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	Fac Type
1 N	2 5 3 DC0021199 11	12 13/07/18 17	18 C	19 S	20 1

Remarks

21 _____ 66

Inspection Work Days 67 _____ Facility Self-Monitoring Evaluation Rating 69 _____ B1 70 _____ QA 71 _____ ----------Reserved---------- 72 _____ 73 _____ 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
District of Columbia Water and Sewer Authority Blue Plains Advanced Wastewater Treatment Plant 5000 Overlook Avenue, SW Washington, DC 20032	9: 00 AM; 07/18/13	9/30/10
	Exit Time/Date 6:00 PM; 07/19/13	**Permit Expiration Date** 9/30/15

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)
(1) Walter Bailey; Assistant General Manager, Wastewater Treatment, (202) 787-4172. (2) Aklile Tesfaye; Director of Wastewater Treatment Operations, (202) 787-4008. (3) George Mpoyo Mulenda; Process Engineer II, (202) 787-4194. (4) Elaine Wilson, Program Manager, Pretreatment, 202-787-4177. (5) Gregory Philips, Program Manager, Blue Plaines Laboratory, 202-787-4001. (6) Anthony Mack, Director of Wastewater Treatment Maintenance, 202-787-4095 (7) Salil Kharkar, Director of Process Engineering, 202-787-4146 (8) Algynon Collymore, Supervisor Construction, 202-787-2539 (9) Danny Coats, Physical Science Technician, 202-787-4046 (10) Cuthbert Braveboy, Director Sewer Services, 202-787-3828 (11) Dunbar Regis, Manager, Sewer Inspection and Maintenance, 202-787-3829

Other Facility Data (e.g., ISC NAICS, and other descriptive information)

Name, Address of Responsible Official/Title/Phone and Fax Number
George Hawkins, General Manager
5000 Overlook Avenue, SW
Washington, DC 20032. Tel. (202) 786-2601; Fax (202) 787-4226

Contacted
X Yes ____ No
(The facility point of contact informed the responsible official).

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

X Permit	X Self-Monitoring Program	Pretreatment	MS4
X Records/Reports	X Compliance Schedules	X Pollution Prevention	
X Facility Site Review	X Laboratory	X Storm Water	
X Effluent/Receiving Waters	X Operations & Maintenance	X Combined Sewer Overflow	
X Flow Measurement	X 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**

None

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Adion Chinkuyu	DDOE; Tel.: (202) 535-2193; Fax: (202) 535-1363	07/18/13
David Pilat	DDOE; Tel.: (202) 281-3963; Fax: (202) 535-1363	07/18/13
Isaac Kelley	DDOE; Tel.: (202) 535-2691; Fax: (202) 535-1363	07/18/13
Signature of Management Q A Reviewer	**Agency/Office/Phone and Fax Numbers**	**Date**

Comments: See CEI Report Narrative

	PERMIT NO. **DC0021199**
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**
Same	9/16/2012 .
	FINDINGS No significant findings

SECTION G - RECORDS AND REPORTS

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. X YES ____ NO ___ N/A (Further explanation attached **See Report Narrative)**

DETAILS: **DC Water uses NET DMR to report DMRs**

(a) ADEQUATE RECORDS MAINTAINED OF:			
(i) SAMPLING DATE, TIME, EXACT LOCATION	X YES	__ NO	__ N/A
(ii) ANALYSES DATES, TIMES	X YES	__ NO	__ N/A
(iii) INDIVIDUAL PERFORMING ANALYSIS	X YES	__ NO	__ N/A
(iv) ANALYTICAL METHODS/TECHNIQUES USED	X YES	__ NO	__ N/A
(v) ANALYTICAL RESULTS (e.g., consistent with self-monitoring report data)	X 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) (**records kept for 6 years**)	X YES	__ NO	__ N/A
(c) LAB EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS KEPT.	X YES	__ NO	__ N/A
(d) FACILITY OPERATING RECORDS KEPT INCLUDING LOGS FOR EACH TREATMENT UNIT.	X YES	__ NO	__ N/A
(e) QUALITY ASSURANCE RECORDS KEPT.	X YES	__ NO	__ N/A
(f) RECORDS MAINTAINED OF MAJOR CONTRIBUTING INDUSTRIES (and their compliance status) USING PUBLICLY OWNED TREATMENT WORKS.	X YES	__ NO	__ N/A

SECTION H - PERMIT VERIFICATION

INSPECTION OBSERVATIONS VERIFY THE PERMIT. X YES ___ NO ____ N/A (Further explanation attached **See Narrative Report**

DETAILS: **permit reissued 9/30/10**

(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE.	X YES	_ NO	_ N/A
(b) FACILITY IS AS DESCRIBED IN PERMIT.	X YES	__ NO	__ N/A
(c) PRINCIPAL PRODUCT(S) AND PRODUCTION RATES CONFORM WITH THOSE SET FORTH IN PERMIT APPLICATION.	X YES	__ NO	__ N/A
(d) TREATMENT PROCESSES ARE AS DESCRIBED IN PERMIT APPLICATION.	X YES	__ NO	__ N/A
(e) NOTIFICATION GIVEN TO EPA/STATE OF NEW, DIFFERENT OR INCREASED DISCHARGES	__ YES	__ NO	X N/A
(f) ACCURATE RECORDS OF RAW WATER VOLUME MAINTAINED.	X YES	__ NO	___ N/A
(g) NUMBER AND LOCATION OF DISCHARGE POINTS ARE AS DESCRIBED IN PERMIT.	X YES	__ NO	__ N/A
(h) CORRECT NAME AND LOCATION OF RECEIVING WATERS.	X YES	__ NO	__ N/A
(i) ALL DISCHARGES ARE PERMITTED.	X YES	__ NO	__ N/A

Comments

See Narrative report.

	PERMIT NO. **DC0021199**

SECTION I - OPERATION AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. _X_ YES ___ NO ____ N/A (Further explanation attached **See Report Narrative**)
DETAILS:

(a) STANDBY POWER OR OTHER EQUIVALENT PROVISIONS PROVIDED. (**Separate dual feed/grids by PEPCO)**	_X_ YES	__ NO	__ N/A
(b) ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	_X_ YES	__ NO	__ N/A
(c) REPORTS ON ALTERNATE SOURCE OF POWER SENT TO EPA/STATE AS REQUIRED BY PERMIT.	__YES	__ NO	_X_ N/A
(d) SLUDGES AND SOLIDS ADEQUATELY DISPOSED. (**Biosolids applied on agricultural and some forestry land in VA & MD)**	_X_ YES	__ NO	-- N/A
(e) ALL TREATMENT UNITS IN SERVICE.	_X_ YES	__ NO	__ N/A
(f) CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATION AND MAINTENANCE PROBLEMS. **(Essentially in-house)**	_X_ YES	__ NO	__ N/A
(g) QUALIFIED OPERATING STAFF PROVIDED.	_X_ YES	__ NO	__ N/A
(h) ESTABLISHED PROCEDURES AVAILABLE FOR TRAINING NEW OPERATORS.	_X_ YES	__ NO	__ N/A
(i) FILES MAINTAINED ON SPARE PARTS INVENTORY, MAJOR EQUIPMENT SPECIFICATIONS, AND PARTS AND EQUIPMENT SUPPLIERS**.**	_X_ YES	__ NO	__ N/A
(j) INSTRUCTIONS FILES KEPT FOR OPERATION AND MAINTENANCE OF EACH ITEM OF MAJOREQUIPMENT.	_X_ YES	__ NO	__ N/A
(k) OPERATION AND MAINTENANCE MANUAL MAINTAINED.	_X_ YES	__ NO	__ N/A
(l) SPCC PLAN AVAILABLE. **(in the form of Stormwater Pollution Prevention Plan, revised 8/2012, discharge map 12/2012)**	_X_ YES	__ NO	__ N/A
(m) REGULATORY AGENCY NOTIFIED OF BY-PASSING. (Dates _____) ***No by-pass provision at the plant.**	__ YES	__ NO	_X_ N/A
(n) ANY BY-PASSING SINCE LAST INSPECTION.	__ YES	__ NO	_X_ N/A
(o) ANY HYDRAULIC AND/OR ORGANIC OVERLOADS EXPERIENCED.	__ YES	_X_ NO	__ N/A

SECTION J - COMPLIANCE SCHEDULES

PERMITTEE IS MEETING COMPLIANCE SCHEDULE. _X_ YES___ NO __ N/A
(Further explanation attached **See Comments below and Narrative Report**)

CHECK APPROPRIATE PHASE(S):

_X_ (a) THE PERMITTEE HAS OBTAINED THE NECESSARY APPROVALS FROM THE APPROPRIATE AUTHORITIES TO BEGIN CONSTRUCTION.

