharge.

7.3 Representative Sampling
The facility representatives indicated that the sampling locations are adequate and representative of the type of the discharge. Currently, only one outfall (Outfall 002Q) is discharging and being

sampled. Sampling at Outfall 002Q is being performed monthly (with weekly internal analysis of perchlorate) instead of quarterly as indicated in the permit.
Sample equipment is calibrated on site. Calibration logs **(Photo 10)** and calibrating solutions **(Photo 11)** were found to be up to date and acceptable.

7.4 Laboratory

The facility's in-house laboratory is used to monitor effluent samples for all permit parameters **(Photo 12)**. The laboratory equipment, calibration records , bench/log books, and lab reports were complete and in order.

The lab employs comprehensive quality control procedures including two source calibrations; a seven point calibration is conducted using a standard from a distributer and then the calibration is verified with a standard from a second source. Continuing calibration verification is conducted after every 10th sample run. Matrix Spike (5%) / Matrix Spike Duplicates (10%) (MS/MSD), blank and field blanks samples are analyzed on a regular basis.

Since the 2012 inspection, the laboratory has updated their Gas Chromatograph and Mass Spectrometer GC/MS (Varian 450-GC / 240 MS) and Ion Chromatograph (Thermo Scientific iCAP-Q ICP-MS) instruments and uses EnviroPro 6.2 to generate lab reports and quality control data. The lab was audited by EPA in November 2014 and also participates and was certified by the EPA DMR-QA Studies **(Photo 13)**.

8. Effluent and Receiving Waters

8.1 Outfall 002

Outfall 002 discharges to the Potomac River when cleaning the four Dalecarlia sedimentation basins. The facility representative stated that the last cleaning and discharge from the sedimentation basins occurred in January 2012. Since the completion of the RPF, there has never been any discharge through Outfall 002.

8.2 Outfall 002Q

Outfall 002Q discharges seepage from the Dalecarlia sedimentation basins and discharge from a spring located beneath the sedimentation basins. NPDES Permit Number DC0000019 identifies this discharge as the "Other Dalecarlia Discharge", which continuously discharges. The facility representatives indicated that Outfall 002Q discharges into the Potomac River through the Outfall 002 channel.

8.3 Outfalls 003A and 004A

Both Outfalls 003A and 004A discharge effluent and solids from the Georgetown sedimentation basins to the Potomac River. When Sedimentation Basin No. 1 is cleaned, it discharges through Outfall 004A. When Sedimentation Basin No. 2 is being cleaned, it discharges to both Outfalls 003A and 004A. Outfall 004A was clear at the time of the inspection and appeared to be recovering from the bypasses **(Photos 14 and 15)**.

8.4 Outfall 006

Outfall 006 discharges treated water blow-off from City Tunnel to Rock Creek. The outfall has not discharged for more than six years. The outfall was not inspected during this inspection.

8.5 Outfall 007
Outfall 007 discharges treated water blow-off from the Georgetown Conduit to the Potomac River. The outfall has not discharged for more than six years and was not inspected during this inspection.

8.6 Outfall 008
Outfall 008 discharges dechlorinated potable water from the Second High Reservoir to Mill Creek. There is no recent record of this outfall being utilized and it was not inspected during this inspection.

8.7 Outfall 009
Outfall 009 discharges dechlorinated potable water from the Third High Reservoir. There is no recent record of this outfall being utilized and it was not inspected during this inspection.

9. Past and Current Inspection Findings
9.1 2009 Inspection Findings
SEVs Issued:

B0018 Failure to Implement SWPPP/SWMP (No training to responsible personnel).

9.2 2010 Inspection Findings
Inspectors observed the BMP plan was incomplete or being revised because it did not have information on staff trained, maintenance performed, good housekeeping/inspections conducted and the plan was not signed.

SEVs Issued:

A0012 Numeric effluent violation (Total suspended solids, total aluminum, copper and iron exceeded permit limits).
B0018 Failure to implement SWPPP/SWMP/BMP
C0016 No flow measuring device

9.3 2011 Inspection Findings
Inspectors found permit effluent limit exceedances for total suspended solids, total iron, total aluminum, and total copper. During the 2012 inspection cycle, the inspectors found that the facility had stopped discharging sediments to the river because all sediments were being processed at the RPF building. There was no exceedance for either total suspended solids, or other permitted constituents. The dried/processed residues are taken offsite for composting and final disposal.

9.4 2012 Inspection Findings
No Findings.

9.5 2014 Inspection Findings
The 2014 bypass discharges exceeded effluent limits for TSS, Total Copper, Total Iron and Total Aluminum.

- Bypass discharges occurred out of Outfall 003A during December 2014.
- Bypass discharges occurred out of Outfall 004A during December 2014, January 2015 and February 2015.
- The TSS result reported on the December 2014 DMR was 8,100 mg/l for both Outfalls 003A and 004A. The results of TSS monitoring conducted by the Aqueduct during the discharge, report concentrations ranging between 17,917 mg/l and 66,500 mg/l. TSS discharge monitoring samples were collected from several areas along the discharge flow path ranging from the manhole just downstream of the basin to the point where the outfall discharges to the river.

A clear plan to prevent future bypasses could not be provided; however, senior facility representatives stated that only under the circumstances of a "catastrophic failure" would a discharge from the Georgetown Sedimentation Basin occur. Other methods of sediment removal would be utilized and a discharge would only be considered as a last option. Currently, the engineering firm that designed and installed the sediment removal barges have been placed on contract and are currently troubleshooting the system.

9.6 2016 Inspection Findings
No Findings.

