GOVERNMENT OF THE DISTRICT OF COLUMBIA WASHINGTON, DC

Municipal Separate Storm Sewer System NPDES Permit No. DC0000221

DISCHARGE MONITORING REPORT

August 17, 2007



Adrian M. Fenty Mayor

Submitted by:

District of Columbia Storm Water Task Force

District Department of Environment 51 N Street, NE Washington, DC 20002

DC Department of Public Works 2000 14th Street, NW Washington, DC 20009 District Department of Transportation 2000 14th Street, NW Washington, DC 20009

DC Water and Sewer Authority 5000 Overlook Avenue, SE Washington, DC 20032

Assistance by:

EA Engineering, Science, and Technology, Inc. 15 Loveton Circle Sparks, MD 21152

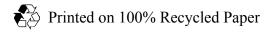


TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	ii
LIST OF FIGURES	ii
LIST OF APPENDICES	iii
I. INTRODUCTION	1
II. MONITORING STATIONS	1
III. WEATHER INFORMATION III.A Rock Creek Wet Weather Monitoring III.B Rock Creek Dry Weather Monitoring	6
IV. SAMPLE COLLECTION	8
V. RECORDKEEPING	9
VI. MONITORING RESULTS	10
VII. ESTIMATES OF CUMULATIVE LOADINGS	
VIII. ROCK CREEK WATER QUALITY TRENDS ANALYSIS	18
IX REFERENCES	20

LIST OF TABLES

No.	<u>Title</u>	Page
1	District of Columbia's Monitoring Schedule for Selected Stations in the MS4	2
2	Rock Creek Monitoring Stations	3
3	Summary of Wet and Dry Weather Sampling for Ten Rock	4
4	Precipitation Record for Washington, DC	5
5	Storm Sampling Characteristics for Rock Creek Wet Weather Events	7
6	Sample Analysis Requirements for Wet and Dry Weather Sampling	8
7	Ambient Water Quality Data for Rock Creek Stations During Wet and Dry Weather Events	10
8	Summary Data of Wet Weather Events (2006-2007) from Ten	14
9	Summary Data of All Dry Weather Events (2006-2007) from Ten	15
10	Calculated Loadings of 20 Pollutants during Wet Weather Events (2006-2007). from Ten Rock Creek Monitoring Stations (2006-2007)	17
11	Comparison of Event Mean Concentrations from Two Rotations of Wet	19
	LIST OF FIGURES	

1 Rock Creek Monitoring Stations

LIST OF APPENDICES

APPENDIX A	Large Scale Location Maps for Rock Creek Storm Monitoring Stations
APPENDIX B	Land Use Types for Rock Creek Storm Monitoring Stations
APPENDIX C	Quality Assurance Project Plan (QAPP)
APPENDIX D	DMR Forms for Rock Creek Storm Monitoring Stations
APPENDIX E	Complete Analytical Results for Rock Creek Storm Monitoring Stations
APPENDIX F	Land Use Characteristics and Runoff Coefficients

Municipal Separate Storm Sewer System NPDES Permit No. DC 0000221 2007 Discharge Monitoring Report

I. INTRODUCTION

The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) – Permit No. DC 0000221 (the Permit) requires monitoring of storm event discharges to characterize the quality of storm water discharges, monitoring of dry weather flows to detect illicit connections and improper discharges, and wet weather screening to further investigate excessive levels of pollutants.

This report describes the monitoring sites, sample collection, record keeping, monitoring results, and estimates of loadings from the 10 sites (six permitted and four non-permitted) in the Rock Creek watershed that have occurred since December 2006.

The District's current MS4 Permit was issued by U.S. Environmental Protection Agency (EPA) on August 19, 2004. Section IV.A.1, states that the Rock Creek stations are to be sampled within calendar year 2006 and reported in the Discharge Monitoring Report (DMR) report the following year on the permit date (August 19). The field activities and analytical results of samples collected at ten Rock Creek stations are the focus of this report. The completion of this sampling effort for the six permitted sites and four non-permitted sites in Rock Creek marks the end of the second cycle of sampling in this watershed (the first rotation was completed in 2005), and calculated trends of selected water quality data from 2005 and 2007 are presented in Section 8.0.

II. MONITORING STATIONS

The permit specifies representative sampling locations for each of the three subwatersheds designated within the MS4 area of the District: Anacostia River, Potomac River, and Rock Creek. One subwatershed is monitored in each calendar year (cy) on a rotating basis (Section IV.A.1) (Table 1).

Each of the watershed stations is to be monitored for at least three wet weather events per year. At sites with dry weather flows, dry weather screening samples are collected two times per year as part of the District's dry weather screening program. Samples are collected, in accordance with the Permit and monitoring requirements at 40 CFR 122.26 (d)(2)(iii).

TABLE 1. DISTRICT OF COLUMBIA'S MONITORING SCHEDULE FOR SELECTED STATIONS IN THE MS4

Watershed	Monitoring Years (cy)	No. of Stations
Potomac River	2004 and 2007	7
Anacostia River	2005 and 2008	9
Rock Creek	2006	10 (6 permitted; 4 non-permitted)

Environmental Design and Construction and EA Engineering, Science, and Technology, Inc. (EA) were contracted by the District Department of the Environment (DDOE) and the District of Columbia Water and Sewer Authority (WASA) to conduct this work. The Rock Creek sampling stations are described in the following paragraphs.

Six stations from the Rock Creek watershed are included in the Permit under Section IV.A.1. Four additional sites were added by DDOE to better characterize discharges from MS4 to Rock Creek. A listing of these ten sampling stations and their associated drainage area is provided in Table 2. Rock Creek sampling stations and large-scale location maps of the ten monitoring stations are provided in Figure 1 and Appendix A. The land use types associated with each Rock Creek MS4 monitoring site are provided in Appendix B.

TABLE 2. ROCK CREEK MONITORING STATIONS

Site Number	Sampling Location	Estimated Drainage Area (acres)
1	Walter Reed – Ft. Stevens Dr. ^a	25
2	Military Rd and Beach Dr. b	37
3	Soapstone Creek – Connecticut Ave. and Ablemarle St.	330
4	Melvin Hazen Valley Branch – Klingle Rd. and Porter St. c	88 e
5	Klingle Valley Creek – Devonshire Place and 30 th St.	52
6	Normanstone Creek – Normanstone Dr. and Normanstone Pkwy.	10 e
7	Portal and 16 th Streets ^d	6
8	Broad Branch - Broad Branch and 30 th St., NW near the Ivory Coast Embassy ^d	540
9	Oregon and Pinehurst ^d	84
10	Archbold Parkway – Intersection of New Mexico Ave. and Garfield St., NW ^d	49

^a Station still located on Ft. Stevens Drive, but outfall moved ~500 feet "upstream" in the pipe for safety reasons. EPA approved moving this station in Feb 2007.

Table 3 summarizes the sampling locations, number of samples collected, dates, and weather types for both wet and dry weather monitoring activities in Rock Creek since 2006.

In late 2006 and the first half of 2007, three wet weather events were sampled from four monitoring stations and two wet weather events were sampled from the remaining six monitoring stations. This report includes a summary of the data collected since December 2006, and results from three stations (Military Rd., Soapstone, and Klingle Valley) are reported in the DMR forms (Appendix D)¹. Detailed results that include the raw data from all ten stations are summarized in Appendix E.

^b Station still located at Military and Beach intersection, but moved ~500 feet "upstream" in pipe from the outfall to a manhole due to backwater flow conditions, which negatively affected flow sensors on automated sampler. EPA approved moving this station in Feb 2007.

^c Station moved to the outfall located at Klingle Rd. and Porter Street for safety reasons. EPA approved moving this station in Feb 2007.

^d Non-permitted sampling stations

^e Drainage area was revised since the 2004 DMR report and is based on map and field surveys of the sewershed

N/A: No acreage of drainage area has been estimated because much of the drainage area is in MD.

⁻⁻⁻Unknown drainage area

¹ EPA NPDES Branch did not send the District DMR forms for three permitted stations (Ft. Stevens, Melvin Hazen, and Normanstone). In a call to Nancy Ford, EPA Region III - Asst. PCS/ICIS Manager Office of Standards, Assessment and Information Management in July 2007, she said the DMR forms for these three stations are scheduled for printing in October of 2007 and the District could submit data for these stations by January 2008.

TABLE 3. SUMMARY OF WET AND DRY WEATHER SAMPLING FOR TEN ROCK CREEK STATIONS

Site No.	Location	Wet Weather	Dry Weather			
		3-15-07				
1	Ft. Stevens Dr.	5-16-07				
		6-28-07				
		3-15-07				
2	Military Rd. and Beach Dr.	5-16-07				
		6-28-07				
		3-15-07				
3	Soapstone Creek	5-16-07				
		6-28-07				
		3-1-07				
4	Melvin Hazen Valley Branch	5-16-07				
		6-28-07				
5	Vlingle Velley Cheels	3-15-07				
, and the second	Klingle Valley Creek	6-3-07				
6	No managed and Creedy	12-22-06	12-20-06			
· ·	Normanstone Creek	4-27-07	4-4-07			
7	D 1 11cth C 18	12-22-06	12-20-06			
/	Portal and 16 th Streets ^a	4-27-07	4-4-07			
8	D 10 13	12-22-06	12-20-06			
o	Broad Branch ^a	4-27-07	4-4-07			
9	One can and Dincharata	12-22-06	12-20-06			
	Oregon and Pinehurst ^a	4-27-07	4-4-07			
10	A malely all d Dard-sees a	12-22-06	12-20-06			
10	Archbold Parkway ^a	4-27-07	4-4-07			

^aNon-permitted sampling stations ---no sampling at this station

III. WEATHER INFORMATION

Table 4 lists the actual and average precipitation for Washington, D.C. for the period of December 2006 through June 2007. The weather gauge at Ronald Reagan National Airport was used to represent rainfall at the Rock Creek stations.

TABLE 4. PRECIPITATION RECORD FOR WASHINGTON, DC

Precipitation ^a										
Month	Actual (in.)	No. Days in Month with Storms >0.10 in. ^c	Monthly Average (in.)							
2006	-									
September	6.31	4	3.79							
October	5.06	6	3.22							
November	5.16	5	3.03							
December	1.56 ^b	3	3.05							
2007										
January	2.46 ^b	3	3.21							
February	2.22 b	3	2.63							
March	3.19 ^b	3	3.92							
April	4.17	4	2.77							
May	1.75	3	3.82							
June	1.38	2	3.13							
July	2.40	3	3.66							
August	3.44 (est)	1	3.44							

^a Precipitation data from Ronald Reagan National Airport; Source: NOAA National Data Center (https://ols.nndc.noaa.gov)

Drought conditions persisted throughout the spring and summer months with May through July rainfall being 5.08 inches below normal and consisting of only 9 eligible storm events that were mostly unpredictable thunderstorms. This severely impaired efforts to complete the monitoring of all 3 required wet weather prior to the 19 August 2007 submission deadline.

A summary of the rain events and their narrative descriptions for all wet and dry weather events sampled for the Rock Creek monitoring stations are provided below (Table 5).

^b During months with rainfall <u>and</u> snowfall, a conversion factor (10 in. snow = 1 in. rain) was used to calculate total precipitation amount.

^c Note: only those days that did not conflict with the 72-hr requirement between events are reported here.

III.A Rock Creek Wet Weather Monitoring

<u>December 22, 2006</u>: Samples were collected at Site #6 (Normanstone), Site #7 (Portal Road), Site #8 (Broad Branch), Site #9 (Oregon), and Site #10 (Archbold) during this storm event. Rain began to fall at about 3:00 PM on December 22 and concluded around 5:30 PM, this rain event lasted approximately 1.5 hours. A total of 0.07 inches of rain fell during the sampling of this event. The last measurable (>0.10 inches) rainfall occurred approximately eight days prior to this event.

March 1, 2007: A sample was collected at Site #4 (Melvin Hazen) during this storm event. Rain began to fall at about 6:45 PM on March 1st and continued to about 1:40 AM on March 2nd, this rain event lasted approximately seven hours. A total of 0.19 inches of rain fell during this event. The last measurable rainfall occurred approximately four days prior to this event.

March 15, 2007: Samples were collected at Site #1 (Ft. Stevens), Site #2 (Military and Beach), Site #3 (Soapstone), and Site #5 (Klingle Valley) during this storm event. Rain began to fall at about 3:30 PM on March 15 and continued to about 4:30 PM on March 16, lasting approximately 23 hours. A total of 2.15 inches of rain fell during this event. The last measurable rainfall occurred approximately seven days prior to this event.

April 27, 2007: Samples were collected at Site #6 (Normanstone), Site #7 (Portal Rd), Site #8 (Broad Branch), Site #9 (Oregon), and Site #10 (Archbold) during this storm event. Rain began to fall at about 11:30 PM on April 26 and concluded around 8:00 AM on April 27, this rain event lasted approximately 8 hours. A total of 0.21 inches of rain fell during the sampling of this event. The last measurable rainfall occurred approximately 12 days prior to this event.

May 16, 2007: Samples were collected at Site #1 (Ft. Stevens), Site #2 (Military and Beach), Site #3 (Soapstone), and Site #4 (Melvin Hazen) during this storm event. Rainfall began at 4:30 PM on May 16 and continued to about 9:00 PM on May 16, this rain event lasted approximately 4.5 hours. A total of 0.48 inches of rain fell during this event. The last measurable rainfall occurred approximately 4 days prior to this event.

June 3, 2007: A sample was collected at Site #5 (Klingle Valley) during this storm event. The area was impacted by light to moderate rainfall from the remnants of

Hurricane Barry. Rain began at 9:30 AM on June 3 and continued to 9:00 AM June 4, this rain event lasted approximately 23 hours. A total of 0.88 inches of rain fell during this event. The last measurable rainfall occurred 28 May 2007, 5 days prior to this event.

June 28, 2007: Samples were collected at Site #1 (Ft. Stevens), Site #2 (Military Rd), Site #3 (Soapstone Valley) and Site #4 (Melvin Hazen) during this storm event. Rainfall began at 7:06 PM on June 28 and continued to about 10:00 PM on June 28 this rain event lasted approximately 3 hours. A total of 0.10 inches of rain fell during this event. The last measurable rainfall occurred 12 June 2007, 16 days prior to this event.

TABLE 5. STORM SAMPLING CHARACTERISTICS FOR ROCK CREEK WET WEATHER EVENTS

Date	Precipitation (in.)	Duration (hr)	Time to Previous (hr)	Sites Sampled
12-22-06	0.07	1.5	192	6, 7, 8, 9, 10
3-1-07	0.19	7	96	4
3-16-07	0.36	23	168	1, 2, 3, 5
4-27-07	0.21	8	282	6, 7, 8, 9, 10
5-16-07	0.48	4.5	96	1, 2, 3, 4
6-3-07	0.88	23	120	5
6-28-07	0.10	3	384	1, 2, 3, 4

III.B Rock Creek Dry Weather Monitoring

As part of the dry weather program requirement, five Rock Creek stations were sampled during the year. The first dry-weather monitoring event occurred on December 20, 2006 at five stations and the second event occurred on April 4, 2007 at the same stations. A narrative description for these sampling events is provided below:

<u>December 20, 2006:</u> Samples were collected at Site #6 (Normanstone), Site #7 (Portal), Site #8 (Broad Branch), Site #9 (Oregon), and Site #10 (Archbold). The last measurable rainfall (≥0.1 inches) occurred approximately seven days prior to this dry weather monitoring event. Dry weather samples were collected beginning at 12:00 PM and concluded around 4:00 PM.

April 4, 2007: Samples were collected at Site #6 (Normanstone), Site #7 (Portal), Site #8 (Broad Branch), Site #9 (Oregon), and Site #10 (Archbold). The last measurable rainfall occurred approximately 3.5 days prior to this dry weather monitoring event. Dry weather samples were collected beginning at 10:00 AM and concluded around 12:30 PM.

IV. SAMPLE COLLECTION

The list of sampled parameters, the detection limits, and Environmental Protection Agency (EPA)-approved methods utilized for monitoring activities are included in Table 6. A Quality Assurance Project Plan (QAPP) for the wet and dry weather monitoring is provided in Appendix C.

TABLE 6. SAMPLE ANALYSIS REQUIREMENTS FOR WET AND DRY WEATHER SAMPLING

Bottle Type	Sample Type	Parameter	Method	Units	MDL
1-L Plastic	Composite	Biochemical Oxygen Demand (5d)	SM5210B	mg/L	< 5.0
Unpreserved		Total Dissolved Solids	SM2540C	mg/L	<1.0
		Total Suspended Solids	SM2540D	mg/L	<1.0
500 mL Plastic	Composite	Ammonia Nitrogen	SM4500-NH3-E	mg/L	<1.0
H_2SO_4		Phosphorus, Total	EPA 365.3	mg/L	< 0.05
		Nitrite + Nitrate	EPA 353.2	mg/L	< 0.05
		Chemical Oxygen Demand	EPA 410.4	mg/L	<10.0
		Total Kjeldahl Nitrogen	EPA 351.3	mg/L	< 0.5
250 mL Plastic,	Composite	Phosphorus, Dissolved	EPA 365.3	mg/L	< 0.5
Filtered, H ₂ SO ₄					
1000 mL Plastic	Composite	Hardness, Total	EPA 130.2	mg/L	
HNO_3		Antimony, Total	EPA 200.8	μg/L	0.21
		Arsenic, Total	EPA 200.8	μg/L	0.25
		Beryllium, Total	EPA 200.8	μg/L	0.22
		Cadmium, Total	EPA 200.8	μg/L	0.22
		Chromium, Total	EPA 200.8	μg/L	0.18
		Copper, Total	EPA 200.8	μg/L	1.52
		Lead, Total	EPA 200.8	μg/L	0.23
		Mercury, Total (by cold vapor)	EPA 245.1	μg/L	0.20 0.46
		Nickel, Total Selenium, Total	EPA 200.8 EPA 200.8	μg/L	0.46
		Silver, Total	EPA 200.8 EPA 200.8	μg/L	0.31
		Thallium, Total	EPA 200.8 EPA 200.8	μg/L	0.33
		Zinc, Total	EPA 200.8	μg/L	1.52
		,		P-8-	1.32
(2) 1-L Glass Amber	Grab	Dioxin (2,3,7,8) TCDD	EPA 1613	pg/L	4.4
1000 mL Plastic,	Grab	Fecal Coliform	SM9221E	MPN	
Sterile		Fecal Streptococcus	SM9230B	MPN	
250 mL Plastic,	Grab	Cyanide, Total	EPA 335.2	mg/L	< 0.01
NaOH					
(2) 1-L Glass Amber Unpreserved	Composite	BNA Compounds	EPA 625	μg/L	Various

Bottle Type	Sample Type	Parameter	Method	Units	MDL
(2) 40 mL Glass Vials Teflon Lids	Grab	Volatile Organic Compound	EPA 624	μg/L	0.5
1-L Glass Amber H ₂ SO ₄ Teflon Lids	Grab	Phenols, Total	EPA 420.2	mg/L	1.9
1-L Glass Amber H ₂ SO ₄ Teflon Lids	Composite	PCBs / Pesticides	EPA 608	μg/L	0.01-1.7
1-L Glass Amber Teflon Lids	Composite	PCBs	EPA 8082 modified	ng/L	0.25-5.0
1-L Glass Amber 1:1 HCl	Grab	Fats (oil and grease)	EPA 1664	mg/L	1.6
100 mL Plastic	Composite	Chlorophyll-a	SM 10020H2	mg/m ³	2
500 mL Plastic H ₂ SO ₄	Composite	Total Ammonia + Organic Nitrogen (TKN)	EPA 351.3	mg/L	0.2
	Field Test	Dissolved Oxygen	EPA 360.1	mg/L	N/A
500 mL Plastic H ₂ SO ₄	Composite	Organic Nitrogen	TKN – NH3	mg/L	N/A
500 mL Plastic H ₂ SO ₄	Composite	Total Nitrogen	NO2 + NO3 + TKN	mg/L	N/A

V. RECORDKEEPING

DDOE maintains the records of monitoring information including:

- Description of Sampling
 - o Location/Collection Time
 - Sampling Collection
 - Field Tests
 - o Environmental Design and Construction and EA personnel who collected samples
- Storm Event Data
 - Date and duration of the storm events samples
 - o Rainfall measurements
 - Duration between storm event sampled and the end of the previous measurable storm event
 - o Estimate of the flow for the total volume of the discharge sampled
- Sampling Field Notes
- QA/QC Review and Clarification
 - Field Test Results
 - o Laboratory Results Tables

VI. MONITORING RESULTS

Monitoring results for the wet weather sampling events at three Rock Creek stations are reported on DMR forms. Copies of the completed DMR forms for the monitoring results are provided in Appendix D. Ambient water quality data collected during the wet and dry weather sampling events are summarized in Table 7.

