Attachment 1: Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DISTRICT OF COLUMBIA
THE CHIEF FINANCIAL OFFICER OF THE DISTRICT OF COLUMBIA
THE DEPARTMENT OF HEALTH
THE DEPARTMENT OF PUBLIC WORKS
AND
THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
REGARDING STORMWATER PERMIT COMPLIANCE ADMINISTRATION

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is entered into this 14th day of December, 2000 by and between the City Administrator of the District of Columbia, the Department of Health ("DOH"), the Department of Public Works ("DPW"), the District of Columbia Water and Sewer Authority ("WASA"), (collectively, "parties") and the Chief Financial Officer of the District of Columbia ("DCCFO"), who joins this agreement for limited purposes set forth in paragraph 9.

WHEREAS, on or about April 19, 2000 the United States Environmental Protection Agency ("EPA") issued discharge permit number DC0000221 to the District of Columbia as Permittee ("MS4 permit"); and

WHEREAS, the MS4 permit authorizes certain discharges and requires other activities related to the operation of District of Columbia Municipal Separate Storm Water Sewer System; and

WHEREAS, the MS4 permit contains a compliance schedule which requires the District of Columbia to compile and submit information on pollution sources, significant changes in the identification and mapping of storm sewer system outfalls, and changes affecting the separate storm sewer system due to land use activities, population estimates, runoff characteristics, structural controls and other matters; and

WHEREAS, the compliance schedule requires, among other items, a written annual review to be submitted to EPA as well as implementation of outfall monitoring activities on or before April 19, 2001. A written annual report and implementation plan must be submitted to EPA by April 19, 2002; and

WHEREAS, the Mayor, as the Chief Executive Officer of the District of Columbia, directs the actions of the Department of Health and the Department of Public Works through the heads of those Departments; and

WHEREAS, the City Administrator is the chief executive officer of the Mayor and has been delegated the authority to sign this agreement on the Mayor's behalf;

WHEREAS, the Department of Health is a subordinate agency of the government of the District of Columbia charged with multiple responsibilities, including the enforcement of regulations designed to protect water quality and monitoring of environmental compliance in the District of Columbia; and

WHEREAS, the Department of Public Works is a subordinate agency of the government of the District of Columbia charged with primary responsibility to maintain public roads and streets in the District of Columbia and routinely engages in activities necessary to implementation of MS4 requirements related to the public space; and

WHEREAS, the District of Columbia Water and Sewer Authority is an independent agency of the government of the District of Columbia, has the ability to contract and provides wastewater treatment services for both sanitary and combined sanitary and storm water flows delivered to the Blue Plains Advanced Wastewater Treatment Plant; and

WHEREAS, on or about September 13, 2000, Council Bill 13-813 was introduced before the Council of the District of Columbia. This Bill, known as the "Storm Water Permit Compliance Amendment Act of 2000" ("the Storm Water Bill" or "the Bill"), is intended to amend the enabling legislation of the Water and Sewer Authority to grant express authority to WASA to engage in certain MS4 permit compliance activities including creation of a storm water administration within WASA and authority to coordinate actions between and among other District agencies; and

WHEREAS, the Bill would establish a Permit Compliance Enterprise Fund, require the collection by WASA of fees set by the Council for storm water management activities, and require certification by WASA's General Manager or his or her designee of the sufficiency of MS4 permit compliance budget requests made by District agencies; and

WHEREAS, the bill is expected to receive favorable consideration from the Council, the Mayor, and the Financial Responsibility and Management Assistance Authority. Following completion of the 30 legislative day period of congressional review, the Bill is likely to become law shortly before certain MS4 compliance activities must be completed; and

WHEREAS, in order to provide the best opportunity for complete compliance with MS4 permit conditions, the parties have determined that this Memorandum of Understanding will govern the coordination of MS4 permit compliance actions of the parties during that period of time which shall commence on the effective date of this MOU and terminate upon the expiration of the permit; and

WHEREAS, at the request of the Mayor, representatives of these parties and others have met on a weekly basis over the past several months to negotiate a MS4 Permit compliance protocol acceptable to all parties; and

WHEREAS, the parties have developed a compliance matrix which sets forth the respective MS4 permit compliance responsibilities of the Department of Health, the Department of Public Works, and WASA; and

WHEREAS, the parties have agreed that each will be that each will be responsible for and shall complete all duties set forth in the attached Compliance Matrix (Schedule A; incorporated by this reference), and

WHEREAS, DOH AND DPW will provide technical assistance to WASA and all parties will dedicate operational resources, including personnel and equipment to the respective tasks assumed by each in the Compliance Matrix; and

WHEREAS, WASA will coordinate MS4 permit compliance activities of District agencies under the terms of this MOU and the requirements of the Storm Water Bill, once effective subject to the expenditure cap set forth herein; and

WHEREAS, the parties acknowledge that it may be necessary for some or all parties to take action to amend, reprogram or supplement their respective Fiscal Year 2001 and proposed 2002 budgets in order to lawfully undertake activities required by the MS4 permit and wish to set forth how these actions will be taken; and

WHEREAS, a separate Memorandum of Understanding between WASA and the Chief Financial Officer of the District ("Pilot MOU") governs WASA's obligation to make a Payment in Lieu of Taxes to the District ("Pilot"); and

WHEREAS, the DCCFO joins this memorandum only for the purposes of effecting an amendment to the Pilot MOU to require an adjustment to the Pilot MOU when circumstances described in paragraph 9 occur.

NOW THEREFORE, in consideration of the promises mutually exchanged, the receipt and sufficiency of which are acknowledged by all, the parties agree as follows:

1. Definitions.

Coordination Tasks means (a) the monitoring and coordinating the activities of all District agencies, including the activities of WASA, which are required to maintain compliance with the MS4 permit and (b) WASA's billing and collection of the Storm Water Compliance Fee, if established.

Storm Water Administrator means the person designated by the WASA General Manager to take primary responsibility for undertaking Coordination Tasks, who shall be the same person designated to head the Storm Water Administration if established in accordance with section 206A(a) of the WASA Act as amended by the Storm Water Bill.

2. Availability of Appropriations. Compliance with any provision of this MOU that would require the expenditure of funds is conditioned upon the availability of an appropriation and of funds equal to that appropriation.

3. Term. This agreement shall be effective as of the date written above and shall terminate upon the expiration of the MS4 permit unless extended by agreement of all signatories, or sooner terminated pursuant to the provisions of paragraph 12.

4. Agreement to undertake compliance activities. Each party shall employ its best efforts to fully, faithfully and timely discharge all responsibilities assumed by itself as a shared or joint or sole obligation in the Compliance Matrix (Schedule A). The parties acknowledge that the Compliance Matrix lists all of the parties' responsibilities under the MS4 permit.

5. Storm Water Administrator to Administer Compliance Activities. The Storm Water Administrator shall, during the term of this agreement, monitor the performance of tasks required to be performed in order for the parties to remain in permit compliance. The Storm Water Administrator shall issue notices of deficiencies where a party fails to meet joint or separate obligations expressed in the Compliance Matrix. The Storm Water Administrator shall also coordinate the performance of all permit requirements and shall employ best efforts to submit all deliverables required under the MS4 permit and shall establish binding timetables for submissions by other parties.

6. Agreement to Cooperate – Planning. DOH, DPW and any other District agency identified by the Storm Water Administrator shall timely comply with all requests made by the Storm Water Administrator related to MS4 permit compliance, including the scheduling of work, planning and development of capital improvements, and submittal of information, plans, proposed budgets or supplemental budgets related to storm water activities.

7. Storm Water Permit Compliance Enterprise Fund. In the event that the Storm Water Permit Compliance Enterprise Fund ("the Fund") is established pursuant to the Storm Water Permit Compliance Amendment Act of 2000, WASA shall administer the Fund as follows:

a.) WASA shall first apply monies in the Fund to the Authority's costs of performing Coordination Tasks up to the expenditure cap provided for in paragraph 8.

b.) After applying the revenues as described in subparagraph (a), WASA shall next apply income in the Fund to satisfy WASA's and any other District agency's costs of complying with the MS4 permit, including all administrative, operating and capital costs and to create adequate reserves, provided, however that no funds shall be disbursed for costs associated with MS4 permit compliance or other storm water activities carried out prior to April 19, 2000, except to the extent those costs increased in order to comply with the terms of the MS4 permit.

8. Expenditures Cap for Coordination Tasks

a.) During Fiscal Year 2001 WASA is not obligated to expend money to perform Coordination Tasks if the expenditure, taken together with any prior expenditures made that fiscal year, would exceed either (1) WASA's budgetary authority to perform the tasks; (2) the total amount of funds made available to WASA through DOH and DPW transfers or the PILOT credit made in accordance with paragraph 9(a) or (3) $1 million.

b) During Fiscal Year 2002 or thereafter, WASA is not obligated to expend money to perform Coordination Tasks if the expenditure, when taken together with any prior expenditures made that same fiscal year, would exceed either (1) WASA's budgetary authority to perform the tasks; (2) the projected revenues for the Fund plus funds made available to WASA through DOH and DCRA transfers or the PILOT credit made in accordance with paragraph 9(b), or (3) $1 million.

9. Funding of Coordination Tasks

a) During fiscal year 2001, DOH and DPW shall be exclusively responsible for the funding of WASA's performance of Coordination Tasks. In the event that the combined amounts transferred to WASA as of the effective date of this MOU are less than the amount authorized in WASA's FY 2001 budget for Coordination Tasks, the Administrator may request DOH and DPW to transfer such amounts as are necessary to make up the difference. Should DOH and DPW fail to transfer the amounts as requested within 60 days after a written request is sent, the DCCFO shall adjust the annual Pilot to credit WASA for all amounts actually expended in excess of the total funds transferred.

b) During Fiscal Year 2002 or thereafter, WASA's performance of Coordination Tasks shall be funded exclusively by the fund in accordance with paragraph 7(a). In the event that the Storm Water Administrator determines that the projected fiscal year revenues from the storm water fee will be less than the amount included in WASA's approved budget for Coordination Tasks, the Administrator may request DOH and DPW to transfer such amounts as are necessary to make up the difference. Should DOH and DPW fail to transfer the

amounts as requested within 60 days after a written request is sent, the DCCFO shall adjust the annual Pilot to credit WASA for all amounts actually expended in excess of fund revenues (including transferred amounts) for that fiscal year.

10. Agency Compliance Plan – Fiscal Years 2002 through 2005. On or before November 15th of each year, DOH and DPW shall submit to the Storm Water Administrator, and WASA shall submit to DOH and DPW, a written MS4 Permit Compliance Plan for the ensuing fiscal year. This plan shall set forth for the ensuing fiscal year:

    a) All funds in the proposed budget for the ensuing fiscal year ("Agency's Proposed Budget") dedicated for MS4 permit compliance activities assumed by the Agency in the Compliance Matrix (Schedule A).

    b) A statement whether the Agency's Proposed Budget contains sufficient funds expressly dedicated to all MS4 permit compliance activities.

    c) In the event that an agency determines sufficient dedicated funds will not be available under either its current budget or in the Agency's Proposed Budget, the agency shall estimate the amount of funds required and shall advise the Storm Water Administrator what budget actions and options are available (including, for the current budget, reprogramming funds) to secure adequate funding.

    d) *The Storm Water Administrator* shall review each party's plan and determine whether the agency Proposed Budget adequately funds MS4 permit compliance activities. The Storm Water Administrator shall inform the party, the Mayor and the Council of any deficiency found and shall indicate all revisions, procedures and actions necessary to correct the deficiency.

11. Allocation of liability. The Parties agree to the following principles with respect to their liability in the event that EPA alleges noncompliance with respect to any MS4 permit term:

    a) Where the allegation concerns a task that is identified as the sole responsibility of a party, that party shall defend any administrative action resulting therefrom, and, shall be exclusively liable for the payment of any fines, the costs of defense and the fulfillment of any compliance tasks agreed to or ordered in connection therewith.

    b) Where the allegation concerns a task that is identified as the responsibility of "each", and EPA, in its complaint, in response to an inquiry, or in a decision and order identifies the party responsible, the identified party shall defend any administrative action resulting therefrom,

and shall be liable for the payment of any fine, the costs of defense and the fulfillment of any compliance tasks agreed to or ordered in connection therewith. Nothing herein precludes a named party from asserting, as a defense, that another party is responsible for the violation, in which case that party may enter the proceeding, and shall be liable for such fines and tasks imposed by EPA as a result of acts or omissions for which the party is found responsible. If the EPA does not indicate the party responsible, the parties shall proceed in accordance with subparagraph (c).

c) Where the allegation concerns a task that is identified, the responsibility of "all" parties, the parties shall attempt to allocate liability. If no agreement is reached the issue shall be submitted to a third party agreed to by the parties, whose determination with respect to the issue of liability shall be final and binding.

12. Termination This MOU will terminate prior to the expiration of the term:

a) 90 days after a party provides written notice to the Storm Water Administrator based upon the failure of another party:

i) To fulfill any of its permit responsibilities as determined pursuant to this MOU;

ii) To pay any liability or perform any compliance task arising from such liability as determined pursuant to principles expressed in paragraph 11; or

iii) To propose a budget, supplemental, or to take any other budget related action requested of the party by the Storm Water Administrator;

b) If the Storm Water Permit Compliance Amendment Act of 2000 does not become law by September 30, 2001; or

c) If the Storm Water Permit Compliance Amendment Act of 2000 becomes law in a form that, in the judgment of any party that is substantially and materially different from the form appended hereto as Schedule B.

13. Storm Water Task Force. The parties shall meet at least once monthly as a Storm Water Task Force. The taskforce shall be chaired by the Storm Water Administrator. Each party will designate one permanent member of the Task Force. The parties shall attempt to reach consensus with respect to all decisions regarding their responsibilities under the MS4 permit and this MOU. If no consensus is reached the Storm Water Administrator shall govern. One week before each regularly scheduled meeting each party will provide, to the

Storm Water Administrator a summary of all MS4 permit activities performed during the previous month and a plan for tasks to be accomplished during the forthcoming month. At the meeting, the Storm Water Administrator will note any deficiencies in each party's plan, and the party will take all necessary actions to remedy the deficiency. The Storm Water Administrator may call meetings at any time, either on his or her own initiative or at the request of a party.

14. Counterparts. This Memorandum of Understanding may be executed in separate counterparts, each of which when so executed and delivered shall be an original, but all of which together shall constitute but one and the same instrument.

WITNESS the signatures of the parties as of the first day first hereinabove written.

John Koskinen
City Administrator and Deputy Mayor for Operations

Abdusalaam Omer, Ph. D.
Acting Chairman
District of Columbia Water and Sewer Authority

Natwar Gandhi
Chief Financial Officer of the District of Columbia

Ivan C.A. Walks, MD.
Director, Department of Health

Leslie Hotaling
Interim Director, Department of Public Works

SCHEDULE A

Compliance Matrix

STORM WATER MANAGEMENT IMPLEMENTATION
December 6, 2000

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
A-1	Compile and analyze information on pollution sources since Nov. 1998: MS4 outfalls (identification and mapping), impact to MS4 due to land use, population, structural controls, landfills, publicly owned lands, and industries. Submit information in Annual Report	ALL	Apr. 2002	Part II
A-2	Prepare first annual review	ALL	Apr. 2001	Part III-A
A-3	Implement outfall monitoring	WASA/ DOH	Apr. 2001	Part III-A
A-4	Prepare annual report	ALL	Apr. 2002	Part III-A-
A-5	Prepare annual implementation plan	ALL	Apr. 2002	Part III-A
A-6	Prepare Upgraded Storm Water Management Plan	ALL	Oct. 2002	Part III-A
A-7	Implement Upgraded Storm Water Management Plan	ALL	6 months following EPA approval	Part III-A
A-8	Evaluate the location, size and number of MS4 retrofits necessary to meet CWA.	WASA/ DOH	Apr. 2002	Part III-B

STORMWATER MANAGEMENT IMPLENENTATION P

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
B-1	**Develop and implement improvements and modifications to SWMP** practices to reduce pollutant loads: - Legal authority - Characterization data - Application Requirements - Assessment of Controls - Structural controls - Areas of new or significant development - Roadways - Flood control projects - Pesticide, Herbicide, and Fertilizer application - Illicit discharges and improper disposal - Industrial and high risk runoff - Priority Industrial Facilities - Municipal Waste Sites - Spills - Infiltration of seepage - Construction site runoff - Public Education - Monitoring	ALL	Apr. 2002	Part III- B

STORMWATER MANAGEMENT IMPLENENTATION PL

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Storm Water Management Plan for Commercial, Residential and Government Areas			
C-1	- Continue budgeted roadway, street and highway maintenance operations (11/4/98)	DPW	Ongoing	Part III-1
C-2	- Management Plan for Commercial, Residential and Government properties shall consider: • functional landscapes, - low impact development, - coordinate Street sweeping & catch basin cleaning, - coordinate solid waste services, incl. leaf collection, - preventive maintenance inspections of storm water facilities, - rain leader disconnection program, - public education on pet waste, fertilizer, etc. - computer models. - performance measures. - strengthen erosion control program for new construction.	ALL DOH DOH/DPW DPW/WASA DPW WASA/DOH DOH DOH ALL ALL DOH	Apr. 2002	Part III-1
C-3	Control storm water pollution from Federal and District government properties.	DOH	Apr. 2002	Part III- 1

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Storm Water Management Plan for Industrial Facilities			Part III- 2
D-1	Update and maintain industrial facilities data base	DOH	Unknown	Part III-2
D-2	Perform/ provide on-site assistance/ inspections	DOH		Part III- 2
D-3	Perform outreach focused on stormwater P2 plan development and NPDES compliance(use wet weather screening to target)	DOH		Part III- 2
D-4	Develop procedures govern investigations of facilities.	DOH	Apr. 2002	Part III- 2
D-5	Establish BMP for reducing loads to extent necessary.	DOH		Part III- 2
D-6	Monitor and control pollutants from solid waste, fleet maintenance and other facilities.	DPW	Unknown	Part III-2
D-7	Develop and implement a wet weather screening program.	WASA/DOH	Unknown	Part III-2
D-8	Develop a program to prevent, contain and respond to spills.	DOH	Apr. 2002	Part III-2
D-9	Identify facilities with high risk runoff and parameters of concern	DOH	Unknown	Part III-2
D-10	Estimate loadings from industries in each sewershed	DOH	Unknown	Part III-2
D-11	Prohibit illicit discharges, control spills and prohibit dumping.	DOH/WASA	Unknown	Part III-2
D-12	Report on implementation of Industrial Facilities Control Plan	DOH	Apr. 2002	Part III-2