10. Conclusions
The facility is behind in meeting compliance schedules for discontinuing any possible discharge due to the issues outlined above concerning design flaws in the dredging system for the RPF. However, the facility has taken adequate steps toward compliance by restructuring management activities, installing new technologies, and hiring outside contractors to aid in dredging operations.

There have been no exceedances following those associated with the permitted by-passes that occurred in 2014.

Attachments:
A. Water Compliance Inspection Report - EPA Form 3560-3.
B. Photograph log

ED_001295_00000564-00009

United States Environmental Protection Agency
Washington, D.C. 20460
Water Compliance Inspection Report

Section A: National Data System Coding (i.e. PCS)

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	FacType
1 N 2 __	3 DC00000019 11	12 16/07/12 17	18 C	19 S	20 4

Remarks

21 _____ 66

Inspection Work Days	Facility Self-Monitoring Evaluation Rating	B1	QA	-------Reserved----------
67 5 69	70 4	71 N	72 N	73 ___ 74 75 ___ 80

Section B: Facility Data

Name and Location of Facility Inspected *(For industrial users discharging to POTW, also include POTW name and NPDES permit number)*	Entry Time/Date	Permit Effective Date
Department of the Army, Baltimore District, Corps of Engineers Washington Aqueduct Division 5900 MacArthur Boulevard NW Washington, DC 20016-2514	10:00 AM 5 July 2016	20 November 2008
	Exit Time/Date 03:00 PM 05 July 2016	**Permit Expiration Date** 20 November 2013

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)	Other Facility Data (e.g., ISC NAICS, and other descriptive information)
John Peterson, Superintendent, (202) 764-0009 Mel Tesema, Robert Hoffa,	
Name, Address of Responsible Official/Title/Phone and Fax Number Thomas P. Jacobus, General Manager Tel. (202) 764-0031; Fax (202) 764-2401	**Contacted** ☒ Yes ☐ No

Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

☒ Permit	☒ Self-Monitoring Program	☐ Pretreatment	☐ MS4
☒ Records/Reports	☒ Compliance Schedules	☒ Pollution Prevention	
☒ Facility Site Review	☒ Laboratory	☐ Stormwater	
☒ Effluent/Receiving Waters	☒ Operations & Maintenance	☐ Combined Sewer Overflow	
☒ Flow Measurement	☒ Sludge Handling/Disposal	☐ Sanitary Sewer Overflow	

Section D: Summary of Findings/Comments
(Attach additional sheets of narrative and checklists, including Single Event Violation codes, as necessary)

SEV Codes	SEV Description

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Robert Burnett	District Department of the Environment Water Quality Division – 202.535.1725	12.01.16
Isaac Kelley	District Department of the Environment Water Quality Division – 202.535.2691	12.01.16
Signature of Management Q/A Reviewer Joshua Rodriguez	Agency/Office/Phone and Fax Number Water Quality Division – 202.535.1025	12.01.16

Comments
*The facility filed for permit renewal on 14 May 2013. A new permit has not yet been issued. The permit is administratively continued until the new permit is finalized.

	PERMIT NO. DC0000019
SECTIONS F THRU L: COMPLETE ON ALL INSPECTIONS, AS APPROPRIATE. N/A = NOT APPLICABLE	
SECTION F - FACILITY AND PERMIT BACKGROUND	
ADDRESS OF PERMITTEE IF DIFFERENT FROM FACILITY (Including City, County and ZIP code)	**DATE OF LAST PREVIOUS INVESTIGATION BY EPA/STATE** May 13, 2015
	FINDINGS A0018: Approved Bypass C0011: Failure To Monitor

SECTION G - RECORDS AND REPORTS			
RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT	☒ Yes	☐ No	☐ N/A
DETAILS:			
(a) ADEQUATE RECORDS MAINTAINED OF:	☒ Yes	☐ No	☐ N/A
SAMPLING DATE, TIME, EXACT LOCATION	☒ Yes	☐ No	☐ N/A
ANALYSES DATES, TIMES	☒ Yes	☐ No	☐ N/A
INDIVIDUAL PERFORMING ANALYSIS	☒ Yes	☐ No	☐ N/A
ANALYTICAL METHODS/TECHNIQUES USED	☒ Yes	☐ No	☐ N/A
ANALYTICAL RESULTS (e.g., consistent with self-monitoring report data)	☒ Yes	☐ No	☐ N/A
(b) MONITORING RECORDS (e.g., flow, pH, D.O., etc.) MAINTAINED FOR A MINIMUM OF THREE YEARS INCLUDING ALL ORIGINAL STRIP CHART RECORDINGS (e.g., continuous monitoring instrumentation, calibration and maintenance records)	☒ Yes	☐ No	☐ N/A
(c) LAB EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS KEPT	☒ Yes	☐ No	☐ N/A
(d) FACILITY OPERATING RECORDS KEPT INCLUDING LOGS FOR EACH TREATMENT UNIT	☒ Yes	☐ No	☐ N/A
(e) QUALITY ASSURANCE RECORDS KEPT	☒ Yes	☐ No	☐ N/A
(f) RECORDS MAINTAINED OF MAJOR CONTRIBUTING INDUSTRIES (and their compliance status) USING PUBLICLY OWNED TREATMENT WORKS	☐ Yes	☐ No	☒ N/A
SECTION H - PERMIT VERIFICATION			
INSPECTION OBSERVATIONS VERIFY THE PERMIT	☒ Yes	☐ No	☐ N/A
DETAILS:			
(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE	☒ Yes	☐ No	☐ N/A
(b) FACILITY IS AS DESCRIBED IN PERMIT	☒ Yes	☐ No	☐ N/A
(c) PRINCIPAL PRODUCT(S) AND PRODUCTION RATES CONFORM WITH THOSE SET FORTH IN PERMIT APPLICATION	☐ Yes	☐ No	☒ N/A
(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE	☒ Yes	☐ No	☐ N/A
(d) TREATMENT PROCESSES ARE AS DESCRIBED IN PERMIT APPLICATION	☒ Yes	☐ No	☐ N/A
(e) NOTIFICATION GIVEN TO EPA/STATE OF NEW, DIFFERENT OR INCREASED DISCHARGES	☒ Yes	☐ No	☐ N/A
(f) ACCURATE RECORDS OF RAW WATER VOLUME MAINTAINED	☒ Yes	☐ No	☐ N/A
(g) NUMBER AND LOCATION OF DISCHARGE POINTS ARE AS DESCRIBED IN PERMIT	☒ Yes[1]	☐ No	☐ N/A
(h) CORRECT NAME AND LOCATION OF RECEIVING WATER	☒ Yes	☐ No	☐ N/A
(i) ALL DISCHARGES ARE PERMITTED	☒ Yes	☐ No	☐ N/A

Comments

1. Only Outfall 002Q discharges to Potomac River. Other outfalls should not have any discharge since the facility started treating the residues/sediments in the Residuals Processing Facility.

	PERMIT NO. DC0000019		
SECTION I - OPERATION AND MAINTENANCE			
TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED	☒ Yes	☐ No	☐ N/A
DETAILS:			
(a) STANDBY POWER OR OTHER EQUIVALENT PROVISIONS PROVIDED	☒ Yes	☐ No	☐ N/A
(b) ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE	☒ Yes	☐ No	☐ N/A
(c) REPORTS ON ALTERNATE SOURCE OF POWER SENT TO EPA/STATE AS REQUIRED BY PERMIT	☐ Yes	☐ No	☒ N/A
(d) SLUDGES AND SOLIDS ADEQUATELY DISPOSED	☒ Yes	☐ No	☐ N/A
(e) ALL TREATMENT UNITS IN SERVICE	☒ Yes	☐ No	☐ N/A
(f) CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATION AND MAINTENANCE PROBLEMS	☒ Yes	☐ No	☐ N/A
(g) QUALIFIED OPERATING STAFF PROVIDED	☒ Yes	☐ No	☐ N/A
(h) ESTABLISHED PROCEDURES AVAILABLE FOR TRAINING NEW OPERATORS	☒ Yes	☐ No	☐ N/A
(i) FILES MAINTAINED ON SPARE PARTS INVENTORY, MAJOR EQUIPMENT SPECIFICATIONS, AND PARTS AND EQUIPMENT SUPPLIERS	☒ Yes	☐ No	☐ N/A
(j) INSTRUCTIONS FILES KEPT FOR OPERATION AND MAINTENANCE OF EACH ITEM OF MAJOR EQUIPMENT	☒ Yes	☐ No	☐ N/A
(k) OPERATION AND MAINTENANCE MANUAL MAINTAINED	☒ Yes	☐ No	☐ N/A
(l) SPCC PLAN AVAILABLE	☐ Yes	☐ No	☒ N/A
(m) REGULATORY AGENCY NOTIFIED OF BY-PASSING (Dates December 2014, February 2015)	☒ Yes	☐ No	☐ N/A
(n) ANY BY-PASSING SINCE LAST INSPECTION	☐ Yes	☒ No	☐ N/A
(o) ANY HYDRAULIC AND/OR ORGANIC OVERLOADS EXPERIENCED	☐ Yes	☐ No	☒ N/A
SECTION J – COMPLIANCE SCHEDULES			
PERMITTEE IS MEETING COMPLIANCE SCHEDULE	☒ Yes	☐ No	☐ N/A
CHECK APPROPRIATE PHASE(S): ☐ (a) THE PERMITTEE HAS OBTAINED THE NECESSARY APPROVALS FROM THE APPROPRIATE AUTHORITIES TO BEGIN CONSTRUCTION ☐ (b) PROPER ARRANGEMENT HAS BEEN MADE FOR FINANCING (mortgage commitments, grants, etc.) ☐ (c) CONTRACTS FOR ENGINEERING SERVICES HAVE BEEN EXECUTED ☐ (d) DESIGN PLANS AND SPECIFICATIONS HAVE BEEN COMPLETED ☐ (e) CONSTRUCTION HAS COMMENCED ☐ (f) CONSTRUCTION AND/OR EQUIPMENT ACQUISITION IS ON SCHEDULE ☐ (g) CONSTRUCTION HAS BEEN COMPLETED ☐ (h) START-UP HAS COMMENCED ☐ (i) THE PERMITTEE HAS REQUESTED AN EXTENSION OF TIME			
SECTION K - SELF-MONITORING PROGRAM			
PART 1 - FLOW MEASUREMENT			
PERMITTEE FLOW MEASUREMENT MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT	☒ Yes	☐ No	☐ N/A
DETAILS:			
(a) PRIMARY MEASURING DEVICE PROPERLY INSTALLED.	☒ Yes	☐ No	☐ N/A
TYPE OF DEVICE:			
☐ WEIR ☐ PARSHALL FLUME ☐ MAGMETER ☐ VENTURI METER ☒ OTHER (Specify Hydraulic Flumes at Dalecaria, Flow estimated using basin during discharges)			
(b) CALIBRATION FREQUENCY ADEQUATE. (Date of last calibration __)	☒ Yes	☐ No	☐ N/A
(c) PRIMARY FLOW MEASURING DEVICE PROPERLY OPERATED AND MAINTAINED.	☒ Yes	☐ No	☐ N/A
(d) SECONDARY INSTRUMENTS (totalizers, recorders, etc.) PROPERLY OPERATED AND MAINTAINED.	☐ Yes	☐ No	☒ N/A

(e) FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGES OF FLOW RATES.	☒ Yes	☐ No	☐ N/A

PART 2 - SAMPLING	PERMIT NO. DC0000019		
PERMITTEE SAMPLING MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT	☒ Yes	☐ No	☐ N/A
DETAILS:			
(a) LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES	☒ Yes	☐ No	☐ N/A
(b) PARAMETERS AND SAMPLING FREQUENCY AGREE WITH PERMIT	☒ Yes	☐ No	☐ N/A
(c) PERMITTEE IS USING METHOD OF SAMPLE COLLECTION REQUIRED BY PERMIT	☒ Yes	☐ No	☐ N/A
IF NO, ☐ GRAB ☐ MANUAL COMPOSITE ☐ AUTOMATIC COMPOSITE	FREQUENCY		
(d) SAMPLE COLLECTION PROCEDURES ARE ADEQUATE	☒ Yes	☐ No	☐ N/A
(i) SAMPLES REFRIGERATED DURING COMPOSITING	☐ Yes	☐ No	☒ N/A
(ii) PROPER PRESERVATION TECHNIQUES USED	☒ Yes	☐ No	☐ N/A
(iii) FLOW PROPORTIONED SAMPLES OBTAINED WHERE REQUIRED BY PERMIT	☐ Yes	☐ No	☒ N/A
(iv) SAMPLE HOLDING TIMES PRIOR TO ANALYSES IN CONFORMANCE WITH 40CFR136.3	☒ Yes	☐ No	☐ N/A
(e) MONITORING AND ANALYSES BEING PERFORMED MORE FREQUENTLY THAN REQUIRED BY PERMIT	☒ Yes[2]	☒ No	☐ N/A
(f) IF (e) IS YES, RESULTS ARE REPORTED IN PERMITTEE'S SELF-MONITORING REPORT	☐ Yes	☐ No	☒ N/A
PART 3 - LABORATORY			
PERMITTEE LABORATORY PROCEDURES MEET THE REQUIREMENTS AND INTENT OF THE PERMIT	☒ Yes	☐ No	☒ N/A
DETAILS:			
(a) EPA APPROVED ANALYTICAL TESTING PROCEDURES USED (40 CFR 136.3)	☒ Yes	☐ No	☐ N/A
(b) IF ALTERNATE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED	☐ Yes	☐ No	☒ N/A
(c) PARAMETERS OTHER THAN THOSE REQUIRED BY THE PERMIT ARE ANALYZED	☒ Yes	☐ No	☐ N/A
(d) SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT	☒ Yes	☐ No	☐ N/A
(e) QUALITY CONTROL PROCEDURES USED	☒ Yes	☐ No	☐ N/A
(f) DUPLICATE SAMPLES ARE ANALYZED 5 % OF TIME	☒ Yes	☐ No	☐ N/A
(g) SPIKED SAMPLES ARE USED 10 % OF TIME	☒ Yes	☐ No	☐ N/A
(h) COMMERCIAL LABORATORY USED	☐ Yes	☒ No	☐ N/A
(i) COMMERCIAL LABORATORY STATE CERTIFIED	☐ Yes	☐ No	☒ N/A
LAB NAME Bond Water Technologies LAB ADDRESS 630 E. Diamond Avenue, Gaithersburg, MD 20877 Tel.:			
Comments: Lab participates in DMR – QA Studies 2. Outfall 002 is sampled monthly instead of quarterly and perchlorate is sampled on a weekly basis.			

	PERMIT NO. DC0000019

SECTION L - EFFLUENT/RECEIVING WATER OBSERVATIONS (Further explanation attached _____)

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	VISIBLE FLOAT SOLIDS	COLOR	OTHER
Outfall 004	No Discharge						

(Sections M and N: Complete as appropriate for sampling inspections)

SECTION M - SAMPLING INSPECTION PROCEDURES AND OBSERVATIONS (Further explanation attached _____.)

☐ GRAB SAMPLES OBTAINED
☐ COMPOSITE OBTAINED
☐ FLOW PROPORTIONED SAMPLE
☐ AUTOMATIC SAMPLER USED
☐ SAMPLE SPLIT WITH PERMITTEE
☐ CHAIN OF CUSTODY EMPLOYED
☐ SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE

COMPOSITING FREQUENCY _____.

PRESERVATION _____.

SAMPLE REFRIGERATED DURING COMPOSITING: ☐ YES ☐ NO ☒ N/A

SAMPLE REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE: ☐ YES ☐ NO ☒ N/A

SECTION N - ANALYTICAL RESULTS (Attach report if necessary)

Water/NPDES Compliance Inspection Report

NPDES No. DC0000019
Department of the Army, Baltimore District, Corps of Engineers
Washington Aqueduct Water Treatment Plant
Washington, DC.

Inspectors:
Robert Burnett, DOEE
Isaac Kelley, DOEE

Inspection Date: July 12, 2016

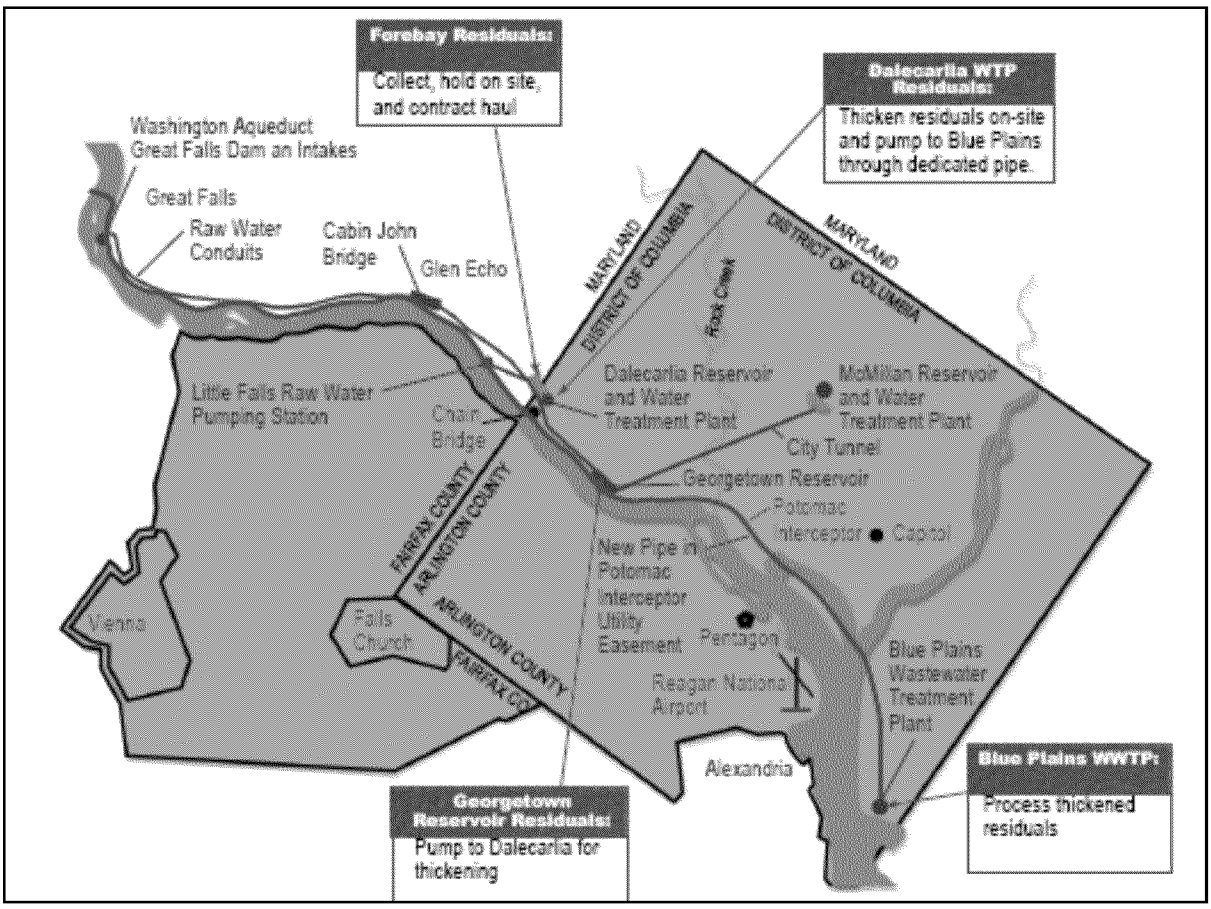


Figure 1: An overview of the service area of the Washington Aqueduct Facility

ED_001295_00000564-00015

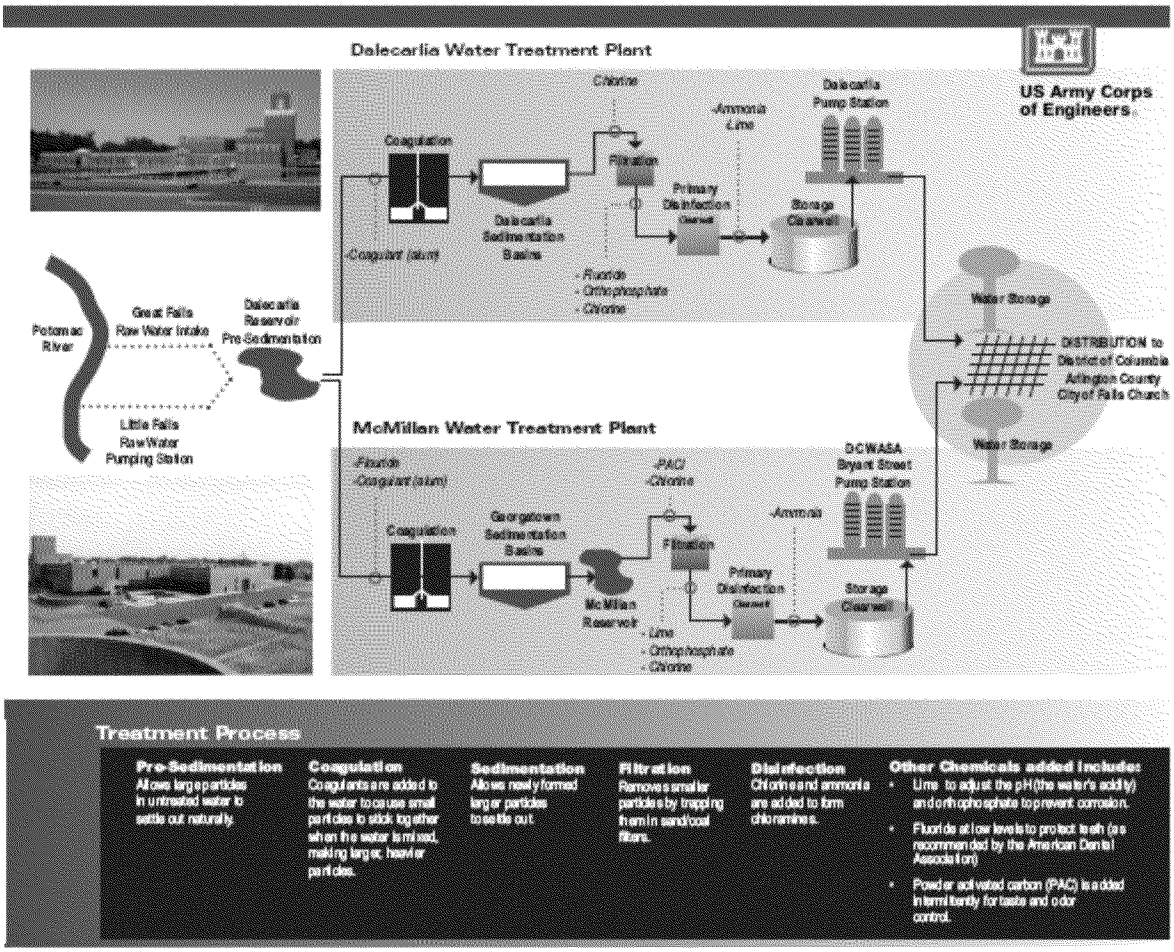


Figure 2: Washington Aqueduct water treatment process

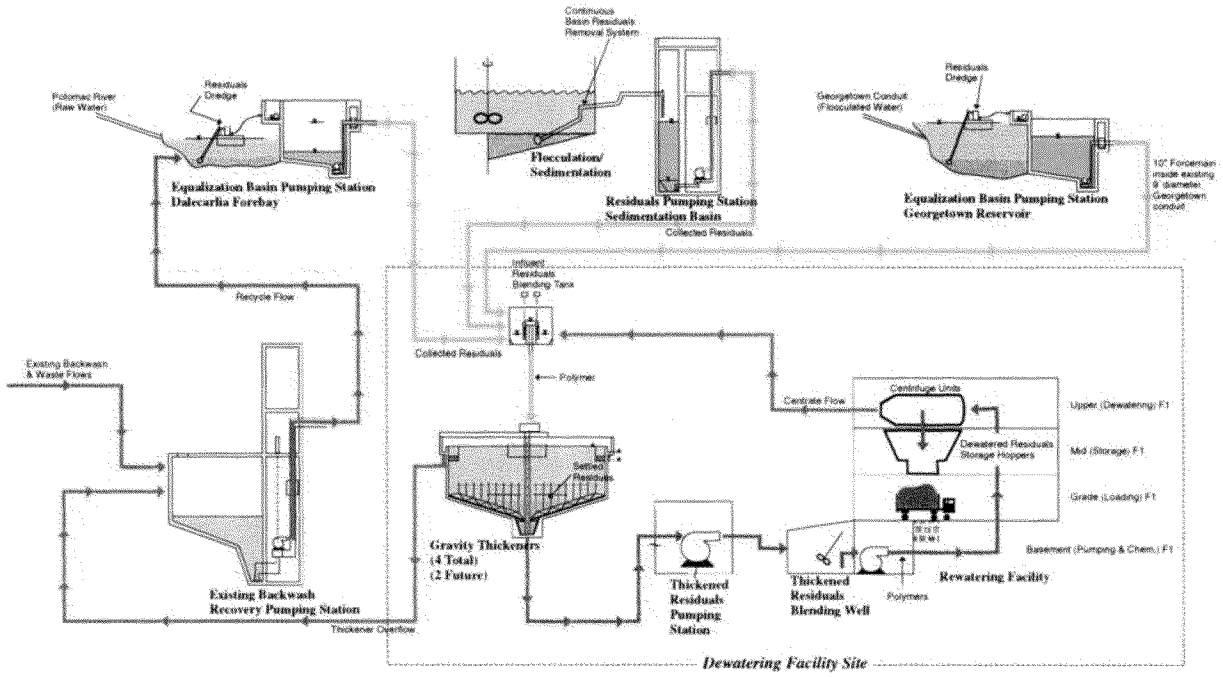


Figure 3: Washington Aqueduct residual management/treatment system

Photo 1. December 2014 bypass

Photo 2. January 2014 bypass

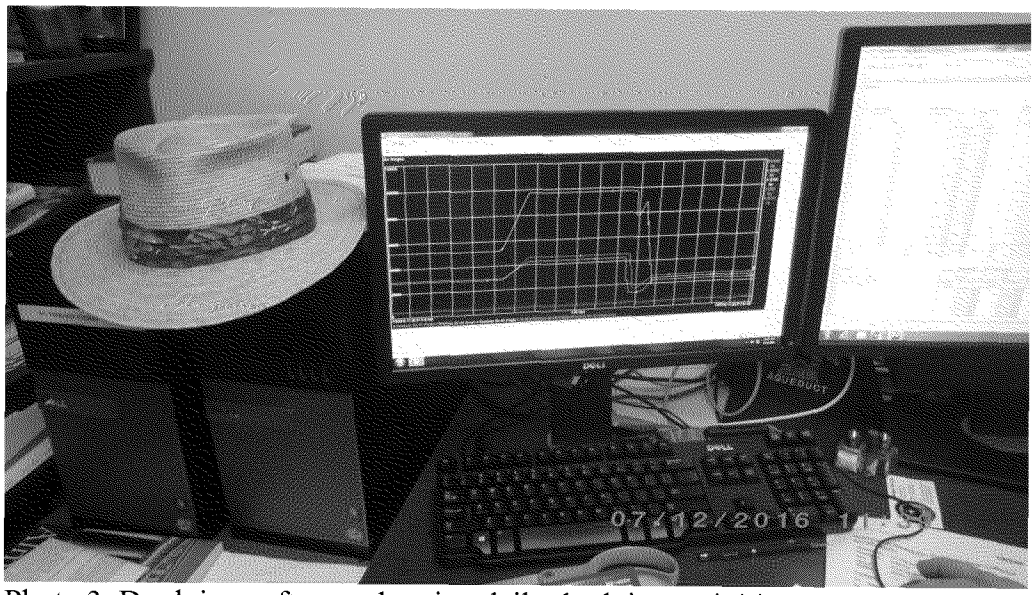


Photo 3. Dredging software showing daily dredging activities

Photo 4. Dredging program showing weekly dredging activities

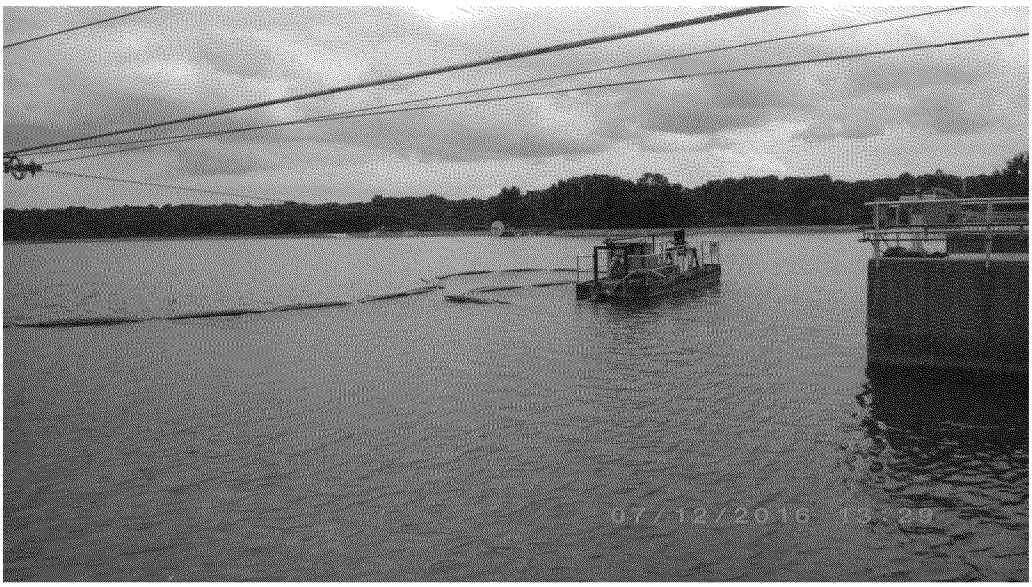


Photo 5. Dredging barge not operating, was in the process of being reset

DEPARTMENT OF THE ARMY
WASHINGTON AQUEDUCT
U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
5900 MACARTHUR BOULEVARD, N.W.
WASHINGTON, D.C. 20016-2514

May 13, 2016

Office of the General Manager

Mr. Andrew Seligman (3WP42)
NPDES Enforcement Branch
Water Protection Division
U.S. Environmental Protection Agency
1050 Arch Street
Philadelphia, PA 19103-2029

RE: INFORMATION REQUIREMENT, Section 308 of the Clean Water Act, 33 U.S.C. Section 1318 to Washington Aqueduct, 5900 MacArthur Boulevard, Washington, DC 20016, Baltimore District, US Army Corps of Engineers

Dear Mr. Seligman:

The following information is submitted in accordance with the subject request for information letter dated January 6, 2016. In our February 12, 2016, letter to you we said we would send monthly updates as of the 15th of the month reporting on dredging activity at the Georgetown sedimentation basins in the prior 30 days.

This update is for the period April 14 through May 13, 2016.

In-house dredging continues at Georgetown basin #2. In this period we have dredged 408,372 pounds of solids, which is almost twice as much as we were able to collect in the previous 30 day period. Improvements in training of the operators and the reliably of the equipment continue.

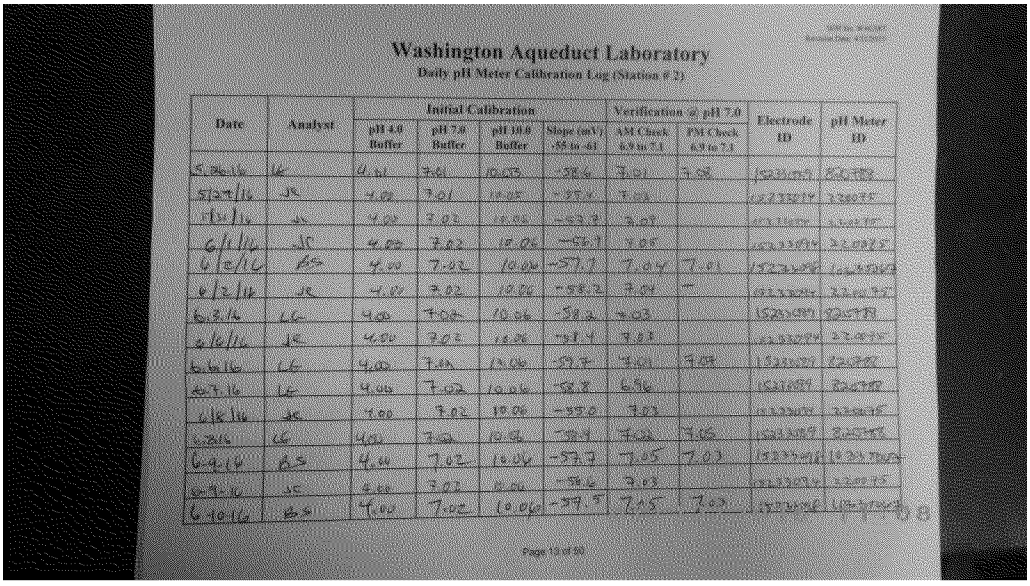
We expect the Baltimore District Contracting Division will issue a Notice to Proceed on May 31, 2016, to the commercial dredging company selected to remove the sediment from outside the range of the in-house cable-guided dredge. This commercial dredge will also catch up on the material not yet removed from the range of the in-house dredge.

I certify that the information contained in or accompanying this submission to be true, accurate, and complete. I am aware that there are significant penalties for submitting false

Proudly Providing Water to the Nation's Capital Since 1853

Photo 6. Aqueduct dredging activity report provided to EPA Region III

Photos 7, 8, 9. Thermometers in sample storage refrigerators and temperature log



Washington Aqueduct Laboratory
Daily pH Meter Calibration Log (Station # 2)

Date	Analyst	Initial Calibration				Verification @ pH 7.0		Electrode ID	pH Meter ID
		pH 4.0 Buffer	pH 7.0 Buffer	pH 10.0 Buffer	Slope (mV) -55 to -61	AM Check 6.9 to 7.1	PM Check 6.9 to 7.1		
5/26/16	LC	4.01	7.01	10.03	-58.6	7.01	7.02	[illegible]	[illegible]
5/27/16	JS	4.00	7.01	10.05	-57.6	7.03		[illegible]	[illegible]
5/31/16	JS	4.00	7.02	10.06	-59.2	7.05		[illegible]	[illegible]
6/1/16	JS	4.00	7.02	10.06	-56.7	7.05		[illegible]	[illegible]
6/2/16	BS	4.00	7.02	10.06	-57.7	7.04	7.01	[illegible]	[illegible]
6/3/16	JS	4.00	7.02	10.06	-58.2	7.04	—	[illegible]	[illegible]
6/3/16	LC	4.00	7.02	10.06	-58.2	7.03		[illegible]	[illegible]
6/6/16	JS	4.00	7.05	10.06	-57.4	7.03		[illegible]	[illegible]
6/6/16	LC	4.00	7.01	10.06	-59.7	7.01	7.07	[illegible]	[illegible]
6/7/16	LC	4.00	7.02	10.06	-58.8	6.96		[illegible]	[illegible]
6/8/16	JS	4.00	7.02	10.06	-59.0	7.03		[illegible]	[illegible]
6/8/16	LC	4.00	7.00	10.06	-58.4	7.02	7.05	[illegible]	[illegible]
6/9/16	BS	4.00	7.02	10.06	-57.7	7.05	7.03	[illegible]	[illegible]
6/9/16	JS	4.00	7.02	10.00	-58.6	7.03		[illegible]	[illegible]
6/10/16	BS	4.00	7.02	10.00	-57.5	7.05	7.03	[illegible]	[illegible]

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Photo 10. Calibration log for May/June

Photo 11. Calibration solutions with expiration dates (pH 7 solution was in an unopened box)

Photo 12. Aqueduct Laboratory

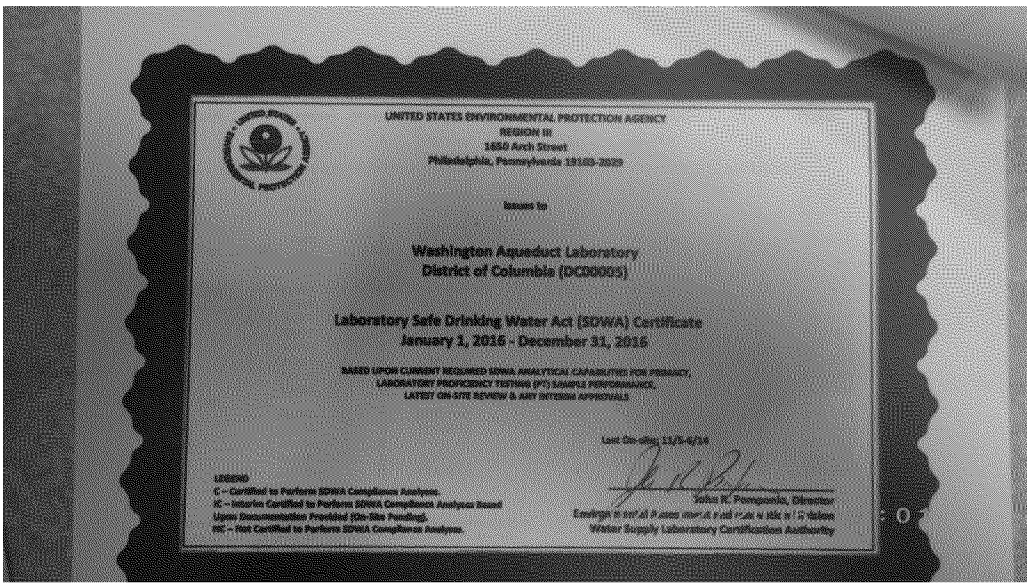

Photo 13. EPA SDWA lab certificate

Photo 14. Outfall 004

Photo 15. Outfall 004