TABLE 7. AMBIENT WATER QUALITY DATA FOR ROCK CREEK STATIONS
DURING WET AND DRY WEATHER EVENTS

Station	Date	pH (s.u.)	Temp (°F)	TRC (mg/L)	DO (mg/L)
WET	Dute	pii (stat)	Temp (1)	Tree (mg/L)	DO (mg/L)
	3-15-07	7.80	54.7	0.00	8.29
Ft. Stevens	5-16-07	7.28	72.6	0.00	7.94
	6-28-07	7.50	84.0	0.05	6.96
	3-15-07	6.20	50.1	0.00	b
Military and Beach	5-16-07	7.58	65.3	0.03	8.59
	6-28-07	7.50	84.2	0.10	5.10
	3-15-07	7.60	54.1	0.02	9.41
Soapstone	5-16-07	6.95	78.1	0.00	8.50
	6-28-07	7.18	80.6	0.03	7.60
	3-1-07	7.90	50.5	0.00	9.93
Melvin Hazen	5-16-07	6.83	74.1	0.21	7.30
	6-28-07	7.50	80.2	0.00	7.64
Klingle Valley	3-15-07	7.20	52.5	0.00	11.2
Kinigle valley	6-3-07	7.50	70.9	0.00	7.01
Normanstone	12-22-06	7.80	54.0		
Normanstone	4-27-07	7.72	55.7		
Portal and 16 ^{th a}	12-22-06	7.62	53.6		
Tortal and To	4-27-07	8.27	56.0		
Broad Brancha	12-22-06	7.28	51.9		
Broad Branch	4-27-07	7.96	56.0		
Oregon and Pinehurst ^a	12-22-06	7.26	49.8		
Oregon and I menuist	4-27-07	7.45	53.8		
Archbold Pky. ^a	12-22-06	7.80	56.7		
Archoold I ky.	4-27-07	7.38	57.1		
DRY					
Normanstone	12-20-06	7.49	50.6		
Normanstone	4-4-07	7.90	60.5		
Portal and 16 ^{th a}	12-20-06	7.70	56.0		
1 ortal and 10	4-4-07	7.68	56.4		
Broad Branch a	12-20-06	7.74	52.5		
Didd Didnen	4-4-07	7.40	54.5		
Oregon & Pinehurst ^a	12-20-06	7.42	51.6		
	4-4-07	7.07	52.5		
Archbold Pky. a	12-20-06	7.80	52.6		
inchiood ing.	4-4-07	7.81	54.6		

^anon-permitted sampling stations

^bDO meter would not calibrate correctly – no data collected for this site

TRC: Total Residual Chlorine

⁻⁻⁻No data collected.

VII. ESTIMATES OF CUMULATIVE LOADINGS

The annual pollutant loads for each sewershed sampled for wet and dry weather events were calculated by the Simple Method (EPA 1992) utilizing the event mean concentrations from the sample analysis results and the total area and land use distribution within each sewershed.

The Simple Method can estimate pollutant loads without extensive rainfall-runoff volume data using the sample analysis results available. Generally, the Simple Method is expected to overestimate pollutant loads as compared to more dynamic models that incorporate pollutant concentration and runoff coefficients as functions of initial conditions and rainfall intensity and duration in estimating total pollutant loads.

The Simple Method is given by the following equation:

$$L = \sum_{i=1}^{\text{No. of}} \left(\frac{P}{12} \times CF \times Rv_i \times C \times A_i \times UC \right)$$
 (Equation 1)

where

L = pollutant loading (lb/year for chemical constituents, MPN/yr for bacteria)

P = average annual rainfall (inches)

CF = Correction factor (0.9) to adjust for storms where no runoff occurs (dimensionless) (EPA 1992)

 Rv_i = runoff coefficient for the land use type (dimensionless)

C = average event mean concentration (EMC) (mg/L for chemical constituents)

 A_i = land use area (acres)

UC = unit conversion factor: 2.72 for chemical constituents in concentration units of mg/L; 12,334,885 for bacteria in units of #/100 mL.

The average EMC (C) for each monitoring station was calculated as the geomean of the measured EMCs in accordance with EPA's *Urban Stormwater BMP Performance Monitoring: Guidance Manual* (ASCE/EPA, 2002).

$$C = Geomean of EMCs = \left[\prod_{j=1}^{m} EMC_{j}\right]^{\frac{1}{m}}$$

where:

 EMC_j = Event Mean Concentration of storm j

m = Number of storms at monitoring location

Annual precipitation within the District of Columbia for the September 2006 through August 2007 monitoring period 39.10 inches as reported by the National Weather Service (NWS) weather station at Ronald Reagan Washington National Airport (COOP ID: 448906) (Table 3-1). The sewershed area was obtained from the sewershed coverage provided by DC WASA. A key parameter in Equation 1 is the runoff coefficient (Rvi), which is directly related to imperviousness and land use. Land use categories, impervious surfaces, and runoff coefficients were based on zoning information for each sewershed, and are presented in Appendix F.

For EMCs calculated in this report, the geometric mean of each parameter was calculated as an estimate of the average EMC for each station. These data are presented in the following paragraphs for Rock Creek.

Wet Weather

Rock Creek stations 1 through 10 were sampled during wet weather flows from December 2006 to July 2007. EMCs for stations 6-10 were based on a single grab sample, whereas flow-weighted composite samples were used to calculate EMCs for Stations 1-5. The geometric mean of the wet weather analysis for each station is presented in Table 8. The highest mean concentration of TSS was reported at Oregon and Pinehurst (90.2 mg/L) and the lowest was reported at Archbold (9.9 mg/L). All other stations had TSS concentrations that ranged from 10.3 to 63.5 mg/L. Soapstone had the highest biochemical oxygen demand (BOD) concentrations among all stations (22.5 mg/L), while all other stations ranged from 3.3 (Archbold) to 10.7 mg/L (Ft. Stevens). Total nitrogen (TN) concentrations from Rock Creek stations ranged from 1.14 mg/L (Klingle Valley) to 5.89 mg/L (Melvin Hazen) and total phosphorus (TP) concentrations ranged from 0.17 mg/L (Military) to 0.48 mg/L (Melvin Hazen). Five Rock Creek stations had relatively high fecal coliform concentrations including Ft. Stevens (24,000 CFU/100 mls), Melvin Hazen (16,900 CFU/100 mls), Soapstone (9,860 CFU/100 mls), Broad Branch (9,000 CFU/100 mls), and Klingle Valley (8,000 CFU/100 mls). The five remaining Rock Creek stations were much lower, with concentrations ranging from 492 to 4,650 CFU/100 mls. Oil and grease concentrations ranged from 3.2 (Soapstone) to 6.2 mg/L (Ft. Stevens) at six of the monitoring stations. All other stations (Normanstone, Broad Branch, Oregon and Pinehurst, and Archbold) had non-detectable concentrations of oil and grease. Relatively low concentrations of arsenic (ND to 2.41 ug/L) were measured from all Rock Creek stations, while higher concentrations of copper (10.1 to 83.9 ug/L), lead (3.9

to 208 ug/L), and zinc (23.2 to 142 ug/L) were measured from these same stations. None of the stations had detectable concentrations for PAHs, chlordane, heptachlor, dieldrin, DDT, DDE, DDD, or PCBs. Complete analytical results are included in Appendix E.

Dry Weather

Rock Creek stations 6 through 10 were sampled for dry weather flows in December 2006 and again in April 2007. Grab samples were used to calculate the concentrations of 20 pollutants for these five stations, and the geometric mean of the dry weather analysis for each station is presented in Table 9. TSS concentrations ranged from 3.3 mg/L (Broad Branch) to 18 mg/L (Archbold). Portal had the highest BOD concentration (5.5 mg/L) measured during dry weather, and Normanstone and Broad Branch had the lowest concentrations (2.3 and 2.4 mg/L, respectively). These BOD concentrations measured during dry weather were comparable to concentrations measured during wet weather events (Table 8) at five stations (Normanstone, Portal, Broad Branch, Oregon and Pinehurst, and Archbold), which ranged from 3.3 to 6.0 mg/L. Total nitrogen concentrations ranged from 2.1 (Broad Branch) to 5.6 mg/L (Portal), and total phosphorus concentrations ranged from 0.08 (Oregon and Pinehurst) to 0.27 mg/L (Archbold). Neither total nitrogen nor total phosphorus was noticeably different between wet and dry weather events for these stations. Fecal coliform bacteria concentrations were highest at Normanstone and Portal (693 and 492 CFU/100 mls, respectively) and lowest at Archbold (42 CFU/100 mls). Fecal coliform concentrations were similar for Portal station during both wet (492 CFU/100 ml) and dry monitoring events, while all other stations were noticeably higher during wet weather events. Portal was the only station that had detectable concentrations of oil and grease during the two sample collections. The concentration of zinc was highest at Portal (90.1 ug/L), while all other stations had zinc concentrations below 24.7 ug/L. Lead concentrations ranged from 2.3 (Oregon and Pinehurst) to 3.9 ug/L (Portal) during dry weather events. These concentrations ranged from 27 to 58 percent lower than those measured from the same monitoring stations during wet weather. Other metal concentrations ranged from 6.4 to 23.9 ug/L for copper and from 1.6 to 2.5 ug/L for arsenic. None of the stations had detectable concentrations for PAHs, chlordane, heptachlor, dieldrin, DDT, DDE, DDD, or PCBs. Complete analytical results for dry weather data are included in Appendix E.

TABLE 8. SUMMARY DATA OF WET WEATHER EVENTS (2006-2007) FROM TEN ROCK CREEK MONITORING STATIONS. VALUES REPRESENT GEOMETRIC MEAN FOR EACH STATION.

	Parameters (mg/L, unless otherwise noted)																			
Station	TSS	BOD	TN	TP	FC ^b	O&G	Zn ^{cd}	Pb ^{cd}	Cu ^{cd}	As ^{cd}	PAH 1 ^d	PAH 2 ^d	PAH 3 ^d	Chlordane ^d	Heptachlor ^d	Dieldrin ^d	DDT ^d	DDE ^d	DDD ^d	PCBs ^e
Walter Reed	21.1	10.7	2.24	0.253	24,000	6.21	52.3	9.40	12.9	1.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
(Ft. Stevens)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=2)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Military Rd.	63.5	10.6	1.06	0.174	2,000	5.43	37.1	5.75	31.5	1.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Military Ku.	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Soonstone	34	22.5	2.96	0.279	9,860	3.15	62.7	7.66	24.7	1.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soapstone	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Melvin	60.8	9.62	5.89	0.476	16,900	3.52	142	27.3	80.4	1.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hazen	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Klingle	36.1	16	1.14	0.315	8,000	4.74	53.3	208	83.9	1.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Valley	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Normanstone	10.3	6	4.92	0.215	2,900	ND	44.7	7.07	11.4	2.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Normanstone	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Portal and	10.5	5.48	5.61	0.224	492	4.47	90.1	3.87	23.9	1.58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16 ^{th e}	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Broad	26.7	4.58	3	0.251	9,000	ND	30.2	4.12	10.1	1.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Branch ^e	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Oregon and	90.2	5.39	3.17	0.18	4,650	ND	23.2	5.43	15.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pinehurst ^e	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
A 1.1 1.10	9.9	3.32	2.94	0.335	2,120	ND	33.5	6.00	23.7	1.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Archbold ^e	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)

TSS: total suspended solids; BOD: biological oxygen demand; TN: total nitrogen; TP: total phosphorus; FC: fecal coliform bacteria; O&G: oil and grease; PCB: total PCBs

ND: non-detect

bUnits are in CFU/ 100 mls CTotal recoverable metals

^dUnits are in ug/L

eUnits are in ng/L

^e Non-permitted monitoring stations

TABLE 9. SUMMARY DATA OF ALL DRY WEATHER EVENTS (2006-2007) FROM TEN ROCK CREEK MONITORING STATIONS. VALUES REPRESENT GEOMETRIC MEAN FOR EACH STATION.

									Pai	rameters (n	ng/L, unles:	s otherwise	noted)							
Station	TSS	BOD	TN	TP	FC ^a	O&G	Zn ^{bc}	Pbbc	Cu ^{bc}	As ^{bc}	PAH 1 ^c	PAH 2°	PAH 3°	Chlordane c	Heptachlor ^c	Dieldrin ^c	DDT c	DDE c	DDD c	PCBs d
Walter Reed (Ft. Stevens)																				
Military Rd.																				
Soapstone																				
Melvin Hazen																				
Klingle Valley																				
Normanstone	3.46 (n=2)	2.28 (n=2)	4.7 (n=2)	0.199 (n=2)	693 (n=2)	ND (n=2)	22.4 (n=2)	3.02 (n=2)	13.64 (n=2)	2.1 (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)
Portal and 16 ^{th e}	10.5 (n=2)	5.48 (n=2)	5.61 (n=2)	0.224 (n=2)	492 (n=2)	4.47 (n=2)	90.1 (n=2)	3.87 (n=2)	23.9 (n=2)	1.58 (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)
Broad Branch ^e	3.32 (n=2)	2.37 (n=2)	2.1 (n=2)	0.0927 (n=2)	56.6 (n=2)	ND (n=2)	24.7 (n=2)	2.98 (n=2)	6.4 (n=2)	1.9 (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)
Oregon and Pinehurst ^e	4.62 (n=2)	3.32 (n=2)	2.8 (n=2)	0.0881 (n=2)	56.6 (n=2)	ND (n=2)	18.2 (n=2)	2.26 (n=2)	6.48 (n=2)	2.1 (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)
Archbold ^e	18 (n=2)	4.42 (n=2)	2.69 (n=2)	0.273 (n=2)	42.4 (n=2)	ND (n=2)	17.6 (n=2)	3.08 (n=2)	19.8 (n=2)	2.5 (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)	ND (n=2)

TSS: total suspended solids; BOD: biological oxygen demand; TN: total nitrogen; TP: total phosphorus; FC: fecal coliform bacteria; O&G: oil and grease; PCB: total PCBs

ND: non-detect

^aUnits are in CFU/ 100 mls ^bTotal recoverable metals

^cUnits are in ug/L

dUnits are in ng/L eNon-permitted monitoring stations

⁻⁻⁻ No data available due to no dry weather flow

VII.A Pollutant Loads

Calculated loads for 20 pollutants at ten Rock Creek monitoring stations during wet weather events are presented in Table 10. Broad Branch and Soapstone had the highest overall loads for the 20 selected parameters, and Portal had the lowest overall loads among the ten monitoring stations. Total suspended solids were contributed in low to moderate amounts (225 to 8,670 lbs/yr) from six stations, and in relatively higher amounts (23,700 to 57,800 lbs/yr) from four stations that included Soapstone, Melvin Hazen, Broad Branch, and Oregon. Portal and Normanstone stations had the lowest calculated BOD loadings (117 and 236 lbs/yr, respectively), while all other stations ranged from 808 (Archbold) to 31,800 lbs/yr (Soapstone). Half of the Rock Creek stations had moderate to high loads (716 to 6,490 lbs/yr) of total nitrogen, while all other stations (Ft. Stevens, Military, Klingle Valley, Normanstone, and Portal) were noticeably lower and ranged from 91 to 274 lbs/yr. Three stations had comparably higher loads of TP than all other stations and included Melvin Hazen (185 lbs/yr), Soapstone (393 lbs/yr), and Broad Branch (543 lbs/yr). All other stations had TP loads below 82 lbs/yr. Fecal coliform loads were contributed in high amounts for all ten stations, which ranged from 4.8e+10 (Portal) to 8.8e+13 lbs/yr (Broad Branch). Sources of this pollutant are currently unknown, but could include a combination of domestic animals, wildlife, birds, and humans. Calculated loadings for oil and grease was highest at Soapstone, which contributed 4,440 lbs/yr. Normanstone had the lowest detectable concentration of oil and grease (96 lbs/yr), while four stations (Klingle Valley, Broad Branch, Oregon, and Archbold) had no detectable loads contributing to the Rock Creek watershed. Relatively low concentrations (ND to 3.62 lbs/yr) of arsenic were contributed from all Rock Creek stations, while higher loads of copper (0.45 to 35 lbs/yr), lead (0.08 to 50.1 lbs/yr), and zinc (1.76 to 88.5 lbs/yr) were contributed from these same stations. None of the stations had detectable loads for PAHs, chlordane, heptachlor, dieldrin, DDT, DDE, DDD, or PCBs.

TABLE 10. CALCULATED LOADINGS OF 20 POLLUTANTS FROM WET WEATHER EVENTS (2006-2007) FROM TEN ROCK CREEK MONITORING STATIONS.

POLLUTANTS (lbs/year, unless otherwise noted)																				
Station	TSS	BOD	TN	TP	FC ^a	O&G	Zn ^b	Pb ^b	Cu ^b	$\mathbf{A}\mathbf{s}^{\mathrm{b}}$	PAH 1	PAH 2	PAH 3	Chlordane	Heptachlor	Dieldrin	DDT	DDE	DDD	PCBs
Walter Reed (Ft.	1,990	1,010	211	23.8	1.02E+13	585	4.92	0.89	1.22	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Stevens)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=2)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Military Rd.	5,430	907	91	14.9	7.76E+11	465	3.18	0.49	2.70	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
wiiitary Ku.	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Soapstone	47,900	31,800	4,180	393	6.31E+13	4,440	88.50	10.80	34.90	2.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Soupstone	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Melvin Hazen	23,700	3,740	2,290	185	2.98E+13	1,370	55.20	10.60	31.30	0.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Merviii Hazeii	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
Klingle Valley	8,670	3,840	274	75.7	8.73E+12	1,140	12.80	50.10	20.20	0.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Kinigie valley	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Normanstone	405	236	194	8.5	5.18E+11	ND	1.76	0.28	0.45	0.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
romanstone	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Portal and 16 ^{th c}	225	117	120	4.8	4.78E+10	96	1.93	0.08	0.51	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tortal and 10	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Broad Branch c	57,800	9,910	6,490	543	8.83E+13	ND	65.20	8.92	21.80	3.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dioau Dialicii	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Oregon and	31,900	1,900	1,120	63.5	7.45E+12	ND	8.22	1.92	5.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pinehurst ^c	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)
Archbold c	2,410	808	716	81.5	2.34E+12	ND	8.16	1.46	5.77	0.35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Archoold	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)	(n=2)

TSS: total suspended solids; BOD: biological oxygen demand; TN: total nitrogen; TP: total phosphorus; FC: fecal coliform bacteria; O&G: oil and grease; PCB: total PCBs

ND: non-detect

aFecal coliform is in CFU/ year

^bTotal recoverable metals

^cNon-permitted monitoring stations

VIII. ROCK CREEK WATER QUALITY TRENDS ANALYSIS

The permit requires that watersheds be sampled on a four-year rotational basis. The Rock Creek and Anacostia River monitoring stations are the only two watersheds that have been sampled for two complete rotations since the permit inception. Results from the Anacostia River were provided in the DMR report submitted to EPA on August 19, 2006. Results from ten Rock Creek stations for wet weather samples collected in 2003 and again in 2006 are presented in Table 11. The second rotation does not have a complete set of water quality data (e.g. at least three wet weather events sampled) for all ten monitoring stations. Selected water quality data (i.e. parameters in the permit and the Rock Creek TMDL for load reductions) from each rotation are tabled and all stations are combined for each rotation for comparison between Rotation 1 (2003-2005) and Rotation 2 (2006-2007). The data indicate that there were declines in EMCs between Rotation 1 and Rotation 2 from most of the measured parameters. Concentrations of TSS, BOD, fecal coliform, zinc, and copper in Rotation 2 had decreased by as much as 86 percent when compared to Rotation 1, while other parameters (e.g. nitrogen, phosphorus, oil and grease) only decreased slightly. Organic compounds (PAHs, chlordane, dieldrin, DDT, DDD, DDE) measured from Rotation 1 had declined to non-detectable concentrations during Rotation 2. Only two parameters (lead and arsenic) had increased in concentration since 2003, with lead increasing by 9 percent and arsenic increasing nearly 40 percent. Heptachlor and total PCBs were non-detectable during both rotations of monitoring.

Careful consideration is necessary when interpreting these results, primarily because changes in analytical techniques and detection limits make it difficult to compare datasets. In addition, calculated EMCs for Rotation 1 and Rotation 2 can be misleading when the sample sizes are currently very small (n≤3 for each). As monitoring continues, the dataset will increase and provide not only a more precise evaluation of the historic and current trends for these parameters, but also indicate how effective the strategies for reducing storm water pollutants in the District waterways have been.

TABLE 11. COMPARISON OF EVENT MEAN CONCENTRATIONS FROM TWO ROTATIONS OF WET WEATHER EVENTS FROM ROCK CREEK MONITORING STATIONS

Parameter	Rotation 1 (2003-2005)	Rotation 2 (2006-2007)	% Change
Total Suspended Solids (mg/L)	57.5	36.3	-58.4
BOD (mg/L)	17.2	9.42	-82.9
Nitrogen, total (mg/L)	3.33	3.29	-0.01
Phosphorus, total (mg/L)	0.323	0.27	-0.20
Fecal coliform (mpn)	12,800	7,990	-0.60
Oil & Grease (mg/L)	3.81	3.75	-0.02
Zinc (ug/L)	106	56.9	-0.86
Lead (ug/L)	26.1	28.5	+0.09
Copper (ug/L)	56.9	31.8	-0.79
Arsenic (ug/L)	1.19	1.65	+0.39
PAH 1 (ug/L)	2.28	ND	
PAH 2 (ug/L)	1.33	ND	
PAH 3 (ug/L)	1.97	ND	
Chlordane (ug/L)	0.189	ND	
Heptachlor epoxide (ug/L)	ND	ND	no change
Dieldrin (ug/L)	0.000599	ND	
DDT (ug/L)	0.000723	ND	
DDE (ug/L)	0.00062	ND	
DDD (ug/L)	0.00112	ND	
PCBs, total (ng/L)	ND	ND	no change

ND: non-detect

IX. REFERENCES

American Society of Civil Engineers (ASCE)/US Environmental Protection Agency (EPA). 2002. *Urban Stormwater BMP Performance Monitoring: Guidance Manual*. Office of Water. EPA 821/B/02-001.

US Environmental Protection Agency (EPA). 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer System. Office of Water. EPA 833/B/92-002.

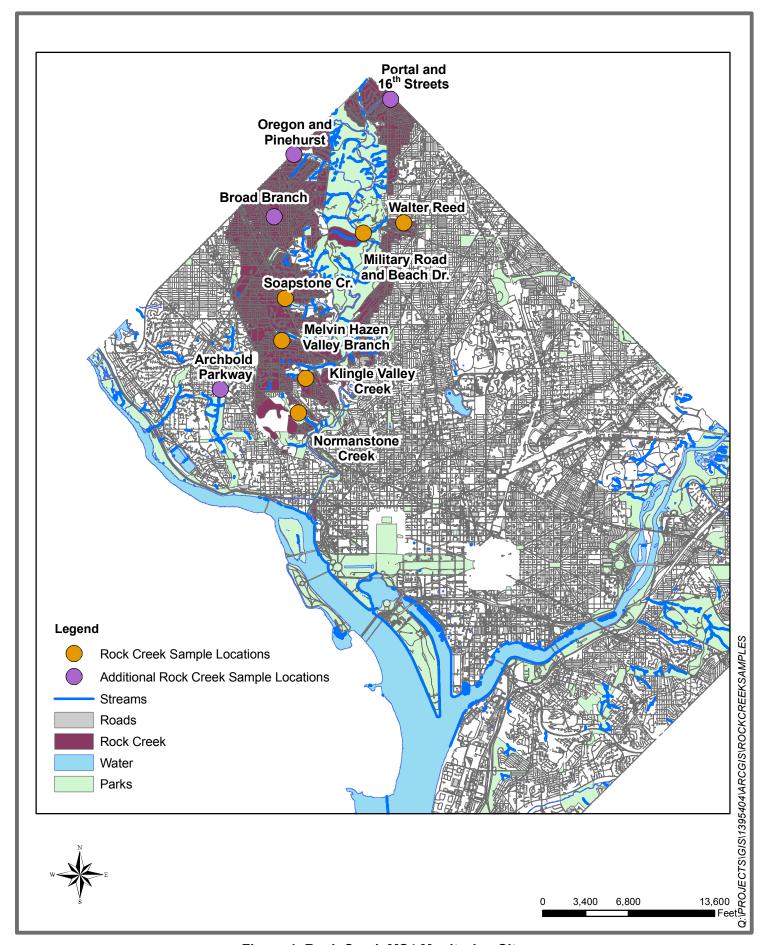
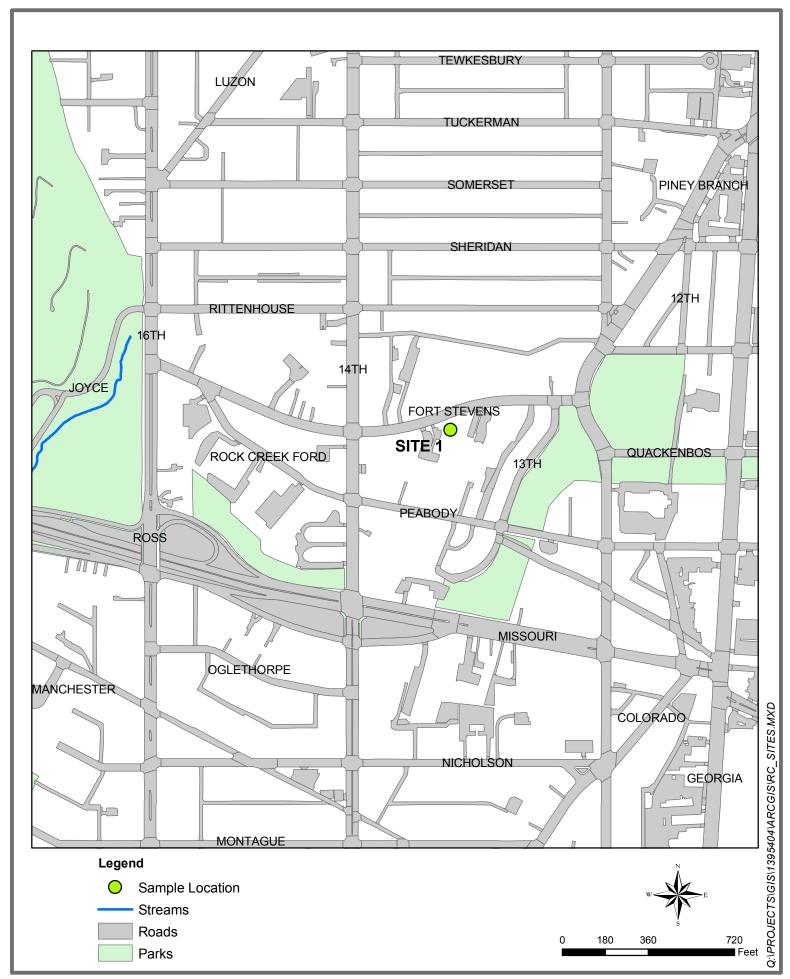
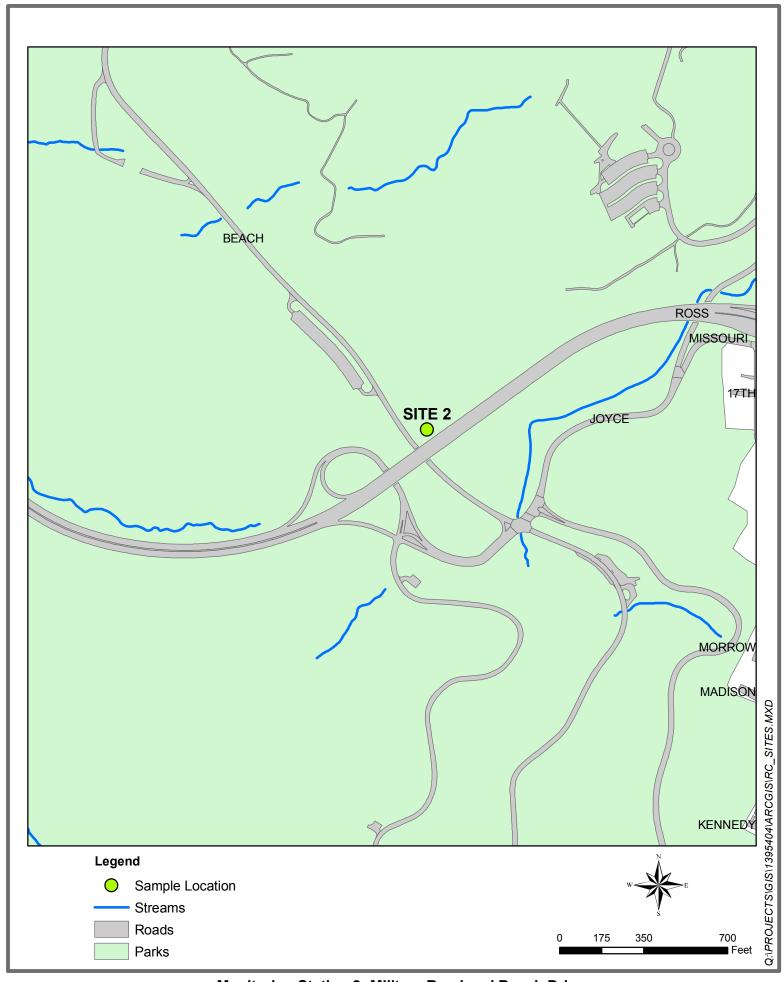


Figure 1. Rock Creek MS4 Monitoring Sites

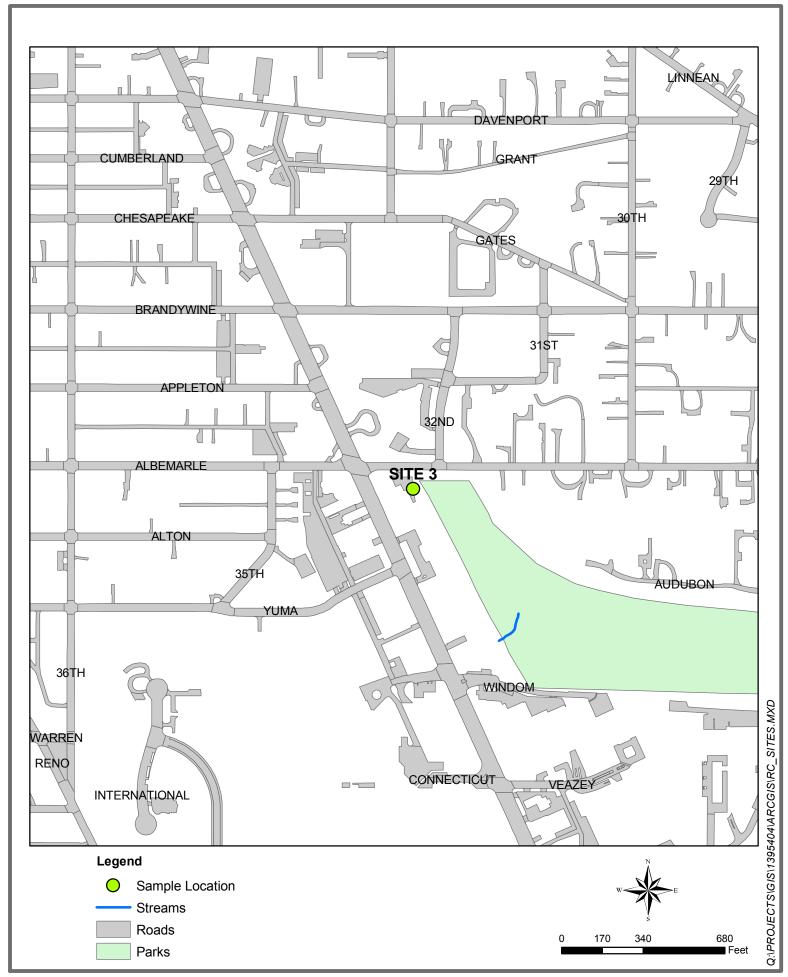
APPENDIX A Large Scale Location Maps for Rock Creek Storm Monitoring Stations



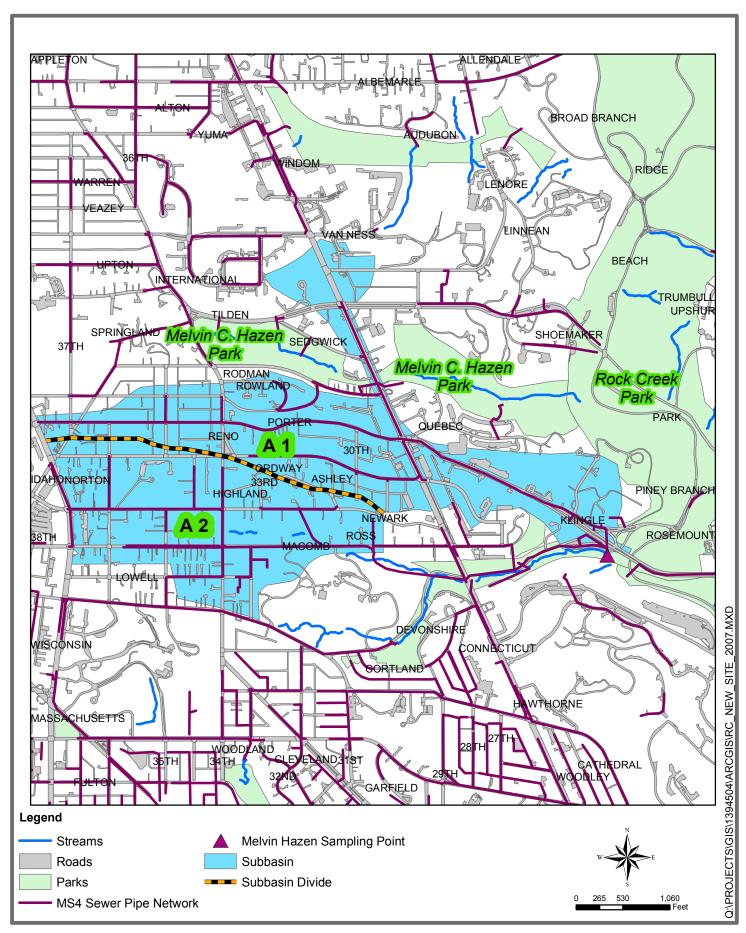
Monitoring Station 1: Walter Reed - Fort Stevens Drive.



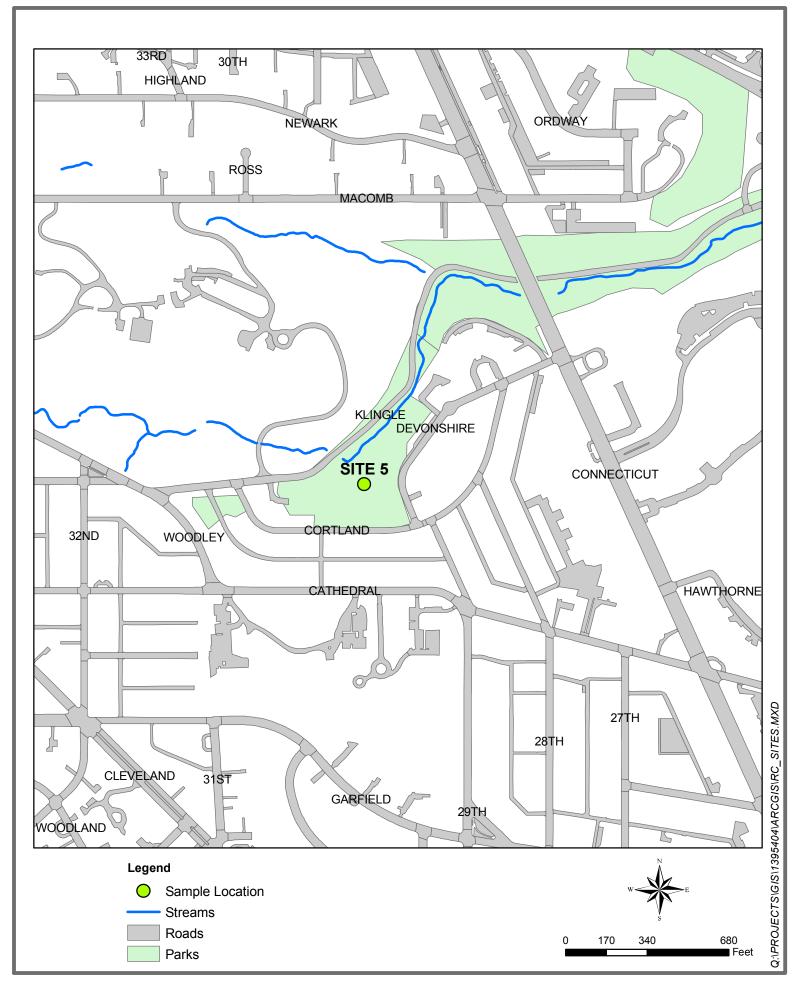
Monitoring Station 2: Military Road and Beach Drive.



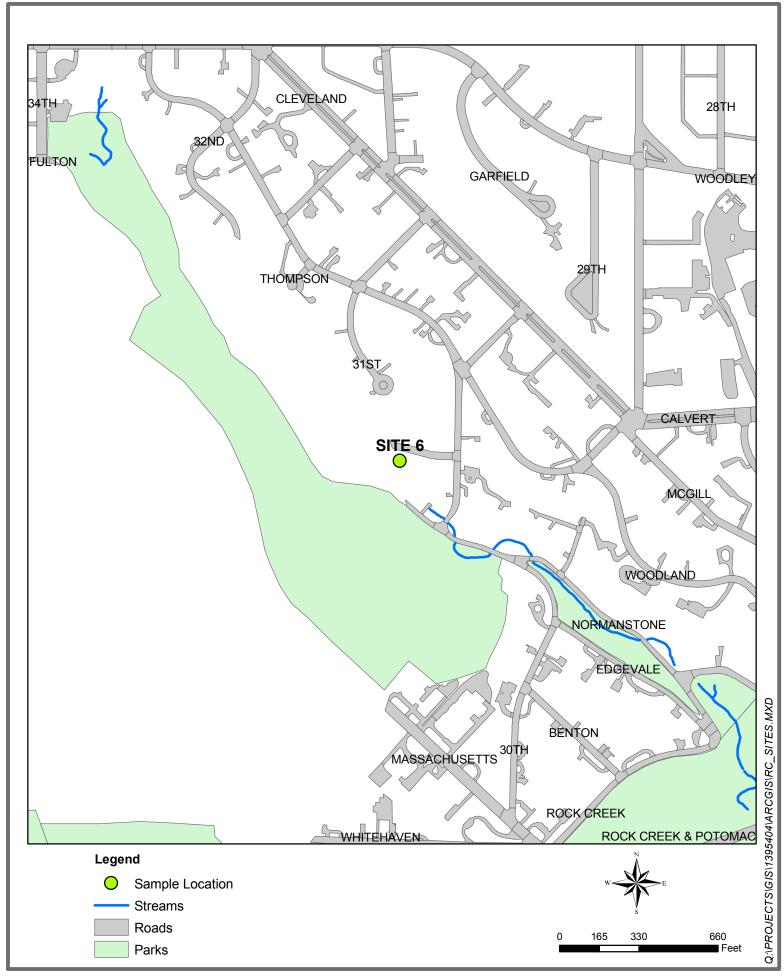
Monitoring Station 3 (Soapstone Creek): Connecticut Ave. and Albemarle St.



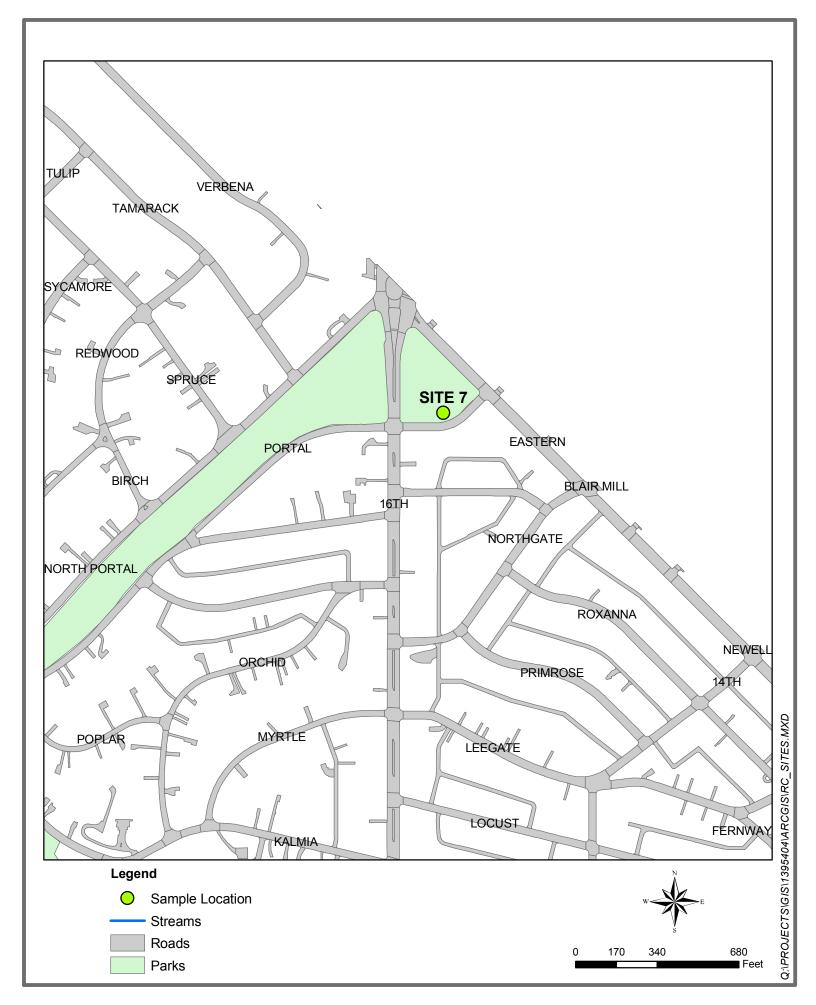
Monitoring Station 4 (Melvin Hazen) Drainage Areas Contributing to Sampling Locations Map



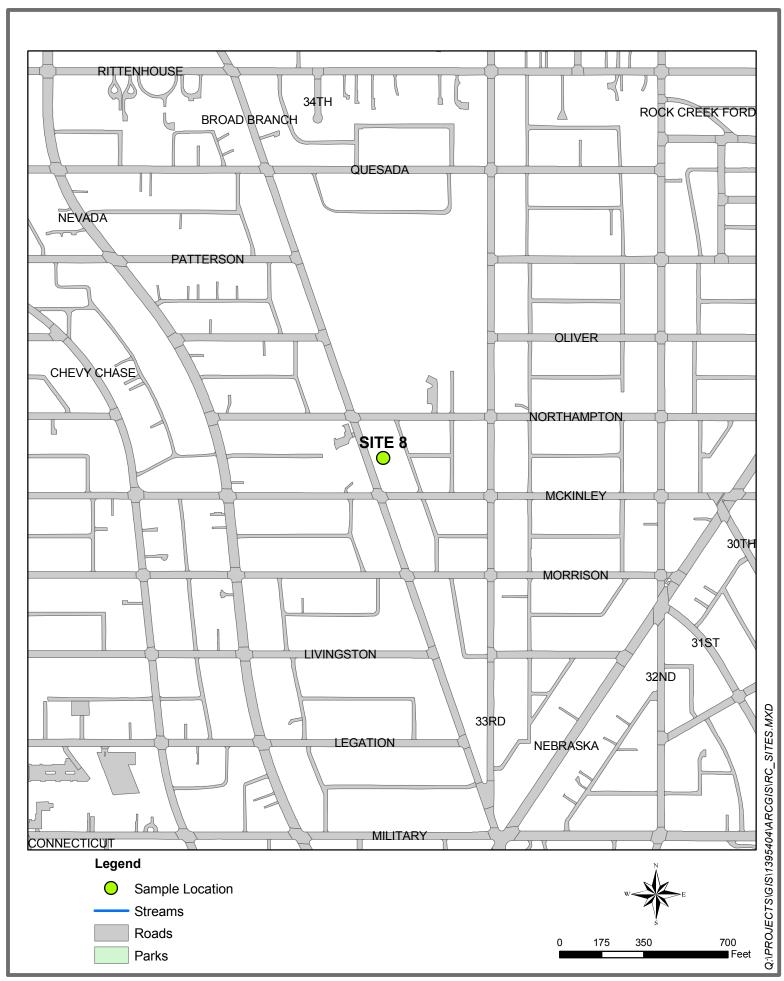
Monitoring Station 5 (Klingle Valley Creek): Devonshire Place and 30th St.



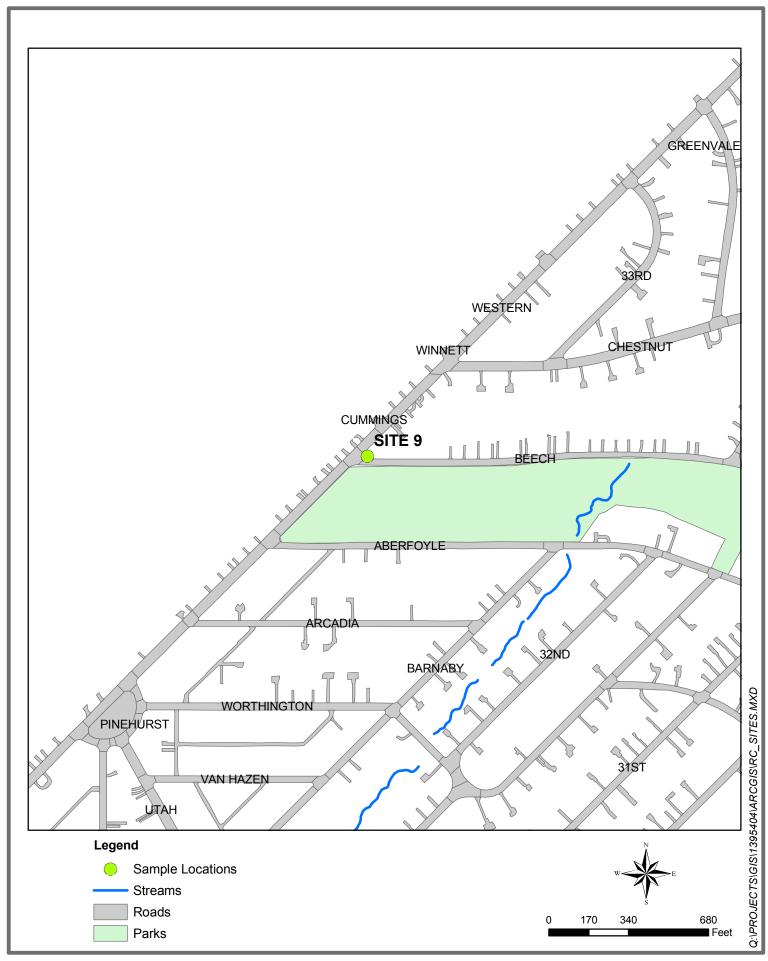
Monitoring Station 6 (Normanstone Creek): Normanstone Dr. and Normanstone Pkwy.



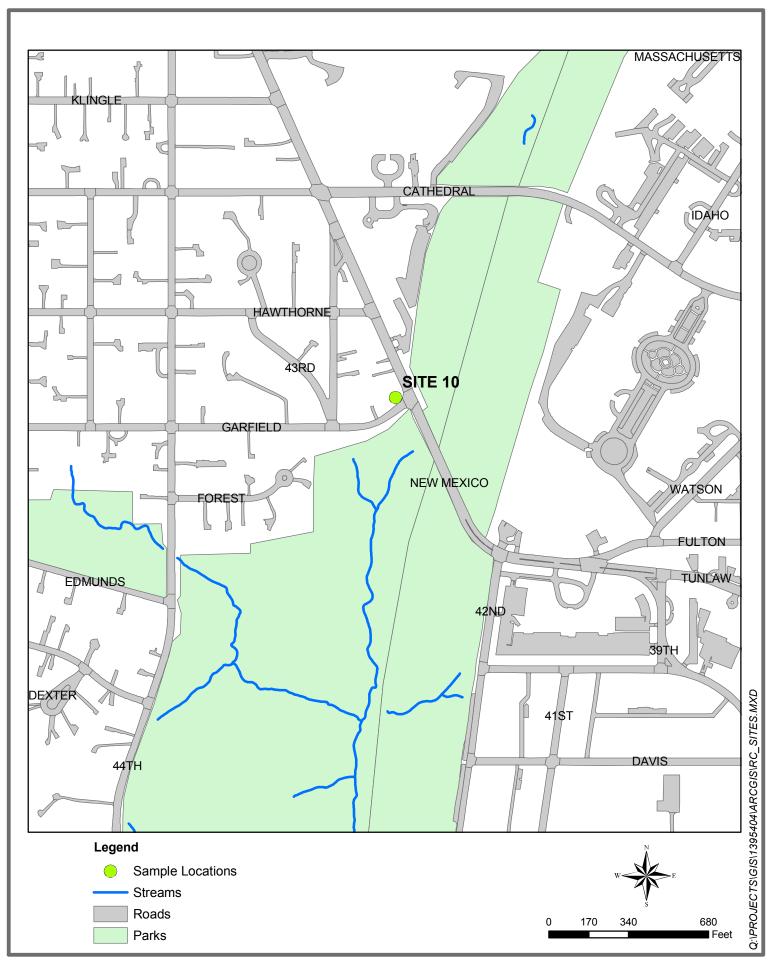
Monitoring Station 7: Portal and 16th Street.



Monitoring Station 8 (Broad Branch): Broad Branch Rd. and 30th., NW.



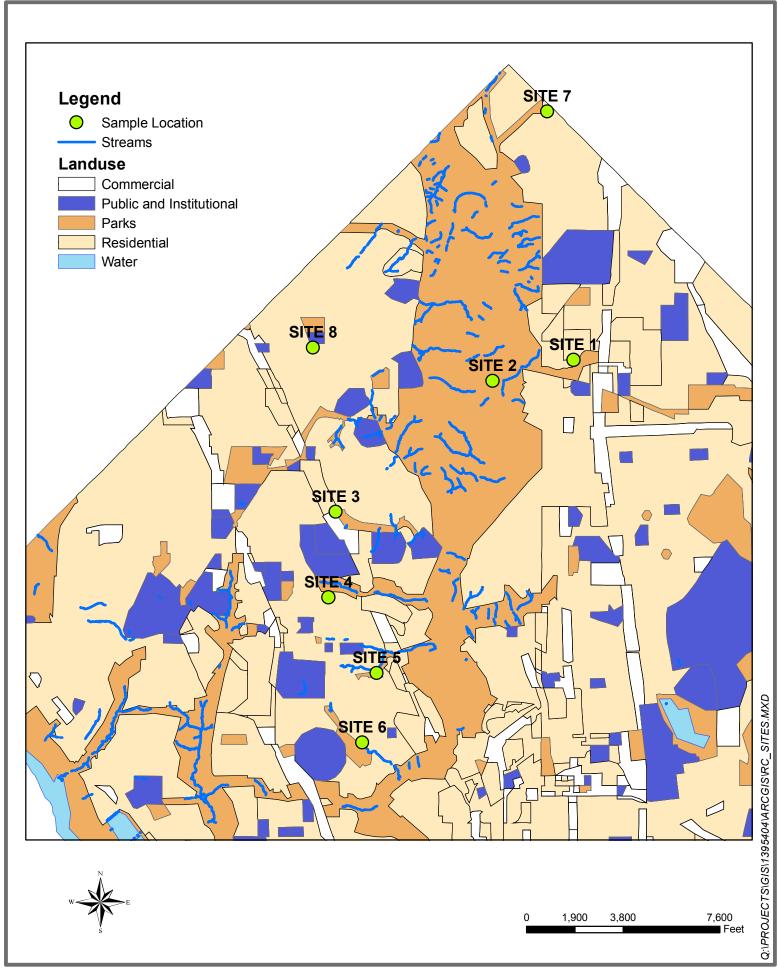
Monitoring Station 9: Oregon and Pinehurst.



Monitoring Station 10 (Archbold Parkway): Intersection of New Mexico Ave. and Garfield St., NW

APPENDIX B

Land Use Types for Rock Creek Storm Monitoring Stations



APPENDIX C

Quality Assurance Project Plan (QAPP)

Quality Assurance Project Plan

1.0 Project Organization

The District of Columbia, District Department of the Environment (DDOE), Water Quality Division, under mandate of the EPA, has developed a storm water monitoring program to determine quantities of non-point source pollution entering the Anacostia River, Rock Creek, and Potomac River subwatersheds via the Municipal Separate Storm Water Sewer System (MS4).

EA Engineering, Science, and Technology, Inc. (EA) has been contracted by the District of Columbia to implement the storm water-monitoring program. EA is responsible for providing all equipment, personnel, sample collectors, and data necessary to carry out the program. Below are the names and responsibilities of persons involved in this program.

EA personnel

Mr. Richard Price will be serving as the Project Manager for this project.

Mr. Quoc Ngyuen will be responsible for all the site monitoring activities including but not limited to the operation and maintenance of sampling equipment, sampling of storm water during storm events and coordination of analytical lab activities.

District of Columbia Personnel

Ms. Nicoline Schulterbrandt, DDOE, Water Quality Division will be acting as the Districts project manager and be responsible for the coordination of lab results for the District and production of all reports required by the EPA.

2.0 Project Description

Non-point source pollution is a growing concern among environmental organizations across the country; non-point source pollution has become the primary contributor of pollutants to receiving waters. To better control pollutants in Municipal Separate Storm Sewer Systems, EPA issued storm water regulations in 1990 that apply to both municipal and industrial activity and both large and medium municipalities. Also contained within these regulations is the requirement that municipalities and industries apply for NPDES permit to discharge storm water runoff.

The District's current MS4 permit specifies representative sampling locations for each of the three subwatersheds designated within the MS4 area of the District: Anacostia River, Rock Creek, and Potomac River. One subwatershed is monitored in each calendar year on a three-year rotating basis. Each of the sites is to be monitored for at least three wet weather events per year. At sites with dry weather flows, dry weather screening samples are collected two times per year as part of the District's dry weather screening program. Samples are collected in accordance with the Permit and monitoring requirements at 40 CFR 122.26 (d)(2)(iii), by EA staff.

The District is required to develop and implement a wet/dry-weather monitoring program for the MS4 to provide the necessary data to determine and report the effectiveness of control measures implemented under the Storm Water Management Program (SWMP). Regulations require that estimates be made of the annual cumulative pollutant loading from the MS4, to estimate and report the mean concentrations and seasonal pollutants in the discharges from major outfalls identify and identify water quality improvements or degradation.

2.1 Description of Sampling Program

EA will be responsible for implementing the wet/dry storm water monitoring program. EA will perform sampling of the wet weather events by installing automatic samplers (where possible) at specified locations within the Anacostia River, Rock Creek, and Potomac River subwatersheds listed in Table 1. Sampling will commence with the first rain event that is a minimum of ≥ 0.1 inches and that is a minimum of 72 h from the last reported rain event (≥ 0.1 ").

EA will conduct dry weather sampling at each of the three subwatershed stations that have dry weather flows (Table 2). Some stations do not have flows during dry weather and therefore will not be sampled for this program. For those stations with dry weather flows, sampling will be conducted twice during the required monitoring period.

Table 1. Permitted and Non-permitted(*) Sampling Locations for Anacostia River, Rock Creek, and Potomac River Subwatersheds.

,
Anacostia River
(1) Stickfoot Sewer – 2400 block of Martin Luther King Jr. Ave. SE, near Metro bus entrance
(2) O St. Storm Water Pump Station – 125 O St. SE – Just outside front gate at O St. Pump Station
(3) Anacostia High School – Corner of 17 th St. and Minnesota Ave. SE
(4) Gallatin & 14 th St. NE – Across from the intersection of 14 th St. and Gallatin St in large outfall
(5) Varnum & 19 th Place, NE -2100 Block of Varnum St.
(6) Nash Run – intersection of Anacostia Drive and Polk St. NE
(7) East Capital St. – 200 Block of Oklahoma Ave. at intersection with D St. NE
(8) Ft. Lincoln – Newton BMP- in the brush along the side of New York Ave. West after the bridge
(9) Hickey Run – 33 rd and V Streets, NE, across road from post office access
Rock Creek
(1) Walter Reed - Fort Stevens Drive
(2) Military Road and Beach Drive
(3) Soapstone Creek - Connecticut Avenue and Ablemarle Street
(4) Melvin Hazen Valley Branch - Melvin Hazen Park and Quebec Street
(5) Klingle Valley Creek - Devonshire Place and 30 th Street
(6) Normanstone Creek - Normanstone Drive and Normanstone Parkway
(7) Portal & 16 th Street *
(8) Broad Branch – Broad Branch and 30 th Street, NW, near Ivory Coast Embassy *
(9) Oregon and Pinehurst *
(10) Archbold - Intersection of New Mexico Ave. and Garfield St., NW *

Potomac River	
(1) Battery Kemble Creek- 49 th and Garfield Streets, NW	
(2) Foundary Branch- at Van Ness and Upton Streets, NW in the park	
(3) Dalecarlia Tributary- Van Ness Street and Dalecarlia Pkwy	
(4) Oxon Run- Mississippi Avenue and 15 th Street, SE	
(5) Tidal Basin- 12 th Street and Constitution Avenue, NW	
(6) Washington Ship Channel- 14th and Main, SW	
(7) C and O Canal-Potomac Ave. and Foxball Road, NW	

Table 2. Dry Weather Sampling Locations for Anacostia River, Rock Creek, and Potomac River Subwatersheds.

Anacostia River	
(1) Stickfoot Sewer – 2400 block of Martin Luther King Jr. Ave. SE, near Metro	bus entrance
(3) Anacostia High School – Corner of 17 th St. and Minnesota Ave. SE	
(4) Gallatin & 14 th St. NE – Across from the intersection of 14 th St. and Gallatin	St in large outfall
(5) Varnum & 19 th Place, NE -2100 Block of Varnum St.	
Rock Creek	
(1) Walter Reed - Fort Stevens Drive	
(2) Military Road and Beach Drive	
(3) Soapstone Creek - Connecticut Avenue and Ablemarle Street	
(4) Melvin Hazen Valley Branch - Melvin Hazen Park and Quebec Street	
(5) Klingle Valley Creek - Devonshire Place and 30 th Street	
(6) Normanstone Creek - Normanstone Drive and Normanstone Parkway	
Potomac River	
(2) Foundary Branch- at Van Ness and Upton Streets, NW in the park	
(4) Oxon Run- Mississippi Avenue and 15 th Street, SE	
(6) Washington Ship Channel- 14th and Main, SW	
(7) C and O Canal-Potomac Ave. and Foxhall Road, NW	

Qualified EA sampling personnel will maintain records of the date and duration (in hours) of the storm event sampled; rainfall measurements (in inches) of the storm event that generated the runoff; the duration (in hours) between the storm events sampled and the end of the previous measurable storm event; and an estimate of the total volume in gallons of the discharged sampled.

Results obtained from the sampling activities will be used to determine if discharges from the District's MS4 meet the requirements of 40 CFR 122.26 (d) (iv) and the provisions of the Clean Water Act for all areas within the District according to Table 2 of the NPDES Permit. Permit number DC 0000221.

All field data collected by EA as well as analytical laboratory results obtained from EA's contracted labs will be forwarded to the District for use in generating the annual Discharge Monitoring Report (DMR) and similar reports required by the permit. These reports and monitoring data are submitted to EPA for approval.

3.0 Wet Weather Monitoring

Flow-proportioned composite samples will be collected at all monitoring sites from the three subwatersheds listed in Table 1. Composite samples consist of a mixture of aliquots collected at a constant flow interval, where the volume of each aliquot is proportional to the flow rate of the discharge. Samples will be analyzed for a series of parameters listed in the District's MS4 permit (Appendix A).

Grab samples will be collected during the first two hours of discharge and will be used for the analysis of cyanide, oil, and grease, fecal coliform, fecal streptococcus, total phenols, volatile temperature, residual chlorine, and dissolved oxygen. The field tests will be analyzed by the qualified personnel in accordance EPA methods (Table 3).

Table 3. Field Test Parameters and Methods

Parameter	Method
рН	EPA 150
Temperature	EPA 170.1
Residual Chlorine	EPA 330
Dissolved Oxygen	EPA 360.1

Samples will also be analyzed in a qualified laboratory for various other constituents that will be reported on pre-printed DMR forms provided by EPA (Table 4).

Table 4. Additional Parameters Required for DMR Forms

Monitoring Requirements	Monitoring Frequency
рН	3 times per year
Temperature	3 times per year
Total ammonia nitrogen, organic nitrogen,	3 times per year
and total nitrogen	
Volatile organic compounds	3 times per year
Acid extractable compounds	3 times per year
Base/neutral extractable compounds	3 times per year
Pesticides/PCBs	3 times per year
Metals, cyanide, and phenols	3 times per year
Conventional pollutants	3 times per year
Hardness	3 times per year

4.0 Dry Weather Monitoring

During dry periods a grab sample will be collected from specified locations listed in Table 2, two times per year. Grab samples will be collected and analyzed per EPA requirements (see Appendix A). In conjunction with these grab samples the following field tests will be performed: pH, temperature, residual chlorine, and dissolved oxygen. The field tests will be analyzed by qualified personnel in accordance EPA methods (Table 2). Samples will also be

analyzed in a qualified laboratory for various other constituents that will be reported on preprinted DMR forms provided by EPA (Table 4).

5.0 Data Quality Objectives

To ensure that no sample contamination occurs while samples are being transported, split, or stored, EA sampling personnel will implement the use of trip blanks, field blanks, and field duplicates. Trip blanks will be obtained from laboratory and carried throughout sample collection activities. Trip blanks will be performed once per sampling event for all parameters. Field blanks will be filled in the field at the time of the sample collection to show that any detections found in storm water samples were not a result of outside contamination, but actually present in the sample at the time of collection. Field duplicates will be collected once for every 10 samples collected and submitted to the labs for analysis. All trip blanks, field blanks and field duplicates will be performed in accordance with Chapter 1 of SW 846.

Upon collection of samples, all sampling bottles will be capped immediately. Composite samples will be split and prepared in a laboratory. Grab sample activities will use new bottles for every parameter sampled. Automatic sampler tubing will be rinsed with DI water and purged with water from the site. EA will use all these controls to ensure that outside contamination of the samples does not occur and that integrity of samples and data is of the highest quality. The quality of the data obtained from this storm water monitoring program will be of the same quality to compare to other NPDES and non-point source monitoring data currently being compiled by EPA.

5.1 Sample Handling and Chain of Custody

Composite samples will be collected by ISCO 6700 series automatic samplers which will be operated, maintained, and calibrated by qualified EA personnel. Samples will be collected in an iced 5-gallon glass bottle. After the completion of a sampling event, the 5 gallon bottle will be removed from the sampler, capped immediately and placed on ice in coolers for transport to a location identified by EA personnel. Immediately upon arrival, samples will be split into various sized containers with the appropriate preservation and placed in a locked refrigerator until delivery to the laboratory. A courier for the contracted laboratory will pick up the samples and transport them to the laboratory. The 5-gallon glass bottles will then be washed for use with the next sampling event. The glass bottles will be washed according to the procedures in Appendix B. A chain of Custody form (as shown in Appendix C) will be completed starting at the time of the sample collection until analysis at the laboratory. The sample handling procedure will ensure that each parameters holding time is not exceeded.

5.2 Sampling and Analysis Methods

Samples will be collected and analyzed in accordance with EPA approved methods as described in 40 CFR 136. See Appendix A for specific parameters and methods listings.

5.3 Laboratory Quality Control

Samples will be sent to an EA contracted laboratory, which is required to comply with all required EPA method QA/QC procedures.

5.4 Data Management and Validation

After completion of the laboratory analysis, a completed data sheet will be sent to EA in Adobe Acrobat and Excel spreadsheet form. The data sheets will contain the completed chain of custody from along with the analysis methods, analysis time, and date and any comments regarding the analysis. The data results will then be reviewed to ensure the proper QA/QC procedures were used and to identify any questionable data. All issues with data reliability will be investigated with explanation offered to accept, reject, or qualify the data.

5.5 Reports to Management

Upon final review, full copies of laboratory data, rainfall data, and field observations will be forwarded to Ms. Nicoline Schulterbrandt, DDOE Water Quality Division.

APPENDIX A

SAMPLE ANALYSIS REQUIREMENTS FOR WET AND DRY WEATHER SAMPLING

SAMPLE ANALYSIS REQUIREMENTS

Bottle Type	Sample Type	Parameter	Method	Units	MDL
1-L Plastic	Composite	Biochemical Oxygen Demand	SM5210B	mg/L	< 5.0
Unpreserved	_	Total Dissolved Solids	SM2540C	mg/L	<1.0
		Total Suspended Solids	SM2540D	mg/L	<1.0
500 mL Plastic	Composite	Ammonia Nitrogen	SM4500-NH3-E	mg/L	<1.0
H_2SO_4		Phosphorus, Total	EPA 365.3	mg/L	< 0.05
		Nitrite + Nitrate	EPA 353.2	mg/L	< 0.05
		Chemical Oxygen Demand	EPA 410.4	mg/L	<10.0
		Total Kjeldahl Nitrogen	EPA 351.3	mg/L	< 0.5
250 mL Plastic, Filtered, H ₂ SO ₄	Composite	Phosphorus, Dissolved	EPA 365.3	mg/L	<0.5
1000 mL Plastic	Composite	Hardness, Total	EPA 130.2	mg/L	
HNO_3		Antimony, Total	EPA 200.8	μg/L	0.21
		Arsenic, Total	EPA 200.8	μg/L	0.25
		Beryllium, Total	EPA 200.8	μg/L	0.22
		Cadmium, Total	EPA 200.8	μg/L	0.22
		Chromium, Total	EPA 200.8	μg/L	0.18
		Copper, Total	EPA 200.8	μg/L	1.52
		Lead, Total	EPA 200.8	μg/L μg/L	0.23
		Mercury, Total (by cold vapor)	EPA 245.1		0.20
		Nickel, Total	EPA 200.8	μg/L	0.46
		Selenium, Total	EPA 200.8	μg/L	0.31
		Silver, Total	EPA 200.8	μg/L	0.35
		Thallium, Total	EPA 200.8	μg/L	0.21
		Zinc, Total	EPA 200.8	μg/L	1.52
(2) 1-L Glass Amber	Grab	Dioxin (2,3,7,8) TCDD	EPA 1613	pg/L	4.4
1000 mL Plastic,	Grab	Fecal Coliform	SM9221E	MPN	
Sterile	Giab	Fecal Streptococcus	SM9230B	MPN	
	G 1	_			.0.01
250 mL Plastic, NaOH	Grab	Cyanide, Total	EPA 335.2	mg/L	<0.01
(2) 1-L Glass Amber Unpreserved	Composite	BNA Compounds	EPA 625	μg/L	Various
(2) 40 mL Glass Vials Teflon Lids	Grab	Volatile Organic Compound	EPA 624	μg/L	0.5
1-L Glass Amber H ₂ SO ₄ Teflon Lids	Grab	Phenols, Total	EPA 420.2	mg/L	1.9
1-L Glass Amber H ₂ SO ₄ Teflon Lids	Composite	PCBs / Pesticides	EPA 608	μg/L	0.01-1.7
1-L Glass Amber Teflon Lids	Composite	PCBs	EPA 8082 modified	ng/L	0.25-5.0
1-L Glass Amber	Grab	Fats (oil and grease)	EPA 1664	mg/L	1.6
1:1 HCl 100 mL Plastic	Composite	Chlorophyll-a	SM 10020H2	mg/m ³	2
500 mL Plastic	Composite	Total Ammonia + Organic Nitrogen	EPA 351.3	mg/L	0.2
H ₂ SO ₄	•	(TKN)			
	Field Test	Dissolved Oxygen	EPA 360.1	mg/L	N/A
500 mL Plastic H ₂ SO ₄	Composite	Organic Nitrogen	TKN – NH3	mg/L	N/A
500 mL Plastic H ₂ SO ₄	Composite	Total Nitrogen	NO2 + NO3 + TKN	mg/L	N/A

APPENDIX B SAMPLE CONTAINER CLEANING PROCEDURES

SAMPLE CONTAINER CLEANING PROCEDURES

The following cleaning treatment sequence has been determined to be adequate to minimize contamination in the automatic smapling container, whether borosilicate glass, linear polytehtylene, polypropylene, or Teflon:

Cleaning Treatment Sequence:

- 1. Phosphate-free detergent
- 2. rinse 3 times with tap water
- 3. nitric acid (1:1 solution)
- 4. rinse 3 times with tap water
- 5. hydrochloric acid (1:1 solution)
- 6. rinse 3 times with tap water
- 7. rinse 5 times with reagent-grade water

APPENDIX C SAMPLE CHAIN OF CUSTODY FORM

Misseles	Baltimore Division Baltimore, MD 21224	MD MD	ivisid 21224	u	5	Sample Submittal Chain of Custody Record	Sul	5mit 1y Re	tal		Work	Order	Work Order Number:			
Iviicrobac	Tel: 410-633-1800 Fax: 410-633-6553 www.microbac.com	33-18 33-65 bac.c	00 53 om											Page	of	1
Client Name			Project	#					Turna	puno	Turnaround Time (Required)	uired)		QC an	d EDD	QC and EDD Type (Required)
Address			Location	lon] Routin	e (10 v	[] Routine (10 working days)	s)	[] Level	-	=	[] EDD
City, State, Zip			# Od						[] RUSH* (notify lab)	* (notif	(lab)		[] Level []	= =	Fo	Format:
Contact			Comp	liance	Compliance Monitoring? [] Yes	Yes [] No						1	[] Level III	=	8	Comments:
Telephone #			(1)Age	(1)Agency/Program	gram					eu)	(needed by)		[] Levi	[] Level IV CLP-like	like	
Sampled by (PRINT)				Samp	Sampler Signature						Sampler Phone #	hone #				
Send Report via [] e-mail (address)						[] Mail	[] Te	[] Telephone		[] Fax (fax #)	(#					
* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)	, Sludge, Oil, Wipe	, Drin	king W	ater (D	W), Groundwal	er (GW), Surfa	ace Wa	ter (SW), Wast	e Wate	r (WW), OI	her (spe	ecify)			
Client Sample ID	*xirisM	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers				Requested Analysis	Analys	SD S		8	Comments
ication []	Hazardous [] Non	-Haze] Non-Hazardous	[]R	Radioactive	Sar	nple D	Sample Disposition	ion] Dispo	Dispose as appropriate	opriate	[] Return		[] Archive	
Number of Containers:	Relinquished By (signature)	(sign	ature)		Printed Name/Affiliation		Date/Time	ime		Rec	Received By (signature)	signatu	re)		Prit	Printed Name/Affiliation
Cooler Number: Temp upon receipt(°C):	Relinquished By (signature)	(sign	ature)		Printed Name/Affiliation	ation	Date/Time	ime		Rec	Received By (signature)	signatu	re)		Prin	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	(sign	ature)		Printed Name/Affiliation		Date/Time	ime		Rec	Received for Lab By (signature)	ab By	signatur	(e	Prin	Printed Name/Affiliation

APPENDIX D

DMR Forms for Rock Creek Storm Monitoring Stations:

- 2. Military Road and Beach Drive
- 3. Soapstone Creek
- 5. Klingle Valley Creek

(EPA will release the Official DMR forms for Walter Reed, Melvin Hazen Valley Branch, and Normanstone Creek in October 2007.)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) **DISCHARGE MONITORING REPORT (DMR)**

OMB No. 2040-0004 Form Approved

Page 66

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

GOVERNMENT OF THE DISTRICT OF

FACILITY: ADDRESS: 441 4TH STREET, N.W. GOVERNMENT OF THE DC WASHINGTON, DC 20001

LOCATION: 441 4TH STREET, N.W. WASHINGTON, DC 20001

ATTN:jeffrey boltz

FROM

8

70

YEAR

ĕ 90

DAY 2

YEAR 07

₹ 8

DAY 3

External Outfall

MONITORING PERIOD

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS2A

DMR MAILING ZIP CODE: 20032

MILITARY ROAD AND BEACH DRIVE

No Discharge

00530 1 0 Effluent Gross 00400 1 0 Effluent Gross 00310 1 0 Effluent Gross 00011 1 0 Effluent Gross 00605 1 0 Effluent Gross 00600 1 0 Effluent Gross 00556 1 0 Effluent Gross Oil & grease Nitrogen, organic total (as N) Nitrogen, total (as N) Solids, total suspended ¥ BOD, 5-day, 20 deg. C Temperature, water deg. fahrenheit PARAMETER SAMPLE MEASUREMENT SAMPLE MEASUREMENT MEASUREMENT MEASUREMENT REQUIREMENT SAMPLE MEASUREMENT REQUIREMENT SAMPLE MEASUREMENT SAMPLE MEASUREMENT REQUIREMENT REQUIREMENT REQUIREMENT REQUIREMENT REQUIREMENT SAMPLE SAMPLE PERMIT PERMIT PERMIT PERMIT PERMIT PERMIT PERMIT VALUE ***** **** *** ***** **** ***** **** **** *** **** QUANTITY OR LOADING VALUE ***** **** ***** ***** ***** **** **** ***** **** UNITS Req. Mon. MINIMUM VALUE ***** . 20 **** **** ***** **** ***** ***** **** ***** ***** QUALITY OR CONCENTRATION VALUE ***** ***** **** **** ***** ***** ***** ***** **** **** Req. Mon. ANNL MAX 82 6 ∞ VALUE SLIND deg F mg/L mg/L mg/L J∕6w mg/L S 0 0 0 ΩŞ 0 0 OF ANALYSIS Three Per Year SAMPLE TYPE COMPOS COMPOS COMPOS COMPOS GRAB GRAB GRAB

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER supervision	10 th	· Hamid Karimi	Dr.
251	supe cvati	TITLE PRINCIPAL EXECUTIVE OFFICER	NAME/

I certify index penalty of law that this document and all attachments were preserved under my direction or appreciation in accordance with a system disagned to assure that qualified preserved properly gather and evaluate the information sharified lasted en py riquity of the person or present who manage the system, or those present directly responsible for gathering the information the information the information strengths on the best of my favoredge and behind (true, securice, and demplate). In an our cut half have are significant regulates for submutuage false information, including the possibility of fine and impresentent for knowing total control.

SIGNATURE OF PRINCIPAL EXECUTIVE AUTHORIZED AGENT

OFFICER OR	القالة ا	8/S/
AREA Code	202-5	TEL /
NUMBER	202-535-2244	TELEPHONE
YEAR	07	
N O	8	DATE

14 DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

TYPED OR PRINTED

ROCK CREEK WATERSHEDM WATER MONITORING LOCATION NAME CHANGED TO MILITARY ROAD AND BEACH DRIVE. MON. IS QRTLY, REPORTED ANNLLMON. IS QRTLY, REPORTED ANNLY

OMB No. 2040-0004 Form Approved

Page 67

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

ADDRESS: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

FACILITY: LOCATION: 441 4TH STREET, N.W. GOVERNMENT OF THE DC WASHINGTON, DC 20001

ATTN:jeffrey boltz

FROM

8

7

8

YEAR

<u>₹</u> 9

DAY 2

YEAR MO 07

DAY <u>ω</u>

MONITORING PERIOD

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS2A

> DMR MAILING ZIP CODE: 20032

MILITARY ROAD AND BEACH DRIVE

No Discharge

COMPOS	Three Per Year		mg/L	Reg. Mon. ANNL MAX	***	万典的历史的		放水田 珠水塘	****	PERMIT REQUIREMENT	00900 1 0 Effluent Gross
		0		250	******	******		*****		SAMPLE MEASUREMENT	Hardness, total (as CaCO3)
GRAB	Three Per Year	·	mg/L	Req. Mon. ANNL MAX	*****	安徽金融		****	非法申请法定	PERMIT REQUIREMENT	00720 1 0 Effluent Gross
		0		0.083	*****	*****		***	****	SAMPLE MEASUREMENT	Cyanide, total (as CN)
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	计非法语法 例	为是这种为当		特定特殊指定	迪安市 传播 建	PERMIT REQUIREMENT	00666 1 0 Effluent Gross
		0		0.066	******	*****		女务务会会会	****	SAMPLE MEASUREMENT	Phosphorus, dissolved
COMPOS	⊺hree Per Year		mg/L	Req. Mon. ANNL MAX	中央公司公司	失意情代传法		济·李治 · · · · · · · · · · · · · · · · · · ·	为安治法律指示	PERMIT REQUIREMENT	00665 1 0 Effluent Gross
		0		0.21	********	*****		******	****	SAMPLE MEASUREMENT	Phosphorus, total (as P)
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	p de deservado	*****		传传统经验	***	PERMIT REQUIREMENT	00630 1 0 Effluent Gross
		0		1.2	***************************************	建筑水塘等		******	****	SAMPLE MEASUREMENT	Nitrite plus nitrate total 1 det. (as N)
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	***	**************************************		**********	*****	PERMIT REQUIREMENT	00625 1 0 Effluent Gross
		0		1.2	*****	*****		· · · · · · · · · · · · · · · · · · ·	计论字法分析	SAMPLE MEASUREMENT	Nitrogen, Kjeldahl, total (as N)
COMPOS	⊺hree Per Year		mg/L	Req. Mon. ANNL MAX	******	******		*****	*****	PERMIT REQUIREMENT	00610 1 0 Effluent Gross
		0		0	***	***		*****	*****	SAMPLE MEASUREMENT	Nitrogen, ammonia total (as N)
			UNITS	VALUE	VALUE	VALUE	STINU	VALUE	AALUE		
SAMPLE TYPE	FREQUENCY OF ANALYSIS	m S		ENTRATION	QUALITY OR CONCENTRATION	QI		QUANTITY OR LOADING	QUANT		PARAMETER

TYPED OR PRINTED	Dr. Hamid Karimi
Vibiations	system, or those persons directly to the best of my knowledge and perialties for submitting false in

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

i certify under penalty of that that this document and all attachments ever prepared under my discussion or supervision in accordance with a system designed to assure that qualified personnel properly glaber and evaluate the information submitted. Based on my incurry of the person of persons when manage that evaluate the information submitted stated on my incurry of the person of persons defined in manage that the system or those persons defined you required to the formation, the information that the formation that the formation and completed, and water that there are significant penaltics for submitting false information, including the possibility of fine and imprisonment for knowing SIGNATURE

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT Ø, 2 AREA Code 202-535-2244 TELEPHONE NUMBER

YEAR 9

š ∞ DATE

14 DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

ROCK CREEK WATERSHEDM WATER MONITORING LOCATION NAME CHANGED TO MILITARY ROAD AND BEACH DRIVE. MON. IS QRTLY, REPORTED ANNLLMON. IS QRTLY, REPORTED ANNLY

OMB No. 2040-0004 Form Approved

Page 68

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: GOVERNMENT OF THE DC

LOCATION: WASHINGTON, DC 20001

ATTN:jeffrey boltz

FROM

9

7

8

EAR MO 8

DAY 3

YEAR MO 07

DAY $\overline{\alpha}$

MONITORING PERIOD

PERMIT NUMBER DC0000221

MS2A

DISCHARGE NUMBER

MAJOR DMR MAILING ZIP CODE: 20032

MILITARY ROAD AND BEACH DRIVE External Outfall

No Discharge

						\					
COMPOS	Year		mg/L	ANNL MAX						REQUIREMENT	Effluent Gross
200000	Three Per			Req. Mon.	*****	*****		*****	******	PERMIT	39499 1 0
		0		0	****	****		***	****	SAMPLE MEASUREMENT	PCB-1242 bot. dep., dry solid
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	****	******		*****	****	PERMIT REQUIREMENT	39492 1 0 Effluent Gross
		0		0	**	并亦安安安		# * * *	***	SAMPLE MEASUREMENT	PCB-1232
COMPOS	Three Per Year		mg/L	Reg. Mon. ANNL MAX	****	*******		***	***	PERMIT REQUIREMENT	39488 1 0 Effluent Gross
		0		0	******	******		****	**	SAMPLE MEASUREMENT	PCB-1221
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	******	**************************************		外面实验	安全安全	PERMIT REQUIREMENT	34671 1 0 Effluent Gross
		0		0	***	*******		****	其食量等物质	SAMPLE MEASUREMENT	PCB-1016
COMPOS	⊺hree Per Year		mg/L	Req. Mon. ANNL MAX	******	***		海 安 · · · · · · · · · · · · · · · · · · ·	*****	PERMIT REQUIREMENT	32020 1 0 Effluent Gross
		0		0	****	* 大公子母女		法债金帐偿债	****	SAMPLE MEASUREMENT	Acid compounds
COMPOS	Three Per Year		mg/L	Req. Mon. ANNL MAX	李守 普通 第 2	大安全沙漠安		安安法士帝帝	*****	PERMIT REQUIREMENT	32015 1 0 Effluent Gross
		0		36	***************************************	女女士徒讲女		*******	*****	SAMPLE MEASUREMENT	Base/neutral compounds
GRAB	Three Per Year		#/100mL	Req. Mon. ANNL MAX	***************************************	****		***************************************	按摩寄给出典	PERMIT REQUIREMENT	31679 1 0 Effluent Gross
		0		80,000	****	****		*****	***	SAMPLE MEASUREMENT	Fecal streptococci, MF m-enterococcus ag
			UNITS	VALUE	VALUE	VALUE	STINU	VALUE	VALUE		
SAMPLE TYPE	FREQUENCY OF ANALYSIS	NO.		ENTRATION	JALITY OR CONCENTRATION	QU	-	QUANTITY OR LOADING	QUAN		PARAMETER

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here) Togethly under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel proposity glather and evaluate the information is busined abled on ny inquiry of the person or persons with on manage the years, or those persons directly responsible for gathering the information, the information when the first and only the person of the years and complete. I are aware that there are significant penalties for an available of the information of the and imprisonment for knowing SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Dr.

Hamid Karimi

TYPED OR PRINTED

ROCK CREEK WATERSHEDM WATER MONITORING LOCATION NAME CHANGED TO MILITARY ROAD AND BEACH DRIVE. MON. IS QRTLY, REPORTED ANNLLMON. IS QRTLY, REPORTED ANNLY

AREA Code

NUMBER

YEAR 9

Š ω

14 DAY

202-535-2244 TELEPHONE

DATE

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

FACILITY: LOCATION: 441 4TH STREET, N.W. GOVERNMENT OF THE DC

ATTN:jeffrey boltz WASHINGTON, DC 20001

FROM

8

쥖

08

YEAR

<u>≼</u> 9

DAY 9

YEAR MO 07

DAY <u>ω</u>

MONITORING PERIOD

PERMIT NUMBER DC0000221

MS2A

DISCHARGE NUMBER

DMR MAILING ZIP CODE: 20032

MILITARY ROAD AND BEACH DRIVE

No Discharge

#/100mL	#/1	Req. Mon. ANNL MAX	****	****		*****	****	PERMIT	74055 1 0 Effluent Gross
		40,000	******	****		****	****	SAMPLE MEASUREMENT	Coliform, fecal general
g/L	mg/L	Req. Mon. ANNL MAX	*****	****		建水烧烧	法专用证明	PERMIT REQUIREMENT	74053 1 0 Effluent Gross
		0	***	***		****	***	SAMPLE MEASUREMENT	Pesticides, general
	mg/L	Req. Mon. ANNL MAX	*****	******		****	*****	PERMIT REQUIREMENT	70296 1 0 Effluent Gross
		720	事 件 水 水	* * * * * * * * * * * * * * * * * * *		***	***	SAMPLE MEASUREMENT	Solids, total dissolved (TDS)
	mg/L	Reg. Mon. ANNL MAX	**************************************	**************************************		***	****	PERMIT REQUIREMENT	46000 1 0 Effluent Gross
		0.11	:	**************************************		** ** ** **	****	SAMPLE MEASUREMENT	Phenois
	mg/L	Req. Mon. ANNL MAX	特法海军操作	法法法按照法		***	*****	PERMIT REQUIREMENT	39508 1 0 Effluent Gross
		0	***	****		***	****	SAMPLE MEASUREMENT	PCB-1260
	mg/L	Req. Mon. ANNL MAX	***************************************	****		** ** ** **	****	PERMIT REQUIREMENT	39504 1 0 Effluent Gross
		0	# # # # # #	****		****	******	SAMPLE MEASUREMENT	PCB-1254
_	mg/L	Req. Mon. ANNL MAX	****	*****		****	******	PERMIT REQUIREMENT	39500 1 0 Effluent Gross
		0	*****	*****		****	****	SAMPLE MEASUREMENT	PCB-1248
	UNITS	VALUE	VALUE	VALUE	STINU	VALUE	VALUE		
		ENTRATION	UALITY OR CONCENTRATION	QL		QUANTITY OR LOADING	QUANT		PARAMETER

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Contrify under penalty of law that it is document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure the qualified personne properly gainer and evaluate this information submitted flees care only morphy of the person or persons who manage the gainers of those persons directly restorable (or gainering the information in the information submitted its or before the or for y knowledge and before it for a constraint and dompited: I are aware that there are significant or penalties for submitting data information, including the possibility of fine and imprisorment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OF AUTHORIZED AGENT

AREA Code

NUMBER

-mm

0

202-535-2244

9 YEAR

ω Š

14 DAY

TELEPHONE

DATE

Dr.

Hamid Karimi

TYPED OR PRINTED

ROCK CREEK WATERSHEDM WATER MONITORING LOCATION NAME CHANGED TO MILITARY ROAD AND BEACH DRIVE. MON. IS QRTLY, REPORTED ANNLLMON. IS QRTLY, REPORTED ANNLY

Page 69

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: GOVERNMENT OF THE DC

LOCATION: 441 4TH STREET, N.W. WASHINGTON, DC 20001 ATTN:jeffrey boltz

FROM

PERMIT NUMBER DC0000221

MS2A

DISCHARGE NUMBER

DMR MAILING ZIP CODE: 20032

OMB No. 2040-0004 Form Approved

Page 70

MILITARY ROAD AND BEACH DRIVE MAJOR

YEAR MO DAY 8 09 **MONITORING PERIOD** 2 7 YEAR MO 07 80 DAY ယ္

External Outfall No Discharge

PARAMETER		QUANT	QUANTITY OR LOADING		ລຸເ	QUALITY OR CONCENTRATION	ENTRATION		Z S	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	STINU	VALUE	VALUE	VALUE	UNITS			
Metals, total	SAMPLE MEASUREMENT	**	*		****	***	0.302		0		
78240 1 0 Effluent Gross	PERMIT REQUIREMENT	***	****		法宣安债务法	按按原政	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Volatile compounds, (GC/MS)	SAMPLE MEASUREMENT	****	*****		****	****	0		0		
78732 1 0 Effluent Gross	PERMIT REQUIREMENT	****	安全		法法金帐手法	李林 李本亦奉	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Chemical Oxygen Demand (COD)	SAMPLE MEASUREMENT	****	*****		****	*******	270		0		
81017 1 0 Effluent Gross	PERMIT REQUIREMENT		******		***	各种联络各种	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a qualified personnel property lagilities personnel personn								
the qualified personnel properly gather and the qualified personnel properly gather and the person or persons who making the and the person or persons who making the and making the information, the information when the statement for thorwing the majority of the and improviment for thorwing SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AREA code NUMBER AUTHORIZED AGENT	COMMENTS AND EVEL MATERIAL OF ANY MICHAEL						NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	
TELEPHONE 202-535-2244 ICIPAL EXECUTIVE OFFICER OR AREA Code NUMBER	(Defense of lefter burners barn)	Viciations.	penalties for submitting false information, including the possibility of fine and imprisonment for knowing	to me observe the substitute of the second o	system, or those persons directly responsible for gathering the information the information submitted is.	evaluate the information submitted. Based on my inquiry of the person or persons who manage the	I certify under penalty of law that this document and all attachments were prepared under my direction or conversion in accordance with a system designed to assure that qualified personnel properly gather and	
TELEPHONE 202-535-2244 AREA Code NUMBER		AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR		1.1016 M. M. M.		1/1/2/	
				~	J 202-!		TEL	
		NUMBER			535-2244		EPHONE	
DATE 8 14 NO DAY		YEAR			07)		
14 DAY		No.			<u></u>)	DATE	
		DAY			14			

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

ROCK CREEK WATERSHEDM WATER MONITORING LOCATION NAME CHANGED TO MILITARY ROAD AND BEACH DRIVE. MON. IS QRTLY, REPORTED ANNLLMON. IS QRTLY, REPORTED ANNLY.

OMB No. 2040-0004 Form Approved

Page 71

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: LOCATION: GOVERNMENT OF THE DC

441 4TH STREET, N.W. WASHINGTON, DC 20001

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS3A

> DMR MAILING ZIP CODE: 20032

SOAPSTONE CRK CONNETICUT AVE

External Outfall

No Discharge

ATTN:jeffrey boltz

FROM

8

5

80

YEAR

ĕ O 09

DAY 2

YEAR MO 07

DAY ယ္ဘ

MONITORING PERIOD

PARAMETER		QUANT	QUANTITY OR LOADING	<u> </u>	ຄ	QUALITY OR CONCENTRATION	ENTRATION		E õ	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	STINU	VALUE	AALUE	VALUE	STINU			
Temperature, water deg. fahrenheit	SAMPLE MEASUREMENT	****	**		***	*****	80.6		0		
00011 1 0 Effluent Gross	PERMIT REQUIREMENT	****	**		*****	*****	Req. Mon. ANNL MAX	deg F		⊺hree Per Year	GRAB
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	*****	*****		****	基本状态 华米	61		0		
00310 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	****		*****	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
рH	SAMPLE MEASUREMENT	***	****		6.95	*****	7.60		0		
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	法特殊的	方面安全		Req. Mon. MINIMUM	ne de	Req. Mon. ANNL MAX	SU		Three Per Year	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	*****	****		***	岩原等 在香港	89		0		
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	法法法证法法	有效会演员使		转音运送者	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Oil & grease	SAMPLE MEASUREMENT	****	*****		**	油 禁禁 香港 港	5		0		
00556 1 0 Effluent Gross	PERMIT REQUIREMENT	特件卖卖金米	油污电池		序 等 等 等 等 等 等 等	中 市場 事 市 市	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Nitrogen, total (as N)	SAMPLE MEASUREMENT	***	*****		**************************************	海水水水	13		0		
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	电影音音频率	安全会会会		为少安安安安	***************************************	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Nitrogen, organic total (as N)	SAMPLE MEASUREMENT	香油 电水平流 安安	*****		老女母母母	建 水质	1.6		0		
00605 1 0 Effluent Gross	PERMIT REQUIREMENT	****	36 36 36 37 37 38		****	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)	TYPED OR PRINTED	Dr. Hamld Karlml pomenties for submitting false information. inve		NAME/TITLE PRINCIPAL EXECUTIVE OFFICER SECUTIVE
nce all attachments here)		contents for submitting false information, including the possibility of fine and imprisonment for knowing	system, or those persons directly responsible for gathering the information, the information submitted is.	certify under penalty of law trait ins document and all attachments were pepared under my direction of supervision in accordance with a system designed to accordance the information submit a system designed to accord to personnel the managery than a submit of the accordance who accordance who are a submit of the accordance who accordance who are a submit of the accordance who accordance who are a submit of the accordance who are a submit of the accordance who accordance who are a submit of the accordance who accordance who are a submit of the accordance who accordance who are a submit of the accordance who ac

ROCK CREEK WATERSHEDHIGH SCHOOL MONITORING LOCATION NAME CHANGED TO SOAPSTONE CREEK (CONNECTICUT AVE. AND ABLEMARLE STREET.MON. IS QRTLY, REPORTED ANNLY

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

AREA Code

NUMBER

8 α

DAY

202-535-2244 TELEPHONE

07 ΥEAR

DATE

Ø 15/0

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) **DISCHARGE MONITORING REPORT (DMR)**

OMB No. 2040-0004 Form Approved

Page 72

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: LOCATION: GOVERNMENT OF THE DC

ATTN:jeffrey boltz 441 4TH STREET, N.W. WASHINGTON, DC 20001

PERMIT NUMBER

DC0000221

DISCHARGE NUMBER MS3A

> DMR MAILING ZIP CODE: 20032

SOAPSTONE CRK CONNETICUT AVE

External Outfall

YEAR 90 Š 90 MONITORING PERIOD DAY 01 ð YEAR MO 07 80 DAY <u>د</u>

FROM

No Discharge

PARAMETER		QUANT	QUANTITY OR LOADING		٥	JALITY OR CONCENTRATION	ENTRATION		Д.S	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	***************************************	**		***************************************	**	0		0		
00610 1 0 Effluent Gross	PERMIT REQUIREMENT	**************************************	****		****	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Nitrogen, Kjeldahl, total (as N)	SAMPLE MEASUREMENT	•	****		*****	****	1.6		0		
00625 1 0 Effluent Gross	PERMIT REQUIREMENT	****	*****		*****	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Nitrite plus nitrate total 1 det. (as N)	SAMPLE MEASUREMENT	***	***************************************		**	***************************************	13		0		
00630 1 0 Effluent Gross	PERMIT REQUIREMENT	****	****		***	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Phosphorus, total (as P)	SAMPLE MEASUREMENT	******	*******		幸运安徽	油炭脂肪溶液	0.43		0		
00665 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	****		游泳游戏	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Phosphorus, dissolved	SAMPLE MEASUREMENT	****	*******		****	****	0.27		0		
00666 1 0 Effluent Gross	PERMIT REQUIREMENT	अने के के के के	***		****	表演演员会	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Cyanide, total (as CN)	SAMPLE MEASUREMENT	** ***	***		****	*****	0.0027		0		
00720 1 0 Effluent Gross	PERMIT REQUIREMENT	店屋 布路 排壓	安原食者		计多字形式	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Hardness, total (as CaCO3)	SAMPLE MEASUREMENT	*****	***		****	***************************************	370		0		
00900 1 0 Effluent Gross	PERMIT REQUIREMENT	***	5.5.0 安安 安安 安安		****	***************************************	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here) centify under penalty of law that his document and all attachments were proposed under my direction or supervision in accordance with a system designed to assure that qualified necessarial property gains and evaluate the information shimted Based on my manufactor of persons who are persons when the persons directly responsible for gathering the information shimted Based on my manufactor on these persons directly responsible for gathering the information shimted best of my knowledge and better func, accurate, and complete it are were that there are significant penalties for submitting face information, including the possibility of the and improsomment for knowing.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Dr.

Hamid Karimi

TYPED OR PRINTED

ROCK CREEK WATERSHEDHIGH SCHOOL MONITORING LOCATION NAME CHANGED TO SOAPSTONE CREEK (CONNECTICUT AVE. AND ABLEMARLE STREET MON. IS QRTLY, REPORTED ANNLY

AREA Code

NUMBER

202-535-2244

07

ω ĕ

14 DAY

TELEPHONE

DATE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004 Form Approved

Page 73

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: GOVERNMENT OF THE DC

LOCATION: 441 4TH STREET, N.W. WASHINGTON, DC 20001

ATTN:jeffrey boltz

PERMIT NUMBER YEAR DC0000221 MO MONITORING PERIOD DAY

FROM

8

90

2

7

80

YEAR MO 07

DAY <u>ω</u>

DISCHARGE NUMBER MS3A

> DMR MAILING ZIP CODE: 20032

SOAPSTONE CRK CONNETICUT AVE

External Outfall No Discharge

PARAMETER		QUANT	QUANTITY OR LOADING		۵	JALITY OR CONCENTRATION	ENTRATION		W O	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	STINU	VALUE	ANLUE	VALUE	STINU			
Fecal streptococci, MF m-enterococcus ag	SAMPLE MEASUREMENT	****	****		**	****	170,000		0		
31679 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	***		*****	****	Req. Mon. ANNL MAX	#/100mL		Three Per Year	GRAB
Base/neutral compounds	SAMPLE MEASUREMENT	****	******		*****	*****	65		0		
32015 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	安徽宗教 李宗		安全市场	米米辛牧夫者	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Acid compounds	SAMPLE MEASUREMENT	****	******		***	****	0		0		
32020 1 0 Effluent Gross	PERMIT REQUIREMENT	古诗唐文传文	*****		****	安安 希腊 特牙	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
PCB-1016	SAMPLE MEASUREMENT	***	Arestra		***	***	0		0		
34671 1 0 Effluent Gross	PERMIT REQUIREMENT	****	******		******	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
PCB-1221	SAMPLE MEASUREMENT	者实验证证金	******		***	***	0		0		
39488 1 0 Effluent Gross	PERMIT REQUIREMENT	法按法律法	***		****	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
PCB-1232	SAMPLE MEASUREMENT	***	神神神神神神神		7.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	*****	0		0		
39492 1 0 Effluent Gross	PERMIT REQUIREMENT	华安原沙布安	安安会营业会		**************************************	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
PCB-1242 bot. dep., dry solid	SAMPLE MEASUREMENT	***	法特殊申请债		****	***	0		0		
39499 1 0 Effluent Gross	PERMIT REQUIREMENT	***	有外非申请有		沙 海 市 市 市 市 市 市 市 市 市 市 市 市 市 市 市 市 市 市	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

lectify under penalty of law that this document and all struchments were preguared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information advertised, fassed on my required to present when the information of the manage the system, or those presents directly responsible for gathering the information, the information of the present detection of the provided gather their true, accurate and complete in an aware that there are significant prediction for submitting false information, including the possibility of fine and imprisonment for farawing SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT AREA Code 202-535-2244 TELEPHONE NUMBER

> YEAR 9

8 ω

14 DAY

DATE

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

TYPED OR PRINTED

ROCK CREEK WATERSHEDHIGH SCHOOL MONITORING LOCATION NAME CHANGED TO SOAPSTONE CREEK (CONNECTICUT AVE. AND ABLEMARLE STREET MON. IS QRTLY, REPORTED ANNLY

OMB No. 2040-0004 Form Approved

Page 74

DISCHARGE MONITORING REPORT (DMR)

NAME: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

FACILITY: ADDRESS: GOVERNMENT OF THE DC

LOCATION: ATTN:jeffrey boltz 441 4TH STREET, N.W. WASHINGTON, DC 20001

FROM

8

90

ТО

88

YEAR MO

DAY 2

YEAR MO 97

DAY $\vec{\alpha}$

MONITORING PERIOD

PERMIT NUMBER DC0000221

MS3A

DISCHARGE NUMBER

DMR MAILING ZIP CODE: 20032

SOAPSTONE CRK CONNETICUT AVE

No Discharge

PARAMETER		QUAN.	QUANTITY OR LOADING		Q	UALITY OR CONCENTRATION	CENTRATION		X3 ON	FREQUENCY OF ANALYSIS	SAMPLE
		VALUE	VALUE	STINU	VALUE	VALUE	VALUE	UNITS			
PCB-1248	SAMPLE MEASUREMENT	*****	****		* * * * * * * * * * * * * * * * * * *	***	0		0		
39500 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****		*****	安安海安安安	Req. Mon. ANNL MAX	mg/L		⊺hree Per Year	COMPOS
PCB-1254	SAMPLE MEASUREMENT	*****	******		****	*****	0		0		
39504 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	# * * * *		****	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
PCB-1260	SAMPLE MEASUREMENT	*****	*****		*****	*****	0		0		
39508 1 0 Effluent Gross	PERMIT REQUIREMENT	· · · · · · · · · · · · · · · · · · ·	**		***	*****	Req. Man. ANNL MAX	mg/L		Three Per Year	COMPOS
Phenols	SAMPLE MEASUREMENT	*****	**		*****	****	0.085		0		
46000 1 0 Effluent Gross	PERMIT REQUIREMENT	**************************************	***		法条件债金额	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Solids, total dissolved (TDS)	SAMPLE MEASUREMENT	***	*****		如此歌曲大学	****	330		0		
70296 1 0 Effluent Gross	PERMIT REQUIREMENT	***	漆水水喷水		化物质谱法验	法法律实施者	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Pesticides, general	SAMPLE MEASUREMENT	法法法律法法	******		布拉沙布西沙	# # # #	0		0		
74053 1 0 Effluent Gross	PERMIT REQUIREMENT	安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安安	安安安安安		由外面的原	******	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Coliform, fecal general	SAMPLE MEASUREMENT	***	**		******	*****	30,000		0		
74055 1 0 Effluent Gross	PERMIT REQUIREMENT	***	***		******	****	Req. Mon. ANNL MAX	#/100mL		Three Per Year	COMPOS

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Intervision in considerate with a view designation asset and all attachments were prepared in some that the document and all attachments were prepared in some that the qualified prepared to some that qualified prepared to some the public pared to some the prepared to some the public pared to some the qualified prepared to some the qualif
TELEPHONE 202-535-2244 07 AREA Code NUMBER YEAR
\$ ~
\$ ~

DAY

14

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
ROCK CREEK WATERSHEDHIGH SCHOOL MONITORING LOCATION NAME CHANGED TO SOAPSTONE CREEK (CONNECTICUT AVE. AND ABLEMARLE STREET.MON. IS QRTLY, REPORTED ANNLY.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

FACILITY: LOCATION: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DC

ATTN:jeffrey boltz

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS3A

> DMR MAILING ZIP CODE: 20032

OMB No. 2040-0004 Form Approved

Page 75

SOAPSTONE CRK CONNETICUT AVE

MO DAY 90 MONITORING PERIOD 2 ТО YEAR MO 07 80 DAY သ္

FROM

8

YEAR

No Discharge

PARAMETER		QUANT	QUANTITY OR LOADING		QL	WALITY OR CONCENTRATION	ENTRATION		Д.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	STINU			
Metals, total	SAMPLE MEASUREMENT	*****	•		*****	****	0.169		0		
78240 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	****		*****	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Volatile compounds, (GC/MS)	SAMPLE MEASUREMENT	*****	*****		****	****	11		0		
78732 1 0 Effluent Gross	PERMIT REQUIREMENT	**************************************	特别特殊法律		****	****	Req. Mon. ANNL MAX	mg/L		⊺hree Per Year	GRAB
Chemical Oxygen Demand (COD)	SAMPLE MEASUREMENT	*****	*****		***	***	220		0		
81017 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****		***	****	Req. Mon. ANNL MAX	mg/L		⊺hree Per Year	COMPOS

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

ROCK CREEK WATERSHEDHIGH SCHOOL MONITORING LOCATION NAME CHANGED TO SOAPSTONE CREEK (CONNECTICUT AVE. AND ABLEMARLE STREET.MON. IS QRTLY, REPORTED ANNLY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004 Form Approved

Page 76

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

LOCATION: FACILITY: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DC

ATTN:jeffrey boltz

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS5A

> DMR MAILING ZIP CODE: 20032

KLINGLE VALLEY CREEK

No Discharge

FROM YEAR 8 9 **≅** MONITORING PERIOD DAY 2 5 YEAR MO 07 8 3 DAY External Outfall

PARAMETER	-	QUANT	QUANTITY OR LOADING		QU	QUALITY OR CONCENTRATION	ENTRATION		Ωŏ	FREQUENCY OF ANALYSIS	SAMPLE
		VALUE	VALUE	STINU	VALUE	VALUE	VALUE	STINU			
Temperature, water deg. fahrenheit	SAMPLE MEASUREMENT	***	**************************************		******	*******	70.9		0		
00011 1 0 Effluent Gross	PERMIT REQUIREMENT	电安倍安 安 水	***		*****	******	Req. Mon. ANNL MAX	дед F		Three Per Year	GRAB
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	******	***		*******	*****	51		0		
00310 1 0 Effluent Gross	PERMIT REQUIREMENT	法特定协士顺	李宗传母子安		安全安全	****	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Н	SAMPLE MEASUREMENT	*****	***		7.20	*****	7.50		0		
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	李俊兴安建设	法法律法律法		Req. Mon. MINIMUM	安庆教会安徽	Req. Mon. ANNL MAX	SU		Three Per Year	GRAB
Solids, total suspended	SAMPLE MEASUREMENT		* * * * * * * * * * * * * * * * * * *		****	***	52		0		
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	高安特的 特殊 第	# # # # # # # # # # # # # # # # # # #		***************************************	***************************************	Req. Mon. ANNL MAX	mg/L		⊺hree Per Year	COMPOS
Oil & grease	SAMPLE MEASUREMENT	*****	****		****	# # # # # # # # # # # # # # # # # # #	9		0		
00556 1 0 Effluent Gross	PERMIT REQUIREMENT	****	****		****	**	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Nitrogen, total (as N)	SAMPLE MEASUREMENT	等由金属等等	****		*****	# * * * * *	2.6		0		
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	**************************************		***	**	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS
Nitrogen, organic total (as N)	SAMPLE MEASUREMENT	******	*****		*****	******	1.4		0		
00605 1 0 Effluent Gross	PERMIT REQUIREMENT	安安安安安安	家家水果家家		计,从由于	***	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Supervision in accordance with a system designed to assure that qualified personnel property gather and	// //		TELE	TELEPHONE		DATE		
or Hamid Karimi	evaluate the information submitted. Based on my inquiry of the person or persons who make it to system, or those persons directly responsible for gathering the information, the information submitted: To the best of my harm-edge and belief, they accurate, and complete, I am aware that there are synificant	K - 1/1/2	6	202-53	202-535-2244	07	8	14	
	realists of summing last mornation, obtaining the postioning of the analymphosiment of knowing SIGNATURE OF PRII volations. AUT	AUTHORIZED AGENT	ER OR	AREA Code	NUMBER	YEAR	MO DAY	DAY	
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Before all attachments here)	NG (Deference all attachments have)								

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
ROCK CREEK WATERSHED 19TH PLACE, NE MONITORING LOCATIONNAME CHANGED TO KLINGLE VALLEY CREEK (DEVONSHIRE PLACE AND 30TH STREET). MON. IS QRTLY, REPORTED ANNLY.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

LOCATION: FACILITY: GOVERNMENT OF THE DC

ATTN:jeffrey boltz 441 4TH STREET, N.W. WASHINGTON, DC 20001

FROM

8

5

8

YEAR

<u>S</u>0 8

DAY 9

YEAR MO 07

DAY ယ္

MONITORING PERIOD

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS5A

DMR MAILING ZIP CODE: 20032

OMB No. 2040-0004 Form Approved

Page 77

KLINGLE VALLEY CREEK

No Discharge

00610 1 0 Effluent Gross 00900 1 0 Effluent Gross 00720 1 0 Effluent Gross 00666 1 0 Effluent Gross 00665 1 0 Effluent Gross Nitrogen, Kjeldahl, total (as N) Nitrite plus nitrate total 1 det. (as N) Nitrogen, ammonia total (as N) Phosphorus, dissolved Cyanide, total (as CN) Phosphorus, total (as P) Effluent Gross 00630 1 0 Effluent Gross Hardness, total (as CaCO3) 00625 1 0 PARAMETER SAMPLE MEASUREMENT MEASUREMENT SAMPLE MEASUREMENT SAMPLE MEASUREMENT REQUIREMENT MEASUREMENT SAMPLE MEASUREMENT REQUIREMENT REQUIREMENT MEASUREMENT REQUIREMENT REQUIREMENT REQUIREMENT REQUIREMENT SAMPLE SAMPLE PERMIT SAMPLE PERMIT PERMIT PERMIT PERMIT VALUE **** ***** **** ***** ***** ***** ***** ***** *** **** QUANTITY OR LOADING VALUE ***** ***** ***** *** **** ***** **** ***** **** UNITS VALUE **** ***** ***** *** **** ***** ***** ***** ***** ***** QUALITY OR CONCENTRATION VALUE ***** **** ***** **** **** ***** ***** **** **** 0 Req. Mon. ANNL MAX Req. Mon. ANNL MAX Req. Mon. ANNL MAX 0.01 Req. Mon. ANNL MAX 0.16 Req. Mon. ANNL MAX 0.45 Req. Mon. ANNL MAX 1.2 Req. Mon. ANNL MAX 1.4 200 VALUE STIND mg/L mg/L mg/L mg/L mg/L mg/L mg/L 0 Ωõ 0 0 0 0 0 0 FREQUENCY OF ANALYSIS Three Per Year SAMPLE TYPE COMPOS COMPOS COMPOS COMPOS COMPOS **GRAB** GRAB

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

certify under penalty of law that it is document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gainer and evaluate the information abunited designed to see that qualified personnel properly gainer and evaluate the information abunited seasor on my unapper of persons on persons who manage their accordance or persons who manage their accordance of persons who manage their designed in the formation, then information abunited with their accordance and complete I are waver that there are significant personnels of submitting false information, including the possebility of fine and imprisonment for knowing vocations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

AREA Code

NUMBER

š ω

PAY

202-535-2244

9

14

TELEPHONE

DATE

17

10 C

Dr.

Hamid Karimi

TYPED OR PRINTED

ROCK CREEK WATERSHED 19TH PLACE, NE MONITORING LOCATIONNAME CHANGED TO KLINGLE VALLEY CREEK (DEVONSHIRE PLACE AND 30TH STREET)._ MON IS QRTLY, REPORTED ANNLY

OMB No. 2040-0004 Form Approved

Page 78

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: GOVERNMENT OF THE DISTRICT OF 441 4TH STREET, N.W. WASHINGTON, DC 20001

FACILITY: LOCATION: 441 4TH STREET, N.W. GOVERNMENT OF THE DC

ATTN:jeffrey boltz WASHINGTON, DC 20001

FROM

8

YEAR

MO 9

DAY 9

PERMIT NUMBER DC0000221

DISCHARGE NUMBER MS5A

> DMR MAILING ZIP CODE: 20032

KLINGLE VALLEY CREEK

MONITORING PERIOD 5 YEAR MO 07 80 DAY $\frac{\omega}{2}$

External Outfall No Discharge

VALUE VALUE VALUE VALUE UNITS EX)					1	
VALUE VALUE VALUE VALUE VALUE UNITS FX		****		安安安安	****	PERMIT REQUIREMENT	39499 1 0 Effluent Gross
VALUE VALU		***		******	***	SAMPLE MEASUREMENT	PCB-1242 bot. dep., dry solid
VALUE VALUE VALUE VALUE VALUE UNITS EX OF ANALYSIS		非安全的		黄金金金金金	安安 有 原 原 原	PERMIT REQUIREMENT	39492 1 0 Effluent Gross
VALUE VALUE VALUE VALUE UNITS EX		*****		*****	***	SAMPLE MEASUREMENT	PCB-1232
VALUE UNITS VALUE VALUE VALUE VALUE UNITS EX OF ANALYSIS		法中安全部会		斯沙安斯	冷 管 原始	PERMIT REQUIREMENT	39488 1 0 Effluent Gross
VALUE UNITS VALUE VALUE VALUE UNITS FAMALYSIS		***		***	安全原始的	SAMPLE MEASUREMENT	PCB-1221
VALUE UNITS VALUE VALUE VALUE VALUE VALUE UNITS CPANALYSIS		*****		安全市	安安排的	PERMIT REQUIREMENT	34671 1 0 Effluent Gross
VALUE UNITS VALUE VALUE VALUE VALUE UNITS EX OF ANALYSIS		****		***	****	SAMPLE MEASUREMENT	PCB-1016
VALUE UNITS VALUE VALUE VALUE UNITS CFANALYSIS 0 0 0 0 7 <td></td> <td>有可持定者</td> <td></td> <td>***</td> <td>经申请按价值</td> <th>PERMIT REQUIREMENT</th> <td>32020 1 0 Effluent Gross</td>		有可持定者		***	经申请按价值	PERMIT REQUIREMENT	32020 1 0 Effluent Gross
VALUE UNITS VALUE VALUE VALUE UNITS CF ANALYSIS		香港场景		****	古典 排放於者	SAMPLE MEASUREMENT	Acid compounds
VALUE UNITS VALUE VALUE VALUE UNITS OF ANALYSIS 0 0 0 0 10		**		****	***	PERMIT REQUIREMENT	32015 1 0 Effluent Gross
VALUE UNITS VALUE VALUE VALUE UNITS O O Three Per Year		*****		****	管理 微处理会	SAMPLE MEASUREMENT	Base/neutral compounds
VALUE UNITS VALUE VALUE VALUE UNITS		***************************************		持续持续	专业法院审定	PERMIT REQUIREMENT	31679 1 0 Effluent Gross
VALUE UNITS VALUE VALUE VALUE UNITS		******		*****	******	SAMPLE MEASUREMENT	Fecal streptococci, MF m-enterococcus ag
EX OF ANALYSIS		VALUE	UNITS	VALUE	VALUE		
OLIALITY OR CONCENTRATION NO. FREQUENCY S	JALITY OR CONCENTRATION	QUA		QUANTITY OR LOADING	QUAN"		PARAMETER

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments h	TYPED OR PRINTED
NS (Reference all	
attachments h	

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

Dr.

Hamid Karimi

I certify under penalty of law that this document and all attachments were prepared under my direction or opportunity of many three and supervision in accordance with a system designed to assure that qualified personnel propring white and contained the information attentioned Based on my mergany of the presence of presence propring the many system, or flows persons directly responsible for galacting the informations, the information particular is as the best of any downledge and whether the case that there are designed in the present of a submitting disc information, including the possibility of the and magnitorances for those was produced.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

AREA Code

NUMBER

YEAR 9

₹ ω

14 DAY

 \mathbf{r}_{j}

Ò

202-535-2244 TELEPHONE

DATE

ROCK CREEK WATERSHED 19TH PLACE, NE MONITORING LOCATIONNAME CHANGED TO KLINGLE VALLEY CREEK (DEVONSHIRE PLACE AND 30TH STREET)._ MON. IS QRTLY, REPORTED ANNLY

OMB No. 2040-0004 Form Approved

Page 79

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: GOVERNMENT OF THE DC

LOCATION: 441 4TH STREET, N.W. WASHINGTON, DC 20001

ATTN:jeffrey boltz

PERMIT NUMBER YEAR DC0000221 Mo MONITORING PERIOD DAY

FROM

8

9

0

ð

8

YEAR MO 07

DAY ω

DISCHARGE NUMBER MS5A

MAJOR DMR MAILING ZIP CODE: 20032

KLINGLE VALLEY CREEK External Outfall

No Discharge

	74055 1 0 Effluent Gross	Coliform, fecal general	74053 1 0 Effluent Gross	Pesticides, general	70296 1 0 Effluent Gross	Solids, total dissolved (TDS)	46000 1 0 Effluent Gross	Phenois	39508 1 0 Effluent Gross	PCB-1260	39504 1 0 Effluent Gross	PCB-1254	39500 1 0 Effluent Gross	PCB-1248		PARAMETER
	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT		
	****	*****	******	· · · · · · · · · · · · · · · · · · ·	***	***	*****	******	安安安全	***	安全的专业	***	******	weeter	VALUE	QUANT
	*****	*****	35 35 36 36 37 38	*****	***	**	有法法院法律	***	wheret	西安安原原	****	***	*****	****	VALUE	QUANTITY OR LOADING
					·										UNITS	
	等法法法律	****	****	****	***	***	** ** **	***************************************	Pt	****	治疗治验 安 斯	** ***********************************	******	安安 医水杨宁	VALUE	QI
· —	***	******	****	**	*****	*****	海 传传 安安	*******	**************************************	布用作用 使者	**************************************	***	*****	******	VALUE	QUALITY OR CONCENTRATION
	Req. Mon. ANNL MAX	80,000	Req. Mon. ANNL MAX	0	Req. Mon. ANNL MAX	450	Req. Mon. ANNL MAX	0.062	Req. Mon. ANNL MAX	0	Req. Mon. ANNL MAX	0	Req. Mon. ANNL MAX	0	VALUE	ENTRATION
	#/100mL		mg/L		mg/L		mg/L		mg/L		rng/L		mg/L		UNITS	
		0		0		0		0		0		0		0		æ ö
	Three Per Year		Three Per Year		Three Per Year		Three Per Year		Three Per Year		Three Per Year		Three Per Year			FREQUENCY OF ANALYSIS
	COMPOS		COMPOS		COMPOS		GRAB		COMPOS		COMPOS		COMPOS			SAMPLE TYPE

viderions.	TYPED OR PRINTED
to the best of my kno penalties for submitti	Dr. Hamid Karimi
supervision in accord evaluate the informat	NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

I certify under penalty of law has this document and all attachments were prepared under try of evenion of supervision in accordance with a system designed to ascere that qualified personnel properly guidar and evaluate the information submitted Based on my industy of the person or persons with manage the system, are those persons duredly responsible for gathering the information, there information submitted is used to the person of the information therefore the person of the soft crys horseledge and belief in the accorder and complete I an aware that interes are significant penalties for submitting false information, including the possibility of fine and crupt isomment for knowing

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT ma 5 202-535-2244 AREA Code TELEPHONE NUMBER YEAR 07

DATE

Š ω

14 DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
ROCK CREEK WATERSHED 19TH PLACE, NE MONITORING LOCATIONNAME CHANGED TO KLINGLE VALLEY CREEK (DEVONSHIRE PLACE AND 30TH STREET)_ MON. IS QRTLY, REPORTED ANNLY.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ADDRESS: 441 4TH STREET, N.W. WASHINGTON, DC 20001 GOVERNMENT OF THE DISTRICT OF

FACILITY: GOVERNMENT OF THE DC

LOCATION: ATTN:jeffrey boltz 441 4TH STREET, N.W. WASHINGTON, DC 20001

> FROM YEAR MO 8 9

2

70

PERMIT NUMBER MONITORING PERIOD DAY DISCHARGE NUMBER
 YEAR
 MO
 DAY

 07
 08
 31
 MS5A

DC0000221

DMR MAILING ZIP CODE: 20032

OMB No. 2040-0004 Form Approved

Page 80

External Outfall KLINGLE VALLEY CREEK

No Discharge

PARAMETER		QUANT	QUANTITY OR LOADING		۵	QUALITY OR CONCENTRATION	ENTRATION		χō	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	STINU	VALUE	VALUE	VALUE	STINU			
Metals, total	SAMPLE	*****	***		****	***	0.552		0		
78240 1 0 Efficient Gross	PERMIT	沙 斯里 斯里 斯里 斯里	****		****	*****	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Volatile compounds, (GC/MS)	SAMPLE MEASUREMENT	******	*****		**	***	0		0		
78732 1 0 Effluent Gross	PERMIT REQUIREMENT	부 부 구 구 구 구 구 구 구 구 구 구 구 구 구 구 구 구 구 구	**************************************		**************************************	中央安全会会	Req. Mon. ANNL MAX	mg/L		Three Per Year	GRAB
Chemical Oxygen Demand (COD)	SAMPLE MEASUREMENT	****	**		****	对于方 序 唯 则	230		0		
81017 1 0 Effluent Gross	PERMIT	***	***		***	क्षा करने का लेक्ट्र स्थापन	Req. Mon. ANNL MAX	mg/L		Three Per Year	COMPOS

1	8		202-535-2244	1 - m - 8/67	ECUTIVE OFFICER supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information, shimmed lased on in youngly of the person or persons who makings the system, or those persons directly responsible for gathering the information, the information who making the system or the persons directly responsible for gathering the information, the information who making the person of persons who making the system of the person of persons who making the person of persons where the person of persons who person of persons where the person	NAMETITLE PRINCIPAL EXECUT
	MO DAY	YEAR	AREA Code NUMBER	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR		Dr. Hamid Karimi

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments nere)
ROCK CREEK WATERSHED 19TH PLACE, NE MONITORING LOCATIONNAME CHANGED TO KLINGLE VALLEY CREEK (DEVONSHIRE PLACE AND 30TH STREET). MON. IS QRTLY, REPORTED ANNLY.

APPENDIX E Complete Analytical Results for Rock Creek Storm Monitoring Stations

ROCK CREEK SUBWATERSHED DRY WEATHER SAMPLING (ROTATION 2-RAW DATA)

								(KUTA	.11ON 2-1	RAW DAT	.A)										
		Ft. Steve	ens Drive	Military :	and Beach	Soap	stone	Haze	n Park	Klingle	Valley	Normanst	one Creek	Portal a	nd 16th St	Broad	Branch	Or	egon	Glover A	Archbold
P	TI-de-	DDV 1	DDV 1	DDV 1	DDV 2	DDV 1	DDV 1	DDV 1	DDV 2	DDV 1	DDV 2	DDV 1	DDW 1	DDV 1	DDV 2	DDV 1	DDV 1	DDV 1	DDV 2	DDV 1	DDV 2
Parameter 1,1,1-TRICHLOROETHANE	Units UG/L	DRY 1 NA	DRY 2 NA	DRY 1 ND	DRY 2 ND	DRY 1 ND	DRY 2 ND	DRY 1 ND	DRY 2 ND	DRY 1 ND	DRY 2 ND	DRY 1 ND	DRY 2 ND								
1,1,2,2-TETRACHLOROETHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
1,1,2-TRICHLOROETHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
1,1-DICHLOROETHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
1,2,4-TRICHLOROBENZENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
1,2-DICHLOROBENZENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
1,2-DICHLOROETHANE	UG/L UG/L	NA NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
1,2-DICHLOROPROPANE 1,3-DICHLOROBENZENE	UG/L UG/L	NA NA	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
1,4-DICHLOROBENZENE	UG/L	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA	NA NA	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-DIMETHYLPHENOL	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2,4-DINITROPHENOL	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2,4-DINITROTOLUENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2,6-DINITROTOLUENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2-CHLOROETHLYVINYL ETHER	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2-CHLOROPHENOL	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
2-NITROPHENOL	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
3,3'-DICHLOROBENZIDINE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
4,4'-DDD	UG/L	NA NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
4,4'-DDE 4,4'-DDT	UG/L UG/L	NA NA	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
4,6-DINITRO-2-METHYLPHENOL	UG/L	NA NA	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND ND									
4-CHLORO-3-METHYLPHENOL	UG/L	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA	NA NA	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-CHLOROPHENYLPHENYLETHER	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ACENAPHTHENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ACENAPHTHYLENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ACID COMPOUNDS	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ACROLEIN	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ACRYLONITRILE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ALDRIN	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ALPHA-BHC ANTHRACENE	UG/L	NA NA	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ANTIMONY, TOTAL	UG/L MG/L	NA NA	ND 0.0079	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
AROCLOR 1016	MG/L MG/L	NA NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND									
AROCLOR 1221	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
AROCLOR 1232	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
AROCLOR 1242	NG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
AROCLOR 1248	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
AROCLOR 1254	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
AROCLOR 1260	MG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
ARSENIC, TOTAL	MG/L	NA	ND	0.0044	ND	0.004	ND	0.0036	ND	0.0042	0.002	0.0031									
BENZIDINE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BENZO(A)ANTHRACENE	UG/L	NA NA	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA	ND ND	ND	ND	ND ND	ND ND	ND	ND	ND	ND	ND
BENZO(A)PYRENE BENZO(B)FLUORANTHENE	UG/L UG/L	NA NA	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
BENZO(G,H,I)PERYLENE	UG/L	NA NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BERYLLIUM, TOTAL	MG/L	NA	NA	NA	NA	NA NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BETA-BHC	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BIS(2-CHLOROETHOXY)METHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BIS(2-CHLOROETHYL)ETHER	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	NA	ND	ND	ND	150	ND	ND	ND	23	ND	ND									
BOD5	MG/L	NA	ND	5.2	ND	7.7	ND	5.6	ND	11	13	ND									
BODU	MG/L	NA	ND	9.36	ND	13.9	ND	10.1	ND	19.8	23.4	ND									
BROMODICHLOROMETHANE	UG/L	NA NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
BROMOFORM DUTVI DENZVI DUTUALATE	UG/L	NA NA	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
BUTYLBENZYLPHTHALATE CARBON TETRACHLORIDE	UG/L UG/L	NA NA	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
CHLORDANE	UG/L UG/L	NA NA	ND ND	ND ND	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND									
CHLOROBENZENE	UG/L	NA NA	NA	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
CHLOROETHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
CHLOROFORM	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
CHLOROMETHANE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
CHLOROPHYLL-A	UG/L	NA		0.8		0.5		5		3.6		1.1									
CHROMIUM, TOTAL	MG/L	NA	0.0032	ND	0.0067	0.0052	0.0033	0.0026	0.0052	0.0038	0.0031	ND									
CHRYSENE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
CIS-1,3-DICHLOROPROPENE	UG/L	NA NA	NA	ND	ND 20	ND 20	ND 42	ND	ND	ND	ND 50	ND	ND 22								
CODDED TOTAL	MG/L MG/L	NA NA	ND 0.0023	30 0.081	20 0.029	42 0.027	ND ND	48 0.041	ND ND	50 0.042	72 0.023	0.017									
COPPER, TOTAL CYANIDE, TOTAL	MG/L MG/L	NA NA	0.0023	0.081 ND	0.029	0.027 ND	ND ND	0.041	0.0018	0.042	0.023	0.017									
DELTA-BHC	MG/L UG/L	NA NA	0.0051 ND	ND ND	0.0065 ND	ND ND	ND ND	0.0041 ND	0.0018 ND	0.0015 ND	0.0044 ND	0.029 ND									
DIBENZ(A,H)ANTHRACENE	UG/L	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND								
DIBROMOCHLOROMETHANE	UG/L	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND								
DICHLOROBROMOMETHANE	UG/L	NA		. 125	- 12																
DIETHYLPHTHALATE	UG/L	NA	ND	ND	ND	14	ND	35	ND	43	ND	ND									
DIMETHYLPHTHALATE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
DI-N-BUTYLPHTHALATE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
DI-N-OCTYL PHTHALATE	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND									
DIOXIN (2,3,7,8-TCDD)	PG/L	NA	0.55	0.48	0.62	0.4	1.15	0.52	0.8	0.38	0.65	0.36									
DISSOLVED PHOSPHORUS	MG/L	NA	0.1	0.27	0.27	0.16	0.016	0.16	0.016	0.16	0.68	0.06									

ROCK CREEK SUBWATERSHED DRY WEATHER SAMPLING (ROTATION 2-RAW DATA)

		Ft. Steve	ens Drive	Military :	and Beach	Soar	ostone	Haze	n Park	Klingl	e Valley	Normans	tone Creek	Portal ar	nd 16th St	Broad	Branch	Or	regon	Glover	Archbold
Parameter	Units	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2	DRY 1	DRY 2
ENDOSULFAN I	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ENDOSULFAN II	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ENDRIN ALDEHYDE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FECAL COLIFORM	CFU/100 ML	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300	1600	500	500	2	1600	2	1600	2	900
FECAL STREPTOCOCCUS	CFU/100 ML	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	170	80	17	2	110	110	350	300	23
FLUORANTHENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FLUORENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GAMMA-BHC	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEPTACHLOR	UG/L	NA	NA	NA	NA	NA.	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEPTACHLOR EPOXIDE	UG/L	NA NA	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROBENZENE	UG/L	NA NA	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE HEXACHLOROBUTADIENE	UG/L	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	ND ND	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND
HEXACHLOROGY CLOPENTADIENE	UG/L	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	ND	ND	ND	ND	ND	ND ND	ND	ND	ND	ND
HEXACHLOROCYCLOPEN I ADIENE HEXACHLOROETHANE	UG/L UG/L											ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA										
INDENO(1,2,3-CD)PYRENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPHORONE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LEAD, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.0091	ND	ND	ND	0.0089	ND	0.0051	0.0043	0.0022
MERCURY, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METALS, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0255	0.153	0.107	0.175	0.011	0.122	0.0131	0.0947	0.075	0.0223
METHYLENE CHLORIDE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.009	0.0081	0.011	0.009	0.0051	0.0051	0.0053	0.0066	0.0056	ND
NITRATE + NITRITE (NO2 + NO3)	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.9	4.5	4.9	4.6	2	2.2	2.9	2.7	2.5	2.9
NITROBENZENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIMETHYLAMINE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSO-DI-N-PROPYLAMINE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OIL AND GREASE	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PAH1	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PAH2	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENTACHLOROPHENOL	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PESTICIDES, GENERAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENOLS, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018	0.014	0.076	0.022	0.048	0.02	0.039	0.025	0.032	0.015
PYRENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SILVER, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0019	ND	0.0016	ND	0.0015	ND	0.0015	ND	0.0018	ND
TETRACHLOROETHENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
THALLIUM, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL BASE/NEUTRAL	MG/L	NA	NA	NA	NA	NA.	NA	NA	NA	NA	NA	ND	ND	ND	164	ND	35	ND	66	ND	ND
TOTAL DISSOLVED SOLIDS	MG/L MG/L	NA NA	NA NA	NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA	330	400	810	470	420	470	280	230	380	330
TOTAL NITROGEN	MG/L MG/L	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA	4.9	4.5	ND	4.6	2	2.2	2.9	2.7	2.5	2.9
TOTAL PAHs	UG/L	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL PCBS	NG/L	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	ND	ND	ND	ND	ND	ND ND	ND	ND	ND	ND
	NG/L MG/L													ND 9	ND 10	ND ND		2.2	9.7	50	6.5
TOTAL SUSPENDED SOLIDS	_	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	12 ND				11 ND				
TRANS-1,2-DICHLOROETHENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3 DICHLOROPROPENE	UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	1400	ND	1200	ND	1000	ND	1000	800	550
ZINC, TOTAL	MG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.05	0.057	0.13	ND	0.061	ND	0.033	0.031	ND

ROCK CREEK SUBWATERSHED WET WEATHER SAMPLING (ROTATION 2-RAW DATA)

			Stevens Drive			itary and Be			Soapstone			Hazen Park			lingle Valle			rmanstone Creek		rtal and 16th St.		Broad Branc		Oregon			over Archbol	
Parameter 1.1.1-TRICHLOROETHANE	Units UG/L	WET 1 ND		WET 3 ND	WET 1 ND	WET 2 ND	WET 3 ND	WET 1 ND	WET 2 ND	WET 3 ND	WET 1 ND	WET 2	WET 3 ND	WET 1 ND	WET 2 ND	WET 3	WET 1 ND	WET 2 WET 3 ND	WET 1 ND	WET 2 WET 3	WET 1 ND	WET 2 ND	WET 3 WET 1 ND	WET 2 ND	WET 3	WET 1 ND	WET 2 ND	WET 3
1,1,2,2-TETRACHLOROETHANE	UG/L UG/L	ND ND		ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
1,1,2-TRICHLOROETHANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND ND	ND		ND	ND	
1,1-DICHLOROETHANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
1,1-DICHLOROETHENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
1,2,4-TRICHLOROBENZENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
1,2-DICHLOROBENZENE	UG/L	ND		ND	ND		ND	ND		ND	ND		ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	UG/L UG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
1,2-DICHEOROFROFANE 1,2-DIPHENYLHYDRAZINE	UG/L	ND ND		ND	ND ND	ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND ND	ND		ND	ND ND	ND ND	ND ND	ND	ND ND	ND ND	ND		ND	ND	
1,4-DICHLOROBENZENE	UG/L	ND		ND	ND	110	ND	ND		ND	ND	112	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		11	ND	
2,4,6-TRICHLOROPHENOL	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
2,4-DICHLOROPHENOL	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
2,4-DIMETHYLPHENOL	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
2,4-DINITROPHENOL AROCLOR 1221	UG/L MG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
AROCLOR 1221 AROCLOR 1232	MG/L MG/L	ND		ND	ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND ND	ND	ND ND	ND	ND	ND ND	ND		ND	ND	
AROCLOR 1242	NG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
AROCLOR 1248	MG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
AROCLOR 1254	MG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
AROCLOR 1260	MG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ļ	ND	ND	
BENZENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND ND	ND	ND	ND ND	ND		ND	ND	
BENZO(A)ANTHRACENE	UG/L UG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
BENZO(A)PYRENE	UG/L	ND		ND	ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND ND	ND	ND ND	ND	ND	ND ND	ND	 	ND	ND	
BENZO(B)FLUORANTHENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND ND	ND		ND	ND	
BENZO(G,H,I)PERYLENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
BENZO(K)FLUORANTHENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
BERYLLIUM, TOTAL	MG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ļ	ND	ND	
BETA-BHC BIS(2-CHLOROETHYL)ETHER	UG/L UG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND		ND	ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND ND	ND	ND ND	ND	ND	ND ND	ND		ND	ND	
BOD5	MG/L	51		ND	61	13	ND	61	22	8.5	22	27	ND	51	ND		36	ND	30	ND	21	ND	29	ND		11	ND	
BODU	MG/L	91.8		ND	110	23.4	ND	110	39.6	15.3	39.6	48.6	ND	91.8	ND		64.8	ND	54	ND	37.8	ND	52.2	ND		19.8	ND	
BROMODICHLOROMETHANE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
BROMOFORM	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
BROMOMETHANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
BUTYLBENZYLPHTHALATE CADMIUM, TOTAL	UG/L MG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND 0.0023	ND ND	ND ND	ND ND	ND ND		ND 0.0035	ND ND	ND 0.0015	ND ND	ND 0.0012	ND ND	ND 0.0012	ND ND		ND 0.0015	ND ND	
CARBON TETRACHLORIDE	UG/L	ND		ND	ND	ND	ND ND	ND ND	ND	ND ND	0.0023 ND	ND	ND	ND	ND		0.0033 ND	ND ND	0.0013 ND	ND ND	ND	ND ND	0.0012 ND	ND		0.0013 ND	ND	
CHLORDANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND ND	ND		ND	ND	
CHLOROBENZENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
CHLOROETHANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
CHLOROFORM	UG/L	ND		ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
CHLOROMETHANE CHLOROPHYLL-A	UG/L UG/L	ND 1.6		ND ND	ND	ND 3.8	ND ND	ND 2.2	ND ND	ND ND	ND ND	ND ND	ND ND	ND 3.4	ND 7.1		ND	ND 2.5	ND	ND 1.1	ND	ND 6.2	ND	ND 5.6		ND	ND 1.7	
CHROMIUM, TOTAL	MG/L	0.0036		0.005	0.013	0.0031	0.0079	0.0077	0.0032	0.0082	0.016	0.0065	0.0059	0.013	0.0039		0.0084	ND	0.011	ND	0.01	ND	0.0077	0.005	i i	0.0038	ND	
CHRYSENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
COD	MG/L	150	0.051	24	270	0.052	ND	220	0.074	29	130	0.043	21	230	23		93	11	120	22	74	21	89	20		36	18	
COPPER, TOTAL	MG/L	NTD.	0.0000	0.018	0.093	0.008	0.042	0.029	0.018	0.029	0.11	0.11	0.043	0.11	0.064		0.13	ND	0.11	0.0052	0.051	0.002	0.038	0.0065		0.11	0.0051	
DELTA-BHC DIBROMOCHLOROMETHANE	UG/L UG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND		ND ND	ND ND	
DIELDRIN	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND ND	ND	ND ND	ND	ND	ND ND	ND		ND	ND	
DIETHYLPHTHALATE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND	ND		ND	84	ND	32	ND	27	ND	34		ND	15	
DIMETHYLPHTHALATE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
DI-N-BUTYLPHTHALATE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
DIOXIN (2,3,7,8-TCDD)	PG/L MG/I	ND 0.00013		ND 0.13	ND 0.00012	ND 0.043	ND 0.066	ND 0.00000	ND 0.005	ND 0.27	ND 0.24	ND 0.22	ND 0.2	ND 0.00028	ND 0.16		0.81	0.84	0.81	0.52	0.88	0.58	0.74	0.5		0.69	0.76	
DISSOLVED PHOSPHORUS ENDOSULFAN I	MG/L UG/L	0.00013 ND		0.13 ND	0.00012 ND	0.043 ND	0.066 ND	0.00009 ND	0.095 ND	0.27 ND	0.34 ND	0.22 ND	0.2 ND	0.00028 ND	0.16 ND	1	0.38 ND	0.06 ND	0.31 ND	0.079 ND	0.32 ND	0.16 ND	0.26 ND	0.073 ND		0.31 ND	0.19 ND	
ENDOSULFAN II	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
ENDOSULFAN SULFATE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
ENDRIN	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
ENDRIN ALDEHYDE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
ETHYLBENZENE FECAL COLIFORM	UG/L CFU/100 ML	ND 90000		ND 900	ND 400	ND 40000	ND 500	ND 30000	ND 20000	ND 1600	ND ND	ND 3.00E+06	ND 1600	ND 800	ND 80000		ND 28000	ND 300	ND 11000	ND 22	ND 90000	ND 900	ND 24000	ND 900		ND 5000	ND 900	
FECAL COLIFORM FECAL STREPTOCOCCUS	CFU/100 ML CFU/100 ML	2200		23	ND	80000	90	400	170000	140	ND ND	3.00E+06 1.10E+06	170	ND	80000 ND	1	30000	300 ND	35000	22 ND	3400	900 17	24000 17000	1600		13000	23	
FLUORANTHENE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND ND	
GAMMA-BHC	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
HARDNESS	MG/L	160		270	160	250	250	170	370	300	160	190	270	150	200													
HEPTACHLOR	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
HEPTACHLOR EPOXIDE	UG/L	ND ND		ND	ND	ND	ND	ND	ND	ND ND	ND	ND ND	ND	ND ND	ND		ND	ND ND	ND	ND ND	ND	ND ND	ND ND	ND		ND ND	ND	
HEXACHLOROBENZENE HEXACHLOROBUTADIENE	UG/L UG/L	ND ND		ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	1	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	}	ND ND	ND ND	
HEXACHLOROCYCLOPENTADIENE	UG/L UG/L	ND ND		ND	ND	ND	ND ND	ND	ND	ND ND	ND	ND ND	ND	ND ND	ND		ND	ND ND	ND ND	ND ND	ND	ND ND	ND ND	ND		ND	ND ND	
HEXACHLOROETHANE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND ND	ND		ND	ND	
INDENO(1,2,3-CD)PYRENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
ISOPHORONE	UG/L	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	
MERCURY, TOTAL	MG/L	ND 0.0004		ND 0.125	ND 0.202	ND	ND 0.0024	ND	ND	ND 0.124	ND	ND	ND 0.122	ND 0.552	ND		ND 0.415	ND	ND 0.452	ND 0.0410	ND 0.102	ND 0.002	ND 0.125	ND 0.0205	ļ	ND	ND	
METALS, TOTAL METHYLENE CHLORIDE	MG/L UG/L	0.0894 ND		0.125 ND	0.302 ND	0.0186 ND	0.0936 ND	0.169 ND	0.0806 ND	0.124 ND	0.515 ND	0.312 ND	0.132 ND	0.552 ND	0.248 ND		0.415 ND	ND ND	0.452 ND	0.0418 ND	0.192 ND	0.002 ND	0.125 ND	0.0205 ND		0.191 ND	0.0361 ND	
NICKEL, TOTAL	MG/L	ND ND		0.011	0.0058	0.0053	0.0063	ND ND	0.024	0.0082	0.017	0.0085	0.0072	0.018	0.011		0.0093	ND ND	0.019	0.0076	0.011	ND ND	0.0073	0.0059		0.0056	0.0066	
	G.L	.,.,	V.V.		0.0000	0.0000	0.0005		U.U4T	0.0002	0.01/	0.0005	0.0072	0.010	0.011		0.00/3	. 120	0.017	0.0070	0.011	.112	0.0073	0.000/	1	0.0000	0.0000	

1 OF 2

ND - none detected

(ROTATION 2-RAW DATA)

		Ft	. Stevens Dr	ive	Mil	litary and B	each		Soapstone			Hazen Park		k	Klingle Valle	,	Nor	rmanstone Ci	reek P	ortal and 16tl	h St.	Broad Branc	ch		Oregon		Gl	over Archbold
Parameter	Units	WET 1	WET 2	WET 3	WET 1	WET 2	WET 3	WET 1	WET 2	WET 3	WET 1	WET 2	WET 3	WET 1	WET 2	WET 3	WET 1	WET 2	WET 3 WET 1	WET 2	WET 3 WET 1	WET 2	WET 3	WET 1	WET 2	WET 3	WET 1	WET 2 WET 3
NITRATE + NITRITE (NO2 + NO3)	MG/L	0.52	2.7	3	1	0.93	1.2	0.76	13	2.4	1.1	8.1	2.2	0.4	1.2		1.1	22	1.5	21	1	9		0.72	14		1.8	4.8
NITROBENZENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
N-NITROSODIMETHYLAMINE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
N-NITROSODIPHENYLAMINE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
ORGANIC NITROGEN	MG/L	ND	2.3	1.5	ND	ND	1.2	ND	ND	1.6	4.2	2.8	1.3	ND	1.4													
PAH1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PAH2	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PAH3	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PENTACHLOROPHENOL	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PESTICIDES, GENERAL	MG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PHENANTHRENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PHENOL	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
PHENOLS, TOTAL	MG/L	0.11	0.095	0.14	0.069	0.11	0.00012	0.057	0.085	0.042	0.066	0.037	0.049	0.062	0.039		0.018	0.029	0.036	0.041	0.023	0.036		0.065	0.034		0.013	0.037
SILVER, TOTAL	MG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0018	ND	ND	ND	ND		0.0018	ND	0.002	ND	0.0017	ND		0.0017	ND		0.0015	ND
TETRACHLOROETHENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
THALLIUM, TOTAL	MG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0021	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
TOLUENE	UG/L	ND	2.7	ND	ND	ND	ND	ND	1.4	ND	ND	2.6	ND	ND	ND		ND	ND	ND	ND	ND	ND		7.6	ND		ND	ND
TOTAL BASE/NEUTRAL	MG/L	ND	ND	ND	36	ND	ND	65	12	ND	49	33	ND	27	20		17	84	18	32	ND	27		ND	60		ND	27
TOTAL DISSOLVED SOLIDS	MG/L	180	520	540	720	200	240	110	330	320	680	180	300	450	240		110	330	90	730	200	430		30	250		88	440
TOTAL KJELDAHL NITROGEN (TKN)	MG/L	ND	2.3	1.5	ND	ND	1.2	ND	ND	1.6	4.2	2.8	1.3	ND	1.4													
TOTAL NITROGEN	MG/L	ND	5	4.5	1	ND	2.4	ND	13	4	5.3	11	3.5	ND	2.6		1.1	22	1.5	21	1	9		0.72	14		1.8	4.8
TOTAL PAHs	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
TOTAL PCBS	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
TOTAL PHOSPHORUS (TP)	MG/L	0.24	0.42	0.16	0.18	0.14	0.21	0.24	0.21	0.43	0.62	0.47	0.37	0.45	0.22		0.61	0.076	0.51	0.098	0.35	0.18		0.38	0.085		0.56	0.2
TOTAL SUSPENDED SOLIDS	MG/L	57	15	11	82	52	60	89	10	44	210	67	16	52	25		64	ND	110	ND	83	8.6		110	74		14	7
TOXAPHENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND		ND	ND
TRANS-1,2-DICHLOROETHENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	1	ND	ND		ND	ND
TRANS-1,3 DICHLOROPROPENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		1300	ND	700	ND	550	ND	ļ	800	500		550	ND
TRICHLOROETHENE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	1	ND	ND		ND	ND
VINYL CHLORIDE	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND 2.6	ND	ND	ND		ND	ND	ND 700	ND	ND 550	ND	-	ND	ND		ND	ND
VOLATILE COMPOUNDS	MG/L	ND	2.7	ND 0.000	ND 0.16	ND	ND 0.022	ND	1.4	11	ND 0.20	2.6	ND 0.000	ND 0.000	ND 0.020		1300	ND	700	ND 0.020	550	ND	+	808	500		561	ND 0.022
ZINC, TOTAL	MG/L	0.069	0.03	0.069	0.16	ND	0.032	0.11	0.033	0.068	0.28	0.15	0.068	0.098	0.029		0.2	ND	0.28	0.029	0.091	ND		0.054	ND		0.051	0.022

ND - none detected 2 OF 2

APPENDIX F

Land Use Characteristics and Runoff Coefficients for Rock Creek

Estimation of Runoff Coefficients for the Monitored Sewersheds

Runoff coefficients were estimated for each of the eight sewersheds contributing flow to the Rock Creek monitoring sites.

The runoff coefficients were estimated based on the impervious area within each District zoning category. The methodology used is as follows.

- 1. Information regarding each zoning category was obtained from the District's zoning web site, www.dcoz.dcgov.org/info/map.shtm.
- 2. The maximum occupancy of the lot for each zoning category was assumed to be covered by an impervious surface (from the structure(s)).
- 3. An additional percentage of the remaining unoccupied lot area was assumed to be covered by a driveway surface.
- 4. The average runoff coefficient for each zoning category was estimated using Equation 3 on page 5-16 of the "Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems", 1992. The equation is as follows:

 $Rv_i = 0.05 + 0.009 * I$ (Equation 3)

Where: $Rv_i = Runoff Coefficient$

I = Percent imperviousness

Appendix F 1 of 4 Runoff Coefficients

TABLE 1. ESTIMATED OF THE RUNOFF COEFFICIENT FOR DISTRICT LAND USE ZONING CATEGORIES.

		Maximum	Driveway	Total	
	Land Use-Zoning	Occupancy	Occupancy	Impervious	Rv _i
C-1	Commercial				0.64
	Neighborhood Shopping	60	20	80	0.77
	Community business center-low moderate density	60	20	80	0.77
	Community business center -medium density	80	20	100	0.95
	Community business center- high density	80	20	100	0.95
	Medium bulk major business and employment	75	20	95	0.905
	Medium bulk major business and employment	100		100	0.95
C-3-C	High Bulk major business and employment	100		100	0.95
C-4	Central Business district	100		100	0.95
C-5	(PAD) Pennsylvania Avenue Development	100		100	0.95
C-M-1	Low Bulk commercial and light manufacturing	100		100	0.95
C-M-2	Medium bulk commercial and light manufacturing	100		100	0.95
C-M-3	High bulk commercial and light manufacturing	100		100	0.95
CR	Mixed residential, retail, offices & light industrial uses	75	20	95	0.905
M-5	Mixed residential and commercial				0.68
M-6	Mixed residential and commercial				0.64
M-7	Mixed residential and commercial				0.64
M-11	Mixed residential and commercial				0.64
M-20	Mixed residential and commercial				0.68
M	General industry	100		100	0.95
P-1	Public - Federal and Institutional				0.77
P-2	Public - Federal and Institutional				0.77
P-3	Public - Federal and Institutional				0.68
P-4	Parks				0.35
R-1	Residential				0.48
R-2	Residential				0.65
R-3	Residential				0.65
R-4	Residential				0.64
	Single family detached dwellings	40	10	50	0.5
	Single family detached dwellings Single family detached dwellings	40	10	50	0.5
R-2	Single family detached dwellings	40	10	50	0.5
R-3	Row dwellings & flats	60	15	75	0.725
R-4	Row dwellings & flats	60	15 20	75 80	0.725 0.77
	Low density apartments	-			
	Moderate density apartment houses	60	20	80	0.77
	Medium density apartment houses	75	20	95	0.905
	Medium-High density apartment houses	75	20	95	0.905
	High density	75	20	95	0.905
SP-1	Medium density residential/limited office	80	15	95	0.905
SP-2	Medium density residential/limited office	80	15	95	0.905
W-1	Low density mixed residential-commercial	80	15	95	0.905
W-2	Medium density mixed residential-commercial	75	20	95	0.905
W-3	High density mixed residential-commercial	75	20	95	0.905

Appendix F 2 of 4 Runoff Coefficients

TABLE 2. WEIGHTED RUNOFF COEFFICIENT FOR THE MONITORED ROCK CREEK SEWERSHEDS.

	Monitoring Site	Zone	Rvi	Acres
MS-1	Ft. Stevens Drive	P4	0.35	5.97
		R1	0.48	15.70
		R2	0.65	3.38
MS-2	Military and Beach	P3	0.68	0.04
		P4	0.35	30.60
MS-3	Soapstone	C1	0.64	6.20
		C2	0.68	3.04
		M6	0.64	4.93
		P1	0.77	18.55
		P2	0.77	21.12
		P3	0.68	6.74
		P4	0.35	14.63
		R1	0.48	222.30
		R2	0.65	0.14
		R3	0.65	0.87
		R4	0	31.70
MS-4	Hazen Park	P1	0.77	9.81
		P2	0.77	4.24
		P3	0.68	16.80
		P4	0.35	7.48
		R1	0.48	49.80
MS-5	Klingle Valley	P3	0.68	26.50
		P4	0.35	1.36
		R1	0.48	23.70
		R2	0.65	0.44
MS-6	Normanstone Creek	R1	0.48	10.30
MS-7	Portal and 16th St	P4	0.35	0.32
		R1	0.48	5.36
MS-8	Broad Branch	C1	0.64	21.12
		P2	0.77	16.78
		P3	0.68	8.74
		P4	0.35	37.82
		R1	0.48	418.00
		R2	0.65	23.30
		R3	0.65	3.58
		R4	0	11.62
MS-9	Oregon	P3	0.68	21.00
	-	P4	0.35	3.02
		R1	0.48	60.40

Appendix F 3 of 4 Runoff Coefficients

	Monitoring Site	Zone	Rv_i	Acres
MS-10	Glover Archbold	C1	0.64	4.41
		P2	0.77	4.57
		P3	0.68	13.30
		P4	0.35	1.01
		R1	0.48	10.40
		R2	0.65	3.81
		R3	0.65	11.30

Appendix F 4 of 4 Runoff Coefficients