STORMWATER MANAGEMENT IMPLEMENTATION PI

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Storm Water Management Plan for Construction Sites			Part III- 3
E-1	Continue existing permitting programs and evaluate effectiveness.	DOH	Ongoing	Part III- 3
E-2	Conduct construction site inspections.	DOH	Ongoing	Part III- 3
E-3	Submit inspection and enforcement procedures to EPA for review and approval	DOH	Apr. 2002	Part III -3
E-4	Provide public education and guidance materials to construction site operators	DOH	Unknown	Part III- 3
E-5	Report on implementation of construction site management programs.	DOH	Apr. 2002	Part III- 3
E-6	Operate and maintain streets to reduce pollution, maintain erosion controls	DPW,DOT	Ongoing	Part III -3
E-7	Minimize soil disturbing activities, re-vegetate	DPW,DOT	Ongoing	Part III -3
E-8	Prevent spills, control sites and storage facilities.	DPW,DOT	Ongoing	Part III -3
E-9	Strengthen criteria and procedures for waivers, develop enforcement strategy, and enforce strategy.	DOH	Unknown	Part III -3
E-10	Expand inspections, investigate cumulative impacts.	DOH	Unknown	Part III -3
E-11	Consider/require storm water retrofits for redevelopment and road rebuilding.	DOH/ DPW,DOT	Unknown	Part III -3
E-12	Assure that adopted storm water impact quantification procedures are performed in early environ. review in zoning process	DOH	Unknown	Part III- 3
E-13	Develop a strategy to encourage use of low impact development practices, protect trees and maximize undisturbed areas in development projects.	DOH		Part III- 3
E-14	Establish and implement written enforcement strategy & perform enforcement actions.	DOH		Part III- 3
E-15	Expand staff to inspect installation and maintenance of storm water erosion and sediment control at (commercial, residential, road and development) areas	DOH		Part III- 3
E-16	Estimate loading from ( ) areas and determine necessary BMPs	DOH		Part III- 3
E-17	Adopt and implement procedures in construction related activities that reduce storm water runoff and prevent storm water pollution	DOH		Part III- 3
E-18	Develop strategies to reduce traffic related pollution	DPW,DOT		Part III -3

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Storm Water Management Plan for Construction Sites			
F-1	Notify Historic Preservation Officer of any new construction, demolition or ground disturbing activity (develop alternate procedures)	ALL	Unknown	Part VII- M
F-2	Notify Fish and Wildlife Service of any discharge, construction or other activity which may impact a threatened or endangered species.	ALL	Unknown	Part VII- N
F-3	Encourage wider use of low impact development and other innovative methods.	DOH	Unknown	Part III- 3

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Flood Control Projects			Part III- 4
G-1	Assess flood control projects for impact on storm water quality.	DOH	Apr. 2002	Part III- 4
G-2	Develop pollution controls for existing flood controls	DOH	Apr. 2002	Part III- 4
G-3	Assess development projects in the flood plain for water quality impact (impervious surface)	DOH	Unknown	Part III- 4
G-4	Determine feasibility of retrofitting flood control devices	DOH	Unknown	Part III- 4
G-5	Collect data on amount of impervious surface in flood plain for all proposed development.	DOH	Febr. 2000 mistaken date	Part III -4
G-6	Collect similar data for existing development, prioritize developed and undeveloped areas	DOH	Apr. 2002	Part III -4
G-7	Prepare report summarizing findings and activities.	DOH	Apr. 2002	Part III -4

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Monitor and control pollutants from municipal landfills and other municipal waste facilities			Part III- 5
H-1	Develop and implement a program to monitor and reduce pollutants in storm water from solid waste facilities, equipment storage yards and fleet maintenance facilities. - monitor, inspect and evaluate sites, - identify areas with poor water quality and correct (improve).	DPW	Apr. 2002	Part III- 5
H-2	**Report in annual plan how activities meet Clean Water Act requirements and results of activities such as initial monitoring, control implementation and priority setting.**	DPW	Apr. 2002	Part III- 5

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Monitor and Control Pollutants from Hazardous Waste Sites			Part III- 6
I-1	Identify industrial sites, develop procedures to map facilities.	DOH	Permit expiration date	Part III- 6
I-2	Develop procedures to govern investigations	DOH	Apr. 2002	Part III- 6
I-3	Describe how these procedures will meet CWA requirements in annual report.	DOH	Apr. 2002	Part III- 6

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Monitor and Control Pesticide, Herbicide and Fertilizer Application			Part III- 7
J-1	Control application of pesticides, herbicides and fertilizers.	DOH	Unknown	Part III- 7
J-2	Implement programs to encourage the reduction of these pollutants.	DOH	Unknown	Part III- 7
J-3	Prepare a report on implementation of these procedures and how they will meet CWA requirements.	DOH	Unknown	Part III- 7
J-4	Perform a screening characterization to determine the sources of pesticides, herbicides and fertilizer.	DOH	Apr. 2002	Part III- 7
J-5	Develop a priority system of controls and plan to reduce these pollutants.	DOH	Jan 2001 Mistaken date	Part III- 7

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Develop snow management plan and investigate deicing alternatives			Part III- 8
K-1	Evaluate use of chemical deicers, salt, sand and mixtures to minimize impact on water quality.	DPW	Apr. 2001	Part III- 8
K-2	Prepare a report of preliminary evaluation findings.	DPW	Apr. 2001	Part III- 8
K-3	Prepare and submit compliance schedule for implementing de-icing study results.	DPW	Prior to Permit expiration	Part III- 8
K-4	Establish a program to ensure excessive snow and ice control materials do not enter waterways.	DPW	Apr. 2001	Part III- 9
K-5	Report on progress to reduce pollution from snow and ice control programs.	DPW	Apr. 2001	Part III -9
K-6	Avoid dumping snow in areas adjacent to waterways and wetlands.	DPW	Unknown	Part III -9
K-7	Implement snow removal plan.	DPW	Apr. 2003	Part III -9

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Develop management plan to detect and remove illicit discharges. Report in annual report			Part III- 10
L-1	Develop a program to prevent, detect and remove illicit discharges	DOH/ WASA	Unknown	Part III -10
L-2	Develop a program to reduce discharge of floatables.	WASA	Ongoing	Part III- 10
L-3	Prohibit the disposal of motor vehicle fluids, household hazardous waste, grass clippings, leaves, and animal waste. Report in annual report.	Corp. Counsel/ALL	Ongoing	Part III -10
L-4	Develop programs to collect and recycle or dispose of motor vehicle fluids and household hazardous waste	DPW/ WASA	Ongoing	Part III- 10
L-5	Develop an enforcement plan	DOH	Unknown	Part III -10
L-6	Develop inspection plan, surveillance and monitoring procedures, incl. Schedule and resources and inspection criteria	DOH	Apr. 2001	Part III- 10
L-7	Develop procedures to prevent, contain and respond to spills	DOH	Apr. 2001	Part III -10
L-8	Train appropriate personnel on spill prevention and response.	DOH	Apr. 2001	Part III- 10

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Develop an enforcement plan			Part III -11
M-1	Develop an enforcement plan to implement permit requirements.	ALL	Apr. 2001	Part III- 11
M-2	Describe enforcement activities and resources.	DOH	Apr. 2001	Part III -11
M-3	List all violations and enforcement actions to assess program effectiveness.	DOH	Apr. 2001	Part III- 11

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Develop a public education program			Part III -12
N-1	Household hazardous waste education and outreach.	DPW/DOH	Apr. 2001	Part III- 12
N-2	Residential and commercial pesticide, herbicide and fertilizer application education and outreach.	DOH	Apr. 2001	Part III- 12
N-3	Industrial facilities education and outreach.	DOH	Apr. 2001	Part III -12
N-4	Construction site operators education and outreach.	DOH	Apr. 2001	Part III- 12
N-5	Explain how these programs will reduce pollution to meet requirements of CWA. Report in annual report	DOH	Apr. 2001	Part III- 12
N-6	Maintain a file of public education materials at the DC Public Library.	DOH	Apr. 2001	Part III -12

STORMWATER MANAGEMENT IMPLENENTATION PL

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Administrative Requirements			Part III -C
O-1	Conduct annual review of program effectiveness. - Compare performance with goals - Review implementation and compliance, - Review monitoring data, - Assess effectiveness of controls, - Describe cost needs budget. - Determine required program improvements - describe inspections, public education activities, violations and enforcement actions, model results - water quality improvements, modeling results	ALL	Apr. 2001	Part III- C
O-2	Develop a schedule to achieve full permit compliance within 3 years of permit effective date.	ALL	Apr. 2001	Part III- C
O-3	Prepare fiscal needs assessment each year.	ALL	Apr. 2001	Part III- C
O-4	Operate and maintain structural and non-structural hydraulic controls.		Ongoing	Part III- C
O-5	Prepare annual report: - cost/benefit and affordability analysis - methodology to assess program effectiveness, - annual budget and expenditures, - evaluate commitments from past year, - make commitments for next year, - summary of monitoring data, - summary of annual review.	ALL	Apr. 2002	Part III- D
O-6	Prepare and submit Annual Implementation Plan - planned activities - budget - fiscal analysis - cost/benefit and affordability analysis	ALL	Apr. 2002	Part III- E
O-7	Revise/Update Storm Water Management Plan	ALL	June 2002	Part III- E
O-8	Ensure adequate legal authority exists.	Corp. Counsel	Unknown	Part III- E

STORMWATER MANAGEMENT IMPLENENTATION P

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Monitoring Requirements			Part IV- A
P-1	Develop and implement wet weather monitoring program and sampling plan	DOH	Apr. 2001	Part IV-A
P-2	Estimate annual cumulative loadings from MS4	DOH		Part IV- A
P-3	Estimate and report event mean concentrations & seasonal pollutants from major outfalls	DOH		Part IV- A
P-4	Identify and prioritize portions of MS4 requiring additional controls	DOH		Part IV- A
P-5	Identify water quality improvement or degradation	DOH		Part IV- A
P-6	Representative outfall monitoring	DOH	Apr. 2001	Part IV -4.1
P-7	Retain monitoring data	DOH	Unknown	
P-8	Report monitoring results	DOH	Unknown	
P-9	Continue ongoing dry weather screening program	DOH	Ongoing	Part IV- B
P-10	Locate sources and eliminate illicit connections	DOH	Ongoing	Part IV- B.3
P-11	Report progress on developing a GIS based storm water computer model	DOH	Apr. 2001	Part V

TASK #	TASK	RESPONS. AGENCY	DUE DATE	PERMIT SEC.
	Hickey Run TMDL			Part VI
Q-1	Conduct storm water monitoring of Hickey Run	DOH	Apr. 2001	Part VI
Q-2	Develop programs to reduce oil and grease loadings to 11.9 lbs/day or lower	ALL	Unknown	Part VI
Q-3	Provide written explanation for any exceedances.	DOH	Unknown	Part VI
TOTALS				

SCHEDULE B

Storm Water Permit Compliance Amendment Act of 2000
Engrossed Original

COUNCIL OF THE DISTRICT OF COLUMBIA
OFFICE OF THE GENERAL COUNSEL
WASHINGTON, D.C. 20001

TRANSMITTAL OF ENGROSSED LEGISLATION

Short Title: Storm Water Permit Compliance Amendment Act of 2000

Bill #13-813

cc: Councilmember Schwartz (with attachment)

Legislative Counsel

12.13.00
Date of Transmittal

Received by LSD Staff

Date of Receipt

cc: Codification Counsel

Rev. 2/00

ENGROSSED ORIGINAL

A BILL

13-813

IN THE COUNCIL OF THE DISTRICT OF COLUMBIA

To amend the Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996 to establish a Storm Water Administration, a Storm Water Compliance Fund, storm water fees, a Storm Water Advisory Panel, and to provide for reporting requirements.

BE IT ENACTED BY THE COUNCIL OF THE DISTRICT OF COLUMBIA, That this act may be cited as the "Storm Water Permit Compliance Amendment Act of 2000".

Sec. 2. The Water and Sewer Authority Establishment and Department of Public Works Reorganization Act of 1996, effective April 18, 1996 (D.C. Law 11-111; D.C. Code § 43-1661 *et seq.*), is amended as follows:

(a) Section 201 (D.C. Code § 43-1671) is amended by adding new paragraphs (9A) and (9B) to read as follows:

"(9A) Storm Water Fee means the fee established by section 216(e).

"(9B) Storm Water Permit or Permit means NPDES No. DC0000221, issued April 20, 2000.".

(b) New sections 206a, 206b, and 206c are added to read as follows:

"Sec. 206a. Storm Water Administration.

"(a) There is established within the Authority a Storm Water Administration ("Administration"). The Administration shall be responsible for monitoring and coordinating the activities of all District agencies, including the activities of the Authority, which are required to maintain compliance with the Storm Water Permit. The ~~Storm Water Advisory Panel created pursuant to section 206c shall designate a person to head the Administration.~~ General Manager shall designate a person to head the Administration. The Storm Water Advisory Panel created pursuant to section 206c may ratify the designation made by the General Manager.

"(b) The expenses of the Administration shall be disbursed from the Storm Water Permit Compliance Enterprise Fund established pursuant to section 207a.

"(c) The Department of Health, the Department of Public Works, and any other District agency identified by the General Manager or his or her designee shall comply with all requests made by the General Manager or his or her designee related to Storm Water Permit compliance, including the submittal of information, plans, proposed budgets or supplemental budgets related to storm water activities.

"(d) All budgets submitted by the Mayor to the Council shall include a written determination by the General Manager or his or her designee concerning whether the budget adequately funds Storm Water Permit compliance activities. The General Manager or his or her designee shall inform the Council of any deficiency found and indicate the revisions that shall be made to correct the deficiency.

"(e) The General Manager shall prepare, and make available to the Council of the

District of Columbia and the public, a report by the Authority, the Department of Health, the Department of Public Works, and any other District agency identified by the General Manger as having responsibilities under the Storm Water Permit. The General Manger shall transmit the first report to the Mayor and the Council of the District of Columbia no later than 6 months from the effective date of this act, and shall transmit subsequent reports every 6 months after the transmission of the first report. The first report shall describe activities undertaken in the 6 months following the effective date of this act, and activates planned for the following 6 months. Subsequent reports shall describe activities undertaken in the previous 6 months, and activates planned for the following 6 months. The reports shall include descriptions of each storm water-related activity taken and planned, including:

"(1) Compliance with Storm Water Permit requirements;

"(2) Administrative, planning, and regulatory actions;

"(3) Operation, maintenance, and capital improvement of storm water facilities;

"(4) Fund expenditures from the Storm Water Permit Compliance Enterprise Fund; and

"(5) Expenditures on related storm water activities from annual appropriations, federal grants, and the Water and Sewer Enterprise Fund.

"Sec. 206b. Storm Water Permit Compliance Enterprise Fund.

"(a) There is established a Storm Water Permit Compliance Enterprise Fund ("Fund"). Monies from the Fund shall only be used to fund the Storm Water Administration established

pursuant to section 206a, the Authority's costs of billing and collecting the storm water fee, and any District agency's costs of complying with the Storm Water Permit, including all administrative, operating, and capital costs. No monies shall be disbursed from the fund for costs associated with storm water activities carried out prior to April 20, 2000, except to the extent those costs increased in order to comply with the terms of the Permit.

"(b) All revenues, proceeds, and moneys collected from the storm water fee or from grants made for storm water activities which are collected or received shall be credited to the Fund and shall not, at any time, be transferred to, lapse into, or be commingled with the General Fund of the District of Columbia, the Water and Sewer Authority Enterprise Fund, the Cash Management Pool, or any other funds or accounts of the District of Columbia.

"Sec. 206c. Storm Water Advisory Panel.

"(a) There is established the Storm Water Advisory Panel ("Panel") for the purpose of preparing comprehensive recommendations to the Council that identify the best means by which the District of Columbia can meet all present and future federal regulatory and permit requirements pertaining to the discharge of storm water into receiving waters. The Panel may establish a Citizens Advisory Board to assist the panel in preparing its recommendations to the Council.

"(b) The Panel shall be composed of the following 5 persons or their designees:

"(1) The Mayor;

"(2) The Chairman of the Council;

"(3) The General Manager of the Authority;

"(4) The Director of the Department of Health, Environmental Health Administration; and

"(5) The Director of the Department of Public Works.

"(c) The Panel shall submit its recommendations in a report, which shall be submitted to the Council no later than one year after the Panel's first meeting. The report shall make specific findings on whether the existing:

"(1) Allocation of storm water management responsibilities among District agencies, including the Authority is capable of meeting present and future regulatory requirements for storm water discharge, and, if not, what changes need to be made or new government entities created; and

"(2) Storm water fee structure and rate are equitable and sufficient for the District to meet its present and future regulatory requirements for storm water discharge, and, if not, what fee structure and rate would be required to most fairly meet these responsibilities. The panel shall consider, determine whether to create, and estimate the initial cost and time necessary to design a storm water fee based on the relationship between impervious surface and the amount of storm water discharged into the District's storm water system.

"(d) The panel shall hold its first meeting no later than 90 days from the effective date of the Storm Water Permit Compliance Amendment Act of 2000. The Panel shall hold at least one public hearing to receive testimony from citizens with respect to the issues stated in subsections

(b)(1) and (2) of this section. The Panel's report shall be published in the District of Columbia Register for a 30 day period of public comment and provided to each Advisory Neighborhood at least 45 days prior to being submitted to the Council.".

(c) Section 207(b) (D.C. Code 43-1677(b)) is amended by inserting the phrase ", except those collected or received from the storm water fee," after the phrase "source derived".

(d) Section 216 (D.C. Code 43-1686) is amended as follows:

(1) New subsections (d-1) and (d-2) are added to read as follows:

"(d-1) Commencing within 90 days of the effective date of the Storm Water Permit Compliance Amendment Act of 2000, the Authority shall collect a storm water fee from each District of Columbia retail water or sewer customer as follows:

"(1) For single family homes, the fee shall be $7.00 per year;

"(2) For multi-family residential buildings, the fee shall be equal to 1.4% of the charge for water and sewer services; or

"(3) For all other properties, the fee shall be equal to 2% of the charge for water and sewer services.

"(d-2) No landlord shall pass a charge to a tenant which is more than the 1.4% of the charge for water and sewer services.".

(2) Subsection (f) is amended by inserting the phrase, "including the storm water fee", after the phrase "pay the charges".

(e) Section 219 (D.C. Code § 43-1689) is amended by inserting the phrase "for the failure

to pay any charge, fee, assessment, or levy authorized or required by section 216 of this act", after the phrase "the power to obtain and enforce liens".

Sec. 3. Fiscal impact statement.

The Council adopts the fiscal impact statement in the committee report as the fiscal impact statement required by section 602(c)(3) of the District of Columbia Home Rule Act, approved December 24, 1973 (87 Stat. 813; D.C. Code § 1-233(c)(3)).

Sec. 4. Effective date.

This act shall take effect following approval by the Mayor (or in the event of veto by the Mayor, action by the Council to override the veto), approval by the Financial Responsibility and Management Assistance Authority as provided in section 203(a) of the District of Columbia Financial Responsibility and Management Assistance Act of 1995, approved April 17, 1995 (109 Stat. 116; D.C. Code § 47-392.3(a)), a 30-day period of Congressional review as provided in section 602(c)(1) of the District of Columbia Home Rule Act, approved December 24, 1973 (87 Stat. 813; D.C. Code § 1-233(c)(1)), and publication in the District of Columbia Register.