_X_ (b) PROPER ARRANGEMENT HAS BEEN MADE FOR FINANCING (mortgage commitments, grants, etc.).

_X_ (c) CONTRACTS FOR ENGINEERING SERVICES HAVE BEEN EXECUTED.

_X_ (d) DESIGN PLANS AND SPECIFICATIONS HAVE BEEN COMPLETED.

_X_ (e) CONSTRUCTION HAS COMMENCED.

_X_ (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.

Comments:
Facility has two compliance schedules: ENR in the permit and LTCP in the consent agreement.
(1). Long Term Control (CSO/Tunnel) Plan (LTCP) is on schedule.
(2) The Enhanced Nutrient Removal (ENR) phase I project's scheduled completion date has been changed to 8/16/2013, the project is currently on schedule. ENR phase II is approximately 60% complete and is on schedule.
(3) Biosolids Management (Treatment) Project is progressing well and construction has commenced, although it is not on compliance schedule nor consent agreement.

	PERMIT NO. **DC0021199**
SECTION K - SELF-MONITORING PROGRAM	
PART 1 - FLOW MEASUREMENT (Further explanation attached **X –see comments below**)	
PERMITTEE FLOW MEASUREMENT MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT DETAILS.	X YES __ NO __ N/A
(a) PRIMARY MEASURING DEVICE PROPERLY INSTALLED	X YES __ NO __ N/A
(Inflow measurements are recorded – using venturi and magnetic flow meters)	
TYPE OF DEVICE __ WEIR _PARSHALL FLUME X MAGMETER X VENTURI METER __ OTHER (Specify)	
(b) CALIBRATION FREQUENCY ADEQUATE. (Date of last calibration (**Quarterly**)	X YES ___ NO __ N/A
(c) PRIMARY FLOW MEASURING DEVICE PROPERLY OPERATED AND MAINTAINED.	X YES __ NO __ N/A
(d) SECONDARY INSTRUMENTS (totalizers, recorders, etc.) PROPERLY OPERATED AND MAINTAINED.	X YES __ NO __ N/A
(e) FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGES OF FLOW RATES.	X YES __ NO __ N/A
PART 2 - SAMPLING (Further explanation attached: **See Comments below and Report Narrative**)	
PERMITTEE SAMPLING MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT.	X YES __ NO __ N/A
DETAILS: (**Monitoring samples are taken daily. See attachments**)	
(a) LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.	X YES __ NO __ N/A
(b) PARAMETERS AND SAMPLING FREQUENCY AGREE WITH PERMIT.	X YES __ NO __ N/A
(c) PERMITTEE IS USING METHOD OF SAMPLE COLLECTION REQUIRED BY PERMIT.	X YES __ NO __ N/A
IF NO, X GRAB (**E. coli, Cl_2**) __ MANUAL COMPOSITE X AUTOMATIC COMPOSITE (BOD, COD)	
___ FREQUENCY **(Flow Based sampling)**	
(d) SAMPLE COLLECTION PROCEDURES ARE ADEQUATE.	X YES __ NO __ N/A
(i) SAMPLES REFRIGERATED DURING COMPOSITING	X YES __ NO __ N/A
(ii) PROPER PRESERVATION TECHNIQUES USED	X YES __ NO __ N/A
(iii) FLOW PROPORTIONED SAMPLES OBTAINED WHERE REQUIRED BY PERMIT	X YES __ NO __ N/A
(iv) SAMPLE HOLDING TIMES PRIOR TO ANALYSES IN CONFORMANCE WITH 40 CFR 136.3	X YES __ NO __ N/A
(e) MONITORING AND ANALYSES BEING PERFORMED MORE FREQUENTLY THAN REQUIRED BY PERMIT.	X YES __ NO __ N/A
(f) IF (e) IS YES, RESULTS ARE REPORTED IN PERMITTEE'S SELF-MONITORING REPORT.	X YES __ NO __ N/A
PART 3 - LABORATORY (Further explanation attached **See Comments below and Report Narrative**)	
PERMITTEE LABORATORY PROCEDURES MEET THE REQUIREMENTS AND INTENT OF THE PERMIT.	X YES __ NO __ N/A
DETAILS:	
(a) EPA APPROVED ANALYTICAL TESTING PROCEDURES USED. (40 CFR 136.3)	X YES __ NO __ N/A
(b) IF ALTERNATE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED.	__ YES __ NO X N/A
(c) PARAMETERS OTHER THAN THOSE REQUIRED BY THE PERMIT ARE ANALYZED (COD, Total Soluble Phosphorus)	X YES __ NO __ N/A
(d) SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.	X YES __ NO __ N/A
(e) QUALITY CONTROL PROCEDURES USED **(Lab participates in EPA's DMR – QA Studies**)	X YES __ NO __ N/A
(f) DUPLICATE SAMPLES ARE ANALYZED **11-14 %** OF TIME.	X YES __ NO __ N/A
(g) SPIKED SAMPLES ARE USED 11-14**% (Comments below and Narrative Report)** OF TIME.	X YES __ NO __ N/A
(h) COMMERCIAL LABORATORY USED.	X YES __ NO __ N/A
(i) COMMERCIAL LABORATORY STATE CERTIFIED.	X YES __ NO __ N/A
LAB NAME: **ANALYTICAL LABORATORY SERVICES, INC.**	
LAB ADDRESS: **34 DOGWOOD LANE, MIDDLETOWN, PA 17057; TEL.: 717-944-5541; FAX: 717-944-1430**	

Comments:

(1) Magmeters are used to measure recycled/sludge (biosolids) flows; Influent flows are calculated as the difference between the main wastewater flows, which include some recycled flows as measured by Venturi meters, minus the recycled flows as measured by the magmeters. (2) Permittee takes 2 grab samples per day for E. coli analysis and data is included in DMRs; and automatic composite sample that is flow based for the analysis of other parameters as required by the permit. (3) The facility uses both an in house and commercial laboratories. Commercial labs not visited during this inspection. (4) Facility passed EPA DMR-QA Study for this year.

PERMIT NO. **DC0021199**

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

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	VISIBLE FLOAT SOLIDS	COLOR	OTHER
Outfall 002[a]	**Not seen***	**Not seen***	**Not seen***	**Not seen***	**Not seen***	**clear**	**None**
Outfall 001[b]							
Outfall 019 [c]	Not seen	Not seen	Not seen	Not seen	Not seen	Clear	None

[a] Outfall 002 was discharging at the time of inspection. The discharge was clearer than the receiving water.

[b] Outfall 001 was not discharging at the time of inspection.

[c] Outfall 019 was not discharging at the time of inspection. However, there was construction near the Outfall (see narrative report).

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

SECTION M - SAMPLING INSPECTION PROCEDURES AND OBSERVATIONS (Further explanation attached **N/A-No samples were taken during this inspection**).

_ 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

SAMPLE REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE

SECTION N - ANALYTICAL RESULTS (Attach report if necessary) **N/A**

Water/NPDES Compliance Evaluation Inspection
NPDES Permit No. DC0021199

District of Columbia Water and Sewer Authority (DC Water)
Blue Plains Advanced Wastewater Treatment Plant.
5000 Overlook Avenue, SW
Washington, DC 200032

Narrative Report

Inspection Date: July 18 – 19, 2013

District Department of the Environment (DDOE) Inspectors:

Adion Chinkuyu, Environmental Engineer

Isaac Kelley, Environmental Protection Specialist

David Pilat, Environmental Protection Specialist

DC Water Representatives: Walter Bailey, Assistant General Manager

Aklile Tesfaye, Director of Wastewater Treatment

Elaine Wilson, Program Manager, Pretreatment Program

Gregory Philips, Program Manager, Laboratory

George Mpoyo Mulenda, Process Engineer II

Cuthbert Braveboy, Director Sewer Services

Dunbar Regis, Manager, Sewer Inspection and Maintenance

Salil Kharkar, Director of Process Engineering

Anthony Mack, Director of Maintenance Services

Algynon Collymore, Supervisor Construction

Danny Coats, Physical Science Technician

1. Introduction

On July 18, 2013 and July 19, 2013, a National Pollutant Discharge Elimination System (NPDES) Compliance Inspection was conducted at the District of Columbia Water and Sewer Authority (DC Water) – Blue Plains Advanced Wastewater Treatment Plant (AWTP) in Washington, District of Columbia (DC) (**Photo #1).** Inspectors Adion Chinkuyu, Isaac Kelley, and David Pilat from District Department of the Environment (DDOE) reviewed records, interviewed personnel, conducted an inspection tour of the facility, completed an EPA Form 3560-3 Water Compliance Inspection Report and wrote this inspection report. The primary DC Water facility representatives who participated in the inspection were: Walter Bailey, Assistant General Manager; Aklile Tesfaye, Manager, Wastewater Treatment; Elaine Wilson, Supervisor, Pretreatment; Gregory Philips, Supervisor, Laboratory; George Mpoyo Mulenda, Process Engineer; Tony Mack, Director of Maintenance Services,. For the other facility representatives see signing sheet (**Attachment 1).**

The primary purpose of the inspection was to determine the accuracy and reliability of the facility's self-monitoring and reporting programs in accordance with the facility's NPDES Permit Number DC0021199. The weather at the time of inspection was mostly sunny and humid, with a temperature of about 95ºF.

2. Facility Description

DC Water (discharger) owns, manages and operates the Blue Plains AWTP (facility) (**Photo #1 & Figure 1**). The facility serves more than two million customers in DC, portions of Montgomery and Prince Georges Counties in Maryland, and portions of Fairfax and Loudoun Counties in Virginia. The service area covers more than 725 square miles (**Figure 2**).

DC Water operates approximately 1,800 miles of sanitary and combined sewers, 22 flow-metering stations, nine off-site wastewater pumping stations, and 16 stormwater pumping stations within DC. Separate sanitary and stormwater sewers serve two-thirds of the city. In the older portion of the city, primarily in the downtown DC area, combined sewers which receive the sanitary wastewater and stormwater are in service.

The facility has two plants: the East and West Plants **(Photo #2**). Essentially, the East Plant treats wastewater from the Potomac River interceptor (about 60%), and the West Plant treats wastewater from the Anacostia River interceptor (about 40%). Although the West and East plants' influent lines are interconnected by a common line before their respective headworks/pump stations, a valve, that is normally closed, allows the two plants to work separately until after secondary treatment (activated sludge process). Thus, the flows in the plants combine before the Nitrification/Denitrification Process. The West Plant has six (6) influent pumps with a capacity of 40 million gallons per day (MGD) each The East Plant has nine (9) influent pumps with a capacity of 100 MGD each **(Photo #3**). The facility has the capacity to treat an average of 370 MGD of wastewater, with a complete treatment peak flow of 511 MGD, and an excess flow of 336 MGD. During the time of inspection on 7/19/2013 at 3:29

PM, the monitors in the Central Control Room showed different activities occurring at the facility and that the total influent flow rate was 349 MGD (East Plant: 205 MGD and West Plant: 144 MGD), Outfall 002 (total effluent flow rate) was 349; Excess flow (Outfall 001) was zero (0); and Well Level was -1.3 feet (**Photos #4a & 4b**).

3. Permit Verification

Discharges from the facility are regulated by an NPDES Permit No. DC0021199. The permit was issued on September 30, 2010 by U.S. EPA Region 3 and will expire on September 30, 2015. The permit states that "Treatment conditions for flows received at the plant shall be as follows:

- Dry Weather Flow (DWF) means the flow from sewers that convey collection system flow to Blue Plains when such flow is not greater than a rate of 511 MGD.
- Combined Sewer System Flow (CSSF) means the conditions that begin when the influent flow rate to receive complete treatment at the Blue Plains AWTP is greater than 511 MGD. CSSF conditions shall be deemed to cease 4 hours after influent flow rate drops to a rate less than 511 MGD or a period of 4 hours has elapsed since the start of the CSSF conditions, whichever occurs later.

During DWF, all plant influent receives Complete Treatment. When CSSF conditions exist, plant influent flow greater than the 511 MGD, receives Excess Flow Treatment up to a maximum rate of 336 MGD. The excess flow is discharged through Outfall 001.

The Permit also addresses the Combined Sewer System (CSS). The CSS includes the Combined Sewer Overflows and other outfalls, 003 - 62 (Part III, Section A of the permit). The Discharger is also subject to two consent decrees filed in Federal District Court on 10/10/2003 – CSO Long Term Control Plan; and on 3/25/2005 – Total Nitrogen Compliance Schedule.

A copy of the permit was made available to the inspectors for review and verification.

4. Plant Operation and Maintenance

Plant Treatment Processes

As previously noted, the facility's two plants normally flow separately through secondary treatment with the flows combining before the nitrification/denitrification process. The East Plant has nine (9) influent pumps (**Photo #3**), has 9 mechanical screens (**Photos #5a & 5b**), and 12 grit chambers (with one air stripper-bridge per 2 chambers) (**Photos #6a & 6b**). Headspace air removed by the air stripper-bridges is sent to scrubbers to remove hydrogen sulfide (**Photos #7a & 7b**). The West Plant influent pump station was constructed in 1935 (oldest) and has 4 mechanical screens, 4 grit chambers, and 6 pumps**.** The facility's representative stated that the facility's pump stations are equipped with a combination of constant and variable speed pumps for flows up to 1,076 MGD. Nine of the largest

pumps can each handle flows of 100 MGD. After grit removal and prior to primary treatment, the facility collects composite samples of the influent for analytical testing (**Photos #8a & 8b**). The influent sample is collected in accordance with the permit and 40 CFR 136 requirements. The inspectors observed that temperature in the sample storage container was 5°C and the meter was certified (**Photo #9**).

Ferric chloride and polymer are added before primary treatment (in 20 east and 16 west clarifiers) (**Photos #10a & 10b**). After clarification, the wastewater goes through secondary treatment using the activated sludge process in the plug flow mode for the east aeration basins (2 small, 2 large reactors) and in the step-feed mode for the west aeration basins (2 large reactors) where it is aerated and passed through the secondary sedimentation basins (12 east and 12 west) (**Photos #11a, 11b, 12a & 12b**). There are also 8 Dual Sedimentation Basins available for secondary and/or nitrification/denitrification settling.

As noted above, effluent from the east plant and west plant secondary sedimentation basins combines to flow through the advanced wastewater treatment portion of the Blue Plains facility which provides: the nitrification/denitrification process (12 five stage reactors (**Photos #13a, 13b & 14),** followed by 28 sedimentation basins (**Photos #15a & 15b**); multimedia filtration (40 filters **(Photos #16a, 16b, 16c &16d**); and chlorination/dechlorination (4 chlorine contact tanks) before discharging to the Potomac River (receiving waters) through Outfall 002 (**Photo #17**).

If necessary, excess flow treatment consists of initial (preliminary) treatment followed by sedimentation at the East Plant primary clarifiers then by chlorination/dechlorination before discharging to the Potomac River through Outfall 001 (**Photos #18a & 18b**).

The solids or sludge from the primary sedimentation tanks first go to the primary sludge screening and degritting building (**Photo #19)** where the sludge is screened , then it is pumped to gravity sludge thickeners (8 tanks) where gravity causes the dense sludge to settle to the bottom and thicken (**Photos #20a & 20b).** Biological solids from the secondary and nitrification/denitrification reactors are thickened separately using dissolved air floatation thickeners (18 DAFT tanks) (**Photos #21a &21b**).

The gravity and dissolved air floatation-thickened sludges are combined in a blending tank to form a homogeneous feed for dewatering. A series of conveyors, then, move the resulting blended/thickened sludge for dewatering by centrifuges (14) (**Photos #22a & 22b**) followed by lime addition to stabilize the sludge and remove pathogens (**Photo #23**) before the dewatered/stabilized sludge (biosolids) are temporarily stored in silos (2) and bunkers (4) (**Photo #24**)**.** Contractors haul the biosolids in trucks to Virginia and Maryland for final disposal: mainly land application; some composting; and occasional landfill if the sludge does not meet the other disposal requirements. Waste streams from the sludge thickening/dewatering processes and cleaning of the biosolids loading area are sent back into the wastewater treatment plant (**Photo #25**).

The facility also conducts its own self-monitoring and reporting activities. For example, effluent is sampled at Outfalls 001 and 002 to monitor chlorination/dechlorination and other permit requirements. The permit requires the facility (discharger) to routinely sample Outfall 002 effluent. The effluent is sampled inside Outfall 002 Monitoring Building (**Photo #26)**. Overall, the sampling locations and sampling methods appeared to comply with permit requirements. Laboratory analyses of the samples for NPDES reporting purposes are performed by both an on-site laboratory and by an off-site contract laboratory.

Northeast Boundary Swirl Concentrator (Swirl Concentrator)
The Northeast Boundary Swirl Concentrator (Swirl Concentrator) operates during wet weather events that produce flows which exceed the capacity of the upstream Eastside Interceptor. The Swirl Concentrator provides treatment for up to 400 MGD of combined sewer overflow. The Swirl Concentrator provides screening of influent combined sewage (**Photos #27a & 27b**), concentration of solids in the swirl tanks (**Photos #28a & 28b**), disinfection, and dechlorination of effluent (**Photos #29a &29b**). The treated effluent from the Swirl Concentrator is discharged to the Anacostia River through Outfall 019. Monitoring for Outfall 019 is done within the Swirl Concentrator Building (**Photo #30**). The concentrated, solids-bearing underflow and overflow floatables from the Swirl Concentrator are pumped by the Eastside Pumping Station (**Photo #31**) to the Blue Plains AWTP for further treatment.

Pretreatment
The facility has an approved pretreatment program in place. However, the pretreatment program was not evaluated as part of this inspection. EPA conducted a pretreatment Field Audit Inspection during the summer in 2010.

Major Findings During the Inspection

(a) Facility Site Review
The inspectors conducted a visual evaluation of the facility to assess compliance with the NPDES permit. The inspectors determined that the physical treatment units appeared to be operating as designed despite the on-going upgrades, maintenance and construction works at the site**.**

(b) Permit Verification
The facility has a valid NPDES permit (NPDES Permit No. DC0021199), which was issued on September 30, 2010 and will expire on September 30, 2015. A copy of the permit was made available for the inspectors to review. The facility is as described in the permit. The treatment processes, principal products, number and locations of discharge points are as described in the permit. The permit covers both wastewater and stormwater discharges from the facility. Thus, the facility does not need a separate permit for stormwater discharges.

(c) Records and Reports
The inspectors reviewed records and reports associated with the NPDES permit. Discharge Monitoring Reports (DMRs) and laboratory reports that were reviewed as part of this inspection covered the period starting from August 2012 to June 2013. The review included (i) a comparison of reported monitoring results versus requirements and limitations contained within the permit, and (ii) checking the sampling and analysis records. No permit limit exceedances were identified. Spot check for completeness and accuracy of the DMRs and laboratory reports also identified no discrepancies. Sampling dates, analyses dates, individuals performing the analysis, and analytical methods were adequate.

(d) Operations and Maintenance
Visual inspection of the facility from the headworks to the outfalls identified no significant operation and maintenance problems as the facility generally appeared to be operating satisfactorily and adequately maintained. Although some units were under maintenance, repairs, or construction at the time of inspection (**Photos #32, 33a, 33b, 34a, 34b, 35a &35b)**), the facility was operating by using other similar process units remaining in operation and/or on standby. The facility representatives indicated that during the construction and maintenance activities, there are no by-passes and exceedances permitted, except a lower wet weather complete treatment influent flow. There were no major issues observed during the inspection.

The facility representatives pointed out that the facility has a process control and computer system (PCCS), which facilitates centralized decision-making by monitoring and controlling processes at the plant. While control is primarily from the central control room (CCR) (**Photos #4a & 4b**), the system has additional area control centers (ACC) that can operate the plant in parallel **Photos #36a & 36b**). Most of the facility's process control data is logged electronically. The facility also participates in the Net-DMR – which is an electronic way of submitting DMRs to EPA.

(e) Effluent and Receiving Waters
At the time of inspection, the facility was discharging through Outfall 002 only, since its influent was a dry weather flow. The inspectors visited the monitoring building for Outfall 002 (**Photo #26**) and the receiving waters for Outfall 002 at the Potomac River (**Photo #17**). There was no plume, debris or foam, oil and grease at the outfall. In fact, the effluent water appeared clearer than the river water.

(f) Self-Monitoring Program
The facility is conducting its self monitoring and reporting program in accordance with Permit Part II, Section C.3, which requires that monitoring be conducted according to procedures approved under 40 CFR 136.3.

Effluent sampling is conducted inside the Outfall 002 Monitoring Building. The facility representatives indicated that two effluent samples (main and duplicate) are collected at the outfall. The facility refers to the main effluent sampling line as **D-23** and the duplicate effluent sampling line as **F-7** (**Photos #37a, 37b, & 37c**). The facility also conducts duplicate automated effluent monitoring

for pH, temperature, and dissolved oxygen. At the time of inspection, one of the effluent monitoring panels showed pH of 6.66 and DO of 8.94 mg/L (**Photo #26**). Spot check of temperature in the main effluent and duplicate samplers showed temperature reading of 4 degrees Celsius. Log/bench books for equipment calibration, sample collection and analysis for nutrients, pH, DO, temperature, and total residual chlorine were properly recorded by the facility (**Photos #38a & 38b**).

The inspectors observed that the pH standards used for instrument calibration in Outfall 002 Building were not labeled with lot numbers or expiration dates (**Photo #39a**). Facility representatives stated that the small containers of standards are obtained from a bulk storage area in the Blue Plaines Laboratory. The representatives quickly retrieved the required information, labeled the containers and relayed required labeling process to laboratory representatives and sampling technicians (**Photo #39b**).

The 24 hour composited effluent samples are refrigerated upon collection each midnight before analysis the following morning. The following nutrient samples are also preserved with H_2SO_4 as required at the time of collection: total phosphorus (TP), ammonia-nitrogen (NH_3-N), total Kjeldahl nitrogen (TKN).

At the time of inspection, collected daily influent and effluent samples are temporarily stored in a refrigerator placed at the laboratory entrance prior to pick up and analysis by the laboratory staff (**Photo #40**). Since the 2012 inspection the new Blue Plains Laboratory has been completed and is now in use as the in-house laboratory.

The facility uses its own in-house laboratory to analyze all samples for effluent monitoring, except metals. The parameters analyzed include total suspended solids (TSS), carbonaceous biological oxygen demand ($CBOD_5$), TP, TKN, NH_3-N, NO_3-N, NO_2-N, DO, total residual chlorine, E. coli, pH, and orthophosphate, according to the schedules set forth in NPDES Permit DC0021199. The calibration records, bench/log books (**Photos #38a & 38b**) and lab reports were found to be complete and in order. Agar, pH buffers, and other chemical reagents used in sample analyses were current and properly stored (**Photos #41a & 41b**). The facility uses a data management system (called LIMS = Laboratory Information Management System) to record and store all their laboratory data. No laboratory issues were identified during the inspection.

Effluent samples for metals' analyses are shipped to Analytical Laboratory Services, Inc., an off-site contractor, located at 34 Dogwood Lane, Middletown, Pennsylvania 17057 (Telephone number: 717-944-5541; Fax: 717-944-1430). The inspectors did not inspect the off-site laboratory. The facility representatives indicated that DC Water's onsite laboratory participates in EPA's DMR QA Studies and it had just passed the current study.

(g) Biosolids Handling and Disposal

The biosolids areas were inspected starting from the primary sludge screening and degritting building (**Photo #19**), gravity sludge thickeners (**Photos #20a & 20b**), dissolved air floatation thickeners (**Photos #21a & 21b**), blending and centrifuge dewatering (**Photos #22a & 22b)**, lime addition

(**Photos #23a & 23b)**, silos and bunkers, and truck loading area (**Photo #24**). The biosolids are processed, stored, and loaded properly into trucks for land application, composting, and landfill disposal. No handling and disposal issues were identified during the inspection. The facility representatives stated that the loading site is cleaned often and all cleaning water is conveyed back to the headworks for treatment. All biosolids are hauled by contractors to Virginia and Maryland for land disposal, mainly land application, some composting, and occasional landfill.

The facility is also working on a Biosolids Management Program (**Photos #34b**). Currently, lime stabilization is used to convert wastewater treatment residuals into a renewable resource used as a soil amendment. Implementation of the Biosolids Management Program will largely replace lime stabilization with thermal hydrolysis and anaerobic digestion. The biosolids facility will include new dewatering, the World's largest Cambi^{TM} thermal hydrolysis process, large anaerobic digesters, and a combined heat and power facility. The facility representatives indicated that they will produce Class A biosolids and gas for electricity/energy for internal use. The facility is expected to produce 10 – 12 Mega Watts of electricity that will be utilized onsite.

(h) Pollution Prevention

The facility uses several chemicals in large quantities to control treatment processes. These chemicals include lime, methanol, ferric acid, polymer, caustic soda, sodium hypochlorite, and sodium bisulfate. These chemicals were found to be properly delivered, stored and contained (**Photo #41a, 41b, 42a, 42b, & 42c**). Any chemical spill is contained in an appropriate sump or secondary containment area and pumped into the wastewater treatment system.

(l) Stormwater

The Permit's Part IV, Section E, requires the facility to develop and implement a stormwater pollution prevention plan (SWPPP). The facility's SWPPP was reviewed as part of this inspection. The most recent revised SWPPP was dated August 2012; the onsite discharge and storm sewer map was updated November 2012. The copy reviewed was signed on August 13, 2012 by the responsible official, namely, the Acting Deputy General Manager. Specific SWPPP elements that were reviewed included spill prevention and response, employee training records and site plan. Based on this review, both the SWPPP content and implementation were found to be satisfactory. According to the facility's representatives, a large portion of the stormwater runoff from the facility is collected and conveyed to the head works where it is mixed into the plant's treatment process stream. The facility's stormwater is covered under the NPDES Permit No DC0021199. Due to the construction activities at the facility, different best management practices are being implemented such as silt fences, and absorbent booms at intake points (i.e. inlets, catch basins, etc.). Stormwater trenches are put on the perimeter of the facility and the runoff water is pumped into the plant for treatment (**Photo #43a & 43b**).

(j) Compliance Schedules

As indicated earlier in this report, the Permit also addresses Combined Sewer Overflows (CSOs) (Part III, Section A). The facility is subject to two consent decrees filed in Federal District Court: (i) Long Term CSO Control Plan; and (ii) Total Nitrogen Removal compliance schedules. According to the

facility representatives, the facility has awarded contracts for the construction of: (i) CSO Tunnel and Treatment Works; and (ii) Enhanced Nitrogen Removal and each project's construction is on schedule to be in compliance with all the requirements of its respective consent decree (**Photos #33a, 33b, 34b, #35a & 35b)**.

Status of the 2012 CEI Findings
No significant findings were noted during the last inspection (2012).

2013 CEI Findings (Subject Inspection)
No significant findings.

Enclosures (included with this Report Narrative**):**

- EPA Form 3560-3
- Figures, Attachment 1, & Photo Log

Water/NPDES Compliance Evaluation Inspection
NPDES Permit No. DC0021199

District of Columbia Water
Blue Plains Advanced Wastewater Treatment Plant.
5000 Overlook Avenue, SW
Washington, DC 200032

Photo Log

Inspection Date: July 18 – 19, 2013

District Department of the Environment (DDOE) Inspectors:

Adion Chinkuyu, Environmental Engineer

Isaac Kelly, Environmental Protection Specialist

David Pilat, Environmental Protection Specialist

DC Water Representatives: Walter Bailey, Assistant General Manager

Aklile Tesfaye, Director of Wastewater Treatment

Elaine Wilson, Program Manager, Pretreatment Program

Gregory Philips, Program Manager, Laboratory

George Mpoyo Mulenda, Process Engineer II

Cuthbert Braveboy, Director Sewer Services

Dunbar Regis, Manager, Sewer Inspection and Maintenance

Anthony Mack, Director Maintenance Services

Salil Kharkar, Director of Process Engineering

Algynon Collymore, Supervisor Construction

Danny Coats, Physical Science Technician

Figure 1: Site plan of Blue Plains Advanced Wastewater Treatment Plant.

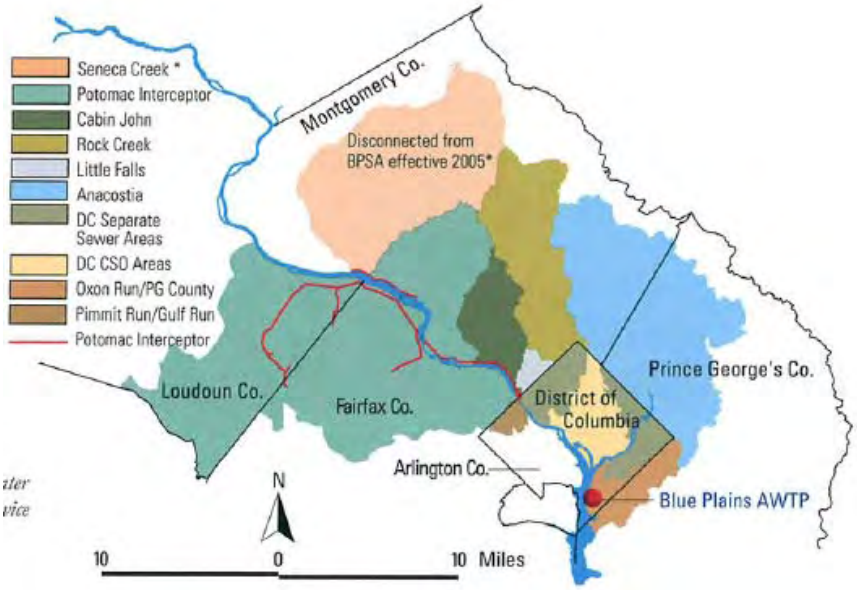

Figure 2: Service area of Blue Plains Advanced Wastewater Treatment Plant.

From: Aklile Tesfaye [mailto:Aklile.Tesfaye@dcwater.com]
Sent: Tuesday, August 06, 2013 11:55 AM
To: Chinkuyu, Adion (DDOE)
Subject: RE: Attached Image

Good morning Adion,

I forgot to include the names of the individuals who participated in the compliance inspection.

Walter Bailey, Assistant General Manager ------- 202-787-4172
Aklile Tesfaye, Director of Wastewater Treatment Operations ------- 202-787-4008
Anthony Mack, Director of Wastewater Treatment Maintenance ------- 202-787-4095
Salil Kharkar, Director of Process Engineering ------- 202-787-4146
Elaine Wilson, Program Manager Pretreatment Program------- 202-787-4177
Gregory Philips, Program Manager Blue Plains Laboratory ------- 202-787-4001
George Mpoyo, Process Engineer II ------- 202-787-4194
Algynon Collymore, Supervisor Construction -------202-787-2539
Danny Coats, Physical Science Technician ------- 202-787-4046

I do not know who attended the collection systems tour and therefore have not included the participants on the list.

Best regards

Attachment #1: List of some of the facility representatives who attended the inspection.

Photo #1: Aerial view photo of Blue Plains Advanced Wastewater Treatment Plant.

Photo #2: East and West Pumping Stations at Blue Plains Advanced Wastewater Treatment Plant.

Photo #3: East Plant Pumping Station has nine pumps with a capacity of 100 MGD each (West Plant has six pumps with a capacity of 40 MGD each).

Photo #4a: The Central Control Room at Blue Plains AWTP.

Photo #4b: Screen shot of the Central Control Room at Blue Plains AWTP.

Photo #5a: Nine mechanical screens at the East Plant.

Photo #5b: Conveyor belts for screens at the East Plant.

Photo #6a: Grit chambers for the East Plant.

Photo #6b: Air stripper-bridge in the grit chamber of the East Plant.

Photo #7a: Hydrogen sulfide scrubber system.

Photo #7b: Hydrogen sulfide scrubber system.

Photo #8a: Auto-sampler used to collect composite samples of influent water.

Photo #8b: A composite influent sample in an auto-sampler. Note the thermometer near the sample.

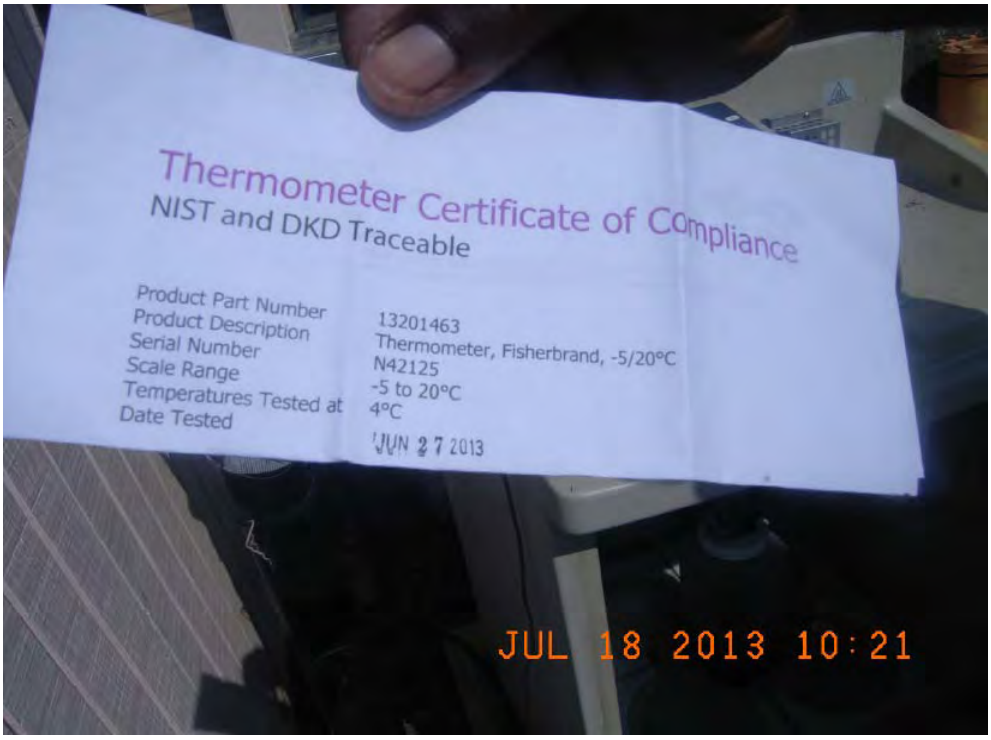

Photo #9: A certificate indicating that the thermometer was tested and certified for measuring temperature of influent samples.

Photo #10a: Primary clarifier.

Photo #10b: Primary clarifier.

Photo #11a: Secondary Reactors (Aeration basins).

Photo #11b: Secondary Reactors (Aeration basins).

Photo #12a: Secondary sedimentation basins.

Photo #12b: Drain channel in the secondary sedimentation basin.

Photo #13a: Nitrification reactors in the tertiary treatment process.

Photo #13b: Nitrification reactor in the tertiary treatment process.

Photo #14a: Denitrification reactor in the tertiary treatment process.

Photo #14b: Denitrification reactor that can also be used as a nitrifications tank.

Photo #15a: Sedimentation basins in the tertiary treatment process.

Photo #15b: Empty sedimentation basin under repairs in the tertiary treatment process.

Photo #16a: Multimedia filter full of water (normal operation).

Photo #16b: Pumps to multimedia filters.

Photo #16c: Multimedia filter being backwashed. Notice how dirty the water is.

Photo #16d: Multimedia filter being backwashed. Notice the clear water after the filter has been washed for some time.

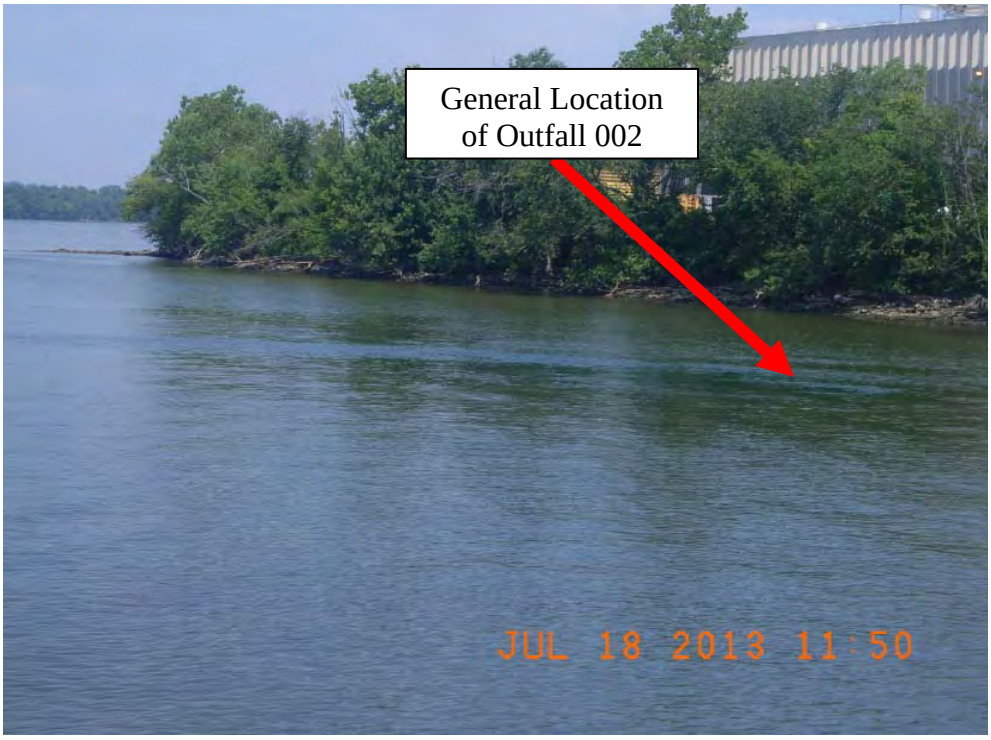

Photo #17: Outfall 002 at the receiving waters (Potomac River). Notice the clear water stream from end of outfall toward middle of the river.

Photo #18a: Warning signage for Outfall 001 at the Potomac River.

Photo #18b: Location of Outfall 001 at the Potomac River.

Photo #19: Primary sludge screening in the Primary Sludge Screening and Degritting Building.

Photo #20a: Outside of gravity sludge thickeners.

Photo #20b: Inside a gravity sludge thickener.

Photo #21a: Dissolved air floatation (DAF) thickeners.

Photo #21b: Dissolved air floatation (DAF) thickeners.

Photo #22a: Centrifuges for dewatering sewage sludge.

Photo #22b: Centrifuges in the solids processing building.

Photo #23: Lime is added to the biosolids in the solid processing building.

Photo #24: Biosolids bunker and loading area.

Photo #25: Waste stream from the sludge dewatering being sent back to the treatment process.

Photo #26: Inside Outfall 002 Monitoring Building. Note the pH and DO monitoring panels.

Photo #27a: Screens at the intake of the Northeast Boundary Swirl (Concentrator) Facility.

Photo #27b: Trash removed from the screens at the intake point of the Northeast Boundary Swirl (Concentrator) Facility.

Photo #28a: One of the three swirls at the Northeast Boundary Swirl Facility.

Photo #28b: A different view angle of one of the swirls at the Northeast Boundary Swirl Facility

Photo #29a: Chlorination / disinfection room at the Northeast Boundary Swirl Facility.

Photo #29b: Chlorination / disinfection room at the Northeast Boundary Swirl Facility

Photo #30: Sampling location for Outfall 019.

Photo #31: The concentrated solids-bearing underflow and overflow floatables from the Swirl Concentrator are pumped by the Eastside Pumping Station to the Blue Plains AWTP.

Photo #32: Primary grit chambers under maintenance.

Photo #33a: Construction of Enhanced Nitrogen Removal Facility (background).

Photo #33b: Construction of Enhanced Nitrogen Removal Facility (background).

Photo #34a: Gravity Thickener under repair.

Photo #34b: Anaerobic digesters (for Cambi™ Thermal Hydrolysis Process) under construction.

Photo #35a: Construction at Outfall 019 on the Anacostia River.

Photo #35b: Construction of Splitter Box at Outfall 019.

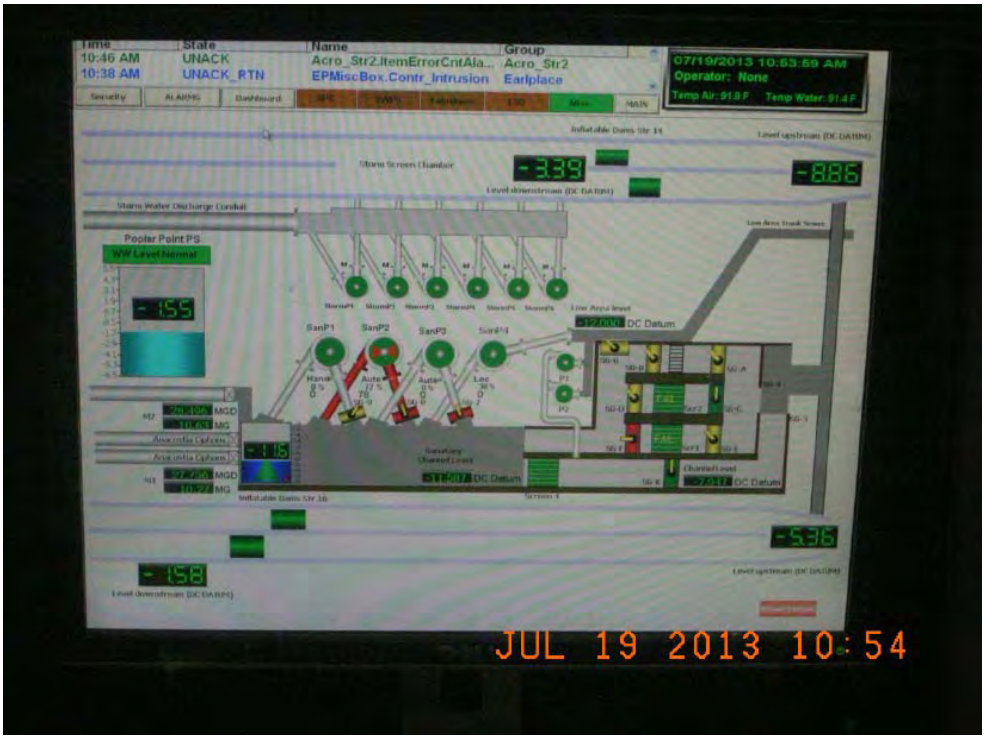

Photo #36a: Area Control Centers (ACC) at O Street Pumping Station.

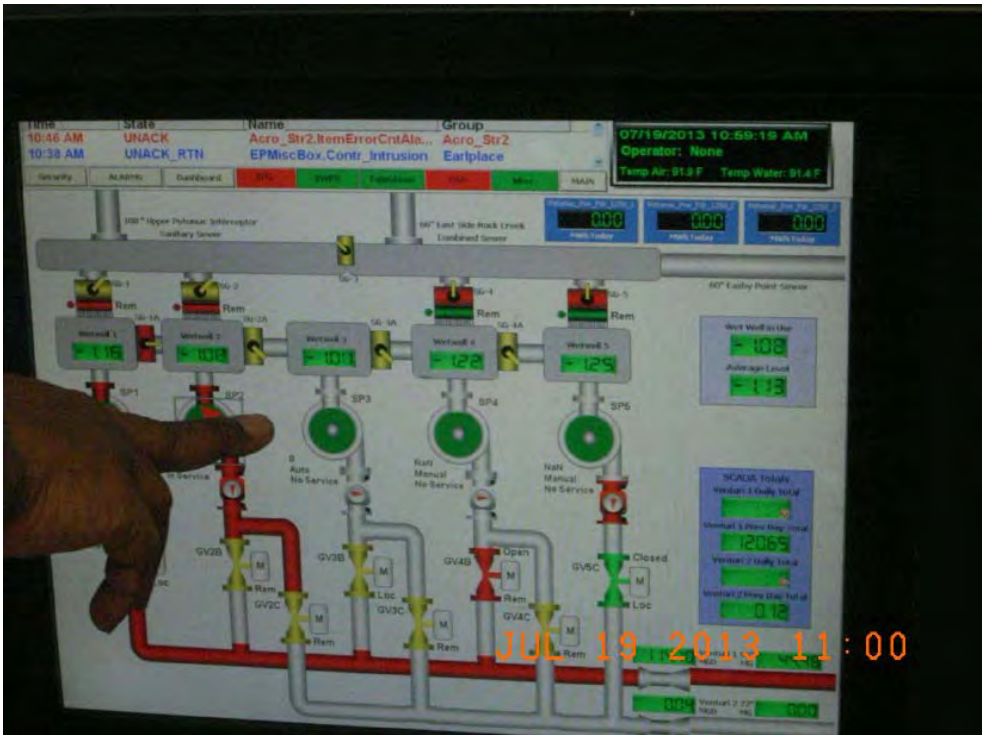

Photo #36b: Area Control Centers (ACC) at O Street Pumping Station.

Photo #37a: Sampling equipment at Outfall 002.

Photo #37b: Effluent sample at Outfall 002.

Photo #37c: Effluent sample for PCB analysis at Outfall 002.

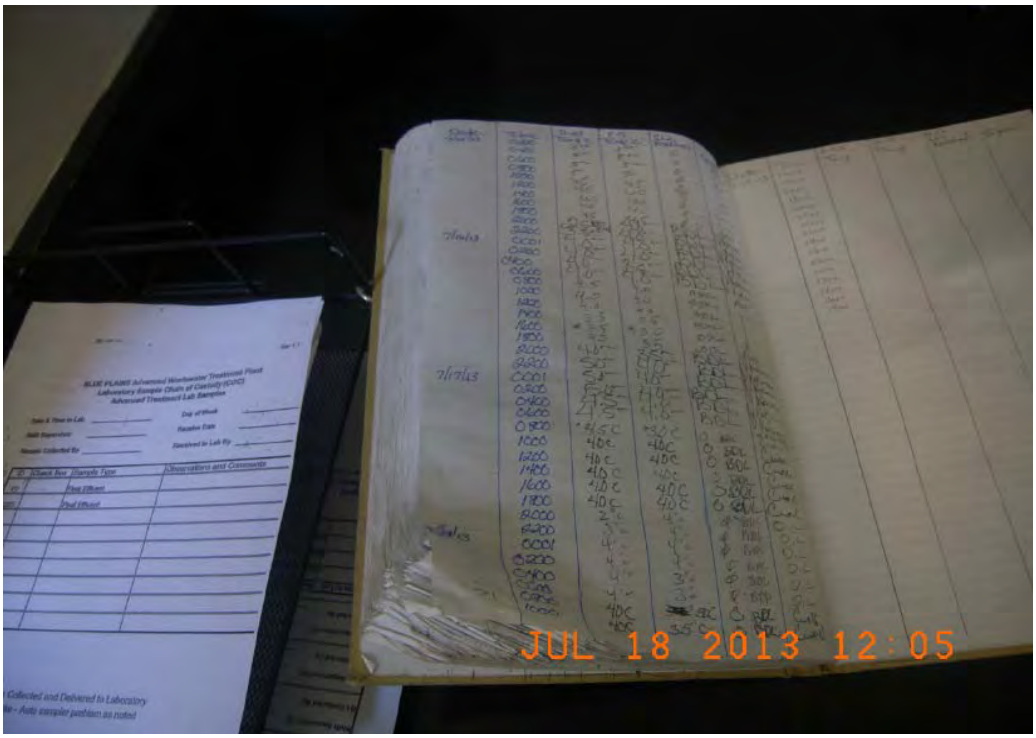

Photo #38a: Log/bench books for equipment calibration, sample collection and analysis in Outfall 002 Monitoring Building.

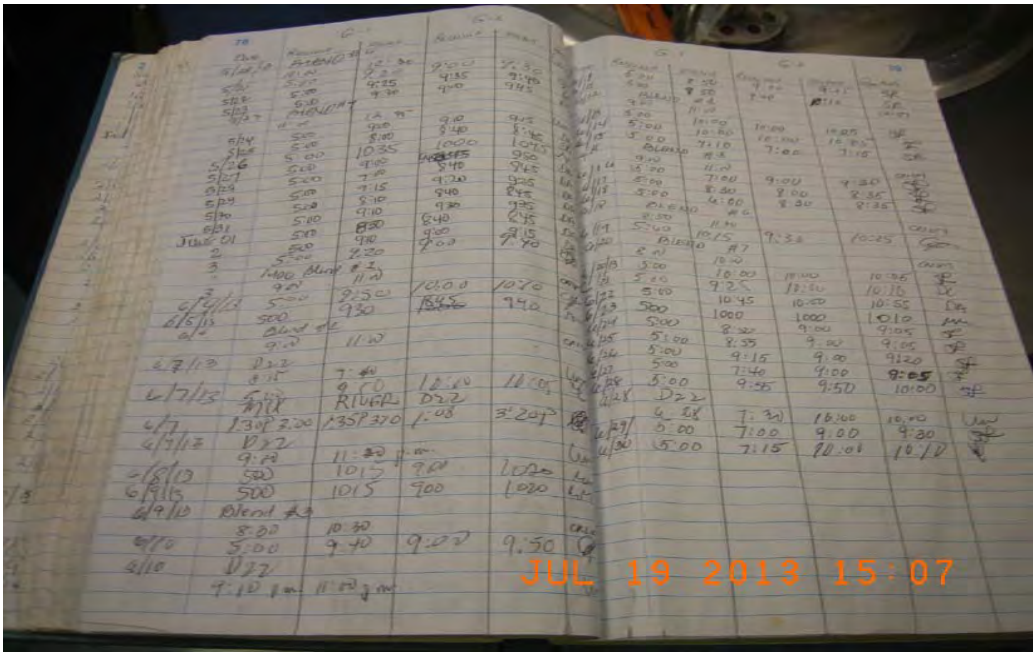

Photo #38b: Log/bench books for equipment calibration, sample collection and analysis in the onsite laboratory.

Photo #39a: pH buffers in unlabelled containers.

Photo #39b: pH and conductivity buffer storage area, note the sign reminding technicians to label containers.

Photo #40: Samples are temporarily stored in a refrigerator placed at the entrance of the laboratory prior to pick up and analysis by the laboratory staff.

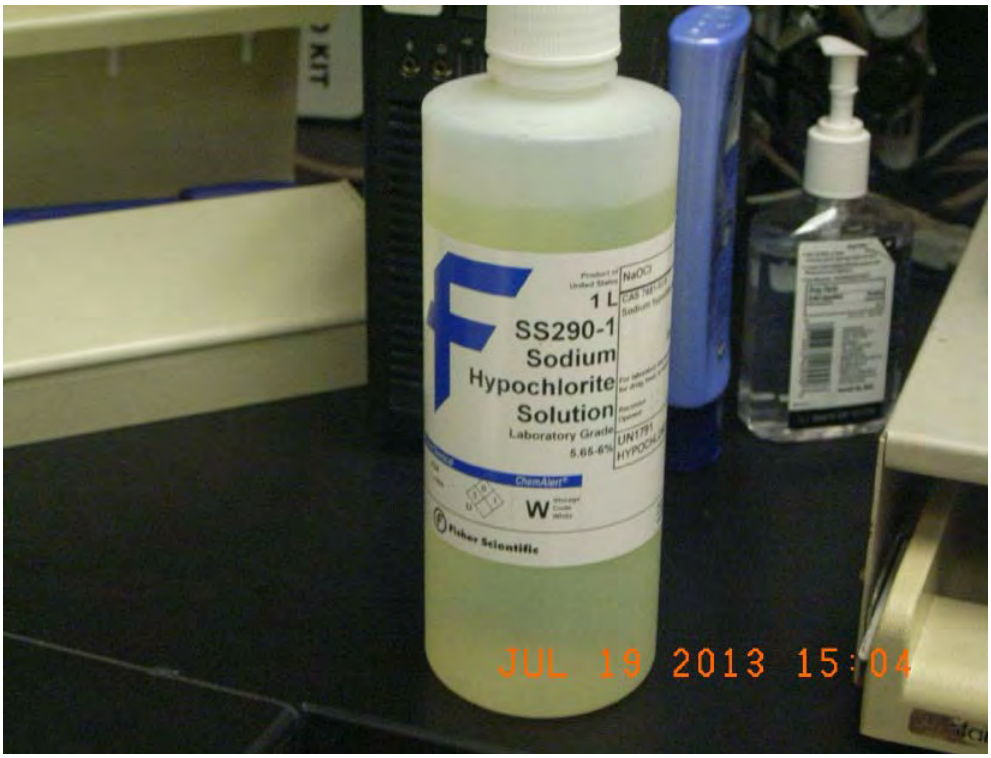

Photo #41a: Sodium Hypochlorite used in sample analysis.

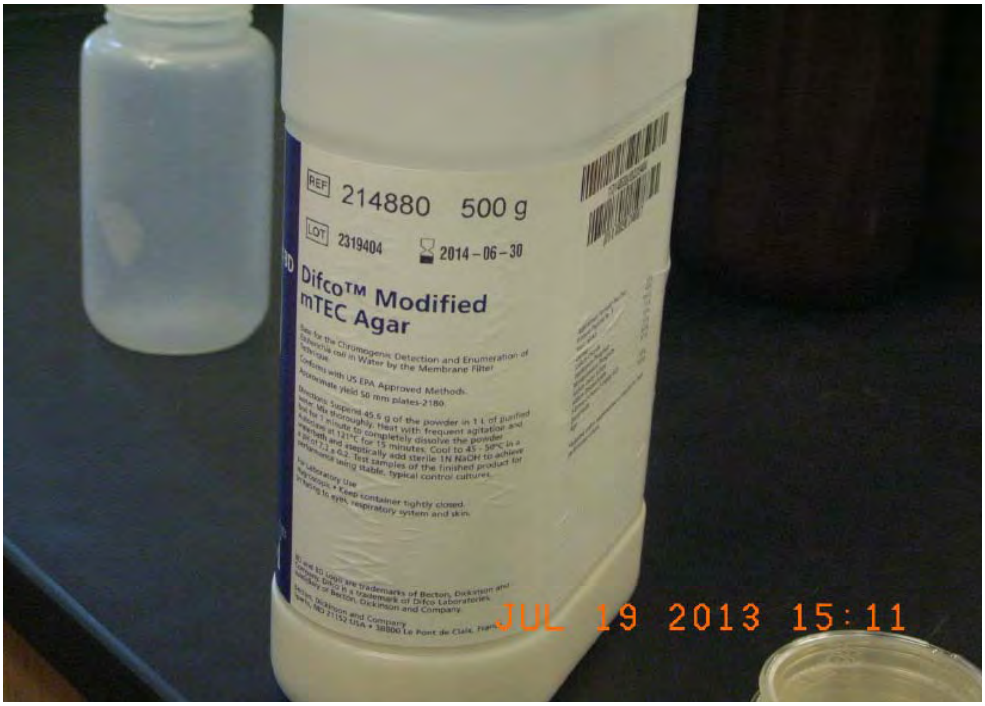

Photo #41b: Agar used in sample analysis.

Photo #42a: Lime storage area.

Photo #42b: Loading area for metal salts.

Photo #42c: Storage area for sodium bisulfate at the Northeast Boundary Concentrator.

Photo #43a: Stormwater from construction sites is collected in perimeter drains.

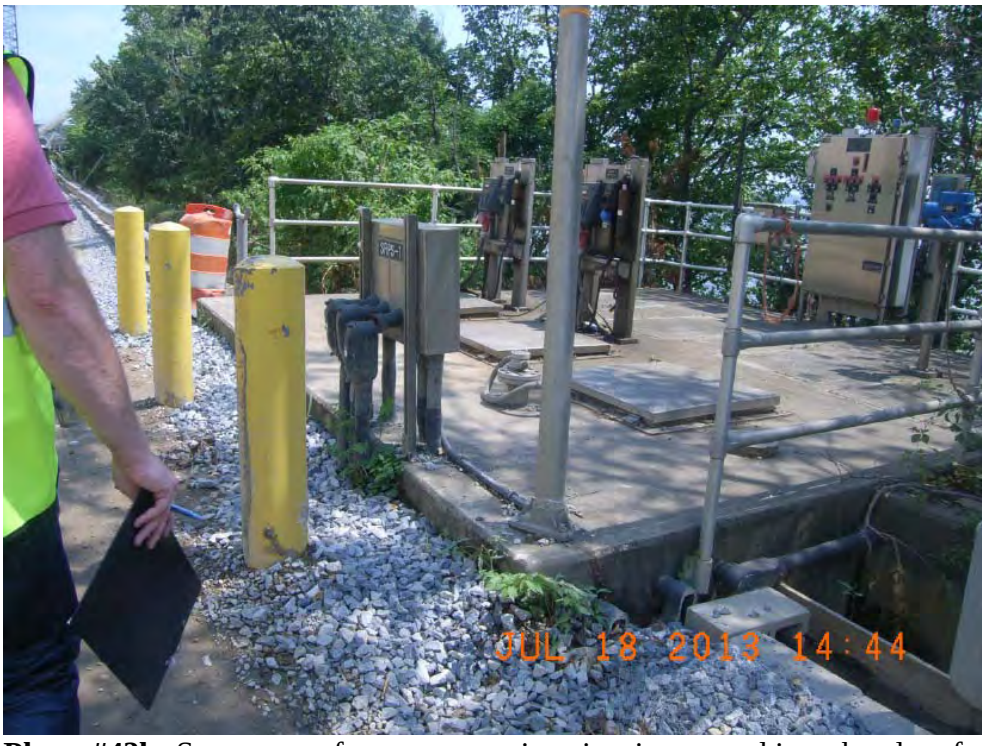

Photo #43b: Stormwater from construction sites is pumped into the plant for treatment.