

This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a major, municipal permit. The discharges result from the combined sewer system (CSS) during wet weather events at overflow points within the collection system; referred to as combined sewer overflows (CSOs). The requirements and special conditions contained within this permit are in accordance with 9VAC25-31-50.C. and the Clean Water Act, CSO Control Policy, Section 402(q)(1).

| | | | |
|--|--|--------------------------|---|
| 1. Facility Name and Mailing Address: | Alexandria Combined Sewer System 301 King Street, Room 4100 Alexandria, VA 22313 | SIC Code: | 4952 WWTP |
| Facility Location: | The combined sewer system serves a 540 acre area of the City of Alexandria. See Attachment 1 . | City: | Alexandria |
| Facility Contact Name: | Rashad Young / City Manager | Telephone Number: | 703-746-4300 |
| 2. Permit No.: | VA0087068 | Expiration Date: | 15 January 2012 |
| Other VPDES Permits: | Not Applicable | | |
| Other Permits: | VAR040057 – Phase II MS4 General Permit | | |
| E2/E3/E4 Status: | Not Applicable | | |
| 3. Owner Name: | City of Alexandria | | |
| Owner Contact / Title: | Richard Baier / Director of Transportation and Environmental Services | Telephone Number: | 703-746-4019 |
| 4. Application Complete Date: | 15 July 2011 | | |
| Permit Drafted By: | Douglas Frasier | Date Drafted: | 22 October 2012 16 November 2012 22 January 2013 13 February 2013 13 March 2013 14 May 2013 20 May 2013 |
| Draft Permit Reviewed By: | Alison Thompson | Date Reviewed: | 26 November 2012 |
| WPM Review By: | Bryant Thomas | Date Reviewed: | 11 November 2012 24 January 2013 27 February 2013 14 March 2013 15 May 2013 21 May 2013 |
| Public Comment Period: | Start Date: TBD 2013 | End Date: | TBD 2013 |
| 5. Receiving Waters Information: | | | |
| Receiving Stream Names: | Outfall 001: Oronoco Bay Outfall 002: Hunting Creek Outfall 003/004: Hooffs Run | Stream Codes: | Outfall 001: 1aPOT Outfall 002: 1aHUT Outfall 003/004: 1aHFF |
| Drainage Areas: | Outfall 001: 224 acres Outfall 002: 184 acres Outfall 003/004: 132 acres | River Miles: | Outfall 001: 108.72 Outfall 002: 0.60 Outfall 003/004: 0.70 / 0.63 |
| Stream Basins: | Potomac River | Subbasins: | Potomac River |
| Sections: | Outfall 001/002: 06 Outfall 003/004: 07 | Stream Classes: | Outfall 001/002: II Outfall 003/004: III |

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| | | | |
|--------------------|----------------------|----------------|---------------------------|
| Special Standards: | Outfall 001/002: b,y | Waterbody IDs: | Outfall 001: VAN-A12E |
| | Outfall 003/004: b | | Outfall 002: VAN-A13E |
| | | | Outfall 003/004: VAN-A13R |

Outfall 001 / Outfall 002 / Outfall 003 / Outfall 004

| | | | |
|---------------------|-----------------|------------------|-----------------|
| 7Q10 Low Flow: | Not Applicable* | 7Q10 High Flow: | Not Applicable* |
| 1Q10 Low Flow: | Not Applicable* | 1Q10 High Flow: | Not Applicable* |
| 30Q10 Low Flow: | Not Applicable* | 30Q10 High Flow: | Not Applicable* |
| Harmonic Mean Flow: | Not Applicable* | 30Q5 Flow: | Not Applicable* |

*Overflows only occur during wet weather events. The flow within the receiving streams would be highly variable; dependent up on the previous precipitation event, amount/type of precipitation and longevity of the event. A mixing zone determination is not feasible.

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

| | |
|---|---|
| <input checked="" type="checkbox"/> State Water Control Law | <input checked="" type="checkbox"/> EPA Guidelines |
| <input checked="" type="checkbox"/> Clean Water Act | <input checked="" type="checkbox"/> Water Quality Standards |
| <input checked="" type="checkbox"/> VPDES Permit Regulation | <input checked="" type="checkbox"/> Other: CSO Control Policy |
| <input checked="" type="checkbox"/> EPA NPDES Regulation | CWA Section 402(q)(1) |

7. Licensed Operator Requirements: Not Applicable

8. Reliability Class: Not Applicable

9. Permit Characterization:

| | | |
|--|---|--|
| <input type="checkbox"/> Private | <input type="checkbox"/> Effluent Limited | <input checked="" type="checkbox"/> Possible Interstate Effect |
| <input type="checkbox"/> Federal | <input checked="" type="checkbox"/> Water Quality Limited | <input type="checkbox"/> Compliance Schedule |
| <input type="checkbox"/> State | <input type="checkbox"/> Whole Effluent Toxicity Program | <input type="checkbox"/> Interim Limits in Permit |
| <input checked="" type="checkbox"/> POTW | <input type="checkbox"/> Pretreatment Program | <input type="checkbox"/> Interim Limits in Other Document |
| <input checked="" type="checkbox"/> TMDL | | |

10. Wastewater Sources and Treatment Description:

A combined sewer system (CSS) is a wastewater collection system that conveys wastewaters (domestic, commercial and industrial) and stormwater via a single pipe. Normally, the system transports all of the wastewater to a publicly owned treatment works (POTW) for treatment. However, these types of collection systems are designed to overflow at certain points in the system during rainfall or snowmelt events when the volume of water exceeds the capacity of the collection system and/or the treatment capacity of the POTW. A combined sewer overflow (CSO) refers to CSS discharges at these points in the collection system. The CSOs discharge a mixture of stormwater, untreated human and industrial waste, possible toxic materials and debris into a water body during wet weather events.

The City of Alexandria CSS serves approximately 540 acres with a population of approximately 25,000. The majority of the sewershed is located in the Old Town area and consists of 6.2 miles of combined sewers with four (4) outfalls. During dry weather, all sanitary wastewaters are conveyed to the AlexRenew Water Resource Recovery Facility (VA0025160) for treatment. This treatment plant is owned and operated by the City of Alexandria, Virginia Sanitation Authority.

Dry weather discharges from a CSS are strictly prohibited under the Combined Sewer Overflow Control Policy.

Outfall locations and brief descriptions:

Outfall 001: Pendleton Street Outfall
 Location: east end of Pendleton Street
 Minimum rainfall for overflow event: approximately 0.06 inches

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The wastewater flow originates from the North and South Trunks of the Pendleton Street Trunk Sewer, flowing into the Potomac Interceptor. The regulator structure is a diagonal weir, discharging through two flapper valve tide gates.

Outfall 002: Royal Street Outfall
Location: south end of Royal Street
Minimum rainfall for overflow event: approximately 0.21 inches

This point in the CSS receives flow from the Royal Street Trunk Sewer, with all dry weather flow entering the Potomac Interceptor. The regulator is a 6 inch weir.

Outfall 003: King/West Streets Outfall
Location: under Duke Street at the crossing of Hooffs Run
Minimum rainfall for overflow event: approximately 0.03 inches

This outfall and regulator are located in a box culvert that runs under Duke Street. Flows in this section of the CSS come from the Peyton Street Trunk Sewer and then to the Commonwealth Interceptor.

Outfall 004: Hooffs Run Outfall
Location: approximately 50 meters south of Duke Street
Minimum rainfall for overflow event: approximately 0.16 inches

The regulator structure consists of an overflow weir upstream of inverted siphons; outfall structure is a flapper valve.

See **Attachment 2** for a map illustrating the locations of the outfalls .

The national framework for control of CSOs is found in the Environmental Protection Agency's (EPA) *Combined Sewer Overflow (CSO) Control Policy*, published on 19 April 1994 and later incorporated into the Clean Water Act, Section 402(q)(1) in 2000. This policy established a comprehensive and consistent approach for controlling discharges from CSOs.

The goals of the Policy are to:

- Ensure that if CSOs occur, they are only as a result of wet weather;
- Bring all wet weather CSO discharge points into compliance with the technology-based and water quality-based requirements of the Clean Water Act; and
- Minimize the impacts of CSOs on water quality, aquatic biota and human health.

The policy requires communities with CSOs to prepare a Long Term Control Plan (LTCP) detailing how they will accomplish these goals. The overall approach regarding the LTCP consists of three steps: system characterization, development and evaluation of alternatives and selection/implementation of the controls. In February 1999, the City of Alexandria's LTCP, consisting of the nine minimum controls (Section 17.e.), was approved by DEQ. The City of Alexandria elected to demonstrate that the controls in place would meet the Water Quality Standards by means of modeling. These tools were used to ascertain the frequency, duration and volume of CSO discharges. In addition, these models were used to predict the possible impacts on the receiving streams.

The 2006 305(b)/303(d) Water Quality Assessment Report stated that Hunting Creek did not support the Recreation Use and the Fish Consumption Use due to bacteria and polychlorinated biphenyls (PCBs), respectively. Outfall 002 discharges directly into Hunting Creek while Outfall 003 and Outfall 004 discharge to a tributary to Hunting Creek. Total Maximum Daily Loads (TMDLs) have been developed and approved for both impairments. This system has been identified as a source within each document. Please refer to Section 15 of this Fact Sheet for further details.

Point source components for TMDLs are implemented through the VPDES permitting programs while nonpoint source controls are implemented via a combination of best management practices (BMPs), state and/or local regulations.

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TABLE 1
OUTFALL DESCRIPTION

| Number | Number of CSO Events* | Average Duration of Overflow* | Average Volume of Overflow* | Estimated Annual Volume of Overflow** | Latitude / Longitude |
|--|-----------------------|-------------------------------|-----------------------------|---------------------------------------|---------------------------|
| 001 | 28 | 2.32 hours | 1.36 million gallons | 35.21 million gallons | 38° 48' 35" / 77° 02' 19" |
| 002 | 25 | 1.92 hours | 1.41 million gallons | 31.27 million gallons | 38° 47' 30" / 77° 02' 49" |
| 003 | 58 | 6.05 hours | 0.66 million gallons | 36.67 million gallons | 38° 48' 15" / 77° 03' 33" |
| 004 | 28 | 8.04 hours | 0.27 million gallons | 9.63 million gallons | 38° 48' 13" / 77° 03' 34" |
| *Approximations; per permit application, dated 8 July 2011, for the time period of June 2010 – May 2011. | | | | | |
| **2011 Annual Report Model Summary | | | | | |
| See Attachment 3 for the Alexandria topographic map. | | | | | |

11. Sludge Treatment and Disposal Methods: Not Applicable. There is no sludge generated within this system.

12. Discharges and Monitoring Stations Located within Waterbodies VAN-A12E, VAN-A13E and VAN-A13R:

TABLE 2
DISCHARGES & MONITORING STATIONS

| ID / Permit Number | Facility Name | Type | Receiving Stream |
|--------------------|---|-----------------------------------|------------------------------------|
| VAN-A12E | | | |
| VAR051790 | USPS – Maintenance Yard | Stormwater General Permits | Four Mile Run, UT |
| VAR051097 | WMATA Four Mile Run Bus Garage | | Four Mile Run |
| VAR051001 | Robinson Terminal Warehouse | | Potomac River |
| VAR051421 | Arlington County Water Pollution Control Facility | | Four Mile Run |
| VAR050997 | Red Top Cab | | Potomac River |
| VA0032000 | US Department of Defense – Pentagon | Minor Industrial Discharge | Roaches Run |
| VA0025143 | Arlington County Water Pollution Control Facility | Major Municipal Discharge | Four Mile Run |
| VAN-A13E | | | |
| 1aHUT000.01 | DEQ ambient monitoring station | | |
| VA0025160 | Alexandria Renew Enterprise WTP | Major Municipal Discharge | Hunting Creek |
| VAG110086 | Virginia Concrete Company, Inc. – Alexandria | Ready-Mix Concrete General Permit | Hooffs Run |
| VAG756000 | Falls Church Liberty | Carwash General Permit | Tripps Run |
| VAN-A13R | | | |
| VA0090107 | Carlyle Development II | Minor Industrial Discharge | Old Cameron Run |
| VAG110009 | Virginia Concrete Company, Inc. – Springfield | Ready-Mix Concrete General Permit | Backlick Run, UT Indian Run, UT |

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| TABLE 2 (continued) | | | |
|------------------------|------------------------------------|----------------------------------|-----------------|
| VAN-A13R | | | |
| VAG830281 | Fannon Petroleum Service | Petroleum General Permits | Hooffs Run |
| VAG830406 | Shell 24501141808 – Skyhill | | Cameron Run, UT |
| VAG830090 | Aalans Service, Inc. | | Tripps Run |
| VAG250107 | GBA Associates – Annex Building | Cooling Water General Permits | Holmes Run |
| VAG250091 | GBA Associates Limited Partnership | | |
| VAG750124 | Enterprise Rent A Car – Alexandria | Carwash General Permit | Holmes Run, UT |

13. **Material Storage:** Not Applicable. There are no chemicals utilized or stored at this facility.

14. **Site Inspection:** Performed by DEQ-NRO Compliance Staff on 22 February 2012 (see **Attachment 4**).

Subsequent inspection conducted at AlexRenew Water Resource Recovery Facility and the City of Alexandria CSS by EPA Region III Enforcement Branch on 26 and 27 June 2012 (DEQ Compliance and Permitting Staff were present). See **Attachment 5** for the inspection report minus exhibits and attachments.

15. **Receiving Stream Water Quality and Water Quality Standards:**

a. Ambient Water Quality Data

Outfall 001:

This waterbody flows into the Potomac River, which, at this specific location, is under the jurisdiction of the District of Columbia. There is no DEQ monitoring data available for this receiving stream; however, the City was required to conduct ambient monitoring of Oronoco Bay during the last permit term. See **Attachment 6** for the monitoring locations and **Attachment 7** for the monitoring data.

A bacteria TMDL for this portion of the Potomac River was completed in July 2004 by the District Department of the Environment. No specific wasteload allocation was assigned to the City of Alexandria Combined Sewer System under this TMDL. Virginia was assigned a wasteload allocation as a whole, to be apportioned amongst all contributors.

Outfall 002:

The closest DEQ monitoring station with ambient data is Station 1aHUT000.01, located in the tidal waters of Hunting Creek at the George Washington Memorial Parkway bridge crossing. The station is located approximately 0.28 rivermiles from Outfall 002.

The City has conducted extensive ambient monitoring of Hunting Creek during the last two permit terms. See **Attachment 8** for the monitoring location and **Attachment 9** for data collected during the last permit term.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL for Hunting Creek has been completed and was approved by EPA on 10 November 2010. Outfall 002 was assigned a wasteload allocation of 6.26E+13 cfu/year for *E. coli* bacteria; representing an 80% reduction of current bacteria loadings from this outfall.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life sub-use; the thirty day mean is acceptable. However, the seven day mean and instantaneous levels have not been assessed.

The wildlife use is considered fully supporting.

Outfalls 003/004:

There are no DEQ monitoring stations located on Hooffs Run. The closest downstream DEQ monitoring station with ambient data is Station 1aHUT000.01, located in the tidal waters of Hunting Creek at the George Washington Memorial Parkway bridge crossing. The station is located approximately 1.29 and 1.22 rivermiles downstream from Outfall 003 and Outfall 004, respectively.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL for Hunting Creek has been completed and was approved by EPA on 10 November 2010. Wasteload allocations of 6.26E+13 and 8.52E+11 cfu/year for *E. coli* bacteria were assigned to Outfall 003 and Outfall 004, respectively. This represents a 99% reduction of current bacteria loadings at each outfall.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life sub-use; the thirty day mean is acceptable. However, the seven day mean and instantaneous levels have not been assessed.

The wildlife use is considered fully supporting.

All Outfalls:

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and PCB fish tissue monitoring. A PCB TMDL for the tidal Potomac River watershed has been completed and was approved by EPA on 31 October 2007. The City of Alexandria CSS was identified as a source of PCBs in the TMDL but no reductions in loadings are required in the TMDL.

There is a downstream impairment noted for aquatic life use for the Chesapeake Bay. There is a completed TMDL and all sources were included. The CSS was included in the watershed implementation plan (WIP) submitted to EPA on 29 November 2011. Essentially, wasteload allocations assigned to this CSS equates to the current Long Term Control Plan consisting of the Nine Minimum Controls.

See **Attachment 10** for the full planning statement.

b. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260-(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. Table 3 provides the receiving stream, section number, river basin and stream classification for each respective outfall.

| TABLE 3 | | | | |
|---------|------------------|----------------|-------------|-----------------------|
| Outfall | Receiving Stream | Section Number | River Basin | Stream Classification |
| 001 | Oronoco Bay | 06 | Potomac | II |
| 002 | Hunting Creek | 06 | Potomac | II |
| 003/004 | Hooffs Run | 07 | Potomac | III |

Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0 – 9.0 standard units as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen criteria concentrations are presented **Attachment 11**.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6.0 – 9.0 standard units (S.U.).

c. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving streams at Outfall 001 and Outfall 002, Oronoco Bay and Hunting Creek, respectively, are located within Section 06 of the Potomac River Basin. This section has been designated with special standards of "b" and "y".

The receiving stream at Outfall 003 and Outfall 004, Hooffs Run, is located within Section 07 of the Potomac River Basin. This section has been designated with a special standard of "b".

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 bridge in King George County. The regulation sets effluent limits for BOD₅, total suspended solids, phosphorus and ammonia to protect the water quality of these high profile waterbodies.

The Potomac Embayment Standards are not applicable to these discharges since combined sewer overflows were explicitly exempted (9VAC25-415-30).

Special Standard "y" is the chronic ammonia criterion for tidal freshwater Potomac River and tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the thirty-day average concentration of total ammonia nitrogen (in mg/L) shall not exceed, more than once every three years on the average the following chronic ammonia criterion:

$$\left(\frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right) \times 1.45 (10^{0.028(25 - \text{MAX})})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state waste load allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion.

The Special Standard "y" is not applicable to these discharges since combined sewer overflows are intermittent by design; only the acute criterion would apply.

d. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on 25 August 2011 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened and endangered species were identified within a 2 mile radius of the outfalls: Brook Floater (mussel); Grizzled Skipper (butterfly); Bald Eagle; and Migrant Loggerhead Shrike (song bird). The monitoring and special conditions proposed in this draft permit protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed monitoring and special conditions will ensure protection of this use.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

This reissuance involves four (4) outfalls discharging into three (3) different receiving streams. The receiving streams have been classified as Tier 1 based on the fact that all are listed as impaired and given the highly developed urban watersheds. The proposed permit monitoring requirements and special conditions have been developed per the CSO Control Policy which will result in attaining and/or maintaining all water quality criteria which apply to the receiving streams, including narrative criteria.

17. Effluent Screening, Wasteload Allocations and Effluent Monitoring Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

a. Effluent Screening

Monitoring data obtained during the last permit term at each outfall has been reviewed and determined to be suitable for evaluation.

Please see **Attachment 12** for a summary of the monitoring data for all outfalls .

The following pollutants require a wasteload allocation analysis : ammonia, copper and zinc.

b. Wasteload Allocations (WLAs)

Discharge events from the City Of Alexandria CSS only occur during wet weather events. The stormwater subsequently increases the volume of water conveyed beyond the POTW's design capacity and the storage capability of the conveyance system. Since the duration of the discharge is not likely to exceed four days during a discharge event, only the acute criteria need to be discussed.

Water Quality Criteria (WQC) for human health and chronic toxicity are based upon long term, continuous exposure and are believed not applicable to this type of intermittent discharge.

Further, it is staff's best professional judgement to establish acute wasteload allocations by multiplying the acute water quality criteria by a factor of 2 unless site specific dilution data is available. The two times factor is derived from acute criteria being defined as one half of the final acute value (FAV) for a specific toxic pollutant. The FAV is determined from exposure of a specific toxicant to a variety of aquatic species and is based on the level of a chemical or mixture of chemicals that does not allow the mortality or other specified response of aquatic organisms. These criteria represent maximum pollutant concentration values, which when exceeded, would cause acute effects on aquatic life in a short time period.

Please see **Attachment 13** for the derived WLA for each outfall. It should be noted that the actual stream and discharge flows do not equate to 1 MGD as presented in the computations . These values are utilized to calculate the wasteload allocations while simulating tidal conditions; thus, obtaining the aforementioned two times factor.

Since Hooffs Run is an urban stream, draining a highly developed area and there is no available ambient data, it was staff's best professional judgement to utilize pH and temperature data from Hunting Creek monitoring results in order to calculate the WLA s for Outfall 003 and Outfall 004. The basis for this rationale is that Hunting Creek is ultimately the receiving stream for these two outfalls and the distance between the stream and the outfalls is less than one (1) mile.

c. Toxic Pollutants

1). Ammonia as N:

Staff evaluated the outfall monitoring data obtained during the last permit term and compared those results with the calculated acute wasteload allocations (WLAs). Staff found that all data points were below the acute WLAs for ammonia. It is staff's best professional judgement that these discharges do not pose a reasonable potential to cause or contribute to a violation of the ammonia criteria at this time. However, the permittee shall continue analyzing ammonia levels at each outfall during this permit term in order to monitor any potential increase in this pollutant and potential impacts on the receiving streams.

See **Attachment 12** for outfall monitoring results that were detected above the laboratory quantification level (QL) and **Attachment 13** for the subsequent WLA calculations.

2). Total Residual Chlorine:

Currently, there is no disinfection at any of the four (4) outfalls ; therefore, a reasonable potential assessment for chlorine is not warranted.

3). Metals/Organics:

Monitoring data for all outfalls necessitated a reasonable potential analysis for copper and zinc since the sampling results were found above the quantification levels .

Data from Outfall 001, Outfall 003 and Outfall 004 indicates that neither metal is currently a pollutant of concern at these discharge points. All data points were below the acute WLA for both metals.

Outfall 002 data indicates that the copper values ascertained during monitoring may be a pollutant of concern; conversely, zinc is not a pollutant of concern at this outfall. Subsequent analysis will be completed by DEQ staff after submission of monitoring data.

See **Attachment 14** for the metal analyses for each outfall.

d. Effluent Monitoring Summary

Effluent monitoring requirements are presented in the following table. Monitoring requirements were established for pH, carbonaceous-biochemical oxygen demand (cBOD₅), total suspended solids (TSS), dissolved oxygen (DO), total kjeldahl nitrogen (TKN), ammonia as N, *E. coli*, nitrate+nitrite, total nitrogen (TN), total phosphorus (TP), chlorides, total recoverable zinc, total recoverable copper, rainfall amount, rainfall duration and duration of discharges.

e. Nine Minimum Controls (NMCs)

This permit requires continued implementation of the nine minimum controls (current approved LTCP), as set forth in the CSO Control Policy:

1). Conduct Proper Operations and Regular Maintenance Programs.

The permittee shall continue to implement the operation and maintenance plan for the combined sewer system (CSS) that includes the elements listed below. The permittee shall update the plan to incorporate any changes to the system and shall operate and maintain the system accordingly.

(a) Designation of a Manager for the CSS.

The permittee shall designate a person to be responsible for the wastewater collection system.

(b) Inspection and Maintenance of CSS.

The permittee shall inspect and maintain all CSO structures, regulators and tide gates to ensure proper working condition, adjusted to minimize CSOs and tidal inflow. The permittee shall inspect each CSO outfall at an appropriate frequency to ensure no dry weather overflows are occurring. The inspection shall include, but is not limited to, entering the regulator structure if accessible, determining the extent of debris and grit buildup and removing any debris that may constrict flow, cause blockage or result in a dry weather overflow. The permittee shall record in a maintenance log book the results of the inspections. For CSO outfalls that are inaccessible, the permittee may perform a visual check of the overflow pipe to determine whether or not the CSO is occurring during dry weather flow conditions.

(c) Provision for Trained Staff.

The permittee shall continue to ensure the availability of trained staff to complete the operation, maintenance, repair and testing functions required to comply with the terms and conditions of this permit.

(d) Allocation of Funds for O&M.

The permittee shall allocate adequate funds specifically for operation and maintenance (O&M) activities. The permittee shall ensure the necessary funds, equipment and personnel have been committed to carry out the O&M plan for the next fiscal year.

2). Maximize Use of the Collection System for Storage.

The permittee shall maximize the in-line storage capacity of the CSS. The permittee shall maintain all dams or diversion structures; minimize discharges from the CSS outfalls; and maintain maintenance records.

3). Control of Non-Domestic Discharges.

The permittee shall continue to implement selected CSO controls to minimize the impact of non-domestic discharges.

4). Maximize Flow to the Publicly Owned Treatment Works (POTW).

The permittee shall convey, to the greatest extent practicable, all wet weather flows to the POTW within the constraints of the CSS and the capacity of the POTW. The POTW is owned, operated and maintained by the City of Alexandria, Virginia Sanitation Authority and is regulated under a separate VPDES permit (VA0025160). The permittee shall maintain records to document these actions.

5). Prohibit Combined Sewer Overflows during Dry Weather.

Dry weather overflows from CSS outfalls are prohibited. Dry weather flow conditions shall mean the flow in a combined sewer that results from sanitary sewage, industrial wastewater and infiltration/inflow; with no contribution from stormwater runoff or stormwater induced infiltration.

All dry weather overflows must be reported to DEQ-NRO and the local health department within 24 hours of acknowledgement. The permittee shall begin corrective action immediately, monitor the dry weather overflow until the overflow has been eliminated and shall record, in the inspection log book, an estimate of the beginning and ending times of the discharge, estimated discharge volume and corrective measures taken.

6). Control Solid and Floatable Materials.

The permittee shall implement measures to control solid and floatable materials in the CSS. Such measures shall include, but not limited to, regular catch basin and street cleaning within the CSS sewershed, cleaning of trunk lines and structures and consideration of entrapment and baffling devices.

7). Develop and Implement Pollution Prevention Program.

The permittee shall continue to implement the pollution prevention (P2) program to reduce the impact of CSOs on receiving waters. The permittee shall maintain records to document the pollution prevention implementation activities. Specific P2 measures include street sweeping and catch basin cleaning, household hazard waste recycling program and a waste oil and antifreeze recycling/referral service program.

8). Public Notification.

The permittee shall continue to implement a public notification plan to inform citizens of when and where CSOs occur. The permittee shall ensure that identification signs at all CSS outfalls are maintained and easily readable by the public.

9). CSO Monitoring.

The permittee shall regularly monitor CSO outfalls to effectively characterize CSO impacts and the efficacy of CSO controls.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

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19. Effluent Monitoring Requirements:

CSS Outfalls 001/002/003/004

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

| PARAMETER | BASIS FOR LIMITS | DISCHARGE LIMITATIONS | | | | MONITORING REQUIREMENTS | |
|-------------------------------|------------------|-----------------------|----------------|---------|-------------|-------------------------|-------------|
| | | Monthly Average | Weekly Average | Minimum | Maximum | Frequency | Sample Type |
| Flow (MGD) | NA | NA | NA | NA | NL | 1/Q | Estimate |
| pH | 3 | NA | NA | NL S.U. | NL S.U. | 1/Q | Grab |
| cBOD ₅ | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Total Suspended Solids (TSS) | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Dissolved Oxygen (DO) | 2 | NA | NA | NL mg/L | NA | 1/Q | Grab |
| Total Kjeldahl Nitrogen (TKN) | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Ammonia, as N | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| <i>E. coli</i> * | 2 | NA | NA | NA | NL n/100 mL | 1/Q | Grab |
| Oil & Grease | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Nitrate+Nitrite, as N | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Total Nitrogen** | 2 | NA | NA | NA | NL mg/L | 1/Q | Calculated |
| Total Phosphorus | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Chlorides | 2 | NA | NA | NA | NL mg/L | 1/Q | Grab |
| Zinc, Total Recoverable | 2 | NA | NA | NA | NL µg/L | 1/Q | Grab |
| Copper, Total Recoverable | 2 | NA | NA | NA | NL µg/L | 1/Q | Grab |
| Rainfall | 2 | NA | NL inches | NA | NA | 1/Q | Measured |
| Rainfall Duration | 2 | NA | NL hours | NA | NA | 1/Q | Recorded |
| Duration of Discharge | 2 | NA | NL hours | NA | NA | 1/Q | Estimate |

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards

MGD = Million gallons per day.

1/Q = Once every calendar quarter.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

*Report as concentration per monitored discharge event.

The CSS shall comply with the bacteria wasteload allocations assigned under the Hunting Creek Bacteria TMDL (See Section 15.a) at Outfalls 002/003/004 as soon as possible (9VAC25-31-250.A.1.).

The schedule of compliance will be governed and enforced via the DEQ approved Long Term Control Plan Update (Section 21.d.).

**Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

Each outfall shall be monitored during the following calendar year:

Year 2014 – Outfall 001; Year 2015 – Outfall 002; Year 2016 – Outfall 003; and Year 2017 – Outfall 004

Beginning in Year 2018, the permittee shall repeat the aforementioned monitoring schedule, or an alternate monitoring plan approved by DEQ, until such time a new permit is reissued.

The quarterly monitoring periods shall be January through March, April through June, July through September and October through December.

20. Other Permit Requirements:

- a. Permit Section Part I.B. contains quantification levels and compliance reporting instructions.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

- b. Permit Section Part I.C. details the requirements for Verification of Modeled Events.

The City of Alexandria has applied modeling software since the late 1980s to evaluate the response of the CSS to wet weather events. Several updates have been completed since early model development. The purpose of the model is to possess the ability to characterize the system in order to predict the number and amount of overflows based on the precipitation amount.

The permittee shall continue to update and calibrate as necessary the model, utilizing monitoring data, in order to ascertain the number of overflows and pollutant loadings into each receiving waters.

- c. Permit Section Part I.D. requires continuing implementation of the current Long Term Control Plan.

The permittee's Long Term Control Plan (LTCP) was approved by DEQ in February 1999. The developed LTCP consists of the nine minimum technology-based requirements of the CSO Control Policy. The permittee shall continue implementing the current approved LTCP until such time the update is approved by DEQ (Section 21.d.).

21. Other Special Conditions:

- a. Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220.D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- b. No New Combined Sewers Requirement. No new combined sewers shall be built outside the existing combined sewer system service areas of the City. This requirement shall not be construed to prevent the connection of new sanitary sewers to combined sewers within the existing combined sewer service area for the purpose of conveying sewage to the POTW. No new connections shall be made to the combined sewers where those connections would cause overflows during dry-weather flow conditions or exacerbate CSO events.
- c. Reopener Clause. This permit may be modified or revoked and reissued, as provided pursuant to 40 CFR 122.62 and 124.5, for the following reasons:
- 1). To include new or revised conditions developed to comply with any State or Federal law or regulation that addresses CSOs that is adopted or promulgated subsequent to the effective date of this permit.
 - 2). To include new or revised conditions if new information, not available at the time of permit reissuance, becomes available that would lead to the attainment of Virginia Water Quality Standards.
 - 3). To include new or revised conditions based on new information resulting from implementation of the long term control plan.
- d. Long Term Control Plan Update (LTCPU). The permittee shall develop a Long Term Control Plan Update (LTCPU) which will set forth an implementation plan to comply with the approved Hunting Creek Bacteria Total Maximum Daily Load (TMDL) as soon as practicable; however, no later than 31 December 2035. The LTCPU will also provide for combined sewer overflow controls to comply with all applicable water quality standards for the receiving waters (*EPA Guidance for LTCP, September 1995*), consistent with the Clean Water Act Section 402(q) and State Water Control Law. The permittee will be required to submit a LTCPU for DEQ review and approval within three (3) years of the permit effective date. A work plan outlining the schedule for developing the LTCPU will be required within nine (9) months of the permit effective date. The updated LTCP will, at a minimum, consist of measurable milestones to achieve the bacteria reductions as set forth in the aforementioned TMDL.

The City proposed a three (3) year timeline for completing the LTCPU. This allows for a value-engineered approach for mitigating the overflows while engaging all concerned parties. It also recognizes that there will be significant development and implementation of CSO control actions and measures during this permit term. Specifically, (1) green infrastructure projects will be installed and evaluated to determine effectiveness and possible incorporation into the LTCPU; (2) a sewer separation project will commence, with the ultimate goal of disconnecting ninety-two (92) sanitary connections from the combined sewer system and rerouting the flows to a separate sanitary sewer system; and (3) outfall improvements will be required with the goal of capturing additional wet weather flow. Ultimately, the permittee must obtain a reduction in bacteria loading either by at least a 5 million gallon annual reduction of stormwater entering the CSS or equivalent *E. coli* load reduction via gray and green engineering projects, during this permit term.

DEQ staff concurred that a three (3) year schedule for preparing the LTCPU is appropriate, considering that the permittee will be evaluating various alternatives to comply with the bacteria TMDL and engaging the public while concurrently completing projects that will reduce the overall amount of overflows that occur during wet weather events during the next five (5) years. The proposed conditions and requirements incorporate a regulatory framework instituting a dual approach to developing and implementing CSO controls which are complimentary to short and long term initiatives. The short term programs will achieve CSO reductions during this permit term while the long term is to ultimately achieve compliance with the Hunting Creek bacteria TMDL, including all applicable water quality standards, with the development of the LTCPU. It should be noted that the programs instituted during this permit term will also aide to inform final decisions to be incorporated into the Long Term Control Plan Update.

As discussed above, the regulatory approach incorporated into the draft permit includes both near term and long term requirements, each with associated goals and outcomes. DEQ supports this path forward as it both achieves results in the short term, while also ultimately ensuring compliance with water quality standards. Once finalized, the LTCPU will be required to be fully implemented in less than twenty (20) years in order to meet the 2035 compliance date. This proposed schedule is based upon the nature of the remaining CSS. It is recognized that the remainder of the combined sewershed occupies a relatively small drainage area compared to other systems across the nation. However, it serves a densely populated, highly developed, historic and complex area that encompasses the Old Town area of Alexandria; further presenting new challenges for the installation of controls and sewer separation. It is estimated that over the implementation period, approximately 10% of Old Town, affecting residents and businesses alike, could experience disruptions at any one time if total separation of the sanitary and storm sewers would occur. Separation projects have and may require rebuilding utilities beyond the planned sewer work. There is an extensive prevalence of underground utilities, past land uses with possible contaminants and plausible economic impacts to businesses and the City to consider while evaluating alternatives to mitigate the overflows. Furthermore, the CSS is only one part of a regional wastewater collection system involving Alexandria Renew Enterprises and a portion of Fairfax County, which will require the City to engage with these entities as viable options are evaluated since any action taken by the City would affect the system as a whole. Finally, it should be noted that the proposed timeline reflects those found in other communities that have legacy combined sewers.

Staff anticipates that sewer separation will be the primary mechanism for achieving compliance with the bacteria TMDL requirements. The LTCPU implementation schedule reflects this understanding. However, it is also recognized that ultimate compliance with water quality standards will likely entail a mutual approach to CSO controls involving technical, engineering solutions as well as integrated gray and green infrastructure. This reflects EPA's integrated approach to stormwater and wastewater permitting and planning in combined sewersheds (**Attachments 15 and 16**). It also emulates the Administrative Order for Compliance on Consent between EPA and the City of Philadelphia Water Department and the City of Philadelphia (http://www.phillywatersheds.org/doc/EPA_Signed_%20AOCC.pdf).

It is staff's expectation that if viable alternatives are available that would allow for a completion date prior to above, the permittee would pursue those options.

- e. Additional Public Notification Requirements. In addition to the requirements in Section 17.e.8., the permittee shall publish all reports on the City's combined sewer web page, notify citizens of CSO conditions semiannually and install universal pictograms at each outfall location.
- f. Public Information Meeting. The permittee shall conduct public informational meetings during the development of the LTCPU and prior to submitting the final for DEQ approval (Section 21.d.). These meetings shall be conducted within 18 and 36 months of the permit effective date, respectively. These meetings shall, at a minimum, explain combined sewer systems, the impacts on surface waters, progress to date on minimizing the impacts and the proposed LTCPU milestones/schedule in order to comply with the Hunting Creek TMDL.

The permittee shall conduct these meetings at such times as to maximize public participation for comments and inquiries.

- g. Funding. The permittee shall outlay a minimum of \$2,500,000 during this permit term for CSO abatement projects. The permittee shall include updates detailing fund expenditures during the previous time period and future, planned expenditures with each annual report.
- h. Stormwater and *E. coli* Loading Management. The permittee shall, at a minimum, implement the following five programs to achieve a reduction of 5 million gallons of stormwater entering the CSS, or the *E. coli* equivalent, annually by the end of this permit term. This reduction represents approximately one-half of the 2011 estimated overflow volume at Outfall 004 or 4% of the estimated annual total for the whole system.

1) Combined Sewer Service Area Reduction Plan (ARP)

The ARP, dated December 2005 (updated May 2013), requires the separation of storm and sanitary sewers associated with most development/redevelopment projects within the CSS sewershed. The permittee has been implementing this policy outside of the permit. The ARP and any future amendments are now incorporated by reference and become enforceable under this permit.

Activities associated with the ARP are dependent upon economic and market forces and are not necessarily controlled by the City; therefore, a formal schedule is not possible. Staff recognizes as redevelopment occurs, separation will be required. The ARP compliments the aforementioned LTCPU, ensuring compliance with water quality standards.

The permittee shall submit reports annually detailing ongoing and proposed redevelopment projects. If a project did not include separation, the permittee shall submit a thorough explanation within the report.

2) Green Initiative

The permittee shall study, implement and promote green infrastructure projects within the CSS sewershed during this permit term. The rationale for this special condition is to reduce the inflow of stormwater during wet weather events. This requirement does not require development/redevelopment projects; rather, the permittee shall undertake an active role in completing projects during this permit term. Projects evaluated shall include, but not limited to: rainfall harvesting, permeable pavements, rain gardens, green roof installation, bioretention cells, urban forestation/reforestation and public education.

3) Green Public Facilities

As an extension of the City's Green Building Policy and to further enhance stormwater management, the permittee shall incorporate green infrastructure into maintenance/enhancement projects at all city facilities (offices, schools, libraries etc) located within the CSS sewershed. Technologies to be considered shall, at a minimum, include those listed under the aforementioned Green Initiative. The permittee will submit proposed projects for each coming fiscal year with the annual reports.

Maintenance/enhancement projects for historic designated facilities/structures are exempt from this Special Condition.

4) Payne and Fayette Sewer Separation

Within 90 days of the permit effective date, the permittee shall submit a plan and schedule for this separation project. This project will ultimately remove ninety-two (92) sanitary sewer connections within the CSS area and reconnecting them directly to the Potomac Yard Trunk Sewer. The permittee shall complete a minimum of sixty (60) reconnections during this permit term.

The permittee shall submit progress updates with the annual reports until completion of this separation project.

5) Outfall Improvements

The permittee shall further evaluate alternatives being considered and shall submit a Preliminary Engineering Report to DEQ once the final alternative is selected. The permittee shall implement its proposed improvements at Outfall 003 and Outfall 004 within 30 months of the permit effective date. The alternatives include weir and structural enhancements to improve captured combined flows, further reduce the likelihood of dry weather overflows and facilitate maintenance.

- i. Green Maintenance. The permittee shall establish a database to manage information on all green infrastructure practices put in place that are owned and/or maintained by the City. The database shall schedule and track maintenance activities to ensure that the infrastructures are maintained for proper performance. The permittee shall submit updates within 12 and 24 months of the permit effective date concerning the development of this system. A final report shall be submitted within 36 months detailing the full database development and implementation.
 - j. Annual Loading Reporting. The permittee shall report the total estimated annual loading of *E. coli* from each outfall for each calendar year. The permittee shall utilize a combination of monitoring data along with modeling results to calculate the total estimated annual bacteria loadings into the receiving streams. The event mean concentrations (EMCs) established in the Hunting Creek Bacteria TMDL shall be utilized to compute the loadings. These EMCs may be re-evaluated if monitoring data supports updating these values. Any revised EMC values shall be documented and submitted to DEQ-NRO staff for review and approval. This reporting requirement shall be included in the annual reports.
 - k. Evaluation of Tidal Intrusion at Outfall 002. The permittee shall monitor and evaluate the tidal intrusion into the collection system at Outfall 002 as noted by the EPA inspection conducted in June 2012. The permittee shall review potential alternatives, if necessary, to minimize or eliminate the intrusion. This report will be due within 12 months of the permit effective date for DEQ review and approval.
 - l. Annual Reports. The permittee shall submit to DEQ-NRO for review and comment annual reports for the previous calendar year. These reports will be due March 31st of every year detailing the previous year's operation and maintenance of system, updates for the above projects and updates regarding the LTCPU status.
 - m. Water Quality Standards. The permittee may not discharge in excess any effluent limitations necessary to meet applicable water quality standards, including those imposed under the State Water Control Law. The conditions in this permit for the discharges from the CSS are necessary to meet the applicable water quality standards.
 - n. TMDL Reopener. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.
22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.
23. **Changes to the Permit from the Previously Issued Permit:**
- a. The following Special Conditions were added with this reissuance:
 - Long Term Control Plan Update (LTCPU)
 - Additional Public Notification Requirements
 - Public Information Meeting
 - Funding
 - Stormwater and *E. coli* Loading Management
 - Green Maintenance
 - Annual Loading Reporting
 - Evaluation of Tidal Intrusion at Outfall 002
 - Annual Reports
 - b. Effluent Monitoring:
 - The monitoring requirements for antimony, cadmium, chromium III, chromium VI, lead, mercury, nickel and selenium were removed. Sampling results from the past two permit terms indicate that these metals are not present in appreciable amounts.
 - c. Other:
 - Reporting requirements for rainfall and rainfall duration were included with this reissuance.
 - Ambient monitoring requirements were removed with this reissuance. The permittee has collected and reported monitoring data for Hunting Creek during the previous two (2) permit terms and concurrent monitoring of Oronoco Bay during the last permit term. This has provided a substantial amount of data that has been utilized in each subsequent reissuance and for the Hunting Creek Bacteria TMDL development.

Fact Sheet Attachments

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City of Alexandria Combined Sewer System
VA0087068
2013 Reissuance

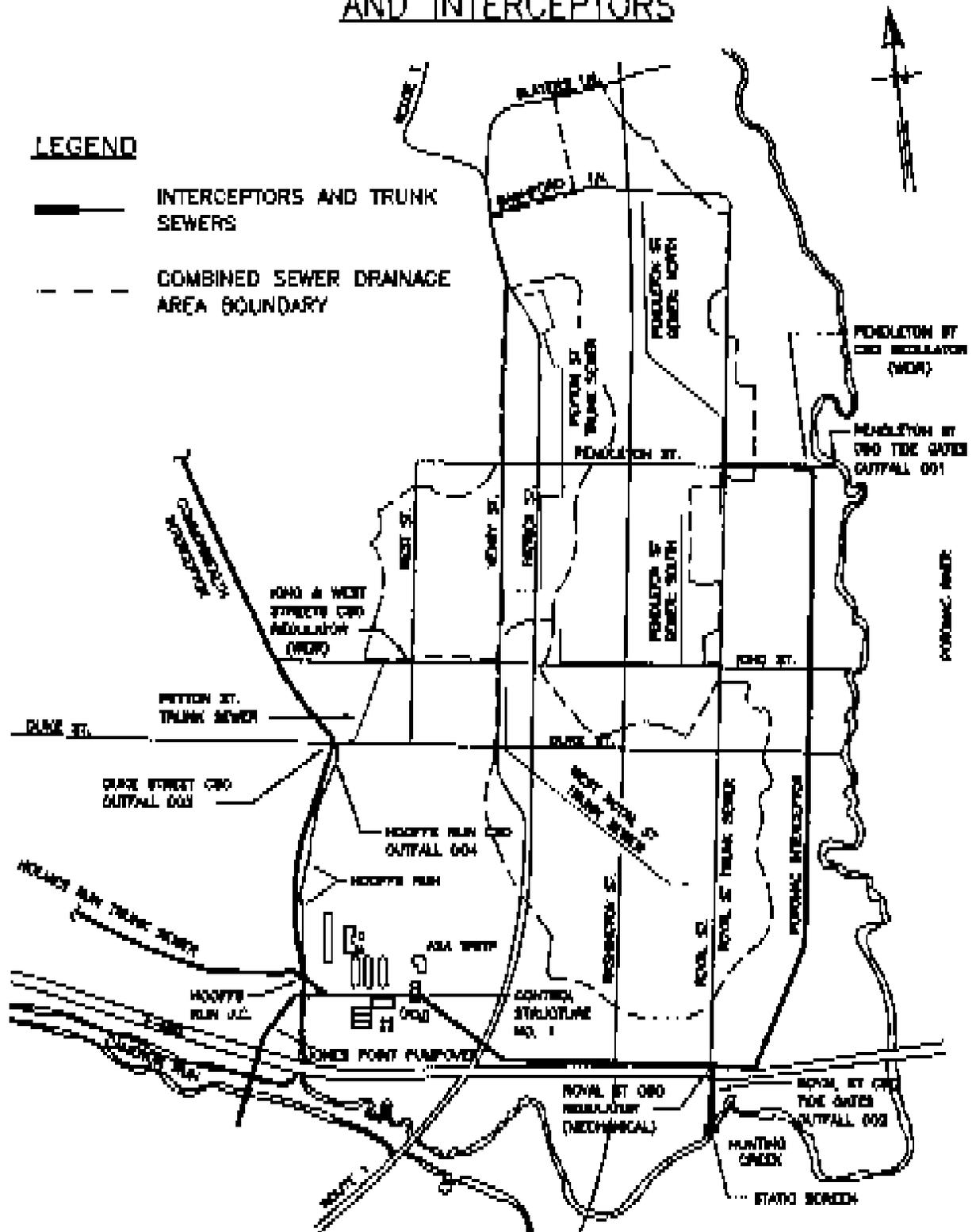
| | |
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| Attachment 2 | Outfall Locations |
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| Attachment 14 | Copper and Zinc Reasonable Potential Analyses |
| Attachment 15 | 20 April 2011 EPA Memorandum |
| Attachment 16 | 27 October 2011 EPA Memorandum |
| Attachment 17 | Public Notice |
| Attachment 18 | EPA Checklist |

FIGURE 1

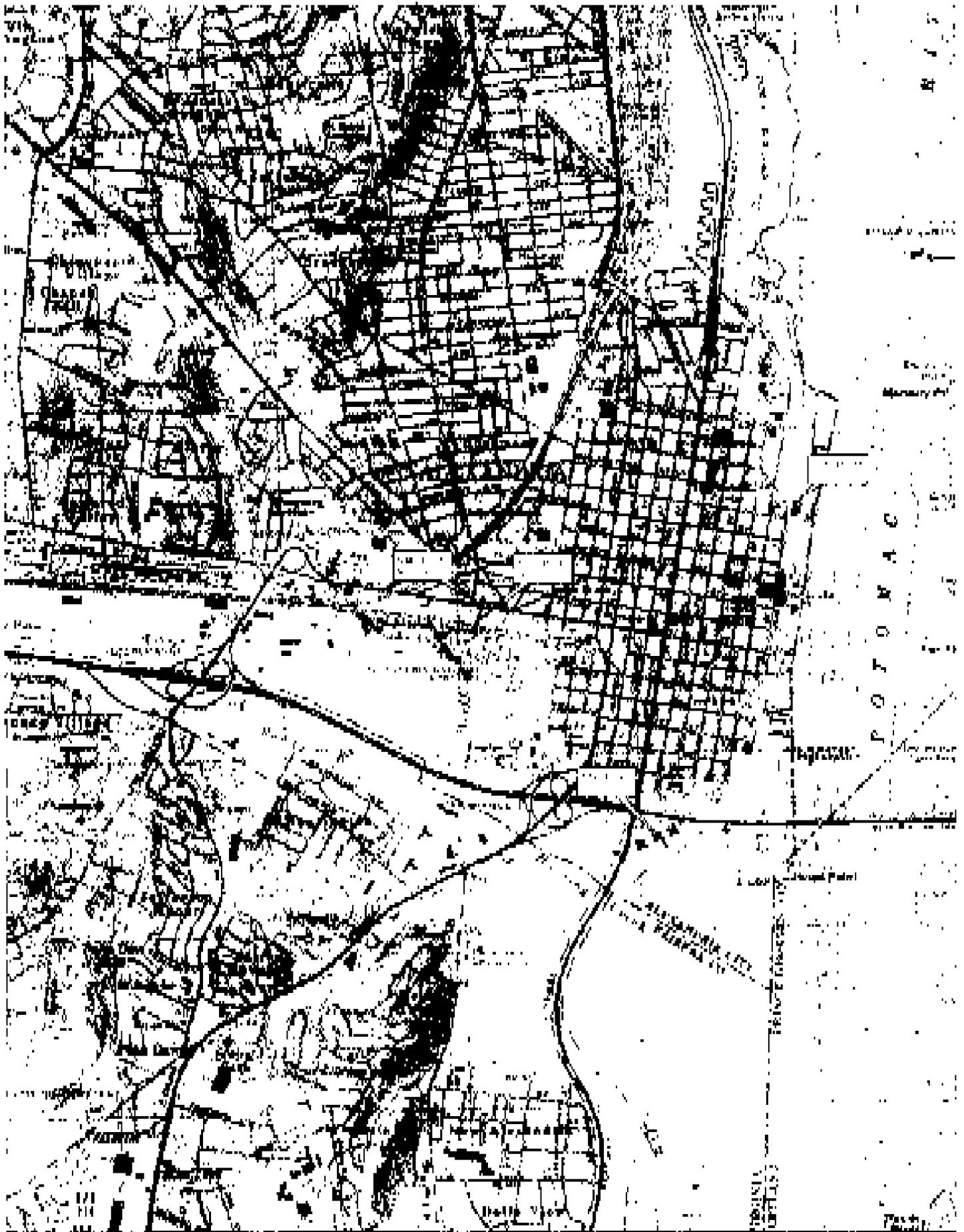
ALEXANDRIA COMBINED TRUNK SEWERS AND INTERCEPTORS

LEGEND

-  INTERCEPTORS AND TRUNK SEWERS
-  COMBINED SEWER DRAINAGE AREA BOUNDARY



FILE: H:\2002-04_05\Reports\Reports\04_12_CSS_Annual_Report\Internal\04_12_01\2011\2011_01_01\2011_01_01_1600_01-4



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Washington, D.C. - Potomac River

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- Mr. Fowler and I were representatives for the City of Alexandria, Greeley and Hansen, and the Alexandria Sanitary Authority at City Hall in the Twin Oaks conference room.

- Mr. Sharma presented a short slide presentation overview of the Combined Sewer System (CSS).

The City of Alexandria continues to require that new developments separate wastewater and stormwater sewer lines as part of developments approved. Dugge of one Potomac Yard trunk sewer installed. New development connects to sanitary trunk sewer rather than adding to the CSS.

New developments planned for waterfront will be connected to the Potomac Interceptor, and will not affect CSS.

Monitoring

In accordance with the 2007 monitoring plan, in 2011 staff collected in-stream samples only, none from permitted outfalls.

- Samples collected by Doster, Greeley, Greeley & Hansen and sent to Martel Lab in Baltimore for analysis. Two samples per year are split and 1/20 samples only sent to another lab to check Martel's results.
- Comes out of the discharge to any.

Outfall PS 001- Pendleton St.

- When sample collected, take boat out to get periphyton to collect.

PS 002- Royal St.

- AS&S maintains regulator.
- Sewer gate is float operated based on water level in sanitary sewer. Some tide water infiltration at low tide. Manholes have been raised and now not clogged by debris as they don't come crashing down. Racks in overflow zone are checked and cleaned regularly, especially before and after storm events. Silt fence was installed above this outfall because runoff from the bridge construction project was sending a lot of sediment into embayment. A lot of the silt fence is slowly needed to be removed or replaced.

PS 003- Duke St.

Not observed, not observable - Confined Space

PS 004- Hook's Run

Regulator is located in marshside in middle of Duke Street could not observe without disempowering. Some debris growth at outfall although appears to be more of result of SW outfall not discharging from Outfall 001.

VA DEQ Focused CFI Tech/Lab Inspection Report

Permit # VA0087068

INSPECTION OVERVIEW AND CONDITION OF THE FACILITY UNITS

9. Minimum Standards: I reviewed the 2010 Annual Report (submitted March 2011) for this inspection.

Control Proper Operations and Regular Maintenance Programs

- a. Designation of a Manager for the CSS: Mr. **Richard J. Baird, P.E.**, Director, Transportation and Environmental Services
- b. Inspection and Maintenance of CSS:
 - i) The permittee shall create monthly inspection and maintenance of all outfalls, tide gates, diversion and retention structures within the CSS. **Y**
 - ii) The permittee shall inspect each CSS outfall twice a month to confirm that no dry weather overflows are occurring. **Y**
 - iii) The permittee shall maintain records of inspections and maintenance for all administrative structures. **Y**
- c. Provision for Trained Staff **Y**
- d. Allocation of Land for DWM **Y**

Maximize Efficiency of the Collection System for Storage

- a. Maintain all dams or diversion structures at or exceeding their current heights. **Y**
- b. Minimize discharges from the CSS outfalls by maximizing the storage capacity. **Y**
- c. Keep maintenance records. **Y**

Control of Nonpoint Source Discharges

- a. Maintain records documenting the evaluation and implementation of the selected CSS controls to minimize CSO inputs resulting from nonpoint source discharges. **Y**
- b. Require Significant Industrial Users (SIU) discharging to the CSS to minimize such discharges during wet weather conditions. The 2010 annual report states that there are no Significant Industrial Users or associated discharges within the CSS.
- c. Enforced control of illicit discharges and/or improper disposal to the CSS via detection and elimination. Illicit discharges are prohibited directly or indirectly.

Maximize Flow to DWM

- a. The City details ongoing efforts to reduce cross-connections between the wastewater sewer and sanitary sewer as described in the annual report to DQY. **Y. No new separation projects completed since the submission of the 2011 annual report, but there are several on-going projects.**

Prevent Combined Sewer Overflows during Dry Weather

- a. All dry weather overflows must be reported to DQY and the local health department within 24 hours of when the permittee becomes aware of a dry weather overflow. **Y**
No dry weather overflows reported in 2010 or 2011.
- b. Upon becoming aware of an overflow, the permittee shall begin corrective action immediately. The permittee shall monitor the dry weather overflow until the overflow has been eliminated. **Y**
- c. The permittee shall record on the inspection log book any instance of the beginning and end (up time) of the discharge, discharge volume and corrective maintenance taken. **Y**



U.S. Environmental Protection Agency
Office of Compliance and Enforcement
1200 Pennsylvania Avenue, NW
Washington, DC 20460

U.S. Environmental Protection Agency, Region 3
1650 Arch Street
Philadelphia, PA 19103

**COMBINED SEWER SYSTEM
COMPLIANCE INSPECTION AND
ASSESSMENT OF NINE MINIMUM CONTROLS**

**CITY OF ALEXANDRIA &
ALEXANDRIA RENEW ENTERPRISES**

INSPECTION REPORT

Inspection Dates:

June 26-27, 2012

Report Date:

December 27, 2012

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EXHIBITS

- Exhibit 1: Summary of Field Activities
Exhibit 2: Photograph Log

ATTACHMENTS

- Attachment A: VPDES Permit No. VA0087068 (City)
Attachment B: VPDES Permit No. VA0025160 (AlexRenew)
Attachment C: Summary of Alexandria Sewer System and Combined Sewer System Permit Activities (PowerPoint Presentation dated June 27, 2012)
Attachment D: Standard Operating Procedures (*High Flow Guidance, Overflow Monitoring at Four-Mile Run Pump Station, and Hoof Run Junction Chamber*)
Attachment E: High Flow Report (dated September 5-10, 2011)
Attachment F: Incident Record and Resolution Report for Four Mile Run Pump Station (incident start date September 8, 2011)
Attachment G: Corrective Action Notice for Four Mile Run Pump Station (dated September 13, 2011)
Attachment H: Work Orders #15555 and #15556
Attachment I: Work Order #17682
Attachment J: Work Order #13788
Attachment K: Amended and Restated Service Agreement (dated October 1, 1998)
Attachment L: Four Mile Run Pumping Station Existing Diagram

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EXECUTIVE SUMMARY

City of Alexandria & Alexandria Renew Enterprises Compliance with Nine Minimum Controls for the Combined Sewer Collection and Conveyance System and Wastewater Treatment Plant

On June 26 and 27, 2012, an inspection team comprised of staff from U.S. Environmental Protection Agency (EPA) Region 3 and Office of Enforcement and Compliance Assurance (OECA), the State of Virginia Department of Environmental Quality (VADEQ), and EPA contractor PG Environmental, LLC (hereafter, collectively, EPA Inspection Team) inspected the City of Alexandria (hereafter, City) and Alexandria Renew Enterprises (hereafter AlexRenew) combined sewer collection and conveyance system and wastewater treatment plant in Alexandria, Virginia.

The City and AlexRenew provide wastewater conveyance and treatment services to a service population of about 350,000 people within the City of Alexandria as well as unincorporated portions of Fairfax County, Virginia prior to the discharge of effluent to specific waters in the Potomac River Basin. AlexRenew is responsible for the operation and maintenance of the AlexRenew Water Resource Recovery Facility (WRRF), pump stations, interceptors, and combined sewer overflow (CSO) regulators and tide gates. AlexRenew is also the responsible party for the management and implementation of the industrial pretreatment program (IPP). The City is responsible for the operation and maintenance of the collection system mains.

The primary purpose of the inspection was to evaluate the City's and AlexRenew's compliance with the Nine Minimum Controls (NMCs) for the combined sewer system (CSS) as described in EPA's 1994 National Combined Sewer Overflow (CSO) Control Policy and the EPA guidance document titled *Guidance for Nine Minimum Controls* (EPA 832-B-95-003), dated May 1995. As required by Part I, Section E of Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0087068 (hereafter, Permit), the City must continue implementation of the NMCs as part of its long-term control plan (LTCP; approved by DEQ in February 1999) and maintain records to demonstrate compliance with the LTCP. A copy of the City Permit is included as Attachment A. AlexRenew's activities are regulated under VPDES Permit No. VA0025160 (administratively extended). A copy of the AlexRenew Permit is included as Attachment B.

The EPA Inspection Team held discussions with City and AlexRenew staff, conducted field verification activities in the collection system and at the WRRF, and obtained pertinent documentation regarding the City's and AlexRenew's implementation of the NMCs. A summary of field activities is included as Exhibit 1.

The EPA Inspection Team noted several observations. These observations are summarized in Table 1.

Table 1. Summary of NMCs and Observations

| NMC | Observations |
|--|---|
| <p>NMC # 1 – Proper operation and regular maintenance programs for the sewer system and CSO outfalls.</p> | <ol style="list-style-type: none"> 1. According to City staff, intrusion is often observed at the Royal Street Regulator for CSO 002 during weekly inspections. Observations such as time, intrusion flow rate, sewer capacity are not being recorded. 2. Based on a comparison of a wet weather event and the AlexRenew standard operating procedures (SOPs), system overflow conditions are not properly documented or inspected in accordance with the current SOPs. AlexRenew’s SOPs state that the Four Mile Run Pump Station assets will overflow if the detention tank level reaches 13 feet. At numerous times on September 8 and 9, 2011, the detention tank overflowed at levels between 12.15 and 12.33 feet. 3. A review of the AlexRenew team’s High Flow Report dated September 5–10, 2011 identified a number of “Event/Occurrence” entries on September 8, 2011 between 1820 and 2100* concerning flooding, sewer backups, and surcharging. |
| <p>NMC # 2 – Maximum use of the collection system for storage.</p> | <ol style="list-style-type: none"> 1. The City and AlexRenew do not have a structured approach to evaluate the weir heights within the CSS to maximize storage of wastewater flows in the system. 2. The City and AlexRenew do not have any records or documentation stating the current status of additional storage available within the system. 3. City representatives stated that Fairfax County is not required to conduct inflow and infiltration (I/I) assessments or to reduce I/I, which reduces the potential for storage in the system. 4. The current position and structure of the Hooff’s Run Junction Chamber makes this asset vulnerable to flooding and minimizes collection system storage capacity. This junction chamber has been documented to be submerged during wet weather events. The available documentation does not state how much stream water was flowing into the sewer system and reducing system storage capacity. 5. Intrusion into the conveyance system was observed at CSO 002 during the inspection. Intrusion reduces storage in the collection system. |
| <p>NMC # 3 – Review and modification of pretreatment requirements to ensure CSO impacts are minimized.</p> | <ol style="list-style-type: none"> 1. The Royal St. Bus garage is up gradient of CSO 001; however, the facility has not been evaluated for or directed to make any changes specifically related to reducing or eliminating process water discharges during or after wet weather events to minimize impacts on CSO. |
| <p>NMC # 4 – Maximization of flow to the publicly owned treatment works for treatment.</p> | <ol style="list-style-type: none"> 1. The Four Mile Run Pump Station had a pumping capacity of 11.4 million gallons per day (mgd); however, its associated force main had a maximum capacity of 9.4 mgd. The capacity of the force main limits maximization of flow to the treatment plant and places higher demand on the stations storage capacity. 2. Intrusion into the conveyance system was observed at CSO 002 during the inspection. Intrusion limits AlexRenew’s ability to maximize the conveyance of flow to the WRRF for treatment. 3. Evaluations of wet weather events document a number of times when unpermitted discharges were made out of the Four Mile Run Pump Station while the pump station was pumping less than its design flow capacity. 4. The City does not maintain records to document that they conveyed all wet weather flows to the Publicly Owned Treatment Works (POTW) within the constraints of the CSS and the capacity of the POTW. |
| <p>NMC # 5 – Elimination of CSOs during dry weather.</p> | <ol style="list-style-type: none"> 1. Dry weather overflows (DWOs) have occurred at CSOs in the conveyance system. The City reported the occurrence of six DWOs in 2009. |

Table 1. Summary of NMCs and Observations

| NMC | Observations |
|--|---|
| NMC # 8 – Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts. | 1. The EPA Inspection Team observed two discharge locations without signage. One of the discharge locations was reported to be a CSO and the other was a constructed sanitary sewer overflow (SSO). |

*NOTE: AlexRenew’s records and documentation use a 24-hour clock notation. To maintain consistency, that same notation is used here.

ADDITIONAL OBSERVATIONS

- 1) An unpermitted CSO structure was observed at the Hooff’s Run Junction Structure, which had the potential to discharge directly into Hooff’s Run. Based on a review of the two sewer lines flowing into this junction structure, one sanitary sewer line and one currently defined as a combined sewer line, it appeared that this structure serves as both a CSO and as a constructed SSO.
- 2) A constructed SSO structure was observed at the Four Mile Run Pump Station. This structure has the potential to discharge into Four Mile Run from the pump station’s service chambers and the wet weather storage tanks.

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I. INTRODUCTION

On June 26 and 27, 2012 a compliance inspection team comprised of staff from Environmental Protection Agency (EPA) Region 3 and Headquarters, Virginia Department of Environmental Quality (DEQ) and EPA contractor, PG Environmental, LLC, inspected the City of Alexandria (City) and Alexandria Renew Enterprises (hereafter AlexRenew, formerly the Alexandria Sanitation Authority) combined sewer collection system and wastewater treatment plant in Alexandria, Virginia. The purpose of the inspection was to evaluate the City's and AlexRenew's compliance with the Nine Minimum Controls (NMCs) for the combined sewer system (CSS) as described in EPA's 1994 National Combined Sewer Overflow (CSO) Control Policy and EPA's guidance document titled *Guidance for Nine Minimum Controls (EPA 832-B-95-003)*, dated May 1995. As required by Part I, Section E of VPDES Permit No. VA0087068 (hereafter, Permit), the City must continue implementation of the NMCs as part of its long-term control plan (LTCP; approved by DEQ in February 1999) and maintain records to demonstrate compliance with the LTCP.

The compliance inspection included the following major activities:

- Discussions with representatives from the City and AlexRenew regarding the operation of the sewer collection system, wastewater treatment plant, permitted CSOs, and the industrial pretreatment program (IPP).
- A physical inspection of AlexRenew Water Resource Recovery Facility (WRRF).
- A physical inspection of four CSOs and their associated control structures (see Exhibit 1 for a summary of field activities).
- Evaluation of AlexRenew's operational procedures for the WRRF and the interceptor/trunk sewer system during wet weather events.
- Verification of the City's and AlexRenew's adherence to the requirements for implementation of the NMCs as outlined in Virginia Pollutant Discharge Elimination System (VPDES) permit (VA0087068) issued January 17, 2007.

Section III of this report summarizes the observations and findings of the inspection. Section IV identifies additional findings noted during the inspection.

The following personnel were involved in the inspection:

City of Alexandria: Lalit Sharma, Division Chief - Environmental Quality
 Yon Lambert, Deputy Director - Operations
 Emily Baker, City Engineer
 Jesse Maines, Senior Environmental Specialist
 Erin Bevis-Carver, Civil Engineer III
 Jeremy Hassan, Water Quality Compliance Specialist

Alexandria Renew Enterprises: Jim Sizemore, Quality Manager
 Adrienne Fancher, Chief Operating Officer
 Rickie Everette, Chief Plant Operator
 Ron Allen, Plant Superintendant
 Jeff Duval, Engineering Manager
 Joel Gregory, Process Manager
 Larry Cable, General Lead

City Consultant: Clyde Wilber, Principal, Greeley and Hansen

Virginia Department of Environmental Quality: Douglas Frasier, VPDES Permit Writer
Sharon Allen, Water Compliance Inspector

EPA Representatives: Steve Maslowski, EPA Region 3
Matthew Colip, EPA Region 3
James Zimny, Headquarters

EPA Contractor: Danny O'Connell, PG Environmental, LLC
Jake Albright, PG Environmental, LLC

II. BACKGROUND AND GENERAL DESCRIPTION OF RESPONSIBILITIES

The City of Alexandria and portions of Fairfax County discharge wastewater to the City's collection system and WRRF. About 5 percent of the City's sewer system is combined and about 95 percent is separate. The flows from Fairfax County account for approximately 55 percent of the total flow in the collection system on a daily basis (Fairfax County is permitted a maximum 60 percent share of the system). The City is approximately 15 square miles with a population of about 142,000. The population of the total service area, including the contributing municipalities, is about 350,000. Average daily flow to the WRRF is approximately 35 million gallons per day (mgd). The design flow of the WRRF is 54 mgd.

The City conducted a PowerPoint presentation (Attachment C) for the EPA Inspection Team on June 27, 2012. The presentation outlined the City's (and AlexRenew's) responsibilities for the collection system.

The City's Transportation and Environmental Services (T&ES) operates and maintains the collection system within the City except for the interceptor sewers which are owned and operated by AlexRenew. The City owns all four CSOs, but the CSOs are maintained by AlexRenew (i.e., tide gates and regulators for CSOs 001, 002, 003, and 004). AlexRenew also owns and operates the pump stations and wet weather storage vaults within the City, as well as a plant flow regulator near the CSO 002 control weir.

The Permit authorizes discharges from the WRRF and four CSO locations within the conveyance system. The CSOs are permitted to discharge to the Oronoco Bay, Hunting Creek Embayment, or Hooff's Run, which are all located in the Potomac River Basin. The Permits also include requirements and other conditions regarding the operation and maintenance of the WRRF, the industrial pretreatment program, and management and control of the CSOs. Table 2 summarizes AlexRenew's interceptor sewers.

| Interceptor Name | Size Range (inches) | Approx. Length (miles) |
|-------------------------|----------------------------|-------------------------------|
| Holmes Run | 30-72 | 6.4 |
| Commonwealth | 27-72 | 3.2 |
| Potomac | 36-42 | 2.4 |
| Potomac Yard | 24-30 | 1.6 |

III. ASSESSMENT OF NINE MINIMUM CONTROLS IMPLEMENTATION

A. NMC #1 – Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs

Section E.1 of the Permit requires the permittee to “Conduct Proper Operations and Regular Maintenance Programs.” Section E.1 states:

The permittee shall continue to implement the operation and maintenance plan for the Combined Sewer System (CSS) that includes the elements listed below. The permittee shall update the plan to incorporate any changes to the system and shall operate and maintain the system accordingly. The permittee shall maintain records to document the implementation of the plan.

Section E.1 of the Permit further requires:

- a. *Designation of a Manager for the CSS. The permittee shall designate a person to be responsible for the wastewater collection system and serve as the contact person regarding the CSS.*
- b. *Inspection and Maintenance of CSS.*
 - i. *The permittee shall ensure monthly inspection and maintenance of all outfalls, tide gates, diversion and regulator structures within the CSS.*
 - ii. *The permittee shall inspect each CSS outfall twice a month to confirm that no dry weather overflows are occurring.*
 - iii. *The permittee shall maintain records of inspections and maintenance for all aforementioned structures.*
- c. *Provision for Trained Staff. The permittee shall continue to ensure the availability of trained staff to complete the operation, maintenance, repair and testing functions required to comply with the terms and conditions of this permit. Each staff member shall receive appropriate training and all training shall be documented and updated annually.*
- d. *Allocation of funds for O&M. The permittee shall allocate adequate funds specifically for operation and maintenance activities. The permittee shall submit a certification of assurance with the annual report that the necessary funds, equipment and personnel have been committed to carry out the O&M plan for the next fiscal year.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The first minimum control, proper operation and regular maintenance of the CSS and CSO outfalls, should consist of a program that clearly establishes operation, maintenance, and inspection procedures to ensure that a CSS and treatment facility will function in a way to maximize treatment of combined sewage and still comply with NPDES permit limitations.”

According to EPA’s guidance document, a Proper Operation and Maintenance (O&M) Program generally should include the following:

- The organization and people responsible for various aspects of the O&M program.
- Resources (i.e., people and dollars) allocated to O&M activities.
- Planning and budgeting procedures for O&M of the CSS and treatment facilities.
- List of the facilities (e.g., tide gates, overflow weirs) critical to the performance of the CSS.

- Written procedures and schedules for routine, periodic maintenance of major items of equipment and CSO diversion facilities, as well as written procedures to ensure that regular maintenance is performed.
- A process for periodic inspections of the facilities listed previously.
- Written procedures, including procurement procedures if applicable, for responding to emergency situations.
- Policies and procedures for training O&M personnel.
- A process for the periodic review and revision of the O&M program.

The EPA Inspection Team made the following observations:

During the inspection of the Royal Street Regulator for CSO 002, the EPA Inspection Team observed intrusion from the Hunting Creek Embayment into the collection system. When questioned about whether this is common, City representatives responded that intrusion is often observed during weekly inspections of the regulator. However, these observations and field variables, including times, intrusion flow rate, sewer capacity, height of freeboard on weir wall, are not being documented or recorded. Refer to Exhibits 1 and 2 for a description and photograph (refer to Photograph 4) of the asset.

- 1) The AlexRenew team has developed a number of operational standard operating procedures (SOPs) to support normal and regularly experienced operational conditions. Attachment D contains copies of the SOPs reviewed for this component of the inspection process. The inspection team reviewed three SOPs, *High Flow Guidance*, *Overflow Monitoring at Four-Mile Run Pump Station*, and *Hoof Run Junction Chamber*.

The SOPs contained requirements to capture the critical information needed to describe the operational procedure. The City did not consistently document operational variables such as inspection times, flows, or document comments that described the operational status of the sewer structures being observed.

Specific examples were observed in the entries made on September 8, 2011 at 2010 for the Four Mile Run Pump Station (FMR) and the collection system. (NOTE: AlexRenew's records and documentation use a 24-hour clock notation. To maintain consistency, that same notation is used here.) These entries contain different plant flow rates for the same time. Another example is the entry made for September 9, 2011 at 2300, which, based on flow comparisons, appears to have the wrong date.

In addition, the operations team does not inspect or document the wet well and/or overflow weir heights during periods of peak asset demand and stress (e.g. September 7 at 1600 and 2300; September 8 at 0300, 0923, and 2010) during the September 5 – 10, 2011 wet weather event. The SOP required monitoring every 20 minutes. In addition, a number of the log entries for the FMR pump station did not contain data sets for the station pump or flow rates (e.g. September 7 at 1600 and 2300; September 8 at 0300). Without regular observations of the overflow weirs and the station's pump rates, it was not possible to know if the station was discharging or if the City was maximizing flows to the WRRF or storage within the collection system.

AlexRenew generated an internal *Incident Record and Resolution Report* (Attachment F) that stated, “the Four Mile Run pump station overflowed on three separate occasions from 7:00 am on September 8 to 4:40 am on September 9, 2011.” FMR data entries made on September 8, 2011 include:

- 0300: “detention tank level 9.16.”
- 0705: “detention tank discharge flow was 14 inches over weir wall detention tank level 13.15.”

There was a four-hour time lapse when no inspections or observations were conducted at the FMR overflow weirs leaving the actual overflow start time unknown.

The AlexRenew team conducted its own evaluation of this event. This activity was documented in the AlexRenew Corrective Action Notice (CAN) (see Attachment G). The CAN stated that SOPs were not followed. The AlexRenew team conducted a root-cause analysis of the September wet weather event as a component of the CAN process.

Two observations were made: the AlexRenew team 1) did not monitor overflows; and 2) did not document the operational observations of variables made during the inspection or monitoring activities. The CAN identified both short- and long-term actions to ensure future compliance. The long-term actions included the revision and update of SOPs, training on the updated SOPs, and the development of log sheets to record overflows.

The CAN did not review or discuss issues associated with the overflow heights observed during the event or the heights stated as “approximate” in the SOP. The approximate height stated for the detention tank to start overflowing is 13 feet. There are multiple data entries during the event that document the detention tank level at 12.15 feet, yet there is flow over the weir from the detention tank. Based on information contained in the event report, the EPA Inspection Team estimated that there are operational conditions and variables that create overflows of the detention tank at levels well below 13 feet.

- 2) A review of the AlexRenew team’s *High Flow Report* dated September 5–10, 2011 identified a number of “Event/Occurrence” entries on September 8, 2011 between 1820 and 2100 concerning flooding, sewer backups, and surcharging. The inspection team found no associated work orders (WOs) for these “Event/Occurrence” entries in the data provided. Two WOs for September 9, 2011 (#15555 and #15556, Attachment H) were located.

The City responded to the WOs 3 and 11 days, respectively, after the residents’ calls concerning sewer backups. Both WOs documented that the sewer main was flowing at the time of the service inspection. WO #15556 stated that “signs of a surcharge in the manhole at the corner of Donelson Street and the service road” were found.

In some instances, the City responded to sewer backups 3 and 11 days after being informed of an unpermitted discharge. Based on the information available, the EPA Inspection Team noted that sewage backups into residences were occurring within the City and not being reported to the state or the EPA.

A search of the WOs received by the inspection team did find a WO (#17682, Attachment I) for one of the addresses documented in the *High Flow Report*, 104 East Monroe Avenue. This WO was for another backup that occurred on December 9, 2011.

It took the City seven days to respond to the WO. The “City did install a backflow preventer in the manhole at the rear of the property” to stop the surcharge from the sewer main. There was no record of any illegal sewer discharges reported for this address.

On July 14, 2011, a WO (#13788, Attachment J) was created for “raw sewage” backup “through entire court yard area/parking lot.” The WO states that the line was not inspected or serviced until March 27, 2012.

B. NMC #2 – Maximum use of the Collection System for Storage

Section E.2 of the Permit requires the permittee to “Maximize Use of the Collection System for Storage.” Section E.2 of the Permit states:

The permittee shall maximize the in-line storage capacity of the CSS. The permittee shall maintain records to document implementation.

- a. Maintain all dams or diversion structures at or exceeding their current heights (as of effective date of permit).*
- b. Minimize discharges from the CSS outfalls by maximizing the storage capacity provided by the dams and diversion structures; allowing for later treatment at the POTW.*
- c. Keep maintenance records for the dams or diversion structures and activities dealing with sewer blockages.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“As the second minimum control, maximum use of the collection system for storage means making relatively simple modifications to the CSS to enable the system itself to store wet weather flows until downstream sewers and treatment facilities can handle them.”

EPA’s guidance document provides several examples of simple control measures that can be implemented to increase the storage capacity of a CSS. These measures include the following:

- Inspecting collection system to identify deficiencies which restrict storage capacity of the system (e.g., sediment build up in sewer lines, undersized pipe).
- Maintaining and repairing tide gates to eliminate leaking.
- Adjusting regulator settings to maximize weir heights for increased storage within the sewer system.
- Retarding inflows by using special gratings or hydrobrakes in catch basins to restrict rate at which surface runoff is permitted into the system.
- Using localized upstream detention for short-term storage (e.g., upstream parking area usage for temporary water storage).
- Upgrading or adjusting pump operations at interceptor lift stations to increase pump rates if downstream sections have available hydraulic capacity.
- Removing obstructions to flows (e.g., sediment accumulation or other debris).

EPA Inspection Team noted the following observations:

- 1) The City and AlexRenew did not have a structured approach to evaluate the weir heights within the CSS to maximize storage of wastewater flows in the system. City representatives indicated that CSOs 003 and 004 may have been evaluated within the past 20 years.
- 2) The City and AlexRenew did not have any records or documentation stating the current status of additional storage available within the system.
- 3) City representatives stated that Fairfax County was not required to conduct inflow and infiltration (I/I) assessments or to reduce I/I. Fairfax County owns a majority share in the WRRF capacity. Below is a description of the joint use agreement between the City and Fairfax County.

The *Amended and Restated Service Agreement* (Agreement; Attachment K) became effective on October 1, 1998. The Agreement is a joint use service arrangement that gives Fairfax County a 60 percent (maximum) share in the capacity of the WRRF as well as share in two other joint use facilities, the Commonwealth Interceptor and the Holmes Run Trunk Sewer. Conversely, the City has a 40 percent share; it can use its entire share or lease to other municipalities if desired. City representatives stated that there are flow sensors on the interceptors where the Fairfax County system discharges into the City's system. Monitoring data is used for billing purposes in addition to capacity control.

Table 3 below describes the joint use facilities and the share owned by Fairfax County as obtained from the Agreement.

| Table 3. Fairfax County Share of Joint Use Facilities | |
|---|---|
| Facility | Fairfax County Share (maximum possible) |
| AlexRenew WRRF | 32.4 mgd maximum average monthly flow (60 percent of Permit authorized design flow (54.0 mgd)) 64.8 mgd maximum daily quantity |
| Commonwealth Interceptor | |
| <i>Hooff's Run Junction Chamber to the connection for the County's Jones Point Pumpover</i> | 57.7 mgd |
| <i>Jones Point Pumpover connection to the WRRF</i> | 64.8 mgd |
| Holmes Run Trunk Sewer | |
| <i>From the City-County boundary to the original Cameron Station connection</i> | 18.9 mgd |
| <i>From the original Cameron Station connection to MH 30 on the 1976 WAMATA relocation</i> | 42.7 mgd |
| <i>From MH 30 on the 1976 WAMATA relocation to MH 17 on the 1976 WAMATA relocation</i> | 67.7 mgd |

| | |
|---|----------|
| <i>From MH 17 on the 1976 WAMATA relocation to Hooff's Run Junction Chamber</i> | 57.7 mgd |
|---|----------|

- 4) Hooff's Run Junction Chamber was documented as being submerged during wet weather events.

According to AlexRenew's *High Flow Report* for September 5 – 10, 2011 (Attachment E), the Hooff's Run Junction Chamber was reported as being submerged on September 8, 2011 at 2000. The top of the structure was reported to be visible again at 2300 on September 8, 2011, and the middle of the structure was reported visible at 0100 on September 9, 2011. The available documentation does not state how much stream water was flowing into the sewer system and reducing system storage capacity.

- 5) Intrusion into the conveyance system was observed at CSO 002 during the inspection. Refer to Section III.A.1 of this report for additional details on the intrusion at this location.

C. NMC #3 – Review and Modification of Pretreatment Requirements to Ensure CSO Impacts are Minimized

Section E.3 of the Permit requires the "Control of Non-domestic Discharges." Section E.3 of the Permit states:

The permittee shall continue to implement selected CSO controls to minimize the impact of non-domestic discharges. The permittee shall coordinate with the Alexandria Sanitation Authority in the control of industrial users and whether additional modifications to its pretreatment program are necessary.

Section E.3 continues by stating that control shall contain the following:

Control of non-domestic users shall also include the following:

- a. Maintain records documenting this evaluation and implementation of the selected CSO controls to minimize CSO impacts resulting from non-domestic discharges.*
- b. Requiring Significant Industrial Users (SIU) discharging to the CSS to minimize batch discharges during wet weather conditions.*
- c. Continued control of illicit dischargers and/or improper disposal to the CSS via detection and elimination.*

As stated in EPA's *Guidance for Nine Minimum Controls*:

"Under the third minimum control, the municipality should determine whether nondomestic sources are contributing to CSO impacts and, if so, investigate ways to control them. The objective of this control is to minimize the impacts of discharges into CSSs from nondomestic sources (i.e., industrial and commercial sources, such as restaurants and gas stations) during wet weather events, and to minimize CSO occurrences by modifying inspection, reporting, and oversight procedures within the approved pretreatment program."

EPA's guidance document provides the following steps for municipalities to implement the third NMC:

- Inventory nondomestic discharges to the CSS, including the identification of discharge locations on a map of the system.
- Assess the impact of nondomestic discharges on the CSOs and receiving waters.
- Assess the value and feasibility of modifications to the existing pretreatment program's approach of regulating nondomestic users to reduce the impact on CSO discharges.

EPA Inspection Team noted the following observations:

- 1) The Royal Street Bus garage is upgradient of CSO 001 and the Pendleton Street Regulator. The facility has not been directed to make any changes related to reducing or eliminating process water discharges during or after wet weather events. Based on the information available during the inspection it was unclear if the facility was located within the combined or the recently separated sewer area.

AlexRenew is responsible for the IPP; however, the City owns and operates the collection system and manages the stormwater program. If this facility is in a combined sewer area the IPP team should evaluate possible operational changes (e.g. storage of concentrated wastewaters) during wet weather events to minimize impact on the CSO system.

D. NMC #4 – Maximization of Flow to the Publicly Owned Treatment Works for Treatment

Section E.4 of the Permit requires the permittee to “Maximize Flow to POTW.” Section E.4 of the Permit states:

The permittee shall convey, to the greatest extent practicable, all wet weather flows to the POTW within the constraints of the CSS and the capacity of the POTW. The POTW is owned, operated and maintained by Alexandria Sanitation Authority and is regulated under a separate VPDES permit (VAOO25160). The permittee shall maintain records to document these actions.

As stated in EPA's *Guidance for Nine Minimum Controls*:

“The fourth minimum control, maximizing flow to the POTW, entails simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant. The objective of this minimum control is to reduce the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters.”

EPA's guidance document provides the following measures for municipalities to implement the fourth NMC:

- Determine the capacity of the major interceptor(s) and pump station(s) and ensure that full capacity is available.
- Analyze records comparing flows processed at the WRRF during wet and dry weather to determine relationships between performance and flow.
- Compare current flows with the design capacity of the overall facility, as well as the capacity of individual process units to identify available excess capacity.
- Determine the ability of the facility to operate acceptably at incremental increases in wet weather flows and estimate impacts on compliance.
- Determine whether any inoperative or unused treatment facilities on the POTW site can be used to store or treat wet weather flows.

- Develop cost estimates for any planned physical modifications and any additional O&M costs at the treatment plant due to the increased wet weather flow.

EPA Inspection Team noted the following observations:

- 1) The Four Mile Run Pump Station had a pumping capacity of 11.4 mgd; however, its associated force main had a maximum capacity of 9.4 mgd, limiting the storage able to be provided by the collection system. The main, a 24-inch force main, conveys flow to the Commonwealth Interceptor.

City and AlexRenew representatives stated that the Four Mile Run Pump Station is equipped with two service chambers adding approximately 1.05 million gallons of capacity to the pumping station. Upon a field inspection of these service chambers, the EPA Inspection Team found that these chambers had the potential to overflow and cause an SSO discharge into Four Mile Run during wet weather events. A more detailed explanation of these chambers can be found in Section IV.B of this report.

- 2) Intrusion into the conveyance system was observed at CSO 002 during the inspection.

According to City representatives who perform routine inspections of the CSO 002 weir, intrusion is typically observed at the location, but it is not recorded in the observation log. The EPA Inspection Team recommended that the City and AlexRenew evaluate the impacts of the intrusion on the CSS and WRRF during dry and peak flows. Refer to Section III.A.1 of this report for additional details on the intrusion at this location.

- 3) The EPA Inspection Team evaluated AlexRenew's *High Flow Report* for September 5-10, 2011 (Attachment E). The report documented a number of times when unpermitted discharges were occurring from the Four Mile Run Pump Station while the pump station was pumping less than its designed flow capacity.

At 0705 on September 8, 2011, AlexRenew reported that the Four Mile Run detention tank was discharging 14 inches over the weir wall. The reported pump station flow at the time was 7.21 mgd. As discussed previously, the pump station's capacity is 11.4 mgd and the 24-inch force main's capacity is 9.4 mgd. The *High Flow Report* for this event indicates that the discharge lasted until approximately 1015. The Four Mile Run detention tank was also reported to be discharging at "2430" on September 9, 2011. (The correct time is believed to have been 12:30am on September 9, 2011.) The pump station had a flow of 6.94 mgd at this time. The detention tank was reported to still be discharging at 4:30am on September 9, 2011 (flow reported as 6.33 mgd). The Four Mile Run Pump Station and service chambers were reported to be unclogged at 8:30am on September 9, 2011. No further discharges were reported at this location during the September 5-10, 2011 wet weather event.

A detailed flow schematic of the Four Mile Run Pump Station, service chambers, and detention tank can be found in Attachment L.

- 4) The City does not maintain records to document that they conveyed all wet weather flows to the Public Owned Treatment Works (POTW) within the constraints of the CSS and the capacity of the POTW.

E. NMC #5 – Elimination of CSOs during Dry Weather

Section E.5 of the Permit requires the permittee to "Prohibit Combined Sewer Overflows during Dry Weather." Section E.5 of the Permit states:

Dry weather overflows from CSS outfalls are prohibited. Dry weather flow conditions shall mean the flow in a combined sewer that results from sanitary sewage, industrial wastewater and infiltration/inflow; with no contribution from storm water runoff or storm water induced infiltration. Wet weather flow condition shall mean the flow in a combined sewer including storm water runoff and/or storm water induced infiltration. Documentation required during dry weather CSO events are as follows:

- a. All dry weather overflows must be reported to DEQ and the local health department within 24 hours of when the permittee becomes aware of a dry weather overflow.*
- b. Upon becoming aware of an overflow, the permittee shall begin corrective action immediately. The permittee shall monitor the dry weather overflow until the overflow has been eliminated.*
- c. The permittee shall record, in the inspection log book, an estimate of the beginning and ending times of the discharge, discharge volume and corrective measures taken.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The fifth minimum control, elimination of CSOs during dry weather, includes any measures taken to ensure that the CSS does not overflow during dry weather flow conditions. Since the NPDES program prohibits dry weather overflows (DWOs), the requirement for DWO elimination is enforceable independent of any programs for the control of CSOs.”

EPA’s guidance document states that “a visual inspection program of sufficient scope and frequency is needed to provide reasonable assurance that any occurrence will be detected.” The document also provides several examples of actions to alleviate DWOs caused by operational issues. Examples of these corrective actions include adjustment of regulator settings, maintenance and repair of regulators, maintenance of tide gates, interceptor cleaning, and sewer repair.

EPA Inspection Team noted the following observations:

- 1) According to the City’s PowerPoint presentation (Attachment C), dry weather overflows (DWOs) occurred at CSOs in the conveyance system. The City reported the occurrence of six DWOs in 2009. Table 4 below describes each event as reported by the City.

| Table 4. Summary of Reported DWOs | | | |
|--|-----------------|---|---|
| Date | Location | Cause | Follow-up Action |
| 5/10/09 | CSO 003 | Captured metering data | Increased inspection for a period. None observed. |
| 7/17/09 | CSO 003 | Captured metering data | Increased inspection for a period. None observed. |
| 8/19/09 | CSO 004 | During pump around for interceptor rehabilitation | Contractor instructed to lower level in manhole; discharge lasted about 15 minutes. |
| 8/20/09 | CSO 004 | During pump around for interceptor rehabilitation | Pump around procedures modified and discharge stopped. Lasted about 20 minutes. |
| 8/20/09 | CSO 004 | Siphon clogged | Crew cleaned the siphon and discharge lasted less than 2 hours. |

| Date | Location | Cause | Follow-up Action |
|-------------|-----------------|---|--|
| 8/28/09 | CSO 004 | During pump around for interceptor rehabilitation | Contractor directed to lower elevation in the wet well and discharge reduced, yet not stopped due to intense, sporadic rainfall. Not able to estimate duration of DWO. |

F. NMC #6 – Control of Solid and Floatable Materials in CSOs

Section E.6 of the Permit requires “Control Solid and Floatable Materials.” Section E.6 of the permit states:

The permittee shall implement measures to control solid and floatable materials in the CSS. Such measures shall include:

- a. Regular catch basin and street cleaning within the CSS sewershed.*
- b. Cleaning of the trunk lines and structures to prevent accumulation of solids.*
- c. Consideration of entrapment and baffling devices to reduce discharges of solids and floatable materials.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The sixth minimum control is intended to reduce, if not eliminate, visible floatables and solids using relatively simple measures. Simple devices including baffles, screens, and racks can be used to remove coarse solids and floatables from combined sewage, and devices such as booms and skimmer vessels can help remove floatables from the surface of the receiving water body.”

EPA’s guidance document provides schematics and a more thorough description of possible modifications and devices that can be used to control and remove solids and floatables from combined sewage.

G. NMC #7 – Pollution Prevention

Section E.7 of the Permit requires the permittee to “Develop and Implement Pollution Prevention Program.” Section E.7 of the Permit states:

The permittee shall continue to implement the pollution prevention (P2) program to reduce the impact of CSOs on receiving waters. The permittee shall maintain records to document the pollution prevention implementation activities. Specific P2 measures include:

- a. Street sweeping and catch basin cleaning at an appropriate frequency to prevent large accumulations of pollutants and debris.*
- b. A public education program that informs the public of the City’s household hazard waste recycling program.*
- c. A waste oil and antifreeze recycling/referral service program.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The seventh minimum control, pollution prevention, is intended to keep contaminants from entering the CSS and thus receiving waters via CSOs[...]The objective of this minimum control is to reduce to the greatest extent possible the amount of contaminants that enter the CSS.”

EPA’s guidance document provides information regarding measures such as street cleaning, public education, solid waste collection, product ban/substitution, hazardous waste collection, and recycling as actions which can be taken to prevent contaminants from entering the CSS.

H. NMC #8 – Public Notification to Ensure that the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

Section E.8 of the Permit requires the permittee to provide “Public Notification.” Section E.8 of the Permit states:

The permittee shall continue to implement a public notification plan to inform citizens of when and where CSOs occur.

Section E.8 of the Permit further states that the process must include:

- a. A notice to alert persons using all affected receiving water bodies. The permittee shall ensure that identification signs at all CSS outfalls are maintained and easily readable by the public.*
- b. The permittee shall maintain records documenting public notification.*

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The intent of the eighth minimum control, public notification, is to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities (e.g., swimming and shellfish harvesting) curtailed as a result of CSOs.”

EPA’s guidance document provides the following measures for notifying the public about CSO events:

- Posting at affected use areas.
- Posting at selected public places.
- Posting at CSO outfalls.
- Notices in newspapers or on radio and TV news programs.
- Letter notification to affected residents.
- Telephone hot line for interested citizen calls.

EPA Inspection Team noted the following observations:

- 1) The EPA Inspection Team observed two unpermitted overflow locations that also did not have signage. The unpermitted overflow locations were observed at Hooff’s Run and Four Mile Run. City representatives stated that these locations did not have signage. Observations made by the EPA Inspection Team during visits to both locations on June 26, 2012 confirmed that signage informing the public of a discharge location was not present.

I. NMC #9 – Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls

Section E.9 of the Permit requires the permittee to conduct a “Long-Term Control Plan Review.” Section E.9 of the Permit states:

The permittee shall review the Long-Term Control Plan (LTCP) annually for compliance with water quality standards, minimization of overflows and impacts from overflows. Any changes shall be submitted to the Department of Environmental Quality Northern Regional Office.

As stated in EPA’s *Guidance for Nine Minimum Controls*:

“The ninth minimum control involves visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs. This minimum control is an initial characterization of the CSS to collect and document information on overflow occurrences and known water quality problems and incidents, such as beach or shellfish bed closures, that reflect use impairments caused by CSOs.”

EPA’s guidance document states that a municipality should characterize its system (obtain maps of CSS, locations of CSO outfalls, etc.), record the occurrence of overflows (via visual inspection, inspection aids, or automatic measurement), and record and summarize information on water quality or usage of the CSO receiving waters.

IV. ADDITIONAL FINDINGS

A. Hooff’s Run Junction Chamber

The EPA Inspection Team conducted a site visit at the Hooff’s Run Junction Chamber on June 26, 2012. During an inspection of the structure, it was found that the chamber had the potential to discharge during a high flow event; however, the structure is not a permitted CSO under VPDES Permit No. VA0087068.

The structure is designed to receive flow from the Commonwealth Interceptor and the Holmes Run Trunk Sewer and direct it to the WRRF. The Commonwealth Interceptor is reported to be a combined sewer asset, while the Holmes Run Trunk Sewer is a sanitary sewer asset. The EPA Inspection Team found that the structure had engineered overflow gates near the top of the chamber which would allow an overflow directly into Hooff’s Run during a significant high flow event. Photographs 2 and 3 illustrate the position of the overflow gates in the Hooff’s Run Junction Chamber. City representatives stated that they were aware of the structure’s potential to discharge into Hooff’s Run. This junction chamber functions as both an unpermitted CSO and a constructed SSO. Refer to Exhibits 1 and 2 of this report for a description of and photographs from the site visit.

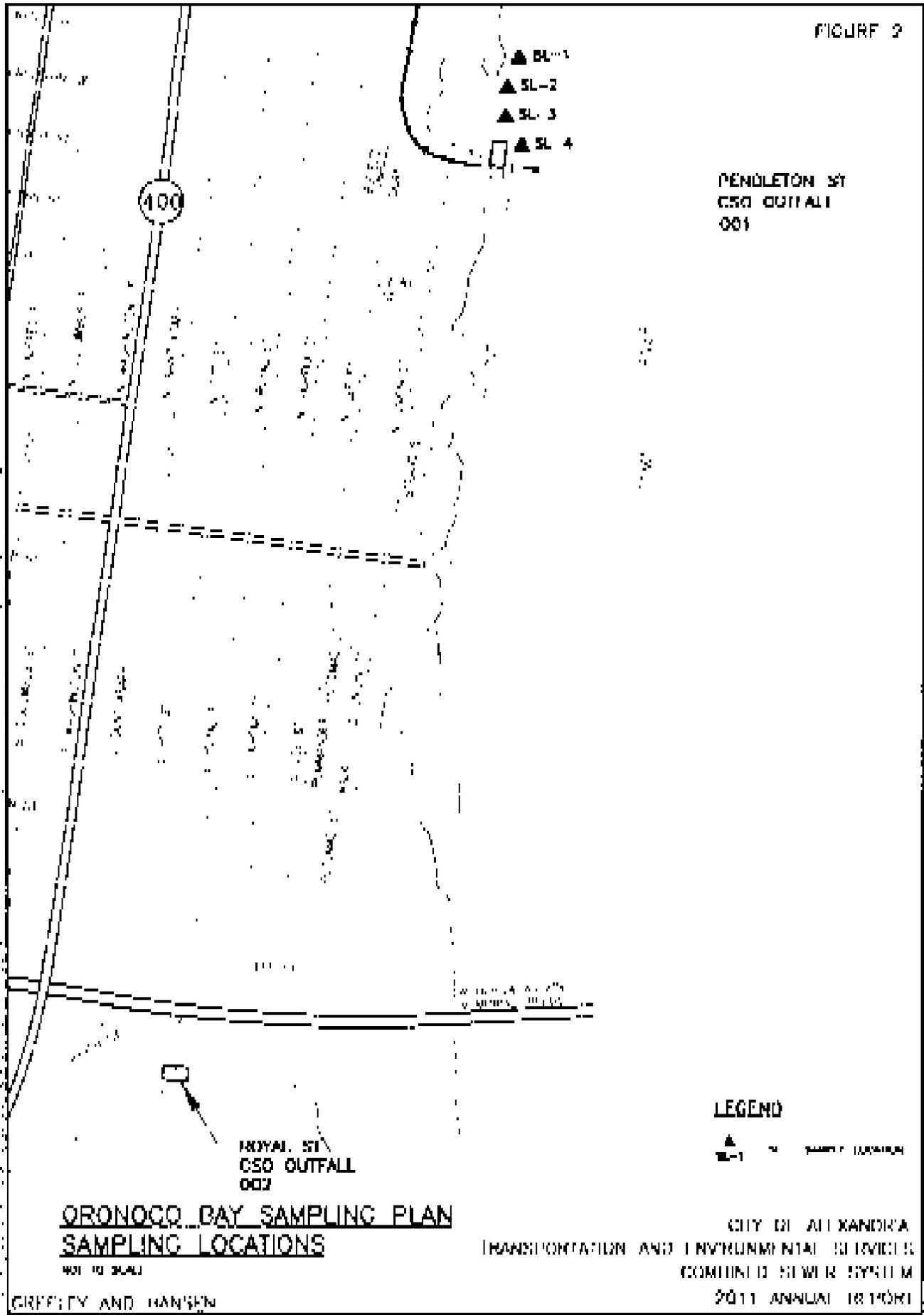
B. Four Mile Run Service Chambers

The EPA Inspection Team conducted a site visit at the Four Mile Run Pump Station and Service Chambers on June 26, 2012. During an inspection of the structures, the EPA Inspection Team found that the chambers had the potential to discharge during high flow events. The Four Mile Run Pump Station and Service Chambers are located on the north end of the Commonwealth Interceptor.

The chambers are designed to provide added storage capacity for the Four Mile Run Pump Station. As stated above, the pumping capacity for the station is 11.4 mgd while the capacity of the 24-inch force main is only 9.4 mgd. The service chambers are able to store an added 1.05 million gallons in a high flow event. If a high flow event exceeds the capacity of the force main and the storage chambers, sanitary sewer flow has the potential to overflow the service chamber into Four Mile Run. Refer to Section III.D.3

of this report for details on a past unpermitted discharge event. A schematic of the Four Mile Run Pump Station and Service Chambers can be found in Attachment L. Also, refer to Exhibits 1 and 2 of this report for a description of and photographs from the site visit.

FIGURE 2



PENDLETON ST
CSO OUTFALL
001

ROYAL ST
CSO OUTFALL
002

ORONOCCO BAY SAMPLING PLAN
SAMPLING LOCATIONS

NOT TO SCALE
GRIFFIN AND HANSEN

LEGEND

▲ SL-1 □ SAMPLING LOCATION

CITY OF ALEXANDRIA
TRANSPORTATION AND ENVIRONMENTAL SERVICES
COMBINED SEWER SYSTEM
2011 ANNUAL REPORT

CONTRACT NO. 04-1-001-001-0000-0000-0000

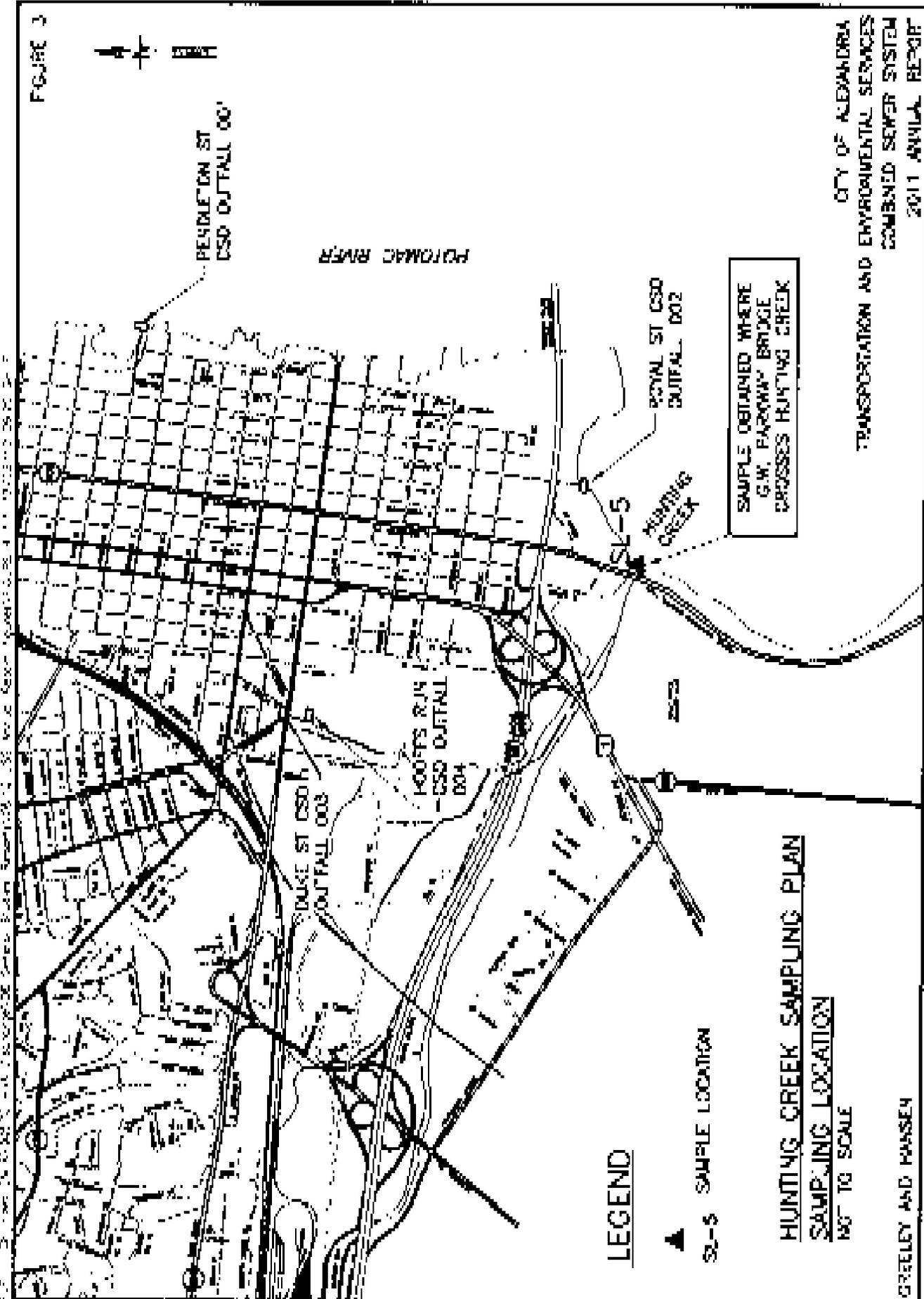
| Contract No. | Project Name | Location | Contract Type | Contract Value | | Contract Period | | Contract Status | | Contract Details | | Contract Documents | | Contract Performance | | Contract Compliance | | Contract Evaluation | | |
|-----------------------------|--------------|----------|---------------|----------------|---------|-----------------|-----|-----------------|-----------|------------------|---------------|----------------------|-----------------|----------------------|---------------|----------------------|-----------------|---------------------|---------------|----------------------|
| | | | | Original | Amended | Start | End | Active | Completed | Contract No. | Contract Date | Contract Description | Contract Amount | Contract Status | Contract Date | Contract Description | Contract Amount | Contract Status | Contract Date | Contract Description |
| 04-1-001-001-0000-0000-0000 | Project Name | Location | Contract Type | Original | Amended | Start | End | Active | Completed | Contract No. | Contract Date | Contract Description | Contract Amount | Contract Status | Contract Date | Contract Description | Contract Amount | Contract Status | Contract Date | Contract Description |

1. The contract is subject to the terms and conditions of the contract documents.
 2. The contract is subject to the terms and conditions of the contract documents.
 3. The contract is subject to the terms and conditions of the contract documents.
 4. The contract is subject to the terms and conditions of the contract documents.

CHANGING OF DATA OF LABORATORY RESULTS

| No. | Name | Sex | Age | Date of Birth | Date of Admission | Date of Discharge | Laboratory Data | | Reference Range | | Laboratory Results | | Reference Range | | Laboratory Results | | Reference Range | | Laboratory Results | | Reference Range | | Laboratory Results | | Reference Range | |
|--------|-------------------|-----|-----|---------------|-------------------|-------------------|-----------------|--------|-----------------|--------|--------------------|--------|-----------------|---------|--------------------|--------|-----------------|--------|--------------------|--------|-----------------|--------|--------------------|---------|-----------------|--------|
| | | | | | | | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 | Test 1 | Test 2 |
| 100001 | John Doe | M | 45 | 1955-03-15 | 2023-01-10 | 2023-01-15 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 |
| 100002 | Jane Smith | F | 30 | 1993-08-22 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100003 | Michael Brown | M | 55 | 1968-11-05 | 2023-01-10 | 2023-01-15 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 |
| 100004 | Emily White | F | 25 | 1998-05-18 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100005 | David Green | M | 40 | 1983-09-01 | 2023-01-10 | 2023-01-15 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 |
| 100006 | Sarah Black | F | 35 | 1988-12-10 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100007 | Robert Lee | M | 50 | 1973-04-25 | 2023-01-10 | 2023-01-15 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 |
| 100008 | Olivia King | F | 28 | 1995-07-12 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100009 | William Hall | M | 42 | 1981-10-03 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100010 | Isabella Scott | F | 32 | 1991-02-14 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100011 | James Taylor | M | 58 | 1965-06-20 | 2023-01-10 | 2023-01-15 | 135 | 145 | 135-145 | 140 | 150 | 135 | 145 | 135-145 | 140 | 150 | 135 | 145 | 135-145 | 140 | 150 | 135 | 145 | 135-145 | 140 | 150 |
| 100012 | Mia Adams | F | 27 | 1996-11-08 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100013 | Benjamin Baker | M | 48 | 1975-03-28 | 2023-01-10 | 2023-01-15 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 |
| 100014 | Charlotte Clark | F | 33 | 1990-09-17 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100015 | Lucas Evans | M | 52 | 1971-05-06 | 2023-01-10 | 2023-01-15 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 |
| 100016 | Aria Franklin | F | 29 | 1994-12-01 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100017 | Leo Garcia | M | 44 | 1979-08-19 | 2023-01-10 | 2023-01-15 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 |
| 100018 | Amelia Harris | F | 31 | 1992-04-09 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100019 | Sebastian King | M | 56 | 1967-10-23 | 2023-01-10 | 2023-01-15 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 | 130 | 140 | 130-140 | 135 | 145 |
| 100020 | Harper Lee | F | 26 | 1997-06-11 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100021 | Wyatt Miller | M | 41 | 1982-02-27 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100022 | Evelyn Wilson | F | 34 | 1989-07-04 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100023 | Grayson Young | M | 53 | 1970-11-16 | 2023-01-10 | 2023-01-15 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 |
| 100024 | Sophia Adams | F | 28 | 1995-03-02 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100025 | Julian Baker | M | 46 | 1977-09-21 | 2023-01-10 | 2023-01-15 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 |
| 100026 | Madelyn Clark | F | 30 | 1993-05-13 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100027 | Easton Evans | M | 51 | 1972-12-24 | 2023-01-10 | 2023-01-15 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 |
| 100028 | Scarlett Franklin | F | 27 | 1996-08-07 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100029 | Lincoln Garcia | M | 43 | 1980-04-15 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100030 | Penelope Harris | F | 32 | 1991-10-29 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100031 | Robert King | M | 54 | 1969-06-18 | 2023-01-10 | 2023-01-15 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 |
| 100032 | Chloe Lee | F | 29 | 1994-11-03 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100033 | Matthew Miller | M | 47 | 1976-03-22 | 2023-01-10 | 2023-01-15 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 | 115 | 125 | 115-125 | 120 | 130 |
| 100034 | Isabella Wilson | F | 31 | 1992-07-10 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100035 | Samuel Young | M | 50 | 1973-09-26 | 2023-01-10 | 2023-01-15 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 | 120 | 130 | 120-130 | 125 | 135 |
| 100036 | Madison Adams | F | 28 | 1995-02-05 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100037 | Christopher Baker | M | 45 | 1978-11-19 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100038 | Abigail Clark | F | 30 | 1993-05-08 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 |
| 100039 | Isaac Evans | M | 52 | 1971-08-24 | 2023-01-10 | 2023-01-15 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 | 125 | 135 | 125-135 | 130 | 140 |
| 100040 | Grace Franklin | F | 27 | 1996-12-17 | 2023-01-10 | 2023-01-15 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 | 100 | 110 | 100-110 | 105 | 115 |
| 100041 | Henry Garcia | M | 41 | 1982-04-01 | 2023-01-10 | 2023-01-15 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 | 110 | 120 | 110-120 | 115 | 125 |
| 100042 | Victoria Harris | F | 33 | 1990-09-14 | 2023-01-10 | 2023-01-15 | 105 | 115 | 105-115 | 110 | 120 | 105 | 115 | 105-115 | 110 | 120 | | | | | | | | | | |

FIGURE 3



STATE OF NEW YORK

| County | City | School District | School Year | Enrollment | | Average Daily Attendance | | Average Daily Attendance - % | |
|--------|--------|-----------------------------|-------------|------------|--------|--------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|------------------------------|--------|
| | | | | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female | Total | Female |
| Albany | Albany | Albany City School District | 2010-11 | 1,234 | 612 | 1,123 | 561 | 91.0% | 90.8% | 91.2% | 90.5% | 91.5% | 90.2% | 91.8% | 90.0% | 92.0% | 90.5% | 92.2% | 90.8% | 92.5% | 91.0% | 92.8% | 91.5% | 93.0% | 92.0% |
| Albany | Albany | Albany City School District | 2011-12 | 1,250 | 620 | 1,140 | 570 | 91.2% | 91.0% | 91.5% | 90.8% | 91.8% | 90.5% | 92.0% | 90.8% | 92.5% | 91.0% | 92.8% | 91.2% | 93.0% | 91.5% | 93.2% | 92.0% | 93.5% | 92.5% |
| Albany | Albany | Albany City School District | 2012-13 | 1,260 | 630 | 1,150 | 580 | 91.3% | 91.1% | 91.6% | 90.9% | 91.9% | 90.6% | 92.1% | 90.9% | 92.6% | 91.1% | 93.1% | 91.3% | 93.3% | 91.6% | 93.4% | 92.1% | 93.6% | 92.6% |
| Albany | Albany | Albany City School District | 2013-14 | 1,270 | 640 | 1,160 | 590 | 91.4% | 91.2% | 91.7% | 91.0% | 92.0% | 90.7% | 92.2% | 91.0% | 92.7% | 91.2% | 93.2% | 91.4% | 93.4% | 91.7% | 93.5% | 92.2% | 93.7% | 92.7% |
| Albany | Albany | Albany City School District | 2014-15 | 1,280 | 650 | 1,170 | 600 | 91.5% | 91.3% | 91.8% | 91.1% | 92.1% | 90.8% | 92.3% | 91.1% | 92.8% | 91.3% | 93.3% | 91.5% | 93.5% | 91.8% | 93.6% | 92.3% | 93.8% | 92.8% |
| Albany | Albany | Albany City School District | 2015-16 | 1,290 | 660 | 1,180 | 610 | 91.6% | 91.4% | 91.9% | 91.2% | 92.2% | 90.9% | 92.4% | 91.2% | 92.9% | 91.4% | 93.4% | 91.6% | 93.6% | 91.9% | 93.7% | 92.4% | 93.9% | 92.9% |
| Albany | Albany | Albany City School District | 2016-17 | 1,300 | 670 | 1,190 | 620 | 91.7% | 91.5% | 92.0% | 91.3% | 92.3% | 91.0% | 92.5% | 91.3% | 93.0% | 91.5% | 93.5% | 91.7% | 93.7% | 92.0% | 93.8% | 92.5% | 94.0% | 93.0% |
| Albany | Albany | Albany City School District | 2017-18 | 1,310 | 680 | 1,200 | 630 | 91.8% | 91.6% | 92.1% | 91.4% | 92.4% | 91.1% | 92.6% | 91.4% | 93.1% | 91.6% | 93.6% | 91.8% | 93.8% | 92.1% | 93.9% | 92.6% | 94.1% | 93.1% |
| Albany | Albany | Albany City School District | 2018-19 | 1,320 | 690 | 1,210 | 640 | 91.9% | 91.7% | 92.2% | 91.5% | 92.5% | 91.2% | 92.7% | 91.5% | 93.2% | 91.7% | 93.7% | 91.9% | 93.9% | 92.2% | 94.0% | 92.7% | 94.2% | 93.2% |
| Albany | Albany | Albany City School District | 2019-20 | 1,330 | 700 | 1,220 | 650 | 92.0% | 91.8% | 92.3% | 91.6% | 92.6% | 91.3% | 92.8% | 91.6% | 93.3% | 92.0% | 94.0% | 92.1% | 94.1% | 92.3% | 94.2% | 92.8% | 94.3% | 93.3% |
| Albany | Albany | Albany City School District | 2020-21 | 1,340 | 710 | 1,230 | 660 | 92.1% | 91.9% | 92.4% | 91.7% | 92.7% | 91.4% | 92.9% | 91.7% | 93.4% | 92.1% | 94.1% | 92.2% | 94.2% | 92.4% | 94.3% | 92.9% | 94.4% | 93.4% |
| Albany | Albany | Albany City School District | 2021-22 | 1,350 | 720 | 1,240 | 670 | 92.2% | 92.0% | 92.5% | 91.8% | 92.8% | 91.5% | 93.0% | 91.8% | 93.5% | 92.2% | 94.2% | 92.3% | 94.3% | 92.5% | 94.4% | 93.0% | 94.5% | 93.5% |
| Albany | Albany | Albany City School District | 2022-23 | 1,360 | 730 | 1,250 | 680 | 92.3% | 92.1% | 92.6% | 91.9% | 92.9% | 91.6% | 93.1% | 91.9% | 93.6% | 92.3% | 94.3% | 92.4% | 94.4% | 92.6% | 94.5% | 93.1% | 94.6% | 93.6% |
| Albany | Albany | Albany City School District | 2023-24 | 1,370 | 740 | 1,260 | 690 | 92.4% | 92.2% | 92.7% | 92.0% | 93.0% | 91.7% | 93.2% | 92.0% | 93.7% | 92.4% | 94.4% | 92.5% | 94.5% | 92.7% | 94.6% | 93.2% | 94.7% | 93.7% |
| Albany | Albany | Albany City School District | 2024-25 | 1,380 | 750 | 1,270 | 700 | 92.5% | 92.3% | 92.8% | 92.1% | 93.1% | 91.8% | 93.3% | 92.1% | 93.8% | 92.5% | 94.5% | 92.6% | 94.6% | 92.8% | 94.7% | 93.3% | 94.8% | 93.8% |
| Albany | Albany | Albany City School District | 2025-26 | 1,390 | 760 | 1,280 | 710 | 92.6% | 92.4% | 92.9% | 92.2% | 93.2% | 91.9% | 93.4% | 92.2% | 93.9% | 92.6% | 94.6% | 92.7% | 94.7% | 92.9% | 94.8% | 93.4% | 94.9% | 93.9% |
| Albany | Albany | Albany City School District | 2026-27 | 1,400 | 770 | 1,290 | 720 | 92.7% | 92.5% | 93.0% | 92.3% | 93.3% | 92.0% | 93.5% | 92.3% | 94.0% | 92.8% | 94.7% | 92.8% | 94.8% | 93.0% | 94.9% | 93.5% | 95.0% | 94.0% |
| Albany | Albany | Albany City School District | 2027-28 | 1,410 | 780 | 1,300 | 730 | 92.8% | 92.6% | 93.1% | 92.4% | 93.4% | 92.1% | 93.6% | 92.4% | 94.1% | 92.9% | 94.8% | 92.9% | 94.9% | 93.1% | 95.0% | 93.6% | 95.1% | 94.1% |
| Albany | Albany | Albany City School District | 2028-29 | 1,420 | 790 | 1,310 | 740 | 92.9% | 92.7% | 93.2% | 92.5% | 93.5% | 92.2% | 93.7% | 92.5% | 94.2% | 93.0% | 94.9% | 93.0% | 95.0% | 93.2% | 95.1% | 93.7% | 95.2% | 94.2% |
| Albany | Albany | Albany City School District | 2029-30 | 1,430 | 800 | 1,320 | 750 | 93.0% | 92.8% | 93.3% | 92.6% | 93.6% | 92.3% | 93.8% | 92.6% | 94.3% | 93.1% | 95.0% | 93.1% | 95.1% | 93.3% | 95.2% | 93.8% | 95.3% | 94.3% |
| Albany | Albany | Albany City School District | 2030-31 | 1,440 | 810 | 1,330 | 760 | 93.1% | 92.9% | 93.4% | 92.7% | 93.7% | 92.4% | 93.9% | 92.7% | 94.4% | 93.2% | 95.1% | 93.2% | 95.2% | 93.4% | 95.3% | 93.9% | 95.4% | 94.4% |
| Albany | Albany | Albany City School District | 2031-32 | 1,450 | 820 | 1,340 | 770 | 93.2% | 93.0% | 93.5% | 92.8% | 93.8% | 92.5% | 94.0% | 92.8% | 94.5% | 93.3% | 95.2% | 93.3% | 95.3% | 93.5% | 95.4% | 94.0% | 95.5% | 94.5% |
| Albany | Albany | Albany City School District | 2032-33 | 1,460 | 830 | 1,350 | 780 | 93.3% | 93.1% | 93.6% | 92.9% | 93.9% | 92.6% | 94.1% | 92.9% | 94.6% | 93.4% | 95.3% | 93.4% | 95.4% | 93.6% | 95.5% | 94.1% | 95.6% | 94.6% |
| Albany | Albany | Albany City School District | 2033-34 | 1,470 | 840 | 1,360 | 790 | 93.4% | 93.2% | 93.7% | 93.0% | 94.0% | 92.7% | 94.2% | 93.0% | 94.7% | 93.5% | 95.4% | 93.5% | 95.5% | 93.7% | 95.6% | 94.2% | 95.7% | 94.7% |
| Albany | Albany | Albany City School District | 2034-35 | 1,480 | 850 | 1,370 | 800 | 93.5% | 93.3% | 93.8% | 93.1% | 94.1% | 92.8% | 94.3% | 93.1% | 94.8% | 93.6% | 95.5% | 93.6% | 95.6% | 93.8% | 95.7% | 94.3% | 95.8% | 94.8% |
| Albany | Albany | Albany City School District | 2035-36 | 1,490 | 860 | 1,380 | 810 | 93.6% | 93.4% | 93.9% | 93.2% | 94.2% | 92.9% | 94.4% | 93.2% | 94.9% | 93.7% | 95.6% | 93.7% | 95.7% | 93.9% | 95.8% | 94.4% | 95.9% | 94.9% |
| Albany | Albany | Albany City School District | 2036-37 | 1,500 | 870 | 1,390 | 820 | 93.7% | 93.5% | 94.0% | 93.3% | 94.3% | 93.0% | 94.5% | 93.3% | 95.0% | 93.8% | 95.7% | 93.8% | 95.8% | 94.0% | 95.9% | 94.5% | 96.0% | 95.0% |
| Albany | Albany | Albany City School District | 2037-38 | 1,510 | 880 | 1,400 | 830 | 93.8% | 93.6% | 94.1% | 93.4% | 94.4% | 93.1% | 94.6% | 93.4% | 95.1% | 93.9% | 95.8% | 93.9% | 95.9% | 94.1% | 96.0% | 94.6% | 96.1% | 95.1% |
| Albany | Albany | Albany City School District | 2038-39 | 1,520 | 890 | 1,410 | 840 | 93.9% | 93.7% | 94.2% | 93.5% | 94.5% | 93.2% | 94.7% | 93.5% | 95.2% | 94.0% | 95.9% | 94.0% | 96.0% | 94.2% | 96.1% | 94.7% | 96.2% | 95.2% |
| Albany | Albany | Albany City School District | 2039-40 | 1,530 | 900 | 1,420 | 850 | 94.0% | 93.8% | 94.3% | 93.6% | 94.6% | 93.3% | 94.8% | 93.6% | 95.3% | 94.1% | 96.0% | 94.1% | 96.1% | 94.3% | 96.2% | 94.8% | 96.3% | 95.3% |
| Albany | Albany | Albany City School District | 2040-41 | 1,540 | 910 | 1,430 | 860 | 94.1% | 93.9% | 94.4% | 93.7% | 94.7% | 93.4% | 94.9% | 93.7% | 95.4% | 94.2% | 96.1% | 94.2% | 96.2% | 94.4% | 96.3% | 94.9% | 96.4% | 95.4% |
| Albany | Albany | Albany City School District | 2041-42 | 1,550 | 920 | 1,440 | 870 | 94.2% | 94.0% | 94.5% | 93.8% | 94.8% | 93.5% | 95.0% | 93.8% | 95.5% | 94.3% | 96.2% | 94.3% | 96.3% | 94.5% | 96.4% | 95.0% | 96.5% | 95.5% |
| Albany | Albany | Albany City School District | 2042-43 | 1,560 | 930 | 1,450 | 880 | 94.3% | 94.1% | 94.6% | 93.9% | 94.9% | 93.6% | 95.1% | 93.9% | 95.6% | 94.4% | 96.3% | 94.4% | 96.4% | 94.6% | 96.5% | 95.1% | 96.6% | 95.6% |
| Albany | Albany | Albany City School District | 2043-44 | 1,570 | 940 | 1,460 | 890 | 94.4% | 94.2% | 94.7% | 94.0% | 95.0% | 93.7% | 95.2% | 94.0% | 95.7% | 94.5% | 96.4% | 94.5% | 96.5% | 94.7% | 96.6% | 95.2% | 96.7% | 95.7% |
| Albany | Albany | Albany City School District | 2044-45 | 1,580 | 950 | 1,470 | 900 | 94.5% | 94.3% | 94.8% | 94.1% | 95.1% | 93.8% | 95.3% | 94.1% | 95.8% | 94.6% | 96.5% | 94.6% | 96.6% | 94.8% | 96.7% | 95.3% | 96.8% | 95.8% |
| Albany | Albany | Albany City School District | 2045-46 | 1,590 | 960 | 1,480 | 910 | 94.6% | 94.4% | 94.9% | 94.2% | 95.2% | 93.9% | 95.4% | 94.2% | 95.9% | 94.7% | 96.6% | 94.7% | 96.7% | 94.9% | 96.8% | 95.4% | 96.9% | 95.9% |
| Albany | Albany | Albany City School District | 2046-47 | 1,600 | 970 | 1,490 | 920 | 94.7% | 94.5% | 95.0% | 94.3% | 95.3% | 94.0% | 95.5% | 94.3% | 96.0% | 94.8% | 96.7% | 94.8% | 96.8% | 95.0% | 96.9% | 95.5% | 97.0% | 96.0% |
| Albany | Albany | Albany City School District | 2047-48 | 1,610 | 980 | 1,500 | 930 | 94.8% | 94.6% | 95.1% | 94.4% | 95.4% | 94.1% | 95.6% | 94.4% | 96.1% | 94.9% | 96.8% | 94.9% | 96.9% | 95.1% | 97.0% | 95.6% | 97.1% | 96.1% |
| Albany | Albany | Albany City School District | 2048-49 | 1,620 | 990 | 1,510 | 940 | 94.9% | 94.7% | 95.2% | 94.5% | 95.5% | 94.2% | 95.7% | 94.5% | 96.2% | 95.0% | 96.9% | 95.0% | 97.0% | 95.2% | 97.1% | 95.7% | 97.2% | 96.2% |
| Albany | Albany | Albany City School District | 2049-50 | 1,630 | 1,000 | 1,520 | 950 | 95.0% | 94.8% | 95.3% | 94.6% | 95.6% | 94.3% | 95.8% | 94.6% | 97.0% | 95.1% | 97.0% | 95.3% | 97.2% | 95.8% | 97.3% | 96.3% | 97.3% | |
| Albany | Albany | Albany City School District | 2050-51 | 1,640 | 1,010 | 1,530 | 960 | 95.1% | 94.9% | 95.4% | 94.7% | 95.7% | 94.4% | 95.9% | 94.7% | 97.1% | 95.2% | 97.1% | 95.4% | 97.3% | 95.9% | 97.4% | 96.4% | 97.4% | |
| Albany | Albany | Albany City School District | 2051-52 | 1,650 | 1,020 | 1,540 | 970 | 95.2% | 95.0% | 95.5% | 94.8% | 95.8% | 94.5% | 96.0% | 94.8% | 97.2% | 95.3% | 97.2% | 95.5% | 97.4% | 96.0% | 97.5% | 96.5% | 97.5% | |
| Albany | Albany | Albany City School District | 2052-53 | 1,660 | 1,030 | 1,550 | 980 | 95.3% | 95.1% | 95.6% | 94.9% | 95.9% | 94.6% | 96.1% | 94.9% | 97.3% | 95.4% | 97.3% | 95.6% | 97.5% | 96.1% | 97.6% | 96.6% | 97.6% | |
| Albany | Albany | Albany City School District | 2053-54 | 1,670 | 1,040 | 1,560 | 990 | 95.4% | 95.2% | 95.7% | 95.0% | 96.0% | 94.7% | 96.2% | 95.0% | 97.4% | 95.5% | 97.4% | 95.7% | 97.6% | 96.2% | 97.7% | 96.7% | 97.7% | |
| Albany | Albany | Albany City School District | 2054-55 | 1,680 | 1,050 | 1,570 | 1,000 | 95.5% | 95.3% | | | | | | | | | | | | | | | | |

APPENDIX 1 - RATING SCHEMATIC RESULTS

| Sample ID | Field Data | Laboratory Data | | Rating | | Status | | Notes | |
|-----------|------------|-----------------|-------------|---------|---------|----------|----------|----------|---------|
| | | Parameter 1 | Parameter 2 | Value 1 | Value 2 | Category | Priority | Comments | Actions |
| S-001 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-002 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-003 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-004 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-005 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-006 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-007 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-008 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-009 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| S-010 | ... | ... | ... | ... | ... | ... | ... | ... | ... |

1. ...
 2. ...
 3. ...
 4. ...

To: Douglas Fraser
From: Katie Curran

Date: August 24, 2011
Subject: Planning Statement for Alexandria Combined Sewer System
Print Number: VAC087068

Discharge Type: Combined Sewer System

Outfall 001:

Receiving Stream: Occochee Bay (Potomac River)
Discharge Flow (Average Flow per CSO Event): 1.36 MG
Latitude/Longitude: 38° 01' 36" / 77° 02' 20"
Streamcode: L0021
Waterbody: VAN-A12F
Water Quality Standards: Class II, Section 6, Special Standards, b, y
Rivermile: 108.77
Drainage Area: 224 acres

Outfall 002:

Receiving Stream: Hunting Creek
Discharge Flow (Average Flow per CSO Event): 1.41 MG
Latitude/Longitude: 38° 02' 30" / 77° 02' 00"
Streamcode: L0011
Waterbody: VAN-A13C
Water Quality Standards: Class II, Section 6, Special Standards, b, y
Rivermile: 04.0
Drainage Area: 184 acres

Outfall 003:

Receiving Stream: Hooft Run
Discharge Flow (Average Flow per CSO Event): 0.66 MG
Latitude/Longitude: 38° 08' 10.0" / 77° 03' 28.8"
Streamcode: L001F
Waterbody: VAN-A13R
Water Quality Standards: Class III, Section 7, Special Standards, b
Rivermile: 0.70
Drainage Area: 112 acres

Outfall 004:

Receiving Stream: Hooft Run
Discharge Flow (Average Flow per CSO Event): 0.77 MG
Latitude/Longitude: 38° 08' 11.7" / 77° 03' 29.6"
Streamcode: L001F
Waterbody: VAN-A13R
Water Quality Standards: Class III, Section 7, Special Standards, b
Rivermile: 0.63
Drainage Area: N/A, same as Outfall 003

2. Is there monitoring data for the receiving stream? If yes, please attach latest summary. If no, where is the nearest downstream monitoring station?

Outfall 001: There is no DQC monitoring data available for this receiving stream. This waterbody flows into the Potomac River, which, at this specific location, is under the jurisdiction of the District of Columbia.

Outfall 002: Yes. The closest DQC monitoring station with available data is Station 144U1000.01, located in the tidal waters of Hunting Creek at the George Washington Memorial Parkway bridge crossing. The station is located approximately 0.28 rivermiles from Outfall 002. The following is a monitoring summary for this station, as taken from the 2010 Integrated Assessment:

Class B, Section 6, Special Standard: b, y

DQC ambient water quality and fish tissue monitoring stations 144U1000.01, at the George Washington Parkway, 144U1000.54, 100 yards downstream from Telegraph Road, and 144U1000.72, at Route 611/241 (Telegraph Road).

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and PCB fish tissue monitoring. Additionally, SPMD data for station 144U1000.54 and water quality data for station 144U1000.72 each revealed exceedances of the human health criteria of 0.64 parts per billion (ppb) PCBs. A PCB TMDL for the tidal Potomac River watershed has been completed and approved. Total coliform monitoring finds a bacteriological impairment, resulting in an impaired classification for the recreation use. The wildlife use is considered fully supporting.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subset, the thirty day mean is acceptable; however, the seven day mean and maximum levels have not been assessed. The wildlife use is considered fully supporting.

Outfall 003: There are no DQC monitoring stations located on Hoxoff Run. The closest downstream DQC monitoring station with available data is Station 144U1000.01, located in the tidal waters of Hunting Creek at the George Washington Memorial Parkway bridge crossing. The station is located approximately 1.20 rivermiles downstream from Outfall 003. The following is a monitoring summary for this station, as taken from the 2010 Integrated Assessment:

Class B, Section 6, Special Standard: b, y

DQC ambient water quality and fish tissue monitoring stations 144U1000.01, at the George Washington Parkway, 144U1000.54, 100 yards downstream from Telegraph Road, and 144U1000.72, at Route 611/241 (Telegraph Road).

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and PCB fish tissue monitoring. Additionally, SPMD data for station 144U1000.54 and water quality data for station 144U1000.72 each revealed exceedances of the human health criteria of 0.64 parts per billion (ppb) PCBs. A PCB TMDL for the tidal Potomac River watershed has been completed and approved. Total coliform monitoring finds a bacteriological impairment, resulting in an impaired classification for the recreation use. The wildlife use is considered fully supporting.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subclass, the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. The wildlife use is considered fully supporting.

Outfall 004: There are no BOC monitoring stations located on Hoff Run. The closest downstream BOC monitoring station with ambient data is station 14011000101, located on the tidal waters of Hunting Creek at the George Washington Memorial Parkway bridge crossing. The station is located approximately 1.20 miles downstream from Outfall 004. The following is a monitoring summary for this station, as taken from the 2010 Integrated Assessment:

Class II, Section 6, Special Standard: b, y

BOC ambient water quality and fish tissue monitoring station 14011000101, at the George Washington Parkway, 14011000104, 100 yards downstream from Telegraph Road, and 14011000102, at Route 611/241 (Telegraph Road).

The fish consumption use is not assessed as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and PCB fish tissue monitoring. Additionally, SPMD data for station 14011000104 and water quality data for station 14011000102 each reported exceedances of the human health criteria of 0.04 parts per billion (ppb) PCBs. A PCB CMR for the total Potomac River watershed has been completed and approved. PCB monitoring funds a bacterial impairment, resulting in an impaired classification for the recreation use. The wildlife use is considered fully supporting.

The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subclass, the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed. The wildlife use is considered fully supporting.

2. Is the receiving stream on the current 303(d) list?
 - a. If yes, what is the impairment?
 - b. Has the TMDL been prepared?
 - c. If yes, what is the WLA for the discharge?
 - d. If no, what is the schedule for the TMDL?

Outfall 001: No. The Virginia portion of the Potomac River (Chesapeake Bay) that receives the discharge from Outfall 001 is not currently listed on the 303(d) list.

- a. N/A
- b. N/A
- c. N/A
- d. N/A

Outfall 002: Yes. Hunting Creek is an BOC impaired water body.

- a. Recreational Use Impairment: Sufficient excursions from the maximum 1000 bacteria colony (17 of 19 samples – 89%) were recorded at BOC's ambient water quality monitoring station (14011000101) at the George Washington Parkway crossing and (3 of 11 – 27.3%) were recorded at BOC's ambient water quality monitoring station (14011000102) at Route 611/241 (Telegraph Road) to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

Fish Consumption Use Impairment: The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazard Control, PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 12/13/04 and 10/2/09, limits consumption of bullhead catfish, channel catfish less than eighteen inches long, largemouth bass, smallmouth (coastal) striped bass, sunfish species, smallmouth bass, white catfish, white perch, gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments from the I-275 bridge (above the Westlaw Wetland Bridge) to the Potomac River Bridge at Route 287, Lumbee Run, Hunting Creek, Little Hunting Creek, Potomac Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powell's Creek, Quantico Creek, Chesapeake Creek, Aquia Creek, and Patuxent Creek. Additionally, there were excursions above the water quality criteria based fish tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in 4 species of fish (12 total samples): largemouth bass, carp, white sucker, gizzard shad, white perch and yellow perch. No fish collected at monitoring station 14H07000 01 in 2008.

- b. TMDL for Recreational Use Impairment: Yes. EPA Approved 11/10/2010
TMDL for PCBs in Fish Tissue: Yes. EPA Approved 10/31/2007
- c. WLA for Recreational Use Impairment: 5,261*13 cts/year of *E. coli* bacteria. This is an 80% required reduction.

WLA for PCBs in fish tissue impairment, VA0087068 was identified as a source of PCBs in the TMDL, and was provided a Waste Load Allocation.

- d. N/A

Outfall 003: No. The receiving stream (non tidal portion of Occoquan River) has not been assessed by DCEQ and therefore, is not on the impaired waters list.

- a. N/A
- b. N/A
- c. N/A
- d. N/A

Outfall 004: No. The receiving stream (non tidal portion of Occoquan River) has not been assessed by DCEQ and therefore, is not on the impaired waters list.

- a. N/A
- b. N/A
- c. N/A
- d. N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

- a. If yes, what is the impairment?
- b. Has a TMDL been prepared?
- c. Will the TMDL include the receiving stream?
- d. Is there a WLA for the discharge?
- e. What is the schedule for the TMDL?

Outfall 001: Yes. The District of Columbia's portion of the Potomac River that stretches from Harris Point to the Woodrow Wilson Bridge (referred to as the "Lower Potomac" segment in DC's Integrated Assessment) is listed as impaired on the 2010 303(d) list.

- a. Bacteria Impairment: Total Uniform Bacteria (Organic Impairment, PCBs)
- b. Bacteria Impairment: Yes. Completed in 2004.
PCB Impairment: Yes. Completed in 2007.
- c. Bacteria TMDL = Yes.
PCB TMDL = Yes.
- d. Bacteria TMDL = No WIA specifically given to the Alexandria CSS.
PCB TMDL = Yes. MACTS 2008 was identified as a source of PCBs in the TMDL, and was provided a Waste Load Allocation.
- e. See "B" answer.

Outfall 002: N/A

Outfall 003: Yes. There are several downstream listed stream segments, including Tidal Hoarf Run and Tidal Hunting Creek.

- a. Tidal Hoarf Run Impairment: Fish Consumption Use Impairment. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 1/21/04 and 10/7/09, limits consumption of bullhead catfish, channel catfish less than eighteen inches long, largemouth bass, anadromous (coastal striped bass, sunfish species, smallmouth bass, white catfish, white perch, peized shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments: from the 149th bridge (above the Woodrow Wilson Bridge) to the Potomac River Bridge at Route 111; Laurin's Bay, Hunting Creek, Little Hunting Creek, Patuxent Creek, Accotink Creek, Occoquan River, Neabsen Creek, Powell's Creek, Quantico Creek, Cispawannee Creek, Aquia Creek, and Potomac Creek.

Hunting Creek Recreational Use Impairment. Sufficient excursions from the maximum fecal bacteria criterion (7 of 49 samples = 14.3%) were recorded at DEQ's ambient water quality monitoring station (LAH1000001) at the George Washington Parkway crossing and (3 of 11 = 27.3%) were recorded at DEQ's ambient water quality monitoring station (LAH1000177) at Route 61/241 (Telegraph Road) to assess this stream segment as not supporting the recreational use goal for the 2010 water quality assessment.

Hunting Creek Fish Consumption Use Impairment. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 4/19/99 and modified 1/21/04 and 10/7/09, limits consumption of bullhead catfish, channel catfish less than eighteen inches long, largemouth bass, anadromous (coastal) striped bass, sunfish species, smallmouth bass, white catfish, white perch,

gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments from the I-295 bridge (above the Woodrow Wilson Bridge) to the Patuxent River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Potlick Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powell's Creek, Quantico Creek, Choptank Creek, Aquia Creek, and Patuxent Creek. Additionally, there were excursions above the water quality criterion based fish tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in 6 species of fish (17 total samples): largemouth bass, carp, white sucker, gizzard shad, white perch and rock bass collected at monitoring station 14001000 Q1 in 2008.

- b. TMDL for Recreational Use Impairment: Yes. EPA Approved 11/10/2010
TMDL for PCBs in fish tissue: Yes. EPA Approved 10/31/2007
- c. While the TMDLs did not specifically include the receiving stream (non-tidal Four Mile Run) the TMDLs did include all upstream point sources in the watershed.
- d. WLA for Recreational Use Impairment: **7.68E+11 cfu/year of E. coli bacteria. This is a 99% required reduction.**

WLA for PCBs in fish tissue impairments: 2400570004 was identified as a source of PCBs in the TMDL, and was provided a Waste Load Allocation.

- e. See "b" above.

Outfall 004: Yes. There are several downstream listed stream segments, including tidal Four Mile Run and tidal Hunting Creek.

- a. Tidal Four Mile Run Impairment – Fish Consumption Use Impairment – Fish Consumption Use Impairment: The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 07/19/00 and modified 12/13/04 and 03/2/09, limits consumption of yellow perch, channel catfish less than eighteen inches long, largemouth bass, sandtrout, (small) striped bass, spot/tide species, sandhollow bass, white catfish, white perch, gizzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp and channel catfish greater than eighteen inches long. The affected area includes the tidal portions of the following tributaries and embayments from the I-295 bridge (above the Woodrow Wilson Bridge) to the Patuxent River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Potlick Creek, Accotink Creek, Occoquan River, Neabsco Creek, Powell's Creek, Quantico Creek, Choptank Creek, Aquia Creek, and Patuxent Creek.

Hunting Creek Recreational Use Impairment: Multiple excursions from the maximum E. coli bacteria criterion (17 of 39 samples – 43.6%) were recorded at DCE's ambient water quality monitoring station 14001000 Q1 at the George Washington Parkway crossing and 14 of 11 (27.3%) were recorded at DCE's ambient water quality monitoring station 14001001 Z1 at Route 661/241 (Telegraph Road) to assess the stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

Hunting Creek Fish Consumption Use Impairment: The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish

consumption advisory. The advisory, dated 4/19/99 and amended 12/11/04 and 10/7/09, lists consumption of bullhead catfish, striped catfish, bluegill, largemouth bass, largemouth bass, muskellunge (rock bass), striped bass, sunfish species, smallmouth bass, white catfish, white perch,izzard shad, and yellow perch to no more than two meals per month. The advisory also bans the consumption of American eel, carp and channel catfish greater than eighteen inches long. The affected area includes the total portions of the following tributaries and embayments from the I-95 bridge (above the Woodrow Wilson Bridge) to the Patuxent River Bridge at Route 301: Fourmile Run, Hunting Creek, Little Hunting Creek, Potomac Creek, Aqueduct Creek, Occoquan River, Matheron Creek, Powell's Creek, Quantico Creek, Choptank Creek, Aquia Creek, and Patuxent Creek. Additionally, there were excursions above the water quality criterion based fish tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in 6 species of fish (12 total samples); largemouth bass, carp, white sucker,izzard shad, white perch, and rock bass collected at monitoring station LA001000031 in 2008.

b. TMDL for Recreational Use Impairment: Yes. EPA Approved 11/10/2010

TMDL for PCBs in Fish Tissue: Yes. EPA Approved 10/11/2007

c. While the TMDLs did not specifically include the receiving stream (non-tidal Hoop Run) the TMDLs do include all upstream point sources in the watershed.

d. WLA for Recreational Use Impairment: $8.52E+11$ cfu/year of *E. coli* bacteria. This is a 99% required reduction.

WLA for PCBs in Fish Tissue Impairment: WA0087068 was identified as a source of PCBs in the TMDL, and was provided a Waste Load Allocation.

e. See "f" above.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

• Rather than including a numeric WLA for PCBs, please include the special conditions text regarding PCB monitoring.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. List Short Requirements - Please provide information on other VFOIS permits or VADII monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are several VFOIS monitoring stations within a 2 mile radius of this facility:

LA001000 01 - Hunting Creek at the George Washington Memorial Highway Bridge crossing

LA001000 34 - Hunting Creek, located 400 yards downstream from the Telegraph Road bridge crossing

LA001000 72 - Hunting Creek at the Telegraph Road bridge crossing

There are several VFOIS permitted facilities within a 2 mile radius of this facility:

WA0090107 - Carlyle Development II

WA0025160 - Alexandria Advanced Wastewater Treatment Plant

There are no drinking water intakes within a five mile radius of this facility.

| Designated Use | Criteria Concentration and Duration | Temporal Application |
|-------------------------------------|---|-----------------------|
| Shoreline fish spawning and nursery | <p>7 day mean = 6 mg/l tidal habitats with 10% ppt salinity instantaneous minimum = 5 mg/l</p> <p>30 day mean = 5 mg/l tidal habitats with 10% ppt salinity</p> | February 1 - May 31 |
| Open water ¹ | <p>30 day mean = 5 mg/l tidal habitats with < 10% ppt salinity</p> <p>7 day mean = 4 mg/l instantaneous minimum = 3 mg/l at temperatures < 29°C</p> <p>instantaneous minimum = 4 mg/l at temperatures > 29°C 60 day mean = 4 mg/l</p> | Year-round |
| Deep water | <p>7 day mean = 3.5 mg/l</p> <p>instantaneous minimum = 2.5 mg/l</p> | June 1 - September 30 |
| Deep channel | <p>instantaneous minimum = 2 mg/l</p> | June 1 - September 30 |

¹See also section 19.001 WAC 173-202-110 for site specific seasonal open water dissolved oxygen criteria applicable to the Holm, Nookson and Panamint Rivers and their tidal tributaries.

²To apply the open water instantaneous criterion by the 4 temperature day and its tidal tributaries when the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3 mg/l, the higher water quality for dissolved oxygen shall be preserved and the minimum dissolved oxygen shall be with respect to the tributaries of the Water Quality Standards.

Oridal DOU

| Date | Temperature | pH | CaCO ₃ | SRPDS | TP | TP3 | TP5 | CaCO ₃ | TP4 | TP6 | CaCO ₃ |
|------------|-------------|------|-------------------|-------|------|------|------|-------------------|-----|-----|-------------------|
| 10/26/2007 | 14.9 | 6.95 | 30 | 0 | 0.73 | 0.29 | 47 | 14 | 54 | 8.3 | 0 |
| 10/29/2007 | 17.2 | 6.87 | 30 | 0 | 0.45 | 0.81 | 40 | 13 | 55 | 0 | 0 |
| 10/26/2007 | 17.6 | 7.42 | 40 | 0 | 0.58 | 0 | 34 | 11 | 39 | 0 | 0 |
| 10/26/2007 | 18.1 | 7.4 | 3.2 | 0 | 0.73 | 0.55 | 39 | 15 | 45 | 6.2 | 0 |
| 11/15/2007 | 15.9 | 7.11 | 30 | 11 | 0 | 1.3 | 17.0 | 15 | 30 | 7 | 12 |
| 12/15/2007 | 14 | 7.5 | 34 | 17 | 0.41 | 0.5 | 41 | 19 | 59 | 4 | 0 |
| 11/15/2007 | 14.9 | 7.05 | 47 | 5.5 | 0.59 | 1.2 | 17 | 14 | 50 | 7 | 0 |
| 11/15/2007 | 12.7 | 7.25 | 40 | 8.5 | 0.68 | 1.3 | 39 | 15 | 51 | 1 | 0 |
| 1/11/2008 | 10.9 | MP | 30 | 13 | 0.61 | 1.1 | 55 | 10 | 36 | 6.2 | 3 |
| 1/11/2008 | 11.4 | MP | 40 | 12 | 0 | 1.4 | 57 | 14 | 29 | 5.2 | 5 |
| 2/1/2008 | 5.3 | 6.7 | 74 | 45 | 0.67 | 1.3 | 57 | 15 | 72 | 0 | 14 |
| 2/1/2008 | 5 | 6.56 | 35 | 35 | 0.75 | 1.2 | 100 | 7.4 | 30 | 0 | 15 |
| 2/1/2008 | 1.8 | 6.55 | 28 | 24 | 0.91 | 1.1 | 31 | 12 | 54 | 0 | 33 |
| 2/1/2008 | 5.1 | 6.61 | 32 | 15 | 0.30 | 0.55 | 49 | 12 | 51 | 0 | 9 |
| 2/1/2008 | 5.5 | 6.58 | 43 | 31 | 0.97 | 0.82 | 42 | 13 | 72 | 6 | 20 |

| | |
|----------------|------|
| 50% Percentile | 14.9 |
| 50% Percentile | 7.4 |
| Average | 39 |

Temperature °C
 pH
 CaCO₃, SRPDS, TP4, TP6 mg/L
 CaCO₃, TP, TP4, TP6 mg/L

MP - Measurement Problem, probe malfunction

**Not Analyzed

Diesel 003

| Date | Temperature | pH | CaCO3 | CaCO3 | TP | NO3 | %S | Cooper | Zinc | Cu | OMG |
|-----------|-------------|------|-------|-------|------|-----|-----|--------|------|----|-----|
| 5/4/2009 | 15 | 6.54 | 44 | 21 | 1.2 | 1.5 | 52 | 6 | 50 | 0 | 6 |
| 5/9/2009 | 16.5 | 7.29 | 72 | 36 | 1.2 | 2 | 38 | 9 | 20 | 0 | 7 |
| 5/15/2009 | 20.3 | 6.9 | 470 | 24 | 1.1 | 1.9 | 71 | 5 | 30 | 0 | 0 |
| 5/25/2009 | 20.5 | 6.27 | 180 | 31 | 1.3 | 7 | 37 | 10 | 30 | 0 | 13 |
| 6/3/2009 | 14.9 | 6.13 | 140 | 58 | 0.45 | 1.1 | 100 | 15 | 90 | 0 | 8 |
| 6/3/2009 | 14.1 | 6.01 | 130 | 17 | 0.43 | 0.6 | 51 | 12 | 60 | 0 | 7 |
| 6/3/2009 | 14.1 | 5.82 | 130 | 15 | 0.43 | 1.1 | 71 | 3 | 50 | 0 | 7 |
| 6/3/2009 | 22.1 | 6.34 | 110 | 92 | 1.2 | 2.5 | 47 | 9 | 50 | 0 | 15 |
| 7/23/2009 | 17.1 | 6.46 | 140 | 11 | 1.3 | 3.3 | 78 | 19 | 70 | 0 | 7 |
| 7/23/2009 | 26.7 | 6.27 | 150 | 28 | 1.3 | 4 | 73 | 22 | 80 | 0 | 13 |

| | |
|-----------------|------|
| 90% Percentile | 26.6 |
| 90th Percentile | 7.0 |
| Average | 1.92 |

Temperature °C
 pH
 CaCO3, CaCO3 mg/L as CaCO3
 Cooper, Zinc, Cu, OMG

Cutnell 004

| Date | Temperature | pH | CaCO ₃ | e3005 | TF | h-45 | 755 | Copper | mg/L | Cr% | D50 |
|-----------|-------------|------|-------------------|-------|-----|------|-----|--------|------|-----|-----|
| 5/3/2010 | 21.5 | 7.35 | 270 | 59 | 3.5 | 38 | 90 | 6 | 10 | 0 | 15 |
| 5/3/2010 | 21.4 | 7.34 | 350 | 91 | 3.7 | 18 | 88 | 6 | 10 | 0 | 15 |
| 5/3/2010 | 21.2 | 7.53 | 480 | 91 | 4.1 | 15 | 140 | 5 | 0 | 0 | 14 |
| 5/3/2010 | 24.2 | 6.75 | 80 | 10 | 0.8 | 0.8 | 51 | 7 | 100 | 0 | 0 |
| 6/3/2010 | 24.5 | 6.75 | 95 | 32 | 0.7 | 1.9 | 78 | 3 | 50 | 0 | 0 |
| 7/10/2010 | 26.1 | 7 | 50 | 39 | 1.8 | 8.2 | 34 | 13 | 50 | 0 | 12 |
| 7/16/2010 | 25 | 6.75 | 44 | 56 | 1.5 | 7.8 | 55 | 12 | 50 | 0 | 9 |
| 7/16/2010 | 25.5 | 6.29 | 52 | 59 | 1.3 | 4.7 | 82 | 6 | 40 | 0 | 11 |
| 7/16/2010 | 26.1 | 6.51 | 78 | 71 | 1.5 | 5.7 | 73 | 5 | 50 | 0 | 13 |
| 7/28/2010 | 29.5 | 6.7 | 210 | 75 | 1.2 | 6.7 | 250 | 7 | 50 | 0 | 16 |
| 7/28/2010 | 29.5 | 7.05 | 60 | 81 | 1.4 | 7.3 | 95 | 18 | 70 | 0 | 12 |
| 7/28/2010 | 27.5 | 6.98 | 90 | 52 | 1.4 | 3.7 | 150 | 5 | 50 | 0 | 11 |
| 7/28/2010 | 27 | 6.5 | 100 | 71 | 1.3 | 6.9 | 71 | 0 | 10 | 0 | 12 |

50th percentile: 29.1
 50th percentile: 7.1
 Average: 152

Temperature °C
 pH
 CaCO₃ mg/L
 Copper, mg/L
 Cr%

MP = Measurement Protocol, 2002-2011, 10/03/09

| Year | Month | Day | Time | Location | Activity | Remarks | Signature | Initials |
|------|-------|-----|-------|----------|----------|---------|-----------|----------|
| 1972 | 7 | 1 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 2 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 3 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 4 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 5 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 6 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 7 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 8 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 9 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 10 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 11 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 12 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 13 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 14 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 15 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 16 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 17 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 18 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 19 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 20 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 21 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 22 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 23 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 24 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 25 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 26 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 27 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 28 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 29 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 30 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 31 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 32 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 33 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 34 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 35 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 36 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 37 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 38 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 39 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 40 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 41 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 42 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 43 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 44 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 45 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 46 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 47 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 48 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 49 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 50 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 51 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 52 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 53 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 54 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 55 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 56 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 57 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 58 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 59 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 60 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 61 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 62 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 63 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 64 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 65 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 66 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 67 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 68 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 69 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 70 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 71 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 72 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 73 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 74 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 75 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 76 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 77 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 78 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 79 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 80 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 81 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 82 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 83 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 84 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 85 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 86 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 87 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 88 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 89 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 90 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 91 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 92 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 93 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 94 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 95 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 96 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 97 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 98 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 99 | 10:00 | ... | ... | ... | ... | ... |
| 1972 | 7 | 100 | 10:00 | ... | ... | ... | ... | ... |

...

| Year | Month | Day | Time | Location | Activity | Remarks |
|------|-------|-----|-------|----------|----------|---------|
| 1950 | 1 | 1 | 08:00 | ... | ... | ... |
| 1950 | 1 | 2 | 08:00 | ... | ... | ... |
| 1950 | 1 | 3 | 08:00 | ... | ... | ... |
| 1950 | 1 | 4 | 08:00 | ... | ... | ... |
| 1950 | 1 | 5 | 08:00 | ... | ... | ... |
| 1950 | 1 | 6 | 08:00 | ... | ... | ... |
| 1950 | 1 | 7 | 08:00 | ... | ... | ... |
| 1950 | 1 | 8 | 08:00 | ... | ... | ... |
| 1950 | 1 | 9 | 08:00 | ... | ... | ... |
| 1950 | 1 | 10 | 08:00 | ... | ... | ... |
| 1950 | 1 | 11 | 08:00 | ... | ... | ... |
| 1950 | 1 | 12 | 08:00 | ... | ... | ... |
| 1950 | 1 | 13 | 08:00 | ... | ... | ... |
| 1950 | 1 | 14 | 08:00 | ... | ... | ... |
| 1950 | 1 | 15 | 08:00 | ... | ... | ... |
| 1950 | 1 | 16 | 08:00 | ... | ... | ... |
| 1950 | 1 | 17 | 08:00 | ... | ... | ... |
| 1950 | 1 | 18 | 08:00 | ... | ... | ... |
| 1950 | 1 | 19 | 08:00 | ... | ... | ... |
| 1950 | 1 | 20 | 08:00 | ... | ... | ... |
| 1950 | 1 | 21 | 08:00 | ... | ... | ... |
| 1950 | 1 | 22 | 08:00 | ... | ... | ... |
| 1950 | 1 | 23 | 08:00 | ... | ... | ... |
| 1950 | 1 | 24 | 08:00 | ... | ... | ... |
| 1950 | 1 | 25 | 08:00 | ... | ... | ... |
| 1950 | 1 | 26 | 08:00 | ... | ... | ... |
| 1950 | 1 | 27 | 08:00 | ... | ... | ... |
| 1950 | 1 | 28 | 08:00 | ... | ... | ... |
| 1950 | 1 | 29 | 08:00 | ... | ... | ... |
| 1950 | 1 | 30 | 08:00 | ... | ... | ... |
| 1950 | 1 | 31 | 08:00 | ... | ... | ... |
| 1950 | 2 | 1 | 08:00 | ... | ... | ... |
| 1950 | 2 | 2 | 08:00 | ... | ... | ... |
| 1950 | 2 | 3 | 08:00 | ... | ... | ... |
| 1950 | 2 | 4 | 08:00 | ... | ... | ... |
| 1950 | 2 | 5 | 08:00 | ... | ... | ... |
| 1950 | 2 | 6 | 08:00 | ... | ... | ... |
| 1950 | 2 | 7 | 08:00 | ... | ... | ... |
| 1950 | 2 | 8 | 08:00 | ... | ... | ... |
| 1950 | 2 | 9 | 08:00 | ... | ... | ... |
| 1950 | 2 | 10 | 08:00 | ... | ... | ... |
| 1950 | 2 | 11 | 08:00 | ... | ... | ... |
| 1950 | 2 | 12 | 08:00 | ... | ... | ... |
| 1950 | 2 | 13 | 08:00 | ... | ... | ... |
| 1950 | 2 | 14 | 08:00 | ... | ... | ... |
| 1950 | 2 | 15 | 08:00 | ... | ... | ... |
| 1950 | 2 | 16 | 08:00 | ... | ... | ... |
| 1950 | 2 | 17 | 08:00 | ... | ... | ... |
| 1950 | 2 | 18 | 08:00 | ... | ... | ... |
| 1950 | 2 | 19 | 08:00 | ... | ... | ... |
| 1950 | 2 | 20 | 08:00 | ... | ... | ... |
| 1950 | 2 | 21 | 08:00 | ... | ... | ... |
| 1950 | 2 | 22 | 08:00 | ... | ... | ... |
| 1950 | 2 | 23 | 08:00 | ... | ... | ... |
| 1950 | 2 | 24 | 08:00 | ... | ... | ... |
| 1950 | 2 | 25 | 08:00 | ... | ... | ... |
| 1950 | 2 | 26 | 08:00 | ... | ... | ... |
| 1950 | 2 | 27 | 08:00 | ... | ... | ... |
| 1950 | 2 | 28 | 08:00 | ... | ... | ... |
| 1950 | 2 | 29 | 08:00 | ... | ... | ... |
| 1950 | 2 | 30 | 08:00 | ... | ... | ... |
| 1950 | 2 | 31 | 08:00 | ... | ... | ... |
| 1950 | 3 | 1 | 08:00 | ... | ... | ... |
| 1950 | 3 | 2 | 08:00 | ... | ... | ... |
| 1950 | 3 | 3 | 08:00 | ... | ... | ... |
| 1950 | 3 | 4 | 08:00 | ... | ... | ... |
| 1950 | 3 | 5 | 08:00 | ... | ... | ... |
| 1950 | 3 | 6 | 08:00 | ... | ... | ... |
| 1950 | 3 | 7 | 08:00 | ... | ... | ... |
| 1950 | 3 | 8 | 08:00 | ... | ... | ... |
| 1950 | 3 | 9 | 08:00 | ... | ... | ... |
| 1950 | 3 | 10 | 08:00 | ... | ... | ... |
| 1950 | 3 | 11 | 08:00 | ... | ... | ... |
| 1950 | 3 | 12 | 08:00 | ... | ... | ... |
| 1950 | 3 | 13 | 08:00 | ... | ... | ... |
| 1950 | 3 | 14 | 08:00 | ... | ... | ... |
| 1950 | 3 | 15 | 08:00 | ... | ... | ... |
| 1950 | 3 | 16 | 08:00 | ... | ... | ... |
| 1950 | 3 | 17 | 08:00 | ... | ... | ... |
| 1950 | 3 | 18 | 08:00 | ... | ... | ... |
| 1950 | 3 | 19 | 08:00 | ... | ... | ... |
| 1950 | 3 | 20 | 08:00 | ... | ... | ... |
| 1950 | 3 | 21 | 08:00 | ... | ... | ... |
| 1950 | 3 | 22 | 08:00 | ... | ... | ... |
| 1950 | 3 | 23 | 08:00 | ... | ... | ... |
| 1950 | 3 | 24 | 08:00 | ... | ... | ... |
| 1950 | 3 | 25 | 08:00 | ... | ... | ... |
| 1950 | 3 | 26 | 08:00 | ... | ... | ... |
| 1950 | 3 | 27 | 08:00 | ... | ... | ... |
| 1950 | 3 | 28 | 08:00 | ... | ... | ... |
| 1950 | 3 | 29 | 08:00 | ... | ... | ... |
| 1950 | 3 | 30 | 08:00 | ... | ... | ... |
| 1950 | 3 | 31 | 08:00 | ... | ... | ... |

| Year | Month | Day | Time | Location | Activity | Remarks |
|------|-------|-----|-------|----------|----------|---------|
| 1950 | 1 | 1 | 08:00 | ... | ... | ... |
| 1950 | 1 | 2 | 08:00 | ... | ... | ... |
| 1950 | 1 | 3 | 08:00 | ... | ... | ... |
| 1950 | 1 | 4 | 08:00 | ... | ... | ... |
| 1950 | 1 | 5 | 08:00 | ... | ... | ... |
| 1950 | 1 | 6 | 08:00 | ... | ... | ... |
| 1950 | 1 | 7 | 08:00 | ... | ... | ... |
| 1950 | 1 | 8 | 08:00 | ... | ... | ... |
| 1950 | 1 | 9 | 08:00 | ... | ... | ... |
| 1950 | 1 | 10 | 08:00 | ... | ... | ... |
| 1950 | 1 | 11 | 08:00 | ... | ... | ... |
| 1950 | 1 | 12 | 08:00 | ... | ... | ... |
| 1950 | 1 | 13 | 08:00 | ... | ... | ... |
| 1950 | 1 | 14 | 08:00 | ... | ... | ... |
| 1950 | 1 | 15 | 08:00 | ... | ... | ... |
| 1950 | 1 | 16 | 08:00 | ... | ... | ... |
| 1950 | 1 | 17 | 08:00 | ... | ... | ... |
| 1950 | 1 | 18 | 08:00 | ... | ... | ... |
| 1950 | 1 | 19 | 08:00 | ... | ... | ... |
| 1950 | 1 | 20 | 08:00 | ... | ... | ... |
| 1950 | 1 | 21 | 08:00 | ... | ... | ... |
| 1950 | 1 | 22 | 08:00 | ... | ... | ... |
| 1950 | 1 | 23 | 08:00 | ... | ... | ... |
| 1950 | 1 | 24 | 08:00 | ... | ... | ... |
| 1950 | 1 | 25 | 08:00 | ... | ... | ... |
| 1950 | 1 | 26 | 08:00 | ... | ... | ... |
| 1950 | 1 | 27 | 08:00 | ... | ... | ... |
| 1950 | 1 | 28 | 08:00 | ... | ... | ... |
| 1950 | 1 | 29 | 08:00 | ... | ... | ... |
| 1950 | 1 | 30 | 08:00 | ... | ... | ... |
| 1950 | 1 | 31 | 08:00 | ... | ... | ... |
| 1950 | 2 | 1 | 08:00 | ... | ... | ... |
| 1950 | 2 | 2 | 08:00 | ... | ... | ... |
| 1950 | 2 | 3 | 08:00 | ... | ... | ... |
| 1950 | 2 | 4 | 08:00 | ... | ... | ... |
| 1950 | 2 | 5 | 08:00 | ... | ... | ... |
| 1950 | 2 | 6 | 08:00 | ... | ... | ... |
| 1950 | 2 | 7 | 08:00 | ... | ... | ... |
| 1950 | 2 | 8 | 08:00 | ... | ... | ... |
| 1950 | 2 | 9 | 08:00 | ... | ... | ... |
| 1950 | 2 | 10 | 08:00 | ... | ... | ... |
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FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Project Name: Water Treatment Plant Upgrade Location: Springfield, MA

Project No: WQ-2023-001 Date: 10/27/2023

| Parameter / Criteria | Unit | Standard / Limit | Current Status | | Allocation / Action | | Notes |
|--|-----------|------------------|----------------|------------|---------------------|-------------------------------|------------|
| | | | Value | Compliance | Allocation | Action | |
| Water Quality Parameters | | | | | | | |
| Dissolved Oxygen (DO) | mg/L | > 5.0 | 4.5 | Fail | 1.5 mg/L | DO Saturation | 10/27/2023 |
| 5-Day BOD (BOD5) | mg/L | < 5.0 | 6.0 | Fail | 1.0 mg/L | Secondary Treatment | 10/27/2023 |
| 30-Day BOD (BOD30) | mg/L | < 10.0 | 12.0 | Fail | 2.0 mg/L | Advanced Treatment | 10/27/2023 |
| Ammonia Nitrogen (NH3-N) | mg/L | < 1.0 | 1.5 | Fail | 0.5 mg/L | Nitrification | 10/27/2023 |
| Total Nitrogen (TN) | mg/L | < 1.5 | 2.0 | Fail | 0.5 mg/L | Denitrification | 10/27/2023 |
| Total Phosphorus (TP) | mg/L | < 0.1 | 0.15 | Fail | 0.05 mg/L | Phosphorus Precipitation | 10/27/2023 |
| Water Quantity Parameters | | | | | | | |
| Flow Rate (Q) | MGD | 10.0 | 10.0 | Pass | 0.0 | Flow Control | 10/27/2023 |
| Water Temperature | °F | 50-60 | 55 | Pass | 0.0 | Temperature Control | 10/27/2023 |
| Wastewater Treatment Plant (WWTP) Capacity | | | | | | | |
| Design Capacity | MGD | 10.0 | 10.0 | Pass | 0.0 | Design Capacity | 10/27/2023 |
| Current Capacity | MGD | 8.0 | 8.0 | Fail | 2.0 MGD | Capacity Expansion | 10/27/2023 |
| Wastewater Treatment Plant (WWTP) Performance | | | | | | | |
| Effluent BOD5 | mg/L | < 30 | 35 | Fail | 5 mg/L | Effluent Treatment | 10/27/2023 |
| Effluent NH3-N | mg/L | < 1.0 | 1.2 | Fail | 0.2 mg/L | Nitrification | 10/27/2023 |
| Effluent TP | mg/L | < 0.1 | 0.12 | Fail | 0.02 mg/L | Phosphorus Precipitation | 10/27/2023 |
| Wastewater Treatment Plant (WWTP) Costs | | | | | | | |
| Capital Cost | \$MM | 10.0 | 10.0 | Pass | 0.0 | Capital Cost | 10/27/2023 |
| Operating Cost | \$MM/yr | 1.0 | 1.0 | Pass | 0.0 | Operating Cost | 10/27/2023 |
| Maintenance Cost | \$MM/yr | 0.5 | 0.5 | Pass | 0.0 | Maintenance Cost | 10/27/2023 |
| Wastewater Treatment Plant (WWTP) Environmental Impact | | | | | | | |
| Carbon Footprint | tons CO2e | 1000 | 1000 | Pass | 0.0 | Carbon Footprint | 10/27/2023 |
| Water Footprint | MGD | 10.0 | 10.0 | Pass | 0.0 | Water Footprint | 10/27/2023 |
| Wastewater Treatment Plant (WWTP) Regulatory Compliance | | | | | | | |
| NPDES Permit | Yes | Yes | Yes | Pass | 0.0 | NPDES Permit | 10/27/2023 |
| State Water Quality Standards | Yes | Yes | Yes | Pass | 0.0 | State Water Quality Standards | 10/27/2023 |
| Federal Clean Water Act | Yes | Yes | Yes | Pass | 0.0 | Federal Clean Water Act | 10/27/2023 |

| Case No. | Case Name | Case Type | Case Status | Case Date | Case Location | Case Description | Case Details | Case Outcome |
|----------|-------------------|------------|-------------|------------|----------------|---|---------------------------------|--------------------------------------|
| 10001 | John Doe | Case 10001 | Open | 2023-01-01 | New York | Initial report of a traffic violation. | Case assigned to Officer Smith. | Case closed with a fine. |
| 10002 | Jane Smith | Case 10002 | Pending | 2023-01-05 | California | Request for information regarding a missing person. | Investigation ongoing. | Case pending further information. |
| 10003 | Michael Brown | Case 10003 | Resolved | 2023-01-10 | Texas | Dispute over property boundaries. | Mediation session held. | Case resolved through mediation. |
| 10004 | Sarah White | Case 10004 | Open | 2023-01-15 | Florida | Complaint of harassment. | Police report filed. | Case open for further investigation. |
| 10005 | David Green | Case 10005 | Open | 2023-01-20 | Illinois | Request for legal advice. | Legal consultation provided. | Case open for legal review. |
| 10006 | Emily Black | Case 10006 | Open | 2023-01-25 | Ohio | Dispute over a contract. | Legal action initiated. | Case open for legal proceedings. |
| 10007 | Robert King | Case 10007 | Open | 2023-02-01 | Georgia | Request for information regarding a lost item. | Item located and returned. | Case closed. |
| 10008 | Laura Lee | Case 10008 | Open | 2023-02-05 | Arizona | Complaint of a neighbor's noise. | Mediation session held. | Case resolved through mediation. |
| 10009 | James Hall | Case 10009 | Open | 2023-02-10 | Colorado | Request for information regarding a missing pet. | Search in progress. | Case open for further investigation. |
| 10010 | Maria Garcia | Case 10010 | Open | 2023-02-15 | North Carolina | Dispute over a will. | Legal action initiated. | Case open for legal proceedings. |
| 10011 | Christopher Adams | Case 10011 | Open | 2023-02-20 | South Carolina | Request for information regarding a lost document. | Document located and returned. | Case closed. |
| 10012 | Amanda Taylor | Case 10012 | Open | 2023-02-25 | Virginia | Complaint of a neighbor's property damage. | Investigation ongoing. | Case open for further investigation. |
| 10013 | Matthew Wilson | Case 10013 | Open | 2023-03-01 | Washington | Request for information regarding a missing person. | Investigation ongoing. | Case pending further information. |
| 10014 | Olivia Moore | Case 10014 | Open | 2023-03-05 | Oregon | Dispute over a contract. | Legal action initiated. | Case open for legal proceedings. |
| 10015 | Benjamin Taylor | Case 10015 | Open | 2023-03-10 | Idaho | Request for information regarding a lost item. | Item located and returned. | Case closed. |
| 10016 | Sophia Anderson | Case 10016 | Open | 2023-03-15 | Montana | Complaint of a neighbor's noise. | Mediation session held. | Case resolved through mediation. |
| 10017 | Ethan Roberts | Case 10017 | Open | 2023-03-20 | Wyoming | Request for information regarding a missing pet. | Search in progress. | Case open for further investigation. |
| 10018 | Avery Clark | Case 10018 | Open | 2023-03-25 | Utah | Dispute over a will. | Legal action initiated. | Case open for legal proceedings. |
| 10019 | Lucas Lewis | Case 10019 | Open | 2023-04-01 | Nebraska | Request for information regarding a lost document. | Document located and returned. | Case closed. |
| 10020 | Isabella Walker | Case 10020 | Open | 2023-04-05 | Kansas | Complaint of a neighbor's property damage. | Investigation ongoing. | Case open for further investigation. |
| 10021 | Leo Hall | Case 10021 | Open | 2023-04-10 | Oklahoma | Request for information regarding a missing person. | Investigation ongoing. | Case pending further information. |
| 10022 | Charlotte King | Case 10022 | Open | 2023-04-15 | Missouri | Dispute over a contract. | Legal action initiated. | Case open for legal proceedings. |
| 10023 | Oliver White | Case 10023 | Open | 2023-04-20 | Arkansas | Request for information regarding a lost item. | Item located and returned. | Case closed. |
| 10024 | Amelia Green | Case 10024 | Open | 2023-04-25 | Louisiana | Complaint of a neighbor's noise. | Mediation session held. | Case resolved through mediation. |
| 10025 | Lucas Brown | Case 10025 | Open | 2023-05-01 | Mississippi | Request for information regarding a missing pet. | Search in progress. | Case open for further investigation. |
| 10026 | Harper Black | Case 10026 | Open | 2023-05-05 | Alabama | Dispute over a will. | Legal action initiated. | Case open for legal proceedings. |
| 10027 | Wyatt White | Case 10027 | Open | 2023-05-10 | South Dakota | Request for information regarding a lost document. | Document located and returned. | Case closed. |
| 10028 | Madelyn Green | Case 10028 | Open | 2023-05-15 | North Dakota | Complaint of a neighbor's property damage. | Investigation ongoing. | Case open for further investigation. |
| 10029 | Grayson Brown | Case 10029 | Open | 2023-05-20 | South Dakota | Request for information regarding a missing person. | Investigation ongoing. | Case pending further information. |
| 10030 | Chloe White | Case 10030 | Open | 2023-05-25 | North Dakota | Dispute over a contract. | Legal action initiated. | Case open for legal proceedings. |

| DATE | TIME | LOCATION | WIND | TEMP | REL HUM | SEA | WAVE | VIS | REMARKS |
|------------|-------|----------|------|------|---------|-----|------|-----|---------|
| 2008-01-01 | 00:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 01:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 02:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 03:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 04:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 05:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 06:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 07:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 08:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 09:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 10:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 11:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 12:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 13:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 14:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 15:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 16:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 17:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 18:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 19:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 20:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 21:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 22:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |
| 2008-01-01 | 23:00 | SEA | 0-1 | 10 | 100 | 0 | 0 | 10 | SEA |

| Year | Month | Day | Time | Location | Activity | Remarks |
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| 1970 | 3 | 30 | 08:00 | ... | ... | ... |
| 1970 | 3 | 31 | 08:00 | ... | ... | ... |

| Project | Year | Start Date | End Date | Phase | Location | Value | Notes |
|-----------|------|------------|----------|---------|----------|----------|---------------------------|
| Project A | 2018 | 01/01 | 03/31 | Phase 1 | Site A | 1000000 | Initial site preparation |
| | 2019 | 04/01 | 06/30 | Phase 2 | Site A | 1500000 | Foundation work |
| Project B | 2019 | 07/01 | 09/30 | Phase 1 | Site B | 800000 | Site clearing |
| | 2020 | 10/01 | 12/31 | Phase 2 | Site B | 1200000 | Structural steel erection |
| Project C | 2020 | 01/01 | 03/31 | Phase 1 | Site C | 600000 | Excavation |
| | 2021 | 04/01 | 06/30 | Phase 2 | Site C | 900000 | Roofing |
| Project D | 2021 | 07/01 | 09/30 | Phase 1 | Site D | 700000 | Site work |
| | 2022 | 10/01 | 12/31 | Phase 2 | Site D | 1100000 | Interior fit-out |
| Project E | 2022 | 01/01 | 03/31 | Phase 1 | Site E | 500000 | Site prep |
| | 2023 | 04/01 | 06/30 | Phase 2 | Site E | 800000 | Final construction |
| Total | | | | | | 10000000 | |

| Category | Item | Value | Notes |
|--------------|-----------|---------|-------------------------|
| Construction | Materials | 3000000 | Concrete, steel, etc. |
| | Labor | 2500000 | Construction workers |
| Professional | Architect | 1000000 | Design and drawings |
| | Engineer | 800000 | Structural and MEP |
| Other | Permits | 500000 | Local and state permits |
| | Insurance | 400000 | Construction liability |
| Total | | 8200000 | |

8/17/2012 2:50:43 PM

Facility = City of Alexandria CSS - Outfall 001

Chemical = Copper

Chronic averaging period = 4

WLAa = 23

WLAc =

BI = 9.4

samples/mo = 1

samples/wk = 1

Summary of Statistics

observations = 15

Expected Value = 13.7398

Variance = 6.10592

C.V. = 0.186834

97th percentile daily values = 18.3661

97th percentile 4 day average = 13.7058

97th percentile 30 day average = 14.0854

< Q.L. = 1

Model used = delta logarithm

No Limit is required for this material

The data are

12

13

11

15

10

16

14

16

10

14

11

7.4

12

12

15

8/17/2012 2:52:25 PM

Facility = City of Alexandria CSS - Outfall 001

Chemical = Zinc

Chrome (over 60%) period = 4

WLA₅ = 210

WLA_c =

Q.L. = 83

samples/mo = 4

samples/yr = 1

Summary of Statistics.

observations = 15

Expected Value = 13.2393

Variance = 5.10592

C.V. = 0.186634

97th percentile daily values = 13.3681

97th percentile 4 day average = 15.7058

97th percentile 30 day average = 14.0884

< Q.L. = 15

Model used = delta lognormal

No Limit is required for this material

The data are

54

55

39

45

30

60

60

61

26

20

72

50

64

61

72

8/17/2012 4:33:28 PM

Facility = City of Alexandria CSS - Outfall 002

Chemical = Copper

Chronic averaging period = 4

Wf Ac = 20

Wf Ac =

Q.L. = 0.1

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 16

Expected Value = 19.8167

Variance = 135.042

C.V. = 0.586410

97th percentile daily values = 48.1376

97th percentile 4 day average = 32.6379

97th percentile 30 day average = 23.6076

< Q.L. = 1

Model used = delta lognormal

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 20

Average Weekly limit = 20

Average Monthly Limit = 20

The data are:

26

30

30

14

15

12

11

17

9.3

17

17

10

15

17

3.5

73

8/17/2012 4:34:57 PM

Facility = City of Alexandria CGS - Outfall 002
Chemical = Zinc
Chronic averaging period = 4
WLA₅ = 180
WLA_c =
Q.L. = 73
samples/mo = 1
samples/wk = 1

Summary of Statistics.

observations = 15
Expected Value =
Variance =
C.V. =
97th percentile daily values =
97th percentile 4 day average =
97th percentile 30 day average =
= 0.1 = 15
Model used =

No limit is required for this material

The data are:

42
41
43
21
42
29
24
31
23
40
35
31
35
49
51

8/17/2012 4:52:20 PM

Facility = City of Alexandria CWSIS - Outfall 003

Chemical = Copper

Chronic Averaging period = 4

WL Aa = 34

WL Ac =

OL = 13

samplings = 1

samples/wk = 1

Summary of Statistics.

observations = 10

Expected Value = 11.3351

Variance = 46.2545

CV = 0.6

97th percentile daily values = 27.5830

97th percentile 4 day average = 18.8592

97th percentile 30 day average = 13.6707

< O L = 7

Model used = BPA Assumptions, Type 1 data

No limit is required for this material

The data are:

8
9
6
10
15
12
8
9
11
22

8/17/2012 4:53:35 PM

Facility = City of Alexandria CSS - Outfall 003

Chemical = Zinc

Chronic averaging period = 4

WLAa = 200

WLAc =

Q.L. = 120

samples/mo = 1

samples/wk = 1

Summary of Statistics

observations = 10

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average =

97th percentile 30 day average =

< Q.L. = 10

Model used =

No fund is required for this material

The data are

50

20

30

30

90

60

50

50

70

80

8/17/2012 4:55:56 PM

Facility - City of Alexandria CGS - Outfall 004
Chemical - Copper
Chronic averaging period - 4
WLA₁ - 34
WLA₂ -
C1 - 13
samples/mo = 1
samples/wk = 1

Summary of Statistics

observations = 12
Expected Value = 8.93141
Variance = 28.7172
C.V. = 0.6
97th percentile daily values = 21.7308
97th percentile 4 day average = 14.8600
97th percentile 30 day average = 10.7717
- Q.L. = 10
Model used = BPU Assumptions, Type 1 data

No Limit is required for this material

The data are:

6
6
5
7
5
13
12
6
9
7
18
5

8/17/2012 4:57:59 PM

Facility = City of Alexandria CSS Outfall 004

Chemical = Zinc

Chronic averaging period = 4

Wt.Aa = 200

Wt.Ac =

Q.L. = 120

samples/mo = 1

samples/yr. = 1

Summary of Statistics

observations = 12

Expected Value = 68.5288

Variance = 1593.38

C.V. = 0.6

97th percentile daily values = 161.091

97th percentile 4 day average = 110.689

97th percentile 30 day average = 80.2370

= 0.1 = 11

Model used = BPU Assumptions, Type 1 data

No Limit is required for this material

The data are:

10
10
200
50
50
50
40
50
40
70
40
20



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 20 2011

MEMORANDUM

SUBJECT: Protecting Water Quality with Green Infrastructure in EPA Water Permitting and Enforcement Programs

FROM: Ninoy Storer *N. Storer*
Acting Assistant Administrator
Office of Water (OW)

Cynthia Giles *Cynthia Giles*
Assistant Administrator
Office of Enforcement and Compliance Assurance (OECA)

TO: EPA Regional Administrators, OW & OECA Office & Division Directors

The United States Environmental Protection Agency (EPA) strongly encourages and supports the use of green infrastructure approaches to manage wet weather through infiltration, evapotranspiration, and rainwater harvesting. As stated in previous memoranda,¹ EPA recognizes that green infrastructure can be a cost-effective, flexible, and environmentally-sound approach to reduce stormwater runoff and sewer overflows and to meet Clean Water Act (CWA) requirements. Green infrastructure also provides a variety of community benefits including economic savings, green jobs, neighborhood enhancements and sustainable communities. The benefits of green infrastructure are particularly enhanced in urban and suburban areas where green space is limited and environmental damage may be more extensive. The Office of Water (OW) and the Office of Enforcement and Compliance Assurance (OECA) are committed to working with interested communities and water resource managers to successfully incorporate green infrastructure into National Pollutant Discharge Elimination System (NPDES) permits, as well as remedies designed to address non-compliance with the CWA, to better manage both stormwater runoff and sewer overflows.

Given the multiple benefits associated with green infrastructure, EPA encourages the use of green approaches to stormwater runoff and sewer overflow management to the maximum extent possible. Green practices reduce stormwater runoff, preventing it from entering combined and separate sanitary sewer systems and reducing the volume and occurrence of overflows.

¹ "Using Green Infrastructure to Protect Water Quality in Stormwater, CWA, Nonpoint Source and other Water Programs" signed by Benjamin Grumbles, Assistant Administrator, Office of Water, on March 5, 2007, and "Use of Green Infrastructure in NPDES Permits and Enforcement" signed by Linda Kocumjian, Director, Water Permits Division and Mark Pollina, Director, Water Enforcement Division, on August 16, 2007.

Green practices also lower the amount of untreated stormwater discharging to surface waters. Green infrastructure provides additional green spaces and recreational opportunities, enhanced ecosystem services, improved air quality, increased property values, energy savings, economic development, reduced urban heat island effects, and job creation opportunities. In addition, green infrastructure can serve as both a climate change mitigation and adaptation strategy, through increased carbon sequestration from plants and soils, and flexibility in adjusting to potential changes in precipitation patterns. As a result of these benefits, communities around the country are increasingly incorporating green designs into wet weather controls through both NPDES permits and water enforcement agreements.

tremendous progress has been made in recent years on models and technical approaches to assist communities with green infrastructure planning, making it easier for communities to demonstrate that green infrastructure solutions meet CWA requirements. CWA NPDES permits and enforcement agreements that incorporate green or gray infrastructure solutions require enforceable performance criteria, implementation schedules, monitoring plans and protocols, progress tracking and reporting, and operation and maintenance requirements. Regardless of the technology used, EPA looks for a demonstration of sound modeling and technical approaches as well as planning for overall wet weather control approaches to satisfy regulatory requirements. EPA will continue to increase its efforts to help interested communities ensure that green infrastructure meets CWA requirements as well as community goals and encourages communities to consider green infrastructure in all wet weather control plans.

In November 2011, EPA Deputy Administrator Bob Perciasepe formed a cross-agency green infrastructure Steering Committee and Work Group comprised of representatives of each region and every Assistant Administrator's office to further encourage and support the implementation of green infrastructure solutions. As part of this effort, EPA will continue to work with other federal agencies, state and local governments, tribes, municipalities, and the private sector to identify opportunities and provide technical assistance to communities implementing green approaches to control wet weather. EPA will also provide additional ways to encourage states and communities to leverage green infrastructure opportunities within other innovative environmental projects.

We encourage you and your staff to contact OWA's Green Infrastructure Coordinator, Chris Kloss at kloss.christopher@epa.gov and OPCA's Green Infrastructure Coordinator, Mahr Manson at manson.mahar@epa.gov with questions, comments and information on green infrastructure in permitting and enforcement. Attachment A to this memorandum contains some recent examples of successful incorporation of green infrastructure into NPDES permits and enforcement actions. Attachment B lists the green infrastructure regional liaisons for both the water and the enforcement programs.

Cc: Regional Permit and Enforcement Executive

Attachments:

Attachment A

Recent Examples of Green Infrastructure in Permits and Enforcement Actions

Stormwater Permitting Approaches with Green Infrastructure

California - Since May 2009, California Regional Water Quality Control Boards have adopted nine Phase I MS4 permits requiring that new development and redevelopment projects retain the 85th percentile storm event via infiltration, evapotranspiration, and rainwater harvest and reuse by utilizing green infrastructure practices. Within the individual permits, there are provisions that allow for off-site mitigation or payment of fees if retention and biofiltration are not technically feasible on site.

Charles River Watershed, MA - The draft Residual Designated Discharge General Permit has been developed and noticed for the communities of Milford, Bellingham and Franklin, Massachusetts. The draft permit proposes stormwater control requirements to reduce phosphorus loading for properties with two or more acres of impervious area and the use of infiltration/recharge practices to achieve the required phosphorus load reduction for a property if it is determined that such practices are technically feasible.

Massachusetts - EPA's draft small MS4 general permit for Massachusetts encourages the use of practices which capture (infiltrate, evapotranspire, and/or harvest and reuse rainwater) the 90th percentile storm event (1 inch storm). The draft permit also requires municipalities to examine existing guidelines and policies for their ability to support green infrastructure options in new development and redevelopment, identify impediments, and determine what changes need to be made.

Northbrook, IL - In July 2010, the City updated its Urban Runoff Pollution Ordinance to require that new development and redevelopment projects infiltrate, store for non-potable use, or evapotranspire the first 1/4 inch of a storm, or pay an Urban Runoff Reduction fee that the City then uses for larger scale stormwater control projects. The ordinance promotes the use of green infrastructure for meeting the stormwater retention requirements.

Washington, DC - The District's draft MS4 permit includes a development retention standard of 1.2 and 1.3 inches for non-federal and federal properties, respectively, along with numeric targets for green roofs (350,000 square feet over the permit cycle on District properties) and tree canopy (4,150 trees per year and 13,500 by 2014). The draft DC MS4 permit built off of a supplement to the previous permit that identified numeric targets for tree canopy (110 projects (17 by August 2009), rain gardens (50 by December 2009), rain barrels (125 by December 2009), and downspout disconnection (200 by December 2009).

Enforcement Actions with Green Infrastructure

Cincinnati, OH - Cincinnati's 2004 consent decree (CDD) to control sewer overflows was amended in 2010, providing opportunities to incorporate green infrastructure solutions by

substituting “green for grey” on a project by project basis. The city is currently evaluating potential green infrastructure projects and has a three-year study and detailed design period to examine green solutions in the Lick Run Watershed, in Mill Creek Valley on the west side of Cincinnati. One promising project in the Lick Run drainage area, a corridor that includes an environmental justice community, would remove storm water flows from the combined sewer system and create a new above ground drainage feature with surrounding park land. Cincinnati will be meeting with EPA throughout 2014 to discuss green infrastructure plans, and proposals for “green for grey” substitutions are likely to be submitted in 2017.

Cleveland, OH - The 2010 Cleveland, OH, CTA requires that green infrastructure be used to capture 44 million gallons of combined sewer overflow discharge in order to clean up Cleveland’s waters. The city agreed to spend at least \$42 million on green infrastructure and will conduct a feasibility study to develop a green infrastructure plan to meet the 44 million gallon reduction requirement. The agreement allows Cleveland to submit plans for additional green infrastructure controls, based on the results of initial projects. The city will target the majority of its green infrastructure projects in low-income and minority concentrated neighborhoods, where there is an abundance of vacant land that can be utilized at a relatively low cost. The residents of Cleveland will benefit from reduction of sewer overflows and their associated health hazards, increased green space and recreational opportunities, increased property values and job opportunities.

Kansas City, MO - EPA and Kansas City, Missouri signed a consent decree in May 2010 which requires the city to use green infrastructure to help control and eliminate sewer overflows. Kansas City will initially implement a green infrastructure plan to control wet weather flows in a 700-acre environmental justice neighborhood, with the option to expand green infrastructure programs throughout the city to help keep sewer overflows from polluting the community’s water. Green infrastructure technologies to be implemented include catch basins retrofits on road and street right-of-way, curb extension swales, street trees, permeable pavement, green roofs and stormwater planters. Thanks to this agreement, the citizens of Kansas City will benefit from improvements in water quality, air quality, and new green spaces throughout the city.

Louisville, KY - Through an agreement with EPA filed in 2005 and amended in 2009, Louisville, Kentucky is using green infrastructure to help solve the city’s sewer overflow problems. Louisville has committed to constructing 12 initial green infrastructure demonstration projects including green roofs, green streets, urban reforestation, and other green elements to keep polluted runoff from entering their waters. After a six-year study period to monitor demonstration projects, the sewer department may propose additional green infrastructure controls. Louisville’s sewer department has already distributed hundreds of rain barrels to residents throughout the city, providing citizens the opportunity to participate in cleaning up their waters. The community at large will continue to benefit from ongoing installment of rain gardens, permeable parking lots, and other green amenities throughout Louisville.

Attachment B

Regional Green Infrastructure Oversight

| Region | Water Program Green Infrastructure Liaisons | Enforcement and Compliance Green Infrastructure Liaisons |
|--------|--|---|
| 1 | Johnna Hunter | Joy Hilton Jeff Kopf |
| 2 | Jeff Gratz | Murray Fanner |
| 3 | Dominique Laeckenduff | Allison Graham |
| 4 | Mary Ann Gierber Daryl Williams | Araceli Bonilla |
| 5 | Bob Newport | Jonathan Moody |
| 6 | Brent Larsen Suzanna Perez | Diana McDonald |
| 7 | Kerry Herndon Mandy Whelan | Jodi Bruno |
| 8 | Stacy Eriksen | David Gierschalla |
| 9 | John Kenninger | Michelle Monstakas |
| 10 | Krista Mendelman | Rob Girandola |



OCT 27 2011

MEMORANDUM

SUBJECT: Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater Plans

FROM: Nancy Storer *Nancy Storer*
Acting Assistant Administrator
Office of Water (OW)

Cynthia Giles *Cynthia Giles*
Assistant Administrator
Office of Enforcement and Compliance Assurance (OECA)

TO: EPA Regional Administrators, OW & OECA Office & Division Directors

One of the most basic objectives of the Clean Water Act (CWA) is to keep raw sewage and pollutants carried by stormwater out of our nation's waters. We have made tremendous strides towards achieving that objective, but much work remains to be done. As we move forward with our work, we must be mindful that many of our state and local government partners find themselves facing difficult financial conditions. Their ability to finance improvements by raising revenues or issuing bonds has been significantly impacted during the ongoing economic recovery. We write this memorandum to make sure that we proceed as one EPA to assure that we work with states and communities to get the most effective as well as cost-effective approaches for meeting our shared objective of clean water that protects public health and the environment.

Integrated Planning for Cost-Effective Solutions

Today, the EPA, states and municipalities often focus on each CWA requirement individually for protecting water quality. As a result, we sometimes assess and implement the best alternative to solve one problem at a time without full consideration of all CWA obligations. This approach may have the unintended consequence of constraining a municipality from implementing the most cost-effective solutions in a sequence that addresses the most serious water quality issues first. We encourage regions to work with the states to engage our local partners regarding all of their National Pollutant Discharge Elimination System (NPDES) related obligations in an orderly manner. A comprehensive and integrated planning approach to a municipal government's CWA waste- and storm-water obligations offers the greatest opportunity for identifying cost-effective and protective solutions and implementing the most important projects first. The CWA and its implementing regulations, policy and guidance provide us

with the necessary flexibility to work with communities to utilize comprehensive integrated planning to prioritize its waste- and storm-water investments.

Integrated planning will put municipalities on a critical path to achieving the water quality objectives of the CWA by identifying efficiencies in implementing sometimes overlapping and competing requirements that arise from separate waste- and storm-water programs, including how best to make capital investments and meet operation and maintenance requirements. Integrated planning also can lead to the identification of sustainable and comprehensive solutions, such as green infrastructure, that improve water quality as well as support other quality of life attributes that enhance the vitality of communities.

In embracing an integrated approach to waste- and storm-water management we are not suggesting that existing regulatory or permitting standards that protect public health and water on which communities depend be lowered. Rather, we are simply suggesting that such an approach will help municipalities responsibly meet their CWA obligations by maximizing their infrastructure improvement dollars through the appropriate sequencing of work. This will require coordination between permit and enforcement actions and complementary state actions. In so doing, as we consider a particular municipality's financial ability to complete the required infrastructure improvement work we must be sure that we consider all of its CWA obligations. EPA's existing regulations and policies provide EPA and states flexibility to evaluate a municipality's financial capability in tough economic times and to set appropriate compliance schedules, allow for implementing innovative solutions and sequence critical waste- and storm-water capital projects and operation and maintenance related work in a way that ensures human health and environmental protection. We recognize that such an integrated approach will necessarily involve balancing all of a municipality's competing CWA priorities with the public health and welfare objectives of the CWA. In doing so, we must be diligent in ensuring that a municipality be positioned to address its most pressing public health and welfare issues first.

States and local governments share our commitment to protecting public health and welfare. As an initial step towards meeting this shared commitment, the Office of Water and Office of Enforcement and Compliance Assurance are developing an integrated planning approach framework to help EPA, including its regional offices, work with state and local governments toward cost effective decisions. The framework will identify: 1) the essential components of an integrated plan; 2) steps for identifying municipalities that might make best use of such an approach; and 3) how best to implement the plan with our state partners under the CWA permit and enforcement programs.

Once the framework is in draft form we want to begin discussions and hold meetings with states and local governments, utilities and environmental groups to obtain their feedback on the draft framework in the coming months. In addition, we hope to identify municipal leaders who are currently developing, or have developed, integrated plans that can serve as models for this work.

Green Infrastructure

As you know, given the multiple benefits associated with green infrastructure, EPA strongly encourages the use of green infrastructure and related innovative technologies, approaches, and practices to manage stormwater as a resource, reduce sewer overflows, enhance environmental quality, and achieve other economic and community benefits. Many cities and communities in the United States are now

employing green infrastructure practices and know the value of such projects to not only protect water resources, but also to bring opportunities for greenways and multiuse recreational areas, improving property values, saving energy and creating green jobs.

In April of this year, we released our new green infrastructure strategic agenda, which outlines the activities that we will undertake to help communities implement green infrastructure approaches. Our strategy aims to clarify and advance the wider utility of green infrastructure within the regulatory and enforcement contexts through improvements in outreach and information exchange, financing, and tool development and capacity building.

Over the past several years, we have been working closely with state and local governments to incorporate green infrastructure approaches to water quality within permits and enforcement actions. We have many successful examples of cities who will utilize green infrastructure to meet regulatory requirements while also benefiting from green jobs, neighborhood enhancements and more sustainable communities. We have also launched a community partnership program that has currently identified 10 communities with which the Agency will work on green infrastructure implementation issues. The Agency hopes to add up to an additional 20 communities in the future. We have also started to develop technical assistance resources for some of these communities on using green infrastructure on brownfield sites and slowly infiltrating soils and evaluating codes and ordinances for barriers. All of these green infrastructure and associate innovations are important tools that will be fundamental aspects of the integrated waste- and storm-water planning solutions we envision.

We have the tools in our existing regulations and guidance to find answers to these problems. The current economic times make the need for sensible and effective approaches even more pressing. We have already seen the benefits that leadership and creativity in the regions' work bring to resolving these issues, reflected in forward looking plans in Indianapolis, Cleveland, St. Louis and many others. We look forward to working with you, and with states and local communities, to continue to pursue innovative and cost effective solutions to our water quality challenges.

We encourage you and your staff to contact Deborah Nagle, Director, Water Permits Division (nagle.deborah@epa.gov) and Mark Pollins, Director, Water Enforcement Division (pollins.mark@epa.gov) with any questions you might have.

Cc: Regional Permit and Enforcement Liaisons

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of overflows from a combined sewer system during wet weather events into three water bodies in Alexandria, Virginia.

PUBLIC COMMENT PERIOD: TBD, 2013 to TBD, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: City of Alexandria
301 King Street, Room 4100, Alexandria, VA 22313
VA0087068

NAME AND ADDRESS OF FACILITY: Alexandria Combined Sewer System
Alexandria, VA 22313

PROJECT DESCRIPTION: The City of Alexandria has applied for reissuance of a permit for the public Alexandria Combined Sewer System. The applicant proposes to release combined sewer system overflows during wet weather events at an estimated annual volume of 112.8 million gallons into three water bodies. There is no sludge generated by this system. The facility proposes to release combined sewer system overflows during wet weather events in the Hooffs Run, Hunting Creek and Oronoco Bay in Alexandria in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit requires monitoring of the following pollutants: pH, carbonaceous-Biochemical Oxygen Demand, Total Suspended Solids, Dissolved Oxygen, Total Kjeldahl Nitrogen, Ammonia, E. coli, Nitrate+Nitrite, Total Nitrogen, Total Phosphorus, Chlorides, Total Recoverable Zinc, and Total Recoverable Copper.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment or may request electronic copies of the draft permit and fact sheet.

Name: Douglas Frasier
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3873 Email: Douglas.Frasier@deq.virginia.gov Fax: (703) 583-3821

**State "Draft Permit Checklist" to Assist in Large-Scale
Municipal and Industrial Individual NPDES Draft Permit Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MDEQ established to assign the Enforcement role of NPDES and the United States Environmental Protection Agency, Region III, the Enforcement unit submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence:

Facility Name: McKeesport Combined Sewer System
 NPDES Permit Number: VA00080008
 Permit Word Number: Draft/1.1/ward
 Date: 01 August 2003

Major [X] Minor [] Industrial [] Municipal [X]

I.A. Draft Permit Package Submittal Includes

| | Yes | No | N/A |
|--|-----|----|-----|
| 1. Permit Application? | X | | |
| 2. Complete Draft Permit, including all discharge point discharge permit, including bookplate information? | X | | |
| 3. Copy of Policy Notice? | X | | |
| 4. Complete Test Sheet? | X | | |
| 5. A Priority Pollutant Screening test sheet (parameters of concern)? | | X | |
| 6. A Reasonable Potential analysis? (Priority calculated WQBEL)? | X | | |
| 7. Detailed CWA calculations? | | | X |
| 8. Whole Effluent Toxicity Test summary and analysis? | | X | |
| 9. Permit Batch Sheet for wastewater analytical facilities? | | | X |

I.B. Permit Facility Characteristics

| | Yes | No | N/A |
|--|-----|----|-----|
| 1. Is this a new or significantly upgraded facility? | | X | |
| 2. Are all permit discharge locations connected to sewer collection systems, (non-point source WQBEL) from within the facility property, (physical and) authorized in this permit? | X | | |
| 3. Does the discharge permit contain a description of the wastewater treatment processes? | | | X |
| 4. Does the review of PWS/PSMR data for at least the last 12 months indicate compliance with the existing permit? | | | X |
| 5. Has there been any change in flow contracts with the state? (the last permit was developed) | | X | |
| 6. Does the permit allow for a change in flow or increased loads of any pollutants? | | X | |
| 7. Does the draft discharge permit provide a description of the receiving water body? (use of data readily available to the facility to determine on how critical flow conditions and expansion of existing ones?) | X | | |
| 8. Does the facility discharge by a discharge pipe water? <ul style="list-style-type: none"> a. Has a TMDL been developed and approved by EPA for the impaired water? b. Does the review indicate that the TMDL stays within the limits of the permit and will not likely be developed within the life of the permit? c. Does the facility discharge a pollutant of concern (pop) for the TMDL of impaired water? | X | | X |
| 9. Have any discharge permit violations or any "misses" occurred since the current permit? | | | X |
| 10. Does the permit authorize discharge of storm water? | | | X |

1.3. Permit/Facility Closure Checklist – cont.

| | Yes | No | NA |
|--|-----|----|----|
| 11. Has the facility substantially reduced or altered its production or substantially increased its flow of production? | | X | |
| 12. Are there any production-based, technology-based or other limits in the permit? | | | X |
| 13. Do any water quality-based criteria limit calculations differ from the State's standard policy of self-protection? | | | X |
| 14. Are any WQBELs based on an initial or latest of narrative criteria? | | | X |
| 15. Do the NPDES permit and variance conditions conform to the State's standards or regulations? | | X | |
| 16. Has the permit gone on a compliance schedule for any limit or condition? | | X | |
| 17. Is there any abatement required and/or proposed (other than that required by the facility's discharge permit)? | X | | |
| 18. Have requests to increase discharge volume or to stop pumped flow water supply been evaluated? | X | | |
| 19. Is there any indication that there is a significant public interest in the permit action proposed for this facility? | | X | |
| 20. Have previous permit applications and facilities been examined? | X | | |

Part II: NPDES Draft Permit Checklist

**Region III NPDES Permit Quality Checklist – for POTWS
(to be completed and included in the record file for POTWS)**

| II.A. Permit Coverage/Description | Yes | No | N/A |
|--|----------------|----|-----|
| 1. Does the fact sheet permit describe the physical location of the facility including latitude and longitude (latitude/longitude) and permit coverage (page)? | X | | |
| 2. Does the permit contain specific performance standards and/or limitations that address treatment, if any? | X | | X |
| II.B. Effluent Limits – General Effluents | Yes | No | N/A |
| 1. Does the fact sheet describe whether a permit final limits in the permit for a comparison of technology and water quality based limits was performed, and the results compared favorably? | NOT APPLICABLE | | |
| 2. Does the fact sheet describe whether "antibackflow" provisions were included in any limits (BOD, TSS, etc.) that are greater than the previous NPDES permit? | | | X |
| II.C. Technology Based Effluent Limits (POTWS) | Yes | No | N/A |
| 1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative), suspended solids, TSS, TSS, and pH? | NOT APPLICABLE | | |
| 2. Does the permit require a BOD 5% reduction for BOD (or all BOD alternatives) and TSS (or 65% for equivalent to secondary) consistent with BOD (or pH) (page 13)? | | | |
| 3. Does the permit describe the technology and that application of WQBELs requires other means, such as primary or secondary treatment, that are superior to that are superior to treatment with BOD (or TSS) has been approved? | | | |
| 4. Are technology based permit limits expressed in the appropriate units of BOD (or TSS) concentration (mg/L or g/L)? | | | |
| 5. Are permit limits for BOD and TSS expressed in terms of both long term (i.e., 30 day average) and short term (i.e., 7 day average) water quality limits? | | | |
| 6. Are any concentration limitations in the permit consistent with the secondary treatment requirements for BOD (or TSS) and TSS (or a 30 day average) and 45 mg/L BOD (or TSS) over a 7 day average? | NOT APPLICABLE | | |
| 7. If yes, does the permit specify that the treatment is a wastewater treatment, treatment, or other technology that is superior to that of the permit (or other)? | | | |
| II.D. Water Quality Based Effluent Limits | Yes | No | N/A |
| 1. Does the permit include appropriate limitations consistent with 40 CFR 122.111 (including State narrative and numeric criteria for water quality)? | | | X |
| 2. Does the fact sheet indicate that any WQBELs with derived from a completed and EPA approved TMDL? | | | X |
| 3. Does the fact sheet provide effluent discharge cycle for a facility? | X | | |
| 4. Does the fact sheet describe permit "reasonable potential" evaluation was performed? | X | | |
| a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State approved procedure? | X | | |
| 5. Does the fact sheet describe the location allowing or disallowing or secondary treatment in a mixing zone? | X | | |
| c. Does the fact sheet provide WLA calculations provided at permit? (i.e., were found to have 100% WLA potential)? | X | | |
| d. Does the fact sheet indicate there are "reasonable potential" and WLA calculations were conducted for contributions from upstream sources (i.e., discharge to the effluent) and within the permit contribution? | | | X |
| e. Does the permit indicate a binary violation fact for all pollutants for which "reasonable potential" was determined? | | | X |

| 11.B. Water Quality Based Effluent Limits (cont.) | Yes | No | N/A |
|--|-----|----|-----|
| 5. Are all final WQBELs on the permit consistent with the ambient stream and water quality being protected in the receiving stream? | | | N |
| 6. Are all final WQBELs on any BOD5, TSS, or TSS-SSA effluent limits established? | | | N |
| 7. Are WQBELs being used in the permit to assure appropriate levels of non-point source runoff generation? | | | N |
| 8. Does the permit include any "water quality based" effluent limits or effluent limits consistent with the State's approved water quality policy? | | | N |

| 11.C. Monitoring and Reporting Requirements | Yes | No | N/A |
|--|------------------|----|-----|
| 1. Does the permit require at least annual monitoring for all limited parameters and 95% monitored by a regulated party and federal regulations? | NO APPLICABLE | | |
| a. Do the data the fact sheet indicate that the facility applied for and was granted a monitoring waiver? AND, does the permit specifically incorporate any waiver? | | | |
| 2. Does the permit accurately describe the physical location where monitoring is to be performed for each pollutant? | | N | |
| 3. Does the permit require at least annual monitoring for 1100 or HMM, herbicides and PCBs to be fully compliant with applicable permit and regulatory requirements? | | | N |
| 4. Does the permit require monitoring for WQS 318 herbicides? | N | | |

| 11.D. Special Conditions | Yes | No | N/A |
|--|-----|----|-----|
| 1. Does the permit include appropriate needed non-dispatch requirements? | | | N |
| 2. Does the permit include appropriate storm water program requirements? | | | N |

| 11.E. Special Conditions (cont.) | Yes | No | N/A |
|--|-----|----|-----|
| 3. If the permit includes compliance conditions, are they consistent with the agency and secondary objectives and requirements? | | | N |
| 4. Are there special conditions for ambient sampling under 1904, 1910, 1911, 1912, special water assessment with WQS and WQBEL's regulations? | N | | |
| 5. Does the permit allow authorized discharge of a facility's wastewater effluent other than the POTW initially to a CSD or ultimately to a sanitary sewer overflow (SSO) or treatment plant bypass? | | N | |
| 6. Does the permit authorize discharge of combined sewer overflow (CSO)? | N | | |
| a. Does the permit include implementation of the "Six Minimums" measure? | N | | |
| b. Does the permit require development and implementation of a "Six Step" Control Plan? | N | | |
| c. Does the permit require monitoring and reporting for CSO events? | N | | |
| 7. Does the permit include appropriate stormwater program requirements? | | | N |

| 11.F. Special Conditions | Yes | No | N/A |
|---|------------------------------|-------------------------------|-----|
| 1. Does the permit include all 404 CFR 122.41 industrial control items in the State's special permit monitoring conditions? | N | | |
| List of Standard Conditions - 404 CFR 122.41 | | | |
| Only to comply | Propose to build | Reporting Requirements | |
| Only to comply | Has no proposed construction | Planned Change | |
| Not included in monitoring activities | Responsible and only | Not required from compliance | |
| Not included | Monitoring and record | Hazard | |
| Not to monitor | Not to be reported | Monitoring report | |
| Propose C&M | HS/SS | Compliance schedule | |
| Reporting only | Propose | M&R requirements | |
| | | Other monitoring requirements | |
| 2. Does the permit contain the additional standard conditions in the State's special permit monitoring conditions, such as compliance with WQS and discharge monitoring, alternative water quality based effluent limits, and non-industrial monitoring for 1910, 1911, 1912? | N | | |