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DISTRICT DEPARTMENT OF THE ENVIRONMENT
THE DISTRICT DEPARTMENT OF PUBLIC WORKS
THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
AND
DEPARTMENT OF TRANSPORTATION
REGARDING MS4 STORMWATER PERMIT FISCAL ADMINISTRATION

THIS MEMORANDUM OF UNDERSTANDING (MOU) is entered into this 1st day of August 2007, by and between the District Department of the Environment (DDOE) and the District Department of Transportation (DDOT), the D.C. Water and Sewer Authority (WASA), and the Department of Public Works (DPW) to administer finances and reimbursements from the Storm Water Permit Compliance Enterprise Fund for activities conducted to reduce pollutants to the District of Columbia, under the municipal separate storm sewer system (MS4) National Pollution Discharge Elimination System (NPDES) Permit (MS4 Permit).

WHEREAS, storm water discharges from the municipal separate storm sewer system (MS4) are authorized by the National Pollution Discharge Elimination System (NPDES) Permit Number: DC0000221 issued to the District of Columbia as Permittee;

WHEREAS, on August 19, 2004, the Environmental Protection Agency (EPA) re-issued the District's MS4 Permit Number: DC0000221 to authorize storm water discharges to the District of Columbia as Permittee, for a five-year term;

WHEREAS, the MS4 Permit contains a compliance schedule which requires the District of Columbia to compile and submit information on pollution sources, significant changes in the identification of storm sewer system outfalls, and changes affecting the separate storm sewer system due to land use activities, population estimates, runoff characteristics, structural controls, reporting requirements and other matters as outlined in the MS4 Permit Implementation Plan, in order to reduce storm water pollution;

WHEREAS, the MS4 Permit outlines additional activities to be undertaken by the District;

WHEREAS, the above named agencies have been assigned activities in the MS4 Implementation Plan;

WHEREAS, the MS4 Task Force has been established with representatives from DDOE, DDOT, DPW, WASA to manage the activities required in the MS4 Permit, pursuant to the "Storm Water Permit Compliance Amendment Act of 2000"; D.C. Official Code § 34-2202.06a;

WHEREAS, the Director of DDOE, or his designee, was made the Storm Water Administrator with primary responsibility for heading the Storm Water Administration, pursuant to the Establishment of the District Department of the Environment Act of 2005, D.C. Official Code § 8-151.03(b)(2);

WHEREAS, the storm water management activities in the Implementation Plan are supported by fees collected by WASA in a Storm Water Compliance Enterprise Fund and provided to DDOE for the Storm Water Administrator to certify the sufficiency of the MS4 Permit budget requests;

WHEREAS, the parties acknowledge that it may be necessary for some or all parties to take action to amend, program, reprogram or supplement their respective budgets in order to lawfully undertake activities required by the MS4 permit and wish to set forth how these actions will be taken; and

WHEREAS, in the event that not all the projects can be funded, priority will be given to the projects that provide the most benefit in reducing storm water pollution.

NOW THEREFORE, in consideration of the promises mutually exchanged, the receipt and sufficiency of which are acknowledged by all, the parties agree to administer the Storm Water Permit Compliance Enterprise Fund (Storm Water Fund) as follows:

I. SCOPE OF SERVICES

1. Each agency, including DDOE, shall submit a proposed budget for the following fiscal year to the Storm Water Administrator by October 1 of each calendar year. Accordingly, as of this signing, each agency agrees to submit their proposed 2009 Fiscal Year Budget Request to the Storm Water Administrator by October 1, 2007. The Storm Water Administrator will use this information to program budget authority from the Storm Water Fund. Acceptance of this summary by the Storm Water Administrator does not constitute approval of the expenditure, but rather general agreement that activities of this type may be reimbursable from the Enterprise Fund.

2. Each agency, including DDOE, shall submit a detailed Storm Water Fund budget request to the Storm Water Administrator no later than six-months prior to the beginning of the fiscal year covered by that request. The Storm Water Administrator will review and approve budget requests prior to allocating funds in DDOE's annual budget for the expected reimbursement. For each activity included in the budget request the agency will detail:

   (a) A description of the activity to be funded;

   (b) MS4 Implementation Plan reference for the activity;

   (c) MS4 Permit section reference for the activity;

   (d) Explanation that this activity is above and beyond storm water activities carried out by the agency prior to April 19, 2000;

   (e) Cost-benefit discussion including which pollutants are targeted for reduction by this project/activity, estimated reduction per year to be achieved, and estimated cost/pound of pollutant removed over the life of the project/activity; and

   (f) A statement of whether the agency's proposed budget contains sufficient funds expressly dedicated to all MS4 Permit compliance activities.

3. The Storm Water Administrator may request additional information from the agency to justify the project/activity. Approval of the detailed budget request by the Storm Water Administrator is pre-approval for reimbursement for expenditures conducted by the agency for the approved project or activity.

4. The Storm Water Administrator shall review and approve all programmatic changes or modifications that might affect the estimated quantity of pollutants removed or the cost-benefit analysis of the project or activity.

5. In the event of a budget shortfall, the Storm Water Administrator shall allocate remaining funds giving priority to the projects that he or she determines would provide the most benefit in reducing storm water pollution. In the event that the Storm Water Administrator determines that the projected fiscal years revenues from the Storm Water Fund will be less than the anticipated costs of the Storm Water Administration, the Storm Water Administrator may request that DDOE, WASA, DDOT, and DPW make up the difference.

6. For FY 2007, the Storm Water Administrator shall administer the Storm Water Permit Compliance Enterprise Fund as follows:

Department of Public Works	$ 1,270,000
District Department of Transportation	$ 1,537,000
DC Water & Sewer Authority	$ 292,999
District Department of the Environment	$ 1,950,000

7. Each agency shall request reimbursement quarterly from the Storm Water Administrator for expenditures related only to complying with the MS4 permit. Reimbursement requests shall include:

   (a) Description of the activity performed;

   (b) Certification that all expenditures submitted for reimbursement are for direct MS4 permit compliance activities above and beyond storm water activities carried out by the agency prior to April 19, 2000;

   (c) Citation of the MS4 Permit section(s) reference for the activity;

   (d) Description of which pollutants were targeted for reduction by the project/activity; and

   (e) Copies of invoices and other applicable documentation demonstrating MS4 relevant work. Documentation to include invoices outlining storm water-related tasks completed, including description of task, hours incurred including date and time.

8. The Storm Water Administrator may request additional supporting documentation, as required, to evaluate the reimbursement request or to detail how the reimbursement request will address the overall agency Implementation Plan.

9. Reimbursements are subject to total approved budget limits as well as cash or revenues available in fund.

10. Requests approved by the DDOE will be submitted within five business days of approval by the Storm Water Administrator.

II. RESOLUTION OF DISPUTES

The Chief Financial Officer or the City Administrator shall resolve all disputes arising under this MOU.

III. EFFECTIVE DATE AND SPECIAL PROVISIONS FOR TERMINATION OF MOU

1. This MOU shall be effective as of August 1, 2007 through August 19, 2009, unless terminated in writing by the Parties prior to the expiration.

2. This MOU may be extended by agreement of all signatories.

3. DDOE may terminate this MOU on the following grounds:

    (a) Lack of local funding;

    (b) Changes in applicable law;

    (c) Changes in District or federal policy affecting these services;

    (d) Changes in the structure or nature of the MS4 Permit; and

    (e) Elimination of DDOE as the Storm Water Administrator or Storm Water Administration.

IV. COUNTERPARTS

This MOU may be executed in separate counterparts, each of which when so executed and delivered shall be an original, but all of which together shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have signed this MOU as of the day and year written above.

George S. Hawkins, Acting Director, DDOE — Date: 7/31/07

Emeka C. Moneme, Director, DDOT — Date

William O. Howland, Jr., Director, DPW — Date: 8-27-2007

Jerry N. Johnson, General Manager, DCWASA — Date

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

	Letter Agreement refers to the Letter agreement dated November 27, 2007 distributed to all MS4 task force agencies.
	*The 2000 MOU assigned responsibilities to DPW, WASA and DOH. In October 2002, the newly formed DDOT took on some of the responsibilities formerly assigned to DPW. In 2006, DDOE was formed and Water Quality Division and Watershed Protection Division took over the responsibilities formerly assigned to DOH.
	SWMD=storm water management division; WQD = water quality division; WPD= watershed protection division within DDOE

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
	General			
New	Legal and administrative issues		General Counsel DDOE	
New	Update 2000 MOU to formally define roles and responsibilities of District Agencies*	Letter Agreement	ALL	Due 8/19/08
New	Implement recommendations for funding mechanisms and fee structure	Letter Agreement	WASA/SWMD	Completed
A-1	Compile and analyze information on pollution sources since Nov 1998: MS4 outfalls (identification and mapping), impact to MS4 due to land use, population, structural controls, landfills, publicly owned lands, and industries. Submit information when requested and during reporting period	Part II	WASA/SWMD/WQD	Mapping was completed
A-2	Outfall Discharge Monitoring Report (DMR)	Part III - A	SWMD/WQD	WQD submits monitoring information to SWMD to prepare report and reviews reports prior to submittal to EPA
A-3	Prepare annual report.	Part III - A	SWMD	
A-4	Prepare annual implementation plan.	Part III - A	SWMD	
A-5	Prepare Upgraded Storm Water Management Plan	Part III - A	SWMD/ALL	Due 2/15/09
A-6	Implement Upgraded Storm Water Management Plan	Part III - A	ALL	Througout the life of the Permit
	Administrative Requirements			

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
N-1	Conduct annual review of program effectiveness.	Part III - C	SWMD/ALL	
	- Compare performance with goals			
	- Review implementation and compliance,			
	- Review monitoring data,			
	- Assess effectiveness of controls,			
	- Describe cost needs budget,			
	- Determine required program improvements			
	- Describe inspections, public education activities			
	violations and enforcement actions, model results			
	- Water quality improvements, modeling results			
N-2	Develop a schedule to achieve full permit compliance within 5 years of permit effective date.	Part III - C	SWMD/ALL	
N-3	Prepare fiscal needs assessment each year.	Part III - C	SWMD/ALL	
N-4	Operate and maintain structural and non-structural hydraulic controls.	Part III - C	WASA	
N-5	Prepare annual report:	Part III - C	SWMD/ALL	
	- Cost/benefit and affordability analysis			
	- Methodology to assess program effectiveness,			
	- Annual budget and expenditures,			
	- Evaluate commitments from past year,			
	- Make commitments for next year,			
	- Summary of monitoring data,			
	- Summary of annual review.			
N-6	Prepare and submit Annual Implementation Plan:	Part III - E	SWMD/ALL	
	- Planned activities			
	- Budget			

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
	- Fiscal analysis			
	Cost/benefit and affordability analysis			
N-7	Revise/Update Storm Water Management Plan	Part III - E	SWMD/ALL	
N-8	Ensure adequate legal authority exists.	Part III - E	SWMD/ALL	
	Application Requirements		SWMD	
	Assessment of Controls		WASA/ALL	
	Structural controls		WASA	
	Areas of new or significant development		DDOT/WASA	
	Roadways		DDOT	
	Flood control projects		WPD	
	Pesticide, Herbicide, and Fertilizer application		WPD/OPM	
	Illicit discharges and improper disposal		DPW/WASA	
	Industrial and high risk runoff		ALL	
	Priority Industrial Facilities		WQD	
	Municipal Waste Sites		DPW	
	Spills		ALL	
	Infiltration of seepage		WQD	
	Construction site runoff		WPD	
	Public Education		ALL	
	Monitoring Program		WQD	Maintain a monitoring program to comply with MS4 Permit requirements
	SWMP Component 1: Storm Water Management Plan for Commercial, Residential, and Government Areas			
C-1	Continue with current practices of road, street and highway maintenance as described in the SWMP and evaluate LID practices for inclusion with either new or retrofitted District and/or federal highway construction projects.	Part III-B-1	DDOT	
C-2	Management Plan for Commercial, Residential and government properties shall consider functional landscapes and Low Impact Development (LID) projects	Part III -B-1	WPD/OPM	
New	Install environmental catch basins or equivalent BMP in new road construction projects.	Letter Agreement	DDOT/WASA	Submit implementation schedule by 2/2009 to be included in the SWMP

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Devise a LID plan and schedule for conversion of paved areas into green space such as "pocket parks" or "green streets" and include rain barrels and downspout disconnections	Letter Agreement	DDOT/WPD	Due 12/31/2014
New	Complete a master LID implementation list	Letter Agreement	DDOT/WPD	Revision of Appendix C in Anacostia TMDL. Due: 8/19/2008. On going
New	Construct 17 LID projects in the ROW by August 19, 2009	Letter Agreement	DDOT	Due 8/19/09
New	To the extent possible, comply with all LID options in the AWI Transportation Architecture Design Standards for all DDOT transportation infrastructure projects	Letter Agreement	DDOT	
New	No later than 18 months from the date of this package, DDOE shall work with the Mayor's office to determine the best way to develop legislation to establish tax credits or other incentives programs for installation of green roofs on non-governmental buildings. An update will be submitted by August 19, 2010.	Letter Agreement	DDOE	8/19/2010
New	Complete a structural assessment on all District properties maintained by Office of Property Management (OPM) to determine current roof conditions and the feasibility for green roof installation.	Letter Agreement	OPM	4/30/2009
New	For the next four years, every new building constructed by OPM will include green roofs where feasible as determined by OPM and all major renovations/rehabilitation projects of District-owned properties within OPM's inventory will include green roofs where feasible as determined by OPM.	Letter Agreement	OPM	Start after structural assessement is completed.
New	Submit an implementation schedule including square footage, for the green roofs to be installed in selected District properties, based upon the results of the structural assessment, in the 2009 Implementation Plan.	Letter Agreement	OPM	OPM to submit implementation schedule by July 15, 2008

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Continue to review new and retrofit construction (federal, residential, commercial, and District-controlled properties) for green roof installation throughout the District, making available $500,000 in incentives for these roofs beginning October 1, 2008.	Letter Agreement	WPD	500,000 available through RFA to non-profit. Grant will include assessment of effectiveness
New	After one year, assess the effectiveness of the green roof incentives program and modify as needed, including dedicating up to $1,000,000 per year if deemed effective in order to make progress toward the Mayor's goal of achieving 20% green roof coverage in the District in 20 years. The Plan and schedule shall provide for steady progress toward the goal throughout the period and be incorporated into the next MS4 permit revision.	Letter Agreement	WPD	
New	Annually document and report the square footage of green roof coverage for all buildings in the District.	Letter Agreement	OPM/WPD	OPM to submit square footage for green roofs installed in DC properties and WPD to submit square footage of green roofs installed in private property
New	Complete "LID Stormwater Control Structures Maintenance Manual" by 4/30/09	Letter Agreement	WPD	
New	Draft strategy for the District to achieve optimal tree canopy, with input from the Casey Trees foundation, Friends of the Earth (FOE), and other stakeholders. The strategy will utilize GIS technology to determine and to prioritize planting locations.	Letter Agreement	WPD/DDOT	
New	Provide final detailed plan for achieving the optimal District tree canopy goal in the 2009 Implementation Plan, dated August 19, 2009.	Letter Agreement	WPD	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	The District shall make best efforts to achieve optimal tree canopy by planting at least 4,150 trees per year with a goal of planting and maintaining at least 13,500 additional trees by 2014. Trees shall be planted in the manner recommended by *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC* (Casey Trees May 15, 2007) and/or other pertinent studies to achieve optimal survival tree rate determined in the strategy. The District shall annually document the survival rate of total trees planted along with an annual estimate of storm capture rates to determine the volume of storm water that is being removed from the MS4 system in a typical year of rainfall as a result of the maturing tree canopy over the life of the permit.	Letter Agreement	DDOT	DDOT to submit survvial rate of total trees planted along with an annual estimate of storm water capture
New	No later than August 19, 2008, develop and implement a schedule to achieve an optimal tree canopy goal. The District shall make best efforts to implement said schedule no later than December 31, 2014, and will employ a stakeholder process that includes at a minimum Friends of the Earth and Casey Trees. The plan and schedule will be incorporated into the next revision of the MS4 permit.	Letter Agreement	DDOT/WPD	
New	Continue current tree planting at the rate of at least 4,150 annually	Letter Agreement	DDOT	
C-2	coordinate solid waste services, inc. leaf collection,	Part III-B-1	DPW	
C-2	coordinated street sweeping and catch basin cleaning	Part III-B-1	DPW/WASA	
New	Complete the street sweeping study and begin implementing the long-term enhanced street sweeping and fine particle removal schedule and program by December 31, 2007. Provide notice and opportunity for comment on plan by Friends of the Earth (FOE).	Letter Agreement	DPW	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Submit the details of the implementation of the enhanced program for street sweeping and fine particle removal in the upgraded Storm Water Management Plan of February 19, 2009.	Letter Agreement	DPW	
New	Continue with implementation of current large and enhanced fine particle removal program for street sweeping based on recently completed study recommendations and document annual pollutant removal rates in pounds from the analysis of different materials collected that have been captured to show the amount of pollution from the street sweeping operation that is being diverted from entering the MS4 system.	Letter Agreement	DPW	
New	The plan and schedule for the street sweeping program will be incorporated into the next MS4 permit revision and shall represent the District's best efforts at achieving a program designed to achieve optimum removal of fine particulate matter and other pollutants from the MS4 waste stream.	Letter Agreement	DPW	
C-2	preventative maintenance inspections of storm water facilities,	Part III-B-1	DDOE/WPD	
	rain leader disconnection program,	Part III-B-1	DDOE/WPD	
New	Install 50 rain gardens, 125 rain barrels, and perform 200 downspout disconnections by 12/31/2009	Letter Agreement	DDOE/WPD	
	public education on pet waste, fertilizer, etc.	Part III-B-1	DDOE/WPD	
	modeling storm water impacts	Part III-B-1	SWMD	
New	Develop a statistical model for estimating pollutant reductions in Microsoft Excel or other database program that will be a combination of Portland's non-structural BMP spreadsheet model and the Watershed Treatment Model (WTM) developed by EPA. A draft of the model will be included in the 2008 MS4 Annual Report and final version will be included in the upgraded Stormwater Management Plan.	Letter Agreement	SWMD	
	develop performance measures	Part III-B-1	SWMD	
	strengthen erosion control program for new construction	Part III-B-1	DDOE/WPD	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
C-3	Control storm water pollution from Federal and District government properties.	Part III -B-1	WQD	
New	Develop a pollution prevention program that will include training to District government workers who are in charge of maintenance facilities and who handle hazardous materials, by September 30, 2008.	Letter Agreement	SWMD	
C-4	Pursue partnerships with federal departments and agencies (e.g., National Park Service, Department of Agriculture, Department of Defense, and General Services Administration) responsible for facilities in the District designed to highlight the District's commitment to "lead by example" in managing storm water runoff.	Part III -B-1	WPD	
C-5	Maintain the authority to control all types of discharges into the waters of the District	Part III - B-1	DDOE	
	SWMP Component 2: Management Plan for Industrial Facilities			
D-1	Update and maintain industrial facilities database	Part III -B- 2	WQD	
D-2	Perform/provide on-site assistance/inspections	Part III -B- 2	WQD	
D-3	Perform outreach focused on stormwater Pollution Prevention plan development and NPDES compliance (use wet weather screening to target)	Part III -B-2	WQD	
D-4	Refine and implement procedures to govern investigations of facilities.	Part III -B- 2	WQD	
D-5	Monitor and control pollutants in storm water discharged to the D.C. MS4 from:Private Solid Waste Transfer Stations private soild waste trasnfer stations and Hazardous waste treatment, disposal, and/or recovery plants	Part III -B- 2	WQD	
	Industrial Facilities subject to SARA or EPCRA Title III	Part III -B- 2	WQD	
	Industrial Facilities with NPDES Permits	Part III -B- 2	WQD	
	Industrial facilities with a discharge to the MS4	Part III -B- 2	WQD	

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
D-6	Include collection of data on industrial discharges in wet weather screening program.	Part III -B- 2	WQD/WASA	
D-7	Implement a program to prevent, contain and respond to spills.	Part III -B- 2	WQD	
D-8	Continue to prohibit illicit discharges, control spills and prohibit dumping.	Part III -B- 2	WQD/WASA/DPW	
D-9	Report Progress in developing and carrying out industrial related programs	Part III -B- 2	WQD	
	SWMP Component 3: Management Plan for Construction Sites			
New	Promulgate new stormwater regulations that will require LID construction as a first option, and will incorporate enhanced stormwater management requirements for the District where feasible as proposed in the Anacostia Waterfront Corporation (AWC) standards, by June 30, 2008.	Letter Agreement	DDOE	6/30/2008
New	Promulgate new regulations that will require construction site managers to have erosion control training by June 30, 2008.	Letter Agreement	DDOE	6/30/2008
E-1	Continue implementation of the Program that addresses the discharge of pollutants from construction sites.	Part III -B- 3	WPD	
E-2	Evaluate and report if the existing practice meets the requirements given in 40 CFR 122.26(d)(2)(iv)(A) and (D).	Part III -B- 3	WPD	
New	Continue review and approval process of sediment and erosion control plan and SW management. Once promulgated, the District will require compliance with AWC standards where feasible	Part III -B- 3	WPD	
E-4	Submit inspection and enforcement procedures to EPA for review and approval.	Part III -B- 3	WPD	
E-5	Continue with regular construction site inspections	Part III -B- 3	WPD	
E-6	Follow existing enforcement procedures and practices for violations of local erosion and sediment control ordinances	Part III -B- 3	WPD	
E-7	Provide public education and guidance materials to construction site operators.	Part III -B- 3	WPD	

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
E-8	Report on implementation of construction site management programs including how implementation of these procedures, particularly with regard to District "waivers and exemptions", will meet the requirements of the Clean Water Act.	Part III -B- 3	WPD	
E-9	Operate and maintain streets to reduce pollution, maintain erosion controls.	Part III -B- 3	DDOT	
E-10	Minimize soil disturbing activities during road construction, re-vegetate.	Part III -B- 3	DDOT	
E-11	Address spill prevention, material management practices, and good housekeeping measures at all equipment and maintenance shops that support maintenance activities.	Part III -B- 3	DPW/DDOT/WASA	
	SWMP Component 4: Flood Control Projects			
F-1	Assess storm water impacts of all flood management projects	Part III -B- 4	WPD	
F-2	Evaluate the feasibility of retrofitting pollution controls on existing flood controls.	Part III -B- 4	WPD	
F-3	Report on the above assessment, mapping program, and feasibility studies	Part III -B- 4	WPD	
F-4	Submit flood control measures necessary to meet the requirements of the Clean Water Act	Part III -B- 4	WPD	
F-5	Review all development proposed in flood plains to ensure that the impacts on the water quality of receiving water bodies has been properly addressed	Part III -B- 4	WPD	
F-6	Information regarding impervious surface area located in the flood plains shall be used (in conjunction with other environmental indicators) as a planning tool	Part III -B- 4	WPD	
F-7	Collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development	Part III -B- 4	WPD	The percentage of impervious area in the flood plains was calculated last year. The percentage needs to be updated using new FEMA layers when available.
F-8	Collect similar data for existing development in flood plain areas, in accordance with the mapping program and other activities designed to improve water quality	Part III -B- 4	WPD	

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
F-9	Reports on these activities, including an explanation of how the implementation of these procedures will meet the requirements of the Clean Water Act	Part III -B- 4	WPD	
	SWMP Component 5: Control Pollutants from Municipal Landfills and Other Municipal Waste Facilities			
G-1	[illegible] monitor to reduce pollutants in storm water discharges from facilities that handle municipal waste, including sewage sludge	Part III -B- 5	DPW/WASA	Storm water management plan to be developed for these facilities
G-2	Report results of this activity	Part III -B- 5	DPW/WASA	
G-3	Reduce pollutants in the storm water discharges from District-operated or owned solid waste transfer stations, maintenance and storage yards for waste transportation fleets and equipment, publicly owned treatment works, and sludge application and/or disposal sites which are not covered by an NPDES permit	Part III -B- 5	DPW/DDOT	
G-4	Report the results of this effort and provide an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act for the above facilities	Part III -B- 5	DPW/DDOT	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
	SWMP Component 6: Control Pollutants from Hazardous Waste Sites			
H-1	Monitor and control pollutants from: hazardous waste recovery, treatment, storage, and disposal facilities; facilities subject to Section 313 of the Emergency Planning and Right-to-Know Act; and any other industrial facility that either the permittee or the Regional Administrator determines is contributing a substantial pollutant loading to the MS4. This work shall be reported in each Annual Report/Implementation Plan	Part III -B- 6	DDOE	
H-2	Complete an identification of industrial and high risk runoff facilities	Part III -B- 6	DDOE	
H-3	Develop procedures to map and record details of the facilities	Part III -B- 6	DDOE	
H-4	Implement procedures to govern the investigation of the identified facilities suspected of contributing pollutants to the MS4, including a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit.	Part III -B- 6	DDOE	
H-5	Submit procedures governing the investigation of identified facilities and the method,schedule,and progress in implementing those procedures	Part III -B- 6	DDOE	
	SWMP Component 7: Monitor and Control Pesticide, Herbicide and Fertilizer Application			
I-1	Continue to control the application of pesticides, fertilizers, and the use of other toxic substances according to the SWMP and regulations.	Part III - B-7	WPD	
I-2	Reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by employees or contractors, to public right of ways, parks, and other District property.	Part III - B-7	WPD/OPM/DDOT	DDOT to make sure contractors use friendly products in the ROW.

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
I-3	Implement programs to encourage the reduction of the discharge of pollutants related to the application and distribution of pesticides,herbicides,and fertilizers.	Part III - B-7	WPD	
I-4	Report on the implementation of the above application procedures,a history of the improvements in the control of these materials,and an explanation on how these procedures will meet the requirements of the Clean Water Act	Part III - B-7	WPD	
I-5	Complete screening characterization to determine the sources of pesticides,herbicides,and fertilizers that contaminate the storm water runoff as part of the outfall monitoring plan	Part III - B-7	WQD	
I-6	Develop a priority system for control of these pollutants.	Part III - B-7	WQD	
I-7	Develop, implement, and report procedures for reducing these pollutants.		WQD	
	SWMP Component 8 and 9: Deicing and Snow Removal Activities			
J-1	Continue to evaluate the use, application and removal of chemical deicers, salt, sand, and/or sand/deicer mixtures in an effort to minimize the impact of these materials on water quality.	Part III -B- 8	DDOT	
J-2	Investigate and implement techniques available for reducing pollution from deicing salts in snowmelt runoff and runoff from salt storage facilities.	Part III -B- 8	DDOT	
J-3	Make this evaluation part of an overall investigation of ways to meet the requirements of the Clean Water Act. Report and provide an explanation as to how the implementation of procedures resulting from this investigative effort will meet the requirements of the Clean Water Act.	Part III -B- 8	DDOT	
J-4	Implement a program and operating plan to ensure excessive quantities of snow and ice control materials do not enter the District's waterbodies.	Part III -B- 9	DDOT	
J-5	Report progress in implementing the program and plan.	Part III -B- 9	DDOT	

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
J-6	Avoid snow dumping in areas adjacent to water bodies, wetlands, and areas near public or private drinking water wells which would ultimately reenter the MS4 system except during a declared Snow Emergency.	Part III -B- 9	DDOT	
	SWMP Component 10. Management Plan to Detect and Remove Illicit Discharges			
New	Provide an implementation plan and strategy to reduce pet waste from entering storm drains. Strategy may include the creation of dog parks, and providing pet waste bags/receptacles at dog parks, hiring a contractor to deal with pet waste, and conducting a public education campaign in the District, in the upgraded Storm Water Management Plan.	Letter Agreement	WPD	
K-1	Implement an ongoing program to detect illicit discharges and prevent improper disposal into the storm sewer system.	Part III -B-10	WQD	
New	Continue with current and new trash removal programs to document that trash removal efforts from all sources are increased from the previous year, with annual incremental increases over the life of the permit and that such trash is diverted from the waste stream that contributes to the MS4 system.	Letter Agreement	DPW	
New	Require water quality catch basins for trash/sediment removal devices for new roadway reconstruction projects.	Letter Agreement	DDOT/WASA	
New	By the end of FY 2009, complete a trash survey and trash removal strategy / trash reduction plan for the Anacostia River and include in the 2010 Implementation Plan	Letter Agreement	WPD/WQD	
New	Determine the type of trash control devices that would be the most effective in retaining large debris and sediments in the hot spot areas identified by the trash survey to be included in the 2010 Implementation Plan	Letter Agreement	WASA/DPW	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Identify a suitable location for one end-of-pipe litter trap in the 2009 Implementation Plan, to be installed by a contractor in the following year. If effective, describe efforts to increase installations of end-of-pipe litter traps in the 2010 Implementation Plan.	Letter Agreement	WASA/WPD	
New	Retrofit 50 catch basins to address trash control, in conjunction with enhancements to the District's street sweeping efforts, by February 19, 2009.	Letter Agreement	WPD/DPW	Install bar screens. Pilot project along Nannie Helen Avenue
New	Develop a total maximum daily load (TMDL) implementation plan for the Anacostia River towards the goal of a "Trash-Free Potomac River" to be provided by October 31, 2010.	Letter Agreement	WQD	
New	Continue current trash removal program and document trash removal efforts including household hazardous waste, leaves, and litter cans from all sources showing that at least 50% is currently being removed from the trash stream that contributes to the MS4 system.	Letter Agreement	DPW	
New	Commit $1 million annually for retrofitting existing catch basins with vortex separator systems or other effective structural BMPs that the District determines to be the best practicable technology available to maximize storm water pollution reduction, beginning October 1, 2009. Retrofitting will be part of subwatershed implementation plans.	Letter Agreement	SWMD/WASA	
K-2	Report the accomplishments of this program.	Part III -B-10	WQD/WASA	
K-3	Implement a program to prevent illicit discharges, as defined at 40 CFR 122.26(b)(2). and those discharges listed at 40 CFR 122.26(d)(2)(iv)(B)(1) are identified by the permittee as sources of pollutants.	Part III -B-10	DDOE/WASA	
New	Continue to enhance the District's illicit discharge program by targeting potential discharge sources (e.g. Laundromats, dry cleaners, auto repair shops).	Letter Agreement	WQD	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Complet a strategy for proactive inspection and enforcement of illicit discharges of pollutants to storm sewers and drains - targeting each item listed in the chart on Pg. 5 of the District's Sept. 24, 2007 proposal	Letter Agreement	WQD	Due January 31, 2008.
New	Annually target 20 percent of the MS4 area to achieve 100 percent coverage in the permitting cycle.	Letter Agreement	WQD	
K-4	Further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls.	Part III -B-10	DPW/WASA	
K-5	Continue to implement the prohibition against the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers.	Part III -B-10	DPW	
K-6	Ensure the implementation of programs to collect used motor vehicle fluids (at a minimum oil and anti-freeze) for recycle, reuse, and proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. Such programs shall be readily available to all private residents and shall be publicized and promoted on a regular basis, pursuant to the Public Education Plan in this permit at Part III.B.12.	Part III -B-10	DPW/WASA	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
K-7	Detection and elimination of illicit discharges shall include, but not be limited to: - Implementation of an illicit connection detection and enforcement program to perform dry weather flow inspections in target areas; · Visual inspections of targeted areas; and · Issuance of fines, tracking and reporting illicit discharges, and reporting progress on stopping targeted illicit discharges, and in appropriate cases, chemical testing immediately after discovery of an illicit discharge.	Part III -B-10	WQD	
K-8	Implement an enforcement plan for illicit discharges	Part III -B-10	WQD	
K-9	Provide justification for the control plan in terms of meeting the requirements of the Clean Water Act.	Part III -B-10	WQD	
K-10	Carry out all necessary inspection, surveillance, and monitoring procedures to remedy and prevent illicit discharges.	Part III -B-10	WQD	
K-11	The District shall carry out the necessary monitoring activities with the goal of meeting the requirements of the Clean Water Act.	Part III -B-10	WQD	
K-12	Submit an inspection plan (include a schedule and allocation of resources), inspection criteria, and documentation regarding protocols and parameters of field screening.	Part III -B-10	WQD	
K-13	Implement procedures to prevent, contain, and respond to spills that may discharge into the MS4.	Part III -B-10	WQD	
K-14	Provide for the training of appropriate personnel in spill prevention and response procedures	Part III -B-10	WQD	
K-15	Report the implementation of this program	Part III -B-10	WQD	
New	Submit the number of catch basins and structural components of the MS4 conveyance system to be retrofitted as part of the Watts Branch restoration project in the upgraded Storm Water Management Plan.	Letter Agreement	WASA	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
New	Begin the Watts Branch project which will include stream restoration, catch basin retrofits, and storm drain stenciling in the Watts Branch watershed. Storm drain stenciling will begin by April 30, 2008. Report progress in the 2008 Annual Report.	Letter Agreement	WASA/WPD	
	11. Enforcement Plan			
L-1	Implement an enforcement plan for carrying out the objectives of the SWMP	Part III -B-11	ALL	
L-2	Use a listing of all violations and enforcement actions to assess the effectiveness of the Enforcement Program	Part III -B-11	ALL	
L-3	Enforcement shall be maintained at its current level.	Part III -B-11	ALL	
	12. Public Education Program			
New	Enhance program to prevent illicit discharges by increasing publicity of the need to prevent illicit discharges. Enhancements to be identified in the upgraded Storm Water Management Plan.	Letter Agreement	ALL	
New	Install 1,000 storm drain markers per year starting in April 2008.	Letter Agreement	WPD	
New	Distribute “scoop your pet’s poop” educational materials to all veterinarian clinics and pet shops in the District by March 2008.	Letter Agreement	WPD	
M-1	Implement a public education program that address all topics required by 40 CFR 122.26.	Part III -B-12	ALL	
M-2	An educational and outreach program to control household hazardous waste (required under Part III.B.10).	Part III -B-12	DPW	
M-3	Implement programs and materials to inform and educate the public on proper management and disposal of used oil, other automotive fluids, and household chemicals.	Part III -B-12	DPW	
M-4	Promote the proper use of pesticides, herbicides, and fertilizers through the development and dissemination of either new or existing educational materials (as required under Part III.A.7).	Part III -B-12	WPD	

UPDATED MATRIX OF RESPONSIBILITIES (JANUARY 2008)

TASK #	TASK DESCRIPTION (note that Task N also contains administrative requirements)	PERMIT SECTION	RESPONSIBLE AGENCY	DEADLINES/NOTES
M-5	Implement an industrial facility outreach program to monitor and control pollutants from industrial facilities (required under Part III.A.2). Program should focus on informing industries about storm water permitting and pollution prevention plans and the requirement that they develop structural and non-structural control systems, pursuant to 40 CFR 122.26(d)(2)(iv)(C) and (iv)(A)(5).	Part III -B-12	WQD	
M-6	Continue providing construction site operators with technical guidance documents as outreach and educational materials.	Part III -B-12	WPD	
M-7	Develop public educational materials in cooperation and coordination with other agencies and organizations in the District with similar responsibilities and goals.	Part III -B-12	ALL	
M-8	Provided progress reports on public education including an explanation as to how this effort will reduce pollution loadings to meet the requirements of the Clean Water Act.	Part III -B-12	ALL	
M-9	Maintain a file of public education materials at the DC Public Library.	Part III -B-12	SWMD	The District is proposing to make all MS4 public documents available from its website
	Part IV. Monitoring and Reporting Requirements			
O-13	Locate sources and eliminate illicit connections.	Part IV - B-3	WQD/WASA	
	Part VI. Hickey Run TMDL			
P-5	Use best efforts to negotiate an agreement with all parties to construct a multi purpose BMP and have it operational and ready for monitoring its effectiveness during the permitting cycle.	Part VI	WASA/SWMD/DDOT	A new stategy is being proposed instead of the End of pipe control proposed in the 2002 SWMP
	Waivers and Exemptions	Part IX.1		
	Compliance Monitoring of Effluent Limits for Waste Load Allocations			

Attachment 2: Environmental Enforcement Guidelines

Government of the District of Columbia

District Department of the Environment

Environmental Enforcement Guidelines

March 18, 2015

DISTRICT DEPARTMENT OF THE ENVIRONMENT

green forward

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment

OFFICE OF THE DIRECTOR

Our agency works on many fronts to make the District a cleaner, healthier, more sustainable place to live, work, and play. In your role as inspectors, permit writers, managers, and program attorneys, you help us succeed in our mission and vision.

When someone violates the law, we often give a warning or try to educate, hoping to get compliance. If that does not work, we are not afraid to use our full legal authorities to protect our citizens and the local environment: we will enforce.

These enforcement guidelines are intended to make your enforcement efforts a little easier. Whatever your enforcement task—applying the multi-day penalties, settling a case, appearing before an Administrative Law Judge, and more—please use this document to support your efforts.

Sincerely,

Tommy Wells, Director

DISTRICT DEPARTMENT OF THE ENVIRONMENT *green forward*

WE ARE WASHINGTON DC

DISTRICT DEPARTMENT OF THE ENVIRONMENT

ENVIRONMENTAL ENFORCEMENT GUIDELINES

TABLE OF CONTENTS

I. POLICY OVERVIEW AND GENERAL CONSIDERATIONS

A. Introduction

This document discusses enforcement by the District Department of the Environment (DDOE or the Department) and provides guidelines for DDOE staff to use in monitoring compliance, taking enforcement actions to address violations, and assisting violators in returning to compliance. The policies and procedures stated below do not carry the force of law and are intended solely to provide guidance. If a conflict were to arise between these guidelines and District of Columbia statutes and regulations, the statutes or regulations would control.

In some instances, program-specific Standard Operating Procedures (SOPs) may identify additional priorities and procedures not included in these guidelines. The programs must consult their SOPs to address timely and appropriate enforcement responses to violations that are designated as high priority violations or significant non-compliance. These SOPs may also identify special tracking systems for documenting suspected violations, including a time schedule for resolving such cases. Any conflicts between these general guidelines and the program-specific procedures should be brought to the attention of the Director of the Office of Enforcement and Environmental Justice (OEEJ), who will work with enforcement staff, their managers, and the Office of the General Counsel (OGC) to provide resolution.

B. DDOE's Mission and Vision

1. Mission

DDOE's mission is to improve the quality of life for the residents and natural inhabitants of the nation's capital by protecting and restoring the environment, conserving our natural resources, mitigating pollution, and educating the public on ways to secure a sustainable future.

2. Vision

DDOE envisions a nation's capital that sets the standard for environmentally responsible and sustainable practices. We envision a city whose rivers and waters are fishable and swimmable; whose buildings and infrastructure help protect our health and environment; and whose residents, businesses, and visitors embrace and employ smart environmental practices in their daily lives and work together to deliver a clean, healthy, and vibrant city to future generations.

C. DDOE Enforcement Policy

DDOE was established to, among other things, improve the quality of District urban life and to streamline the enforcement and administration of District and federal environmental laws and regulations. Through its many enabling authorities and promulgated regulations, DDOE has developed and implemented processes that provide assistance to the regulated community and help achieve environmental compliance. Enforcement is an important and valuable tool for assuring compliance with environmental laws and regulations.

DDOE is committed to providing consistent, timely, and appropriate enforcement actions that protect the public health and the environment while creating a credible deterrent to possible future violations. It is DDOE's practice to consider all enforcement options, select the most appropriate and effective option commensurate with the nature of the violation, and assess fair and equitable penalties based on specific factors identified in the Department's penalty policies below.

In implementing its enforcement responsibilities, DDOE seeks to:

- Ensure that facilities are complying with environmental requirements,
- Stop repeat violations and correct ongoing violations,
- Deter future violations,
- Remove the economic benefit of noncompliance,
- Remediate the environmental impact of past violations, and
- Take timely, appropriate, fair, consistent, and effective enforcement actions when necessary.

The District's Civil Infractions Schedule of Fines categorizes, or classifies, a substantial number of environmental regulations that DDOE is authorized to enforce. Classifications are made according to the nature and severity of the violations and their potential to impact human and environmental health. Under the Schedule of Fines, Class 1 and Class 2 violations are considered the most egregious and serious violations. Class 3 violations contain mixed minor/serious violations, and Classes 4 and 5 are generally minor violations. The Schedule of Fines is found in Chapters 32 and 40 of Title 16 of the District of Columbia Municipal Regulations (DCMR) and is discussed in greater detail in other sections of this document.

The classifications in the Schedule of Fines provided a useful benchmark for these Guidelines and were used to help establish appropriate enforcement responses and protocols for the Department. In 2014, a comprehensive revision to the DDOE Schedule of Fines was made to the violations for eight separate programs administered by the Department. The new Schedule of Fines was adopted as a final rule on August 15, 2014.

Proper execution of these Guidelines will help DDOE carry out its mission and achieve its vision for the District.

D. Enforcement Roles within DDOE

The various environmental programs, OEEJ, and OGC all play key roles in DDOE's enforcement.

1. DDOE's Environmental Programs

Three Administrations—Environmental Services, Natural Resources, and Energy—have enforcement responsibility within DDOE. Inspectors in these Administrations are assigned to Divisions and serve as the primary contacts for the regulated community and the public. These inspectors are the Department's first responders to instances of environmental

noncompliance. The Administrative Services Administration staffs an Emergency Response Coordinator position to coordinate response to environmental emergencies and lead a cross-agency team of inspectors at sites involving hazardous materials or potentially criminal activity.

The Divisions are further organized into Branches that address specific environmental areas. The Office of the Director and the managers of these divisions, in conjunction with OEEJ's Chief and the General Counsel, determine DDOE's enforcement priorities. DDOE Divisions and Branches with enforcement mandates are as follows:

Environmental Services Administration

Toxic Substances Division
- Hazardous Materials/Pesticides Branch
- Underground Storage Tanks/Leaking Underground Storage Tanks Branch

Air Quality Division
- Compliance and Enforcement Branch

Lead & Healthy Housing Division
- Compliance and Enforcement Branch

Natural Resources Administration

Fisheries & Wildlife Division
- Fisheries Management Branch
- Wildlife Management Branch

Water Quality Division
- Permitting and Enforcement Branch

Watershed Protection Division
- Inspection and Enforcement Branch

Stormwater Management Division

Energy Administration

Data and Benchmarking Division

2. The Office of Enforcement and Environmental Justice

OEEJ develops and implements effective practices to support DDOE enforcement efforts. OEEJ works directly with DDOE's environmental enforcement programs by providing training, developing standard procedures, maintaining records, and managing the civil infractions program. OEEJ also helps ensure that DDOE programs develop and implement fair and effective

compliance and enforcement policies and practices and maintain a highly trained inspection and enforcement staff to fulfill the Department's environmental mandates.

3. The Office of the General Counsel

OGC attorneys provide legal advice to DDOE's enforcement programs, including legal sufficiency reviews of documents such as correspondence, contracts, settlement agreements, rules, and legislation. OGC also provides litigation support and representation for administrative cases initiated by inspectors, cases referred to the U.S. Environmental Protection Agency, and cases referred to the Office of the Attorney General for civil or criminal judicial prosecution.

E. Other Entities That Support DDOE Enforcement

1. The District of Columbia Office of Administrative Hearings (OAH)

OAH is an administrative court that provides centralized adjudication services for numerous District agencies. For DDOE, OAH processes Notices of Infraction (NOIs) and other agency enforcement actions that remain contested and unresolved after the Department's internal process. Depending on a respondent's plea, OAH may conduct a formal adjudicatory hearing. It concludes a case with a Final Order that may be appealed.

2. The District of Columbia Metropolitan Police Department (MPD)

MPD is vested with authority to investigate and prosecute some environmental crimes, and DDOE can seek to work with MPD as needed on enforcement actions.

3. The District of Columbia Office of the Attorney General (OAG)

When matters require civil or criminal litigation in courts, rather than through an administrative process, DDOE's OGC will try the case with active support from OAG's litigation section and technical support from DDOE staff. OAG also handles appeals to OAH Final Orders.

4. The District of Columbia Department of Consumer and Regulatory Affairs (DCRA)

DCRA issues professional and technical licenses and permits, conducts inspections, enforces building, housing, and safety codes, regulates land use and development, and provides consumer education and advocacy services. DCRA is vested with authority to implement and enforce several laws and regulations that impact DDOE activities mainly through licensure, permitting, and land use development. The two agencies proactively coordinate certain permitting functions and also assist each other when investigating violations.

5. The U.S. Environmental Protection Agency (EPA)

EPA is the federal agency with primary environmental enforcement authority except in areas such as hazardous wastes, underground storage tanks, and air quality where EPA has

authorized the District to administer and enforce its own laws in lieu of federal law. Even in delegated areas, EPA may conduct activities in the District, including initiating enforcement, and will notify DDOE of its activities. EPA may also file its own federal actions even when DDOE has initiated an enforcement action – commonly called overfiling – when EPA feels DDOE's penalty is too low or DDOE's enforcement has been inadequate. This can occur, for example, when a facility/source has been on EPA's "Watch List" for an extended period without resolution. DDOE may also refer environmental violations—especially criminal matters—to EPA for enforcement following a referral protocol.

II. THE ENFORCEMENT PROCESS

A. Inspections and Compliance Audits

DDOE's first steps in enforcement may include a number of activities, such as conducting a records review, inspecting a site as a result of a scheduled or unscheduled compliance audit, or responding to a citizen complaint or an emergency. Such activities help determine whether a facility is in compliance with all applicable permits, regulations, and statutes.

As part of the inspection or compliance audit, an inspector may conduct a visual observation of a site or a facility's operations, review records, interview site personnel, take samples, or any combination of the above. The results of any inspection activity and/or record review constitute the Department's findings.

Details such as who, what, when, where, why, and how help provide an adequate picture of the inspection findings and should be addressed in the inspection report. The inspection report may also contain recommendations for additional review activity. Typical enforcement responses may include taking or requiring collection of additional samples or requesting additional documents (e.g., information regarding the ownership of the facility or financial assurance).

Inspectors should consult the relevant statutes, regulations, and SOPs before conducting the inspection and preparing the inspection report. An inspection report should be prepared as soon as possible after the inspection is completed or within 30 days, unless the relevant SOPs provide a different timeframe.

B. Elements of an Inspection Report

Each Program's SOPs provide guidelines for conducting inspections and preparing inspection reports. Program SOPs shall also specify the policies for supervisory review of inspection reports. It is important to prepare an inspection report thoroughly, accurately, and according to approved protocols because inspection reports may be used as evidence in an enforcement action.

The following elements are generally included in an inspection report:

1. General Information

The general information establishes necessary site information, the responsible parties, witnesses, and points of contact for future inspections and related matters. General information to be included should, at a minimum, include the following:

- Date and time the inspection was conducted
- Location of the inspection
- Individual or business name, address, telephone, and other contact information
- Name, title, address, telephone, and other contact information for an appropriate contact person
- Names, titles, and contact information for all DDOE personnel, other government representatives, and facility or site personnel directly involved in the inspection

2. Purpose of the Inspection

An inspection report should clearly state the reason or reasons for the inspection. This allows the reviewer to understand the purpose and scope of the inspection and to determine whether proper procedures were followed. DDOE may conduct inspections for some of the following reasons:

- Routine compliance
- Follow-up/re-inspection
- Complaint investigation
- Emergency response
- Oversight of regulated activity (e.g., installation, removal, or closure of underground storage tanks)

3. Information about the Regulated Entity's Operations and Activities

An inspection report should discuss the nature of the business or activity being inspected and contain a site-specific discussion of the operations. This will help provide a better understanding of any potential regulatory requirements. Names and titles of the sources providing the information about the activities or operations should be identified.

4. Inspection Procedures Followed

An inspection report should identify the procedures the inspector used to conduct the inspection. These procedures should be in accordance with governing laws and regulations and approved SOPs.

5. Inspection Checklists

Approved inspection checklists may be used to facilitate conducting inspections where common elements of operations or documents must be reviewed to address statutory or regulatory requirements. Checklists may be appended to an inspection report; however, they are not substitutes for an inspection report.

6. Collection of Evidence

Inspectors must gather evidence during their inspections that will be sufficiently useful for building a case if it is later determined that further enforcement action is warranted. Inspectors should use professional judgment regarding the amount and type of evidence needed. Useful evidence generally includes the following:

- **Photographs**

Photos should be taken as necessary to establish evidence of violations. Photos should include a common object or ruler to show scale and should include the date and time the photo was taken using a correctly set time stamp, if available. The name of the photographer and identification of any persons in the photo should be provided. A precise description of the location where the photograph was taken (e.g., "8 foot deep pit in northwest corner of parking lot") should also be provided. Inspectors should maintain a log of all photographs taken during their inspections and include the log in the inspection report.

- **Samples**

Inspectors should be aware of the relevant statutes, regulations, and program SOPs when taking samples. All laboratory reports and supporting documentation, including chain of custody related to samples, and whether split samples were requested and provided, must be included in the inspection report. If laboratory reports are not available at the time the report is issued, a notation of this should be included in the report.

- **Documents**

Documents or copies of documents that support the alleged violations, such as permits and licenses, obtained during the inspection should be included or referenced in the inspection report.

- **Relevant Statements**

Any statements made during the course of the inspection that provide evidence for a violation or potential violation or describe an operational process in a unique manner should be documented. The source of the statement must be reported.

7. Other Legal Considerations

An inspection report should contain sufficient documentation to establish that the inspector has appropriately addressed any legal issues that might otherwise invalidate the inspection report or compromise any subsequent enforcement action. The legal considerations are varied and should be discussed in detail with program attorneys; however, the inspectors should be mindful of one important consideration—that of consent to conduct the inspection to obtain necessary evidence.

Normally the authority to conduct the inspection is not an issue as the inspection authority is granted in governing laws and regulations and tied to the issuance of licenses and permits. In addition, owners, operators, or other persons normally grant consent to inspect at the site. In circumstances where a consent issue may be raised (such as when the owner or operator is absent from the premises), the inspector should consult with OGC. The inspector should also clearly document that consent has been obtained from a person with authority to grant consent to conduct the inspection or to collect necessary evidence. Where inspectors are unable to obtain consent or are denied consent to enter the property or conduct the inspection, they should consult with OGC regarding the possibility of obtaining access through an administrative warrant.

Inspections tied to suspected criminal activity present additional legal issues and must be authorized by a valid search warrant. In such circumstances, inspectors should consult with OGC and follow appropriate protective measures (such as being accompanied by MPD).

8. Concerns and Recommendations

An inspection report should contain only objective statements regarding observed facts and concerns raised by those observations. It should not contain statements regarding conclusions or discussions about potential or specific violations. Inspectors who believe non-compliance issues are present or who have concerns that may warrant further review or enforcement action, may need additional documentation depending upon whether the inspection report findings suggest potential major, moderate, or minor violations. Enforcement recommendations should not be made in the inspection report.

C. Post-Inspection Communications and Evaluations

Generally, once inspectors have completed their inspection reports and concluded that a facility is in compliance with applicable laws and regulations, no further enforcement action is required. Inspectors should clearly note in the inspection report when no concerns are observed and no recommendations made as a result of the inspection. Inspectors may also prepare a written communication to an owner or operator that summarizes the inspection findings. Program SOPs should provide guidance on the appropriateness of sending other documentation such as sample results along with inspection results. Information related to the inspection should be entered into the program's tracking system and any other required national databases. If DDOE has expended time and resources addressing matters at a particular site or facility, the program should discuss cost-recovery options with OGC.

If, however, facts are observed or evidence is obtained which suggest non-compliance issues, the inspector should prepare the appropriate post-evaluation analysis and/or take the appropriate enforcement action. Selecting the appropriate enforcement action will depend upon the nature and severity of the alleged violations and specific facts about the alleged violator.

Inspection reports should be reviewed by supervisors in accordance with program SOPs or for periodic quality consistency purposes. At a minimum, DDOE supervisors should review (and document the review of) inspection reports at high-profile sites (e.g., large-quantity hazardous waste generators, major air sources, facilities of interest to more than one program, repeat violators, or facilities that are the subject of an enforcement initiative).

In some instances, an appropriate post-inspection evaluation will include a written Enforcement Analysis. The details of such analysis are discussed in greater detail below.

D. The Enforcement Analysis

A post-inspection Enforcement Analysis is a written document prepared by an inspector of record (or other personnel as appropriate) that addresses potential enforcement against an alleged violator based upon facts observed, documents received, and other evidence associated with an inspection or compliance audit.

An Enforcement Analysis represents an enforcement work product that is provided for inspector-supervisor and attorney-client deliberations and is prepared in anticipation of possible litigation. Therefore it should be marked **"Enforcement Confidential."** The Enforcement Analysis should, at a minimum, contain the following information:

1. Violation documentation - Each alleged violation that is identified must be adequately supported with the facts necessary to establish the elements of each violation. It is not enough to simply state that the law was violated. The details should be clear enough so that a third party can understand the nexus between the concerns raised and the violations alleged;

2. Evidence discussion - Evidence from the Inspection Report must be presented to support all elements of each alleged violation. In many cases the inspector's properly documented observation of a violation provides sufficient evidence of a violation. In other situations additional evidence may be needed for enforcement follow-up;

3. The alleged violator's relevant compliance history including whether the alleged violator is a first-time or repeat offender; and

4. Recommendation(s) for enforcement action (including corrective actions and fines and penalties, if warranted).

Unless otherwise stated,[1] an Enforcement Analysis should be prepared whenever:

1. Findings suggest that a Class 1 or Class 2 violation has been committed;

2. Findings suggest that a major violation (as defined in section III of these Guidelines) has been committed;

3. Findings suggest that minor violations with fines exceeding a total of $10,000 have been committed;

4. Findings suggest non-compliance issues by the District or the federal government; or

5. OGC, OEEJ, or other appropriate supervisory personnel request the analysis to address a specific concern.

An Enforcement Analysis should be in writing and prepared within 30 days of the inspection, unless the violation poses an immediate threat to public health and the environment, in which case the inspector should move quickly and not wait 30 days. Supervisors should make a decision on the appropriate enforcement action within 30 days of receipt of the Enforcement Analysis. The decision must be in writing and forwarded to OGC for further action. Enforcement action should generally be initiated within 90 days of the inspection.

OEEJ may exempt the requirement to prepare an Enforcement Analysis for certain types of violations for which the evidentiary requirement is relatively simple and proof of the violation can be addressed adequately by basic information in the inspection report.[2]

The inspector who prepared the Enforcement Analysis is responsible for ensuring that once an enforcement decision is made, the enforcement action is reflected in the enforcement tracking system and that all relevant documents and notations are included in the case file.

E. Enforcement Against the District and the Federal Government

The process for enforcement against other District agencies and the federal government is specified in an Office Order available on the Department's Intranet site. Following this process, DDOE can and will enforce against "sister agencies" and federal agencies that are violating the District's environmental laws.

[1] An Enforcement Analysis does not have to be prepared if circumstances require that action must be taken quickly. In this case, however, a written document must still be prepared to explain the justification for the quick action.

[2] One example is an exemption of the requirement to prepare Enforcement Analyses for Class 1 or 2 violations that involve failure to obtain required permits. In these instances the evidentiary requirements are fairly simple; the activity is or is not covered and a permit exists or does not exist. In such cases a well-written inspection report will provide sufficient evidentiary information to support a penalty enforcement action.

III. DETERMINING WHETHER VIOLATIONS ARE MINOR, MODERATE, OR MAJOR

A. Minor Violations

For purposes of this guidance, minor violations are defined as violations that have minimal potential to negatively affect human or environmental health and have not caused actual damage.[3] These may include:

- Relatively small excursions from numerical standards which may be prescribed in program SOPs
- Reporting and record keeping violations posing a relatively small risk to human health or the environment
- First offenses that have minimal potential to negatively impact human or environmental health
- Violations that have minimal potential to pose a threat to human or environmental health and can be corrected quickly

Minor violations may be designated as significant (moderate) violations if they are part of a recurring pattern or if they remain uncorrected. Determining whether minor violations will be treated as minor violations or elevated to the status of moderate violations is left to the judgment of the inspector or supervisor in consultation with OGC, as necessary. Factors for consideration include: past compliance history, willfulness of the violation, the degree of harm or potential harm, the ability of the violator to make timely corrections, and any other appropriate factors.

B. Moderate Violations

Moderate violations are defined as violations that have significant potential to negatively affect human or environmental health. These may include:

- Significant excursions from numerical standards which may be prescribed in program SOPs
- Reporting and record keeping violations posing significant risk to human health or the environment
- First offenses that have significant potential to negatively impact human or environmental health
- Violations that have significant potential to pose a threat to human or environmental health and require a significant amount of time, resources, or capital to correct

Significant violations may be designated as serious (major) violations if they are part of a recurring pattern or if they remain uncorrected. Determining whether significant violations will be treated as moderate violations or elevated to the status of major violations is left to the judgment of the inspector or supervisor in consultation with OGC, as necessary.

[3] Actual damage that is *de minimis* may, in some cases, still be considered minor.

Factors for consideration include: past compliance history, willfulness of the violation, the degree of harm or potential harm, the ability of the violator to make timely corrections, and any other appropriate factors.

C. Major Violations

Major violations are defined as violations that have serious potential to harm human or environmental health or are otherwise blatant and egregious. In addition, any fraudulent activity, such as intentional falsification of self-monitoring reports, or recalcitrant behavior are serious violations and may potentially be criminal (*see* Section IV.E.2 of these Guidelines). Other examples of serious violations are:

- Serious excursions from numerical standards prescribed in program SOPs
- Serious reporting and record keeping violations
- Offenses that pose a serious threat to public health or the environment
- Offenses that are part of a pattern of chronic, non-compliant behavior
- Offenses that require a substantial amount of time, resources, or capital to correct

In addition, several federal regulations have specific definitions and criteria to distinguish between degrees of "seriousness." For instance, EPA's Enforcement Response Policies define "high priority violation" and "significant non-compliance." See the program-specific SOPs or protocols for guidance on how to address these violations.

IV. DETERMINING THE APPROPRIATE ENFORCEMENT RESPONSE TO VIOLATIONS

DDOE's enforcement response to violations will depend upon a variety of factors and circumstances. Some of these criteria include: whether certain actions are prescribed by federal delegation or enforcement agreements or by District laws or regulations, the severity of the violation, the degree of harm or potential harm to public health or the environment, the willingness of the facility to correct the violation, the past compliance history of the facility, and the willfulness of the act.

If a penalty is warranted, other factors such as those discussed in the DDOE Penalty Guidelines (Section V, below) may be considered as part of the decision-making process. DDOE also has the option of choosing the most appropriate forum in which to pursue its enforcement action. Accordingly, DDOE can use either administrative or judicial actions to achieve compliance.

A. Notices of Violation

DDOE has available a number of non-penalty administrative enforcement tools that can be used as a preliminary approach to addressing minor issues of noncompliance. A notice of violation (NOV) may be used when an inspector observes facts that suggest noncompliance. While NOVs can be issued for any degree of violation (major, moderate, or minor) and may be

used in conjunction with other enforcement tools, NOVs are normally used in the following circumstances:

- The suspected deficiencies can usually be corrected within 30 days or less;
- The facility is an infrequent violator;
- The violation is minor and does not pose a threat to human or environmental health;
- The facility is cooperative; or
- An initial NOV is required by law.

The NOV should generally include the following:

- A statement of facts (not opinions, conclusions or conjectures);
- Citations to applicable laws or regulations;
- A specific request for corrective action, including a compliance plan and schedule, if appropriate;
- A date certain for performance;
- A warning that failure to resolve the suspected problem may result in further enforcement activity; and
- Contact information for the appropriate DDOE representative.

All contacts and requests to the alleged violator must be documented in the case file. Inspectors should continue to monitor warnings through appropriate document review or follow-up inspections until they have verified that the requested correction has occurred. Inspectors may provide compliance assistance consistent with program SOPs to facilitate correction of violations.

The corrective action outcome should be memorialized in an inspection report/form or other document in accordance with program SOPs. All follow-up activities should be documented in the case file and entered into the program's tracking system.

If the noted deficiencies are corrected within the specified time, generally no penalties are assessed and no further enforcement action is required.[4] No consent orders or agreements are required for NOVs and site directives, and management may be only minimally involved above the inspector level.

If a respondent is unable to meet a compliance deadline, it may request a reasonable extension of the deadline provided that:

- It has exhibited good faith and diligence in its compliance efforts,
- The delay is caused by circumstances beyond its control, and
- The request is made prior to the due date for completion of the corrective action.

[4] Complete and timely corrective action, however, does not preclude an enforcement action levying a monetary penalty.

Any request for an extension of a corrective action deadline shall be in writing and shall specify the reason for the extension. Failure to meet a deadline without just cause or failure to notify DDOE of the inability to perform should result in an escalation of the type of enforcement pursued by the Department. An extension to a corrective action deadline should not be granted without supervisory approval. A second extension should only be granted for compelling circumstances and with supervisory approval. Requests for extensions beyond a second extension may only be granted with OEEJ's approval, after consultation with the pertinent OGC attorney.

B. Administrative Orders and Consent Agreements

1. What They Are and When to Use Them

When major violations occur, the violations are persistent and ongoing, or DDOE seeks to compel a party to act, DDOE can use appropriate enforcement authority to issue an administrative order, including a compliance order, corrective action, or directive. DDOE, in its sole discretion, may either issue a unilateral order or work cooperatively with the alleged violator to develop and execute an order. A consent agreement is useful when the parties want to achieve compliance but avoid litigation.

Administrative orders and consent agreements include:

- Findings that establish each required element of the violation(s);
- The specific law(s) or regulation(s) which have been violated;
- DDOE's statutory authority for enforcement; and
- The action(s) ordered.

Consent agreements are developed cooperatively between DDOE and the violator and are entered into by mutual agreement. They must include documented compliance plans and enforceable schedules, and provisions mandating that failure to meet the terms of the agreement without just cause will result in further enforcement action. If penalties are appropriate, penalty payment can be negotiated at the same time and included in a consent agreement.

For clarification, these consent agreements are not the same as court-approved consent decrees. Consent agreements are administrative orders issued by DDOE, whereas consent decrees are issued by a court. Serious consideration should be given to the use of a consent agreement, as opposed to initiation of an action before OAH, because the agreements are not published and respondents generally do not admit liability. This means that some violations cannot be counted for purposes of escalating the penalty for subsequent violations or otherwise used as precedent.

2. Approval of Administrative Orders and Consent Agreements

All administrative orders and consent agreements must be approved at the level of management specified in each program's Delegations of Authority, and when applicable, OEEJ and OGC.

C. Emergency Orders

DDOE programs are authorized to issue stop work and cease and desist orders, or similar "emergency orders" when special circumstances require immediate action to abate imminent and substantial injury or damage. Such emergency orders are the administrative equivalent of temporary injunctions and are considered serious enforcement actions. An emergency order is effective upon service and is issued without the consent of the facility to which it is directed. Often the facility is given little or no prior notice or opportunity to comment on the directives of the order. Each program's laws address the issuance of these emergency orders, including appeal and hearing rights of the recipients. Procedures for addressing emergency orders are clearly addressed in the SOPs of certain programs (e.g., Lead & Healthy Housing and Leaking Underground Storage Tanks).

D. Notices of Infraction (NOIs)

1. General Usage

The District's Civil Infractions Act of 1985, as amended, and the DDOE Establishment Act of 2005 authorize DDOE to issue NOIs to address violations of the District's environmental laws and regulations.

Issuing a NOI under the civil infractions regulations, 16 DCMR Chapters 32 and 40, is a common enforcement tool that is useful for penalizing violators and deterring future violations. NOIs can be used in many situations and for both large and small fine amounts.[5]

The civil infractions program authorizes inspectors to write NOIs for specific violations of District environmental regulations that are listed (or "scheduled") in the Schedule of Fines. OEEJ processes all of DDOE's NOIs. The first NOI to a given respondent is called an "internal" NOI; it is not before the court. Most NOIs are resolved at this level. For those matters for which respondents have requested a hearing, rejected DDOE's settlement offer, or failed to respond, the internal NOI will be cancelled and a new "external" NOI will be filed at OAH for adjudication. For a flowchart of the NOI process, *see* http://ddoe.dc.gov/publication/flowchart-noi-process-and-enforcement-metrics.

The following guidelines should be followed when using the civil infractions process:

- NOIs may only be issued for violations listed in the Schedule of Fines covering DDOE's violations (16 DCMR Chapter 40), or for those rare violations whose fines are specified by statute
- NOIs may only be issued on forms approved by OEEJ
- No NOIs may be issued for fines exceeding $10,000 without prior supervisory, OGC, or OEEJ approval[6]

[5] The decision to issue an NOI for amount larger than $10,000 or for serious violations should be supported by an Enforcement Analysis.

[6] This $10,000 amount does not include any penalties that may later be assessed for respondent's failure to reply to the NOI.

- The NOI should be written as soon as possible after the infraction and the enforcement analysis, if any. Generally, the NOI should be served within 90 days of the infraction; service even closer to the infraction date is better.

2. Class 1 and Class 2 Violations

Violations that are classified as Class 1 or Class 2 violations in the Schedule of Fines or are otherwise egregious and serious normally warrant enforcement actions that involve more than a warning through a Notice of Violation. If the findings of an inspection report suggest Class 1 or Class 2 violations, or otherwise serious violations, the inspector should prepare the Enforcement Analysis (unless the violation has been exempted from the analysis) and make appropriate enforcement recommendations. A consultation with the inspector, his or her supervisor, and OGC will determine whether the NOI or another enforcement tool is most appropriate to address the matter.

3. Class 3 Violations

Class 3 of the Civil Infractions Schedule of Fines addresses violations that are of a mixed minor/serious nature. Although defined as serious in the schedule of fines, many of those violations would meet the definition of "minor violations" under this guidance. If the findings of an inspection report suggest non-compliance issues and potential Class 3 violations, inspectors should proceed directly with the issuance of a NOI for these alleged violations. Inspectors will not need to prepare an Enforcement Analysis before issuing the Class 3 NOI.

If inspectors do not write the NOI, they must recommend another penalty-based enforcement action which must be supported by an Enforcement Analysis. Inspectors may, at their discretion and in accordance with approved program SOPs, issue a Notice of Violation or administrative order, including a corrective action notice or directive in these cases.

Inspectors who do not prepare an Enforcement Analysis for the matter should ensure that sufficient facts and evidence are documented to support the issuance of the NOV, administrative order, and/or the prosecution of the NOI, if applicable.

4. Class 4 and 5 Violations

If the findings of an inspection report suggest non-compliance issues and potential Class 4 or 5 violations, or otherwise minor violations, unless otherwise stated in the program SOPs, the inspector may issue a Notice of Violation or administrative order to address the non-compliance. In the alternative the inspector may issue a NOI. The NOI may be accompanied by an administrative order. Generally, a NOV and NOI should not be issued together as one is a warning, and thus a reprieve, and the other is a penalty action. The Enforcement Analysis will not be required for enforcement actions taken to address Class 4 and 5 violations. The issuing inspector, however, should ensure that sufficient facts and evidence are documented to support the issuance of the NOV, administrative order, and/or the prosecution of the NOI.

5. Chart of Actions

To recap, the Enforcement Analysis and NOI process should be used in the following manner:

Class 1 or 2 or otherwise serious violations	Prepare an Enforcement Analysis unless the violation is exempted from the analysis requirement	• If the violation is exempted from the analysis requirement, issue a NOI (not to exceed $10,000 without further approval) • If the violation is not exempted prepare the analysis and consult with OGC
Class 3 violations	Preparation of the Enforcement Analysis is discretionary	• Issue a NOV, or • Issue a NOI (not to exceed $10,000 without further approval)
Class 4 or 5 or otherwise minor violations	Preparation of the Enforcement Analysis is discretionary	• Issue a NOV, or • Issue a NOI (not to exceed $10,000 without further approval)

6. Other Administrative Actions or Hearings

Administrative actions, including hearings, can be used whenever authorized by statute. DDOE can also elect to request a hearing before OAH when a case has not been resolved by consent. Administrative hearings will be appropriate for the following situations:

- Where required by statute, including a respondent's request for a hearing after the receipt of a NOI or administrative order;[7]
- When DDOE seeks to revoke a permit or similar grant of right; or
- When the parties mutually agree that a hearing is appropriate.

[7] Some environmental statutes provide that challenges to directives may be appealed to the Department rather than to OAH. DDOE is not currently set up to handle in-house appeals; OAH provides that service. Any inspectors with such a challenge should consult with OGC to determine the best course of action.

E. Judicial Actions

1. Civil Actions

After consideration of all relevant factors, DDOE may determine that court action is the most appropriate enforcement response. Court remedies include temporary and permanent injunctions, civil penalties, cost-recovery, and natural resource damages. Civil judicial actions are recommended when:

- A consent order or administrative order has been violated or has not yielded compliance;
- A serious threat to human health and the environment has resulted or is present;
- Violations are ongoing;
- The party has a history of noncompliance;
- DDOE has expended funds and wants to recover them;
- The case is part of an enforcement initiative;
- The case is one of first impression (the issue has never been brought before OAH, or has never been decided by a court); or
- The case is multi-media (i.e., of interest to more than one program office).

Judicial actions may be selected by collaboration of OGC, program management, and OEEJ. The actions must be prepared by OGC and approved by the Director before they are sent to the litigating division of the Office of the Attorney General for further approval.

2. Criminal Actions

DDOE has criminal authority under the laws it enforces, but the penalties are primarily limited to misdemeanors. When violations exceed DDOE's criminal authority, the Department refers such matters to the U.S. Environmental Protection Agency Criminal Investigations Division (EPA CID). Factors that lead to a referral may include:

- Sufficient evidence has been collected that make it likely that the occurrence of violations can be proved in court beyond a reasonable doubt;
- The violations caused, or could have caused, significant harm to public health, safety, or welfare, or the environment; or
- The violations were the result of willfulness and/or indifference by the alleged violator.

Because of the challenges of criminal prosecution, and the severe consequences of criminal convictions (harsh punishment and the stigma of a conviction), criminal cases are most appropriately pursued by OAG, EPA's Criminal Investigations Division (EPA/CID), or the U.S. Department of Justice. DDOE support for such cases is coordinated by the Chief, Emergency Operations, in consultation with OGC and program staff; *see* SOP OEEJ-800, *Referral of Criminal Matters to EPA CID*. The consequences of criminal convictions make criminal enforcement the most severe environmental enforcement option and, therefore, should represent the exception rather than the rule.

Criminal referral does not preclude DDOE from exercising its other administrative or civil enforcement options. All Departmental compliance and enforcement activities may continue after the criminal matter is referred. Administrative and civil actions should proceed unless written notification to the contrary is provided by OAG or OGC. Efforts should be made to minimize interference and overlap.

F. Referrals to EPA for Enforcement

While DDOE uses all available means to address violations of the laws and regulations DDOE is mandated to enforce, circumstances occasionally require that the Department decline further action and refer the case to EPA. Such referrals are made on a case-by-case basis, using the following criteria:

- All reasonable administrative options have been attempted and were unsuccessful;
- DDOE has insufficient resources to pursue the matter adequately because of its nature or complexity;
- The matter has interstate interests or is one of a national priority;
- Federal remedies are more appropriate to address the matter;
- The responsible party is out-of-state; or
- The matter involves multi-media interests.

EPA and DDOE will occasionally take joint actions against a violator. OEEJ and OGC should be consulted and concur with a recommendation to refer a matter to EPA for enforcement before the referral is made.

V. DDOE PENALTY GUIDELINES

A. Introduction and General Considerations in Assessing Fines and Penalties

This section gives internal guidance for assessing civil penalties under the D.C. Code and DCMR. These Penalty Guidelines specify the method of calculating a penalty once it has been determined that a penalty is warranted. The purpose of this policy is threefold: 1) to ensure that no economic advantage is achieved through noncompliance; 2) to ensure that penalties are sufficient to deter violations; and 3) to ensure that penalties are enforced in a fair, equitable, and consistent manner in accordance with the relevant statutes.

The District's environmental laws generally authorize DDOE to assess civil and criminal penalties for environmental violations. Section B below addresses civil fines and penalties that are specified in the corresponding statutes and rules. Alternatively, some statutes provide that the Civil Infractions Schedule of Fines (referred to in this guidance as "administrative civil fines") may be used instead of a designated statutory civil penalty. *See* 16 DCMR Chapter 32 and 40 for a list of the violations that qualify for an administrative civil fine from the Schedule of Fines. These administrative civil fines are addressed below in Section C.

Although both statutory civil penalties and administrative civil fines may be pursued for many enforcement actions, generally administrative civil fines should be used for violations that: 1) have not resulted in substantial identified harm to human health and the environment; and 2) have continued for 180 days or less.[8] In contrast, when violations have resulted in substantial harm to human health or the environment either due to the gravity of the violation or because of the length of time the violation has continued, the higher statutory civil penalties should be pursued.

Nothing in this guidance precludes DDOE from imposing a statutory civil penalty or administrative civil fine using an alternate approach or requires DDOE to impose a civil penalty for a violation. No upper limit exists for assessing a civil penalty as part of an order or court action other than the appropriate statutory limit. This document serves only as internal guidance and does not create any rights or obligations, either in the regulated community or within DDOE.

DDOE staff will complete the Civil Penalty Policy Worksheet, Appendix 1, for any violations that will be affected by adjustment factors. In instances where several violations have been committed, separate violations may be grouped for the purpose of applying this policy. A separate worksheet will be completed for each violation or group of violations. In general, each violation or group of violations will be considered a separate violation for the purpose of calculating a civil penalty or fine if it results from separate acts or omissions creating continued or repeated compliance problems and is distinguishable from any other violation cited at the same time. The total statutory civil penalty or administrative civil fine assessed in an enforcement action may include penalties for several violations or groups of violations.

B. Statutory Civil Penalties

The Statutory Civil Penalty (a civil penalty which is based on a penalty provision found in an underlying statute) is calculated by:

(1) Determining the statutory civil penalty amount, dependent on the potential harm of the violation and extent of deviation from the required standard, and then multiplying that amount by the number of days of the violation;
(2) Adjusting the penalty for special factors and circumstances; and
(3) Considering the economic benefit of noncompliance.

Thus:

Statutory Civil Penalty = (Baseline Statutory Civil Penalty Amount x Number of Days of Violation) + or – (Adjustment Factors) + (Economic Benefit)

1. Calculating the Baseline Statutory Civil Penalty Amount

The Baseline Statutory Civil Penalty Amount is calculated by determining the statutory civil penalty amount, and then multiplying this amount by the number of days of the violation.

[8] Administrative civil fines may also be used in certain cases for violations extending longer than 180 days upon explanation to, and approval of, the Chief of OEEJ and the OGC attorney.

a. Baseline Statutory Civil Penalty Amount

The Baseline Statutory Civil Penalty Amount is made up of two factors:

(1) Potential for harm to human health or the environment; and
(2) Extent that the violation deviates from a statutory, regulatory, or permit requirement.

These two factors constitute the seriousness of a violation and are incorporated into a matrix from which the penalty is chosen. This matrix is described and illustrated below. Each matrix lists the relevant statutes and provides a range of penalties based on the corresponding statutory maximums. The matrices include all statutes under DDOE's administration that give maximum civil penalties over $1,000, including the Department's implementation of federal environmental statutes.

The factors "potential for harm" and "extent that violation deviates from requirement" form the axes of the statutory civil penalty matrix. DDOE inspectors should choose a specific cell after determining the severity (major, moderate, or minor) of each of the factors. The matrices below provide an explanation of these factors and a description of how to choose the severity level for each. The determination of a specific penalty amount within each selected cell is left to the judgment of DDOE enforcement staff and is based on the specific facts and circumstances of each case.

BASELINE STATUTORY CIVIL PENALTY MATRIX:

(Underground Storage Tanks - § 8-113.09(e)&(f); Hazardous Waste Transport - § 8-1404(c); Brownfields - § 8-634.06(1)(A))				
		EXTENT THAT VIOLATION DEVIATES FROM REQUIREMENT		
		MAJOR	**MODERATE**	**MINOR**
POTENTIAL FOR HARM	**MAJOR**	**$10,000 to $8,000**	**$8,000 to $6,000**	**$6,000 to $4,500**
	MODERATE	**$4,500 to $3,200**	**$3,200 to $2,000**	**$2,000 to $1,200**
	MINOR	**$1,200 to $500**	**$500**	**$500**

(Underground Storage Tanks - § 8-113.09(d); Lead - § 8-231.15(b); Hazardous Waste Management - § 8-1311(b)(1); Brownfields - § 8-634.06(2)(A))				
		EXTENT THAT VIOLATION DEVIATES FROM REQUIREMENT		
		MAJOR	MODERATE	MINOR
POTENTIAL FOR HARM	MAJOR	$25,000 to $20,000	$20,000 to $15,000	$15,000 to $12,500
	MODERATE	$12,500 to $10,000	$10,000 to $7,500	$7,500 to $5,000
	MINOR	$5,000 to $3,500	$3,500 to $2,000	$2,000 to $1,000

(Water Pollution Control Act - § 8-103.18(b)(2)(A))				
		EXTENT THAT VIOLATION DEVIATES FROM REQUIREMENT		
		MAJOR	MODERATE	MINOR
POTENTIAL FOR HARM	MAJOR	$50,000 to $45,000	$45,000 to $35,000	$35,000 to $25,000
	MODERATE	$25,000 to $20,000	$20,000 to $15,000	$15,000 to $12,500
	MINOR	$12,500 to $10,500	$10,500 to $7,500	$7,500 to $5,000

i. Potential for Harm

The potential for harm resulting from a violation may be determined by:

- The risk of exposure and degree of potential or actual exposure of persons or the environment to pollution; or
- The degree of adverse effects of noncompliance on the Department's ability to prevent or monitor potential harm to the public health or environment through its regulatory programs.

It is important to focus on both the *potential* harm posed by a violation and any *actual* harm that occurred. Many requirements impose practices that significantly reduce environmental risk over the regulated community as a whole, even where the failure to comply with the required practice does not always result in actual harm. These substantial risks can result from the cumulative effect of a large number of instances of noncompliance, and thus it is important to maintain strong incentives deterring such noncompliance.

Where actual harm occurs a high penalty should be expected. Violations that do not result in actual harm should not necessarily be assessed a lower statutory civil penalty. Basing civil penalties solely on actual harm resulting from the violation decreases the Department's ability to regulate potential harms to the public health or environment by reducing the preventative power of civil penalties. For instance, programmatic violations involving failure to notify or monitor might not result in any actual harm, but assessing a minimal penalty would not effectively discourage similar failures in the future, failures which might result in actual harm.

DDOE enforcement staff should evaluate whether the relative potential for harm is major, moderate, or minor with respect to each violation. Factors to be considered in determining the level of potential for harm may include, but are not limited to:

- Amount of pollutant;
- Toxicity of pollutant;
- Sensitivity of the ecological receptors;
- Sensitivity of the human population;
- Length of time of exposure;
- Size of the violator (large company, small business, etc.);
- Potential costs incurred by DDOE in clean-up or mitigation;
- Whether the violation can be remedied by obtaining a permit;
- Whether there was a failure to plan, label, notify, monitor, or post bond; and
- Whether the violation impairs the ability of DDOE to determine compliance with other substantive requirements.

The degree of potential harm for each category is defined as follows:

- **Major**:
  - The violation(s) poses a *substantial* risk to human health or the environment; or

- The actions have or may have a *substantial* adverse effect on the statutory or regulatory purposes or procedures for implementing the program.

- **Moderate**:
  - The violation(s) poses a *significant* risk to human health or the environment; or
  - The actions have or may have a *significant* adverse effect on the statutory or regulatory purposes or procedures for implementing the program.
- **Minor**:
  - The violation(s) poses a *relatively low* risk to human health or the environment; or
  - The actions have or may have a *relatively low* adverse effect on the statutory or regulatory purposes or procedures for implementing the program.

ii. Extent that Violation Deviates from a Statutory, Regulatory, or Permit Requirement

The second factor is the extent that a violation deviates from a statutory, regulatory, or permit requirement. This factor relates to the degree to which the requirement is violated. Similar to the potential for harm, each violation's extent of deviation can be categorized into either major, moderate, or minor. These degrees are defined as follows:

- **Major**: The violator deviated from the requirements of the statute, regulation, or permit to such an extent that there was *substantial* noncompliance.
- **Moderate**: The violator *significantly* deviated from the requirements of the statute, regulation, or permit; or only some of the requirements were implemented.
- **Minor**: The violator deviated *somewhat* from the statute, regulation, or permit requirements; or most of the requirements were met.

b. Multi-Day Penalties

Under some of its environmental statutes, DDOE has the authority to assess statutory civil penalties for each day of each violation. Multi-day penalties will generally be reserved for continuing violations that demonstrate a major potential for harm or a major deviation from requirements. DDOE retains the right, however, to utilize multi-day penalties in other instances.

To charge for multiple days of violations, the applicable statute must provide that penalties may be assessed "per day" or "for each day." Some statutes explicitly provide that penalties may be assessed for each day of violation. Other statutes limit the penalty to each "violation" and do not add the "per day" or "for each day" language.[9] In the latter instance, while penalties may be assessed for multiple violation(s), they may not be assessed for multiple days of the violation(s). In these cases, the penalty amount found in the matrix serves as the Baseline Statutory Civil Penalty Amount.

[9] For instance, the statute governing Underground Storage Tanks provides in section (e) that DDOE can fine a person who fails to notify under § 8-113.02(a)-(f) up to $10,000 for each violation, whereas it provides in section (f) that DDOE can fine a person who fails to comply with the requirements of § 8-113.04 up to $10,000 for each tank for each day of violation. D.C. Official Code § 8-113.09(e)-(f). Taken together, it is clear that the statute directs the violator failing to comply with regulations more heavily than the violator failing to notify.

For serious violations where a straight per-day penalty is imposed, the Baseline Statutory Civil Penalty Amount is the penalty amount determined from the matrix multiplied by the number of days of violation.

Thus:

Baseline Statutory Civil Penalty Amount = (amount derived from the penalty matrix) x (number of days of violation)

For less serious violations, DDOE has the authority to reduce the penalty amount or number of days of the violation, on a case-by-case basis.

2. Adjustment Factors

Once the Baseline Statutory Civil Penalty Amount is determined, it may be adjusted upward or downward to reflect the facts of the particular case. All, some, or none of the adjustment factors may be applied to each case. Note, however, that an upward adjustment cannot result in a total Statutory Civil Penalty greater than the statutory maximum per violation, per day.

The following adjustment factors may be considered:

a. Actions Before or During the Violation:

- Violator's ability to foresee or prevent violation(s);
- Location of the violation(s) relative to sensitive ecosystems or vulnerable populations;
- Amount of control the violator had over the events constituting the violation(s); or
- Whether the violator took reasonable precautions against the events constituting the violation(s).

DDOE enforcement staff has discretion, subject to the above factors, to adjust the Baseline Statutory Civil Penalty Amount upward by as much as 50 percent or downward by as much as 25 percent.

b. Actions After the Violation:

- Violator's good-faith efforts to comply[10];
- Violator's timely good-faith efforts to mitigate harm caused;
- Violator's prompt reporting of its noncompliance, even if not required by law;
- Amount of control violator had over how quickly the violation(s) was remedied;
- Degree and timeliness of cooperation by violator in resolving the enforcement action; or
- Admission of liability.

[10] Simply returning to compliance will not justify a downward adjustment of the penalty. A reduction for good-faith efforts to comply is warranted only where a violator has made affirmative and substantial efforts to comply prior to the violation occurring, even if such efforts turn out to be insufficient.

DDOE enforcement staff has discretion, subject to the above factors, to adjust the Baseline Statutory Civil Penalty Amount upward by as much as 50 percent or downward by as much as 25 percent.

c. Compliance History (Upward Adjustment Only)

If a violator has previously violated the same or similar statute, rule, ordinance, permit, or order, it is usually an indication that the violator has not been deterred by the previous enforcement actions. Therefore, a history of noncompliance justifies an upward adjustment of the Baseline Statutory Civil Penalty Amount. The following adjustment factors may be considered:

- Previous violation(s) within the three-year period preceding the current violation;
- Whether the previous violation(s) are similar to the current violation;
- Efforts by the violator to correct any prior violation(s); or
- The number of prior or concurrent violations.

DDOE enforcement staff will consider the violation(s) to be "similar" if either a prior EPA or DDOE enforcement action should have alerted the violator to a particular type of compliance problem.

For purposes of this guidance, a "prior violation" includes any act or omission for which an EPA or DDOE enforcement response has occurred. Examples include: NOV, NOI, complaint, consent decree, consent agreement, or administrative order. DDOE enforcement staff may also include any act or omission for which the violator was given any written or verbal notification, even informal notices that DDOE believes a violation exists.

DDOE enforcement staff has discretion, subject to the above factors, to adjust the Baseline Statutory Civil Penalty Amount upward by as much as 100%.

d. Inability to Pay

This adjustment may result in a deferred or reduced civil penalty. The violator must demonstrate, in such a way DDOE determines to be sufficient and acceptable, the existence and extent of the inability to pay the penalty. DDOE will consider the compliance history and culpability of the violator prior to applying this adjustment factor; a current violator with a history of many past violations should not be eligible for a reduced or deferred penalty. In addition DDOE will consider the seriousness of the violations. In general DDOE does not intend to impose penalties that create a substantial risk that the violator will go out of business. The risk of going out of business must be balanced against the seriousness of the violations and of the violator's conduct.

Demonstration of inability to pay must be made in writing by the violator. It may not be demonstrated solely by income tax returns showing a loss, as there may be other factors contributing to that loss. DDOE may evaluate a business's cash flow and financial impact of a penalty to determine the impact a civil penalty may have on an individual or business. DDOE may use EPA's ABEL program, which evaluates a business's cash flow and financial impact of a

penalty to determine the impact a civil penalty may have on an individual or business, or DDOE may use another calculation of its choosing.

If DDOE determines that this adjustment factor can be applied, the following will be considered: a delayed payment schedule; an installment payment plan with or without interest; or a reduced penalty. A reduced penalty will always be the last recourse.

e. DDOE Enforcement Costs (Upward Adjustment Only)

DDOE uses staff time and frequently expends funds on collection and sampling of data and information when pursuing an enforcement action. The Baseline Statutory Civil Penalty Amount will be adjusted upward to include all special costs incurred in pursuing an enforcement action. These costs may include:

- Special sampling and analysis costs;
- Research time for collecting specialized information; or
- Other costs above average staff time for a similar violation.

f. Other Unique Factors

DDOE enforcement staff has discretion and flexibility to consider any unanticipated circumstances or information that arises after the calculation and assessment of the Statutory Civil Penalty. This may include additional evidence that leads to a significant reevaluation of the facts of a violation and a recalculation of a civil penalty.

3. Economic Benefit of Noncompliance (Upward Adjustment Only)

After the Baseline Statutory Civil Penalty has been determined through the matrix, and any adjustment factors have been applied, the final component of the Statutory Civil Penalty calculation is the addition of any economic benefit the violator derived from noncompliance. The general enforcement principle is to impose a penalty sufficient to remove any economic benefit of noncompliance.

If the violation(s) results in an economic benefit to the violator, that economic benefit should be calculated and added to the Baseline Statutory Civil Penalty Amount.[11] For many violations, the economic benefit may be difficult to quantify or insignificant. If DDOE determines that the amount of the economic benefit is low, DDOE may, in its discretion, disregard the economic benefit in computing the total Statutory Civil Penalty. Factors to be considered when determining economic benefit are: benefits from delayed costs, benefits from avoided costs, and other benefits.

[11] The economic benefit of delayed, avoided, or other costs can be calculated using EPA's Economic Benefit model (BEN). For more information, visit EPA's Environmental Training for Government Enforcement Personnel, *available at* http://www.epa.gov/compliance/training/neti/.

a. Benefits from Delayed Costs

Delayed costs are those that a violator will eventually need to spend to achieve compliance with a statutory, regulatory, or permit requirement. Delayed costs can thus be considered capital costs. The economic benefit for delayed costs is calculated based on the cost of capital that would have been necessary to come into compliance at an earlier date. Examples of delayed costs include:

- Delayed installation of equipment needed to meet discharge or emission control standards;
- Delayed implementation of process changes needed to eliminate pollutants from products or waste streams;
- Delayed performance of required testing, where that testing must be done to demonstrate achieved compliance;
- Delayed disposal of regulated substances, where proper disposal is required to achieve compliance; or
- Delayed costs of obtaining necessary permits, where permits were eventually obtained.

b. Benefits from Avoided Costs

Avoided costs are those which are nullified by the violator's failure to comply. Thus, these costs will never be incurred. Examples of avoided costs include:

- Failure to employ sufficient numbers of adequately trained staff;
- Failure to properly operate and maintain existing control equipment;
- Failure to establish/follow precautionary methods required by rules or permits;
- Process, operations, or maintenance savings from removing pollution equipment;
- Failure to collect, record and/or report required samples, or perform required periodic monitoring; or
- Failure to properly store or dispose of regulated substances, where re-disposal or cleanup is not possible.

The economic benefit of avoided costs is the amount that would have been spent to comply with the requirement, from the start of the violation, less any tax savings.

c. Other Benefits

In addition to considering the delayed and avoided costs derived from noncompliance, DDOE may consider any other economic benefits which reasonably flowed from the noncompliance including, but not limited to, profits which would not have been earned but for the noncompliance.

C. Administrative Civil Fines

As previously stated, many DDOE environmental programs are authorized to use administrative civil fines as an alternative to statutory civil penalties. All of DDOE's

administrative civil fines are "scheduled" (listed) in 16 DCMR Chapter 40, which establishes the administrative fines for violations of the District's environmental laws and regulations.

The fine for a first offense ranges from $50 to $2,000, depending upon the class of the violation. Violations that are considered egregious or imminently dangerous to health and welfare are scheduled as Class 1 violations and are $2,000 for the first offense. Violations that are considered a nuisance, but not a threat to human or environmental health, are considered Class 5 and are $50 for the first offense.

Another important consideration is that the administrative civil fine amount for subsequent violations of the same provision (that is, second, third, and fourth offenses) doubles within a three-year period. After the fourth offense, any subsequent violations of the same regulation within the three-year period are fined at the same level as the fourth offense.

Administrative civil fines, just like the statutory civil penalties described above, can also be imposed for multi-day periods of violation.

A multi-day administrative civil fine is calculated by multiplying the Baseline Administrative Fine Amount by the Adjusted Number of Days.

Thus:

Administrative Civil Fine = (Baseline Administrative Civil Fine Amount) x (Adjusted Number of Days)

1. Baseline Administrative Civil Fine Amount:

The main step in determining the Baseline Administrative Civil Fine Amount is to determine the appropriate class under the Schedule of Fines (found at 16 DCMR Chapter 40) for the cited violation. After identifying the class, consult 16 DCMR 3201.1 to identify the fine of that class.

Example: The Air Quality violation set forth in 20 DCMR 200.1 (failure to obtain air pollution construction or modification permit) is a Class 1 infraction. Per 16 DCMR 3201.1, the fine for a Class 1 infraction (first offense) is $2,000.

2. Adjusted Number of Days

DDOE enforcement staff must determine the number of days the violation occurred, based on credible evidence received. All administrative civil fines may be charged "per day" "per violation," so there is no need to consult individual schedules for program specific language. Days are counted as calendar days unless otherwise noted.

The adjustment factors work differently for Administrative Civil Fines than they do for Statutory Civil Penalties. Because the fine amount is mandated by the regulation, there is less room for discretion because the monetary fine amount itself cannot be altered. To achieve this

discretion, DDOE can adjust the number of days of the violation to reflect the specific facts of a particular case. Thus, a violation that is not egregious or substantially harmful can be mitigated to a lower fine by lowering the number of violation days used in the calculation of the Baseline Administrative Civil Fine.

While individual factors may mitigate the amount upwards, a calculation can never include more days than the violation actually occurred. That is, an upward adjustment can cancel out a previous downward adjustment, but can never stand alone to charge a fine for more days than a party was actually in violation.

If the Baseline Administrative Civil Fine Amount is $10,000 or less, no adjustment factors or economic benefit calculations, as discussed below, need to be considered to further refine the baseline amount.

In the Air Quality example above, if the inspector determines that this violation continued for 20 days, the Administrative Civil Fine amount is $40,000. This represents the $2,000 Administrative Civil Fine amount x 20 adjusted number of days.

The following adjustment factors may be considered:

a. Actions Before or During the Violation:

- Violator's ability to foresee or prevent violation(s);
- Location of the violation(s) relative to sensitive ecosystems or vulnerable populations;
- Amount of control the violator had over the events constituting the violation(s); or
- Whether the violator took reasonable precautions against the events constituting the violation(s).

DDOE enforcement staff has discretion, subject to the above factors, to adjust the number of days of the violation downward by as much as 25 percent.

b. Actions After the Violation:

- Violator's good-faith efforts to comply[12];
- Violator's timely good-faith efforts to mitigate harm caused;
- Violator's prompt reporting of its noncompliance, even if not required by law;
- Amount of control violator had over how quickly the violation(s) was remedied;
- Degree and timeliness of cooperation by violator in resolving the enforcement action; or
- Admission of liability.

DDOE enforcement staff has discretion, subject to the above factors, to adjust the number of days of the violation downward by as much as 25 percent.

[12] Simply returning to compliance will not justify a downward adjustment of the penalty. A reduction for good-faith efforts to comply is warranted only where a violator has made affirmative and substantial efforts to comply prior to the violation occurring, even if such efforts turn out to be insufficient.

c. Compliance History (Upward Adjustment Only)

If a violator has previously violated the same or similar statute, rule, ordinance, permit, or order, it is usually an indication that the violator has not been deterred by the previous enforcement actions. Therefore, a history of noncompliance is justification for an upward adjustment of the Baseline Administrative Civil Fine Amount. The following adjustment factors may be considered:

- Previous violation(s) within the three-year period preceding the current violation;
- Whether the previous violation(s) are similar to the current violation;
- Efforts by the violator to correct any prior violation(s); or
- The number of prior or concurrent violations.

DDOE enforcement staff will consider the violation(s) to be "similar" if either a prior U.S. EPA or DDOE enforcement action should have alerted the violator to a particular type of compliance problem. For purposes of this guidance, a "prior violation" includes any act or omission, within the past three years, for which an EPA or DDOE enforcement response has occurred. Examples include: NOV, NOI, complaint, consent decree, consent agreement, or final order. DDOE enforcement staff may also include any act or omission for which the violator was given any written notification, even informal notices that DDOE believes a violation exists. *See, e.g.,* 16 DCMR § 3201.2.

DDOE enforcement staff has discretion, subject to the above factors, to adjust the number of violation days counted in the calculation upward to a maximum of the actual number of days that the requirement was violated, potentially canceling out any downward adjustments.

Example: In the Air Quality scenario above, if the inspector determines that this violation continued for 20 days, but reduced the number of days by 5 (down to 15) for the Violator's good-faith efforts to comply after the violation—but increased the number of days by 5 (back to the maximum of 20) because of the Violator's previous infractions, the Administrative Civil Fine amount would be $40,000. This represents the $2,000 Administrative Civil Fine amount x 20 adjusted number of days.

d. Inability to Pay

To achieve a downward adjustment based on an inability to pay, the violator must demonstrate, in such a way DDOE determines to be sufficient and acceptable, the existence and extent of the inability to pay the fine. DDOE will consider the compliance history of the violator prior to applying this adjustment factor. If DDOE determines that this adjustment factor can be applied, the following will be considered: delayed payment schedule, installment payment plan with or without interest, or a reduced fine. A reduced fine will always be the last recourse, and will in this case be achieved by lowering the number of violation days.

Demonstration of inability to pay must be made in writing by the violator. It may not be demonstrated solely by income tax returns showing a loss, as there may be other factors contributing to that loss. DDOE may use EPA's ABEL program, which evaluates a business's

cash flow and financial impact of a penalty to determine the impact a civil penalty may have on an individual or business, or DDOE may use another calculation of its choosing.

e. DDOE Enforcement Costs (Upward Adjustment Only)

DDOE uses staff time and frequently expends funds on collection of data and information and sampling of media when pursuing an enforcement action. The number of days of violation will be adjusted upward to include all special costs incurred in pursuing an enforcement action. These costs may include:

- Sampling and analysis costs;
- Research time for collecting specialized information; or
- Other costs above and beyond average staff time for a similar violation.

The number of violation days used in the calculation of the fine can never exceed the actual number of days the party was in violation of a requirement. Thus, an upward adjustment can only be used to cancel out possible downward adjustments.

f. Economic Benefit of Noncompliance (Upward Adjustment Only)

A fine should be sufficient to cancel out any economic benefits that the violator gained from noncompliance. These economic benefits may include benefits from delayed costs or avoided costs (*see* Statutory Civil Penalty section for details). If a violation has resulted in an economic benefit to the violator, the number of days counted in the fine calculation should be sufficient to nullify this benefit. However, the number of violation days used in the calculation of the fine can never exceed the actual number of days the party was in violation of a requirement.

g. Other Unique Factors

DDOE enforcement staff has discretion and flexibility to consider any unanticipated circumstances or information that arises after the calculation and assessment of the administrative civil fine. This may include additional evidence that leads to a significant reevaluation of the facts of a violation and a recalculation of an administrative fine.

D. Conclusion

The Penalty Guidelines in this section apply to all existing matters in which DDOE has not reached agreement in principle with the respondent on the specific terms of a resolution. The Penalty Guidelines also apply to all non-administrative enforcement cases commenced after the effective date of these Enforcement Guidelines.

The Penalty Guidelines are a public document, but any documentation that contains or supports a penalty calculation in a particular case will be held privileged until that case is finally adjudicated, settled, or abandoned.

VI. SETTLING ENFORCEMENT ACTIONS

A. Settlement Guidance

Section VI guides the settlement of cases involving fines and penalties and helps ensure that settlement amounts are appropriate and that violators are treated fairly, transparently, and predictably in the Department's settlement decisions. For those proceedings before a court or administrative body, the judge will typically review a settlement before entering it as a final order to determine whether the settlement is fair, equitable, and in the public interest.

B. Settlement Considerations

Decisions to settle cases should be made through a collaboration of the inspector of record, his or her managers, OEEJ, OGC, and in some instances, OAG. The Department Director should also be consulted for high profile or controversial matters. As a general rule, there should be no fine reductions or settlements without simultaneously obtaining compliance, unless compliance is impossible, i.e., property has already been converted or sold. Factors to be considered in the evaluation of a settlement are outlined below.

1. Avoidance/Minimization of Litigation

This factor considers the efficiency and financial benefits of settlements. Although crafting and executing an appropriate settlement involves some work on the part of the parties, successful and timely settlement generally minimizes the time the parties spend addressing the matter, and the time, resources, and costs of litigation.

2. Compliance History

This factor considers a responsible party's previous history of compliance with environmental laws and regulations. Responsible parties with good compliance history are better candidates for settlement than responsible parties with a history of poor compliance or repeat violations.

3. Compliance Efforts

This factor considers a responsible party's efforts to correct the violation or efforts to reduce the likelihood that the violation will occur again. Corrective efforts may include not only stopping the violation, but also taking measures such as installing technology (such as electronic monitoring systems) to prevent subsequent violations, improving management, and increasing staff training. The compliance and prevention efforts must be both appropriate and timely to impact a settlement decision.

4. Mitigating Circumstances

This factor considers circumstances generally beyond a responsible party's control that may have affected the ability to achieve compliance. Examples of mitigating circumstances

may include, among other things, illness, insolvency, emergency during the infraction time, governmental intervention, or acts of God. All claims of mitigating circumstances must be substantiated. A reduction in fines or penalties will not be considered for lack of knowledge of the regulations; DDOE will not accept ignorance of the law as a mitigating circumstance. A claim of lack of knowledge because someone within the respondent's organization did not provide information to responsible individuals also will not be accepted as a mitigating circumstance because responsible parties must maintain proper oversight of their operations that have the potential to negatively impact human or environmental health.

5. Admission of Liability

A preferred settlement obtains the party's admission of liability. This admission helps obtain higher penalties in the future should enforcement again be necessary.

6. Actual Harm

In each case the settlement considerations will be weighed against evidence of actual harm to humans, animals, or the environment as the result of violations. When there is evidence of actual harm some or all of the settlement considerations may not be applied.

7. Examples of Acceptable Settlements

- 25% fine reduction for prior violator who has accepted liability and has come into compliance
- 50% fine reduction for first-time violator who has accepted liability and has come into compliance
- 75% fine reduction for first-time violator who has accepted liability for a no-harm paperwork violation and has come into compliance

C. Supplemental Environmental Projects

DDOE may use Supplemental Environmental Projects (SEPs) to satisfy a portion of fines or penalties assessed against an alleged violator. A SEP is part of the settlement of an enforcement action where the violator voluntarily agrees to undertake an environmentally beneficial project in exchange for a reduction in fines or penalties.

The SEP program is based on a long-standing program developed by EPA in its enforcement programs. The use of SEPs may be appropriate in the settlement of an enforcement action for three reasons. First, SEPs are intended to achieve improvements in environmental conditions that could not otherwise be accomplished through the imposition of traditional fines and penalties. Second, the use of SEPs adds value to enforcement settlements because SEP resources inure directly to specific environmental projects. Lastly, SEPs require violators to go beyond actual technical compliance with recognized legal standards and thereby create a greater

level of environmental stewardship. SEPs afford the violator an opportunity to provide a benefit that is focused on improving the environment of the affected community as a whole.

In enforcement settlements in which the respondent commits to conduct an SEP, the final settlement amount (cash penalty + SEP value) must exceed the value that the traditional penalty settlement would have been without the SEP. In many instances the method for determining the actual cost of implementing a SEP and the formula for determining the amount that the SEP mitigates the penalty amount may be established by DDOE's SEP policy, below. This policy requires that a violator must pay at least 20% in fines and can mitigate up to 80% of the penalty. In general, federal and non-profit organizations can mitigate penalties 1:1, but private entities must mitigate penalties at the higher rate of 2:1, unless circumstances are present that would justify a different ratio.[13]

To be approved as a SEP, DDOE requires that the project meet the criteria set out below:

1. The Project Must Primarily Benefit Public Health or the Environment

A SEP must improve, protect, or reduce risks to public health or the environment. While in some cases a SEP may provide the alleged violator with certain benefits, there must be no doubt that the project primarily benefits public health or the environment. To qualify as a benefit to public health or the environment, a SEP must fit into at least one of the following categories:

- **Public Health -** includes projects that address the health concerns of residents in a community and may include examining residents in a community or their health data to determine a pattern of health problem due to the violations.
- **Pollution Prevention -** involves changes in activities or operations so that a company no longer generates some form of pollution. For example, a company may make its operation more efficient so that it reduces or eliminates its hazardous waste stream.
- **Pollution Reduction -** reduces the amount or danger presented by some form of pollution, often by providing better treatment and disposal of the pollutant.
- **Environmental Restoration and Protection -** improves the condition of the land, air, or water in the area damaged by the violation.
- **Emergency Planning and Preparedness -** includes projects that provide assistance to a District emergency response or planning entity to enable these types of organizations to fulfill their obligations under the federal Emergency Planning and Community Right-to-Know Act. Such assistance may include the purchase of computers or software, communication systems, chemical emission detection and inactivation equipment, HAZMAT equipment, or training. Cash donations to District emergency response organizations are not acceptable SEPs.
- **Assessments and Audits -** allows a violator to agree to examine its operations to determine if it is causing any other pollution problems or can run its operations better to avoid violations in the future. These audits must go well beyond standard business practice.

[13] For example, the ratio may be reduced for the implementation of an energy conservation SEP that might result in an additional economic benefit to the respondent such as reduced energy bills.

- **Environmental Compliance Promotion -** allows a violator to provide training or technical support to other members of the regulated community to achieve, or go beyond, compliance with applicable environmental requirements. For example, the violator may train other companies on how to comply with the law.
- **Other Types of Projects -** includes proposed SEPs that have environmental merit but do not fit within the categories listed above. These types of projects must be fully consistent with all other provisions of the SEP Policy and be approved by the respective DDOE program.

2. The Project Must Meet All Other Legal Requirements

Since SEPs are part of an enforcement action, they must meet certain legal requirements, such as:

- There should be no direct relationship between the SEP and the underlying violation. Environmental improvements directly tied to the underlying violation are traditionally viewed as a correction action per se. Merely correcting a violation does not constitute a SEP. The SEP must represent improvements that go beyond compliance.
- A SEP must be voluntary, i.e., the project must not be one which the violator is legally obligated to perform under another law, regulation, administrative order, or settlement document. SEPs may include activities which the violator will become legally obligated to undertake two or more years in the future, as long as the regulation or statute does not provide a benefit to the violator for early compliance.
- A SEP cannot have been committed to or started before DDOE identifies the violation(s) (e.g., issued a NOV, NOI, order, or complaint). This is because the primary purpose of this policy is to obtain environmental or public health benefits that may not have occurred "but for" the SEP.
- All SEPs must be defined in sufficient detail to meet the requirement of enforceability. There must be objective quantifiable deliverables, deadlines, and consequences. If a SEP is not completed satisfactorily pursuant to the terms of the settlement, a stipulated penalty may be imposed for this failure. The determination of whether the SEP has been satisfactorily completed and whether the violator made a good faith, timely effort to implement the SEP is reserved to DDOE's sole discretion.
- A SEP's performance or its funding cannot be managed or controlled by a District agency. However, DDOE may perform oversight to ensure that a project is implemented pursuant to the provisions of the settlement. DDOE may have legal recourse if the SEP is not adequately performed.

Since SEPS may be part of the settlement process, the proposed SEP will normally be presented to OGC as part of settlement negotiations. Prior to its acceptance, however, the SEP must be presented to the appropriate program personnel for technical analysis. The technical analysis and program approval of the SEP must be in writing. Final proposals of SEPs must be approved by the Division's Associate Director, the Administration's Deputy Director, OEEJ, and OGC.

VII. CASE CLOSURE AND RECORD RETENTION

A. Case Closure

When no further action is required and satisfactory compliance has been achieved, a case is ready to be closed. In closing a case, program management determines, along with compliance and legal staff, if necessary, whether all terms of site directives, consent orders, compliance agreements, and other requirements have been met. This includes, among other things, confirming that permits have been obtained, closure plans have been implemented, civil charges have been paid, and that any other requirement imposed as part of the enforcement action have been completed. Each program shall track compliance. For NOIs, for example, inspectors will note compliance status in the NOI database and will be responsible for regular and timely follow-up with respondents until compliance is achieved.

The NOI database will be the primary location for noting whether a case is open or closed. For any enforcement matter in compliance and paid in full by respondent, OEEJ's Notice of Final Payment will serve as notice to the respondent that DDOE has concluded its enforcement action.

B. Record Retention

All documents relevant to an enforcement action such as inspection reports and notes, photographs and other evidence, correspondence, and official documents (including directives and NOVs) should be maintained in the case file as long as required by DDOE record retention policies or until the conclusion of the final appeal of the enforcement action—whichever is longer.

GLOSSARY

CID	Criminal Investigation Division
DCMR	District of Columbia Municipal Regulations
DCRA	Department of Consumer and Regulatory Affairs
DDOE	District Department of the Environment
EPA	U.S. Environmental Protection Agency
OAG	D.C. Office of the Attorney General
OAH	D.C. Office of Administrative Hearings
OGC	DDOE's Office of the General Counsel
MPD	Metropolitan Police Department
NOI	Notice of Infraction
NOV	Notice of Violation
OEEJ	DDOE's Office of Enforcement and Environmental Justice
SEP	Supplemental Environmental Project
SOP	Standard Operating Procedure

Attachment 3: Inventory of MS4 Outfalls

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
0.1	Potomac River	Potomac River	W - 15th Street	Freeway	397021.72	135199.00
2	Potomac River	Potomac River	I-295	SOUTH CAPITOL	398044.68	126471.40
3	Potomac River	Potomac River	I-295	SOUTH CAPITOL	398019.49	126876.24
5	Potomac River	Potomac River	I-295	Potomac River	397994.08	126887.66
40	Potomac River	Potomac River	Ohio	Railway	396817.40	134365.48
41	Potomac River	Potomac River	Ohio	US -1N	396754.14	134423.77
62	Potomac River	Potomac River	T Roosevelt Bridge	Potomac Parkway	395110.92	136243.63
63	Potomac River	Potomac River	Potomac Parkway	F Street	395084.35	136623.46
64	Potomac River	Potomac River	Potomac Parkway		395087.03	136719.69
81	Potomac River	Potomac River	34th	Water Street	394119.90	137290.29
85	Potomac River	Potomac River	Canal Road	M Street	393137.73	137496.95
86	Potomac River	Potomac River	Arizona	Clara Barton Parkway/ Canal Road	390667.27	139613.07
88	Potomac River	Potomac River	Joliet	1st Street; SE	399566.41	128218.16
89	Potomac River	Oxon Run- West Bank	South Captiol St., SE	1st St., SE	399591.03	128364.82
90	Potomac River	Oxon Run- East Bank	South Capitol St., SE	Livingston Rd., SE	399611.47	128366.19
91	Potomac River	Oxon Run- East Bank	South Capitol St	1st St.	399621.31	128564.75
92	Potomac River	Oxon Run- East Bank	South Capitol St	1st St.	399621.19	128560.85
94	Potomac River	Oxon Run- West Bank	Elmira St.	1st St.	399598.84	128704.19
95	Potomac River	Oxon Run- East Bank	First	Elmira	399603.24	128729.86
97	Potomac River	Oxon Run	1st	Livingston	399567.99	128801.96
98	Potomac River	Oxon Run - West bank	1st St.	Danbury	399528.33	128891.05
99	Potomac River	Oxon Run- West Bank	1st St	Chesapeake St.	399536.48	129024.51
100	Potomac River	Oxon Run- West Bank	Atlantic Ave.	1st St.	399571.96	129112.65
101	Potomac River	Oxon Run- West Bank	Yuma	Valley St.	399752.66	129450.71
102	Potomac River	Oxon Run- West Bank	Atlantic Ave.		399651.59	129239.11
103	Potomac River	Oxon Run- East Bank	Atlantic Ave		399668.79	129230.79
105	Potomac River	Oxon Run	End of Yuma	North of Atlantic	399720.50	129356.63

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
106	Potomac River	Oxon Run- East Bank	Atlantic Ave., SE	Valley Ave., SE	399715.90	129310.29
107	Potomac River	Oxon Run- West Bank	Wayne Place, SE	2nd St., SE	399791.15	129509.13
109	Potomac River	Oxon Run- West Bank	4th St., SE	Wayne Place, SE	399924.44	129584.19
110	Potomac River	Oxon Run- East Bank	4th	Wayne Place	399940.93	129565.86
111	Potomac River	Oxon Run- East Bank	Parallel to Valley		400185.64	129721.67
112	Potomac River	Oxon Run	Valley	6th St.	400215.12	129791.81
113	Potomac River	Oxon Run	Mississippi Ave SE	6th St SE	400235.78	129822.42
114	Potomac River	Oxon Run - West Bank	Wheeler Rd.	7th St.	400345.21	129916.53
115	Potomac River	Oxon Run- East Bank	Valley Ave., SE	9th St., SE	400288.78	129850.45
116.1	Potomac River	Oxon Run	Valley Ave., SE	Wheeler Rd., SE	400576.91	129959.26
116.2	Potomac River	Oxon Run	Mississippi Ave., SE	Wheeler Ave., SE	400505.36	129976.59
117	Potomac River	Oxon Run - East bank	Wheeler Road		400539.71	129958.61
118	Potomac River	Oxon Run - East bank	Mississippi St.	Wheeler	400938.86	130066.75
119	Potomac River	Oxon Run - East Bank	Mississippi St.		400737.77	130024.51
120	Potomac River	Oxon Run - West bank	Mississippi St.		400756.46	130047.37
122	Potomac River	Oxon Run - West bank	Mississippi St.	13th	400986.06	130093.42
123	Potomac River	Oxon Run - West Bank	Mississippi	+/- Mildred Green ES	401423.91	130310.14
124	Potomac River	Oxon Run - West bank	Mississippi	Mildred Green ES	401397.14	130314.32
125	Potomac River	Oxon Run	Mississippi Ave., SE	Stanton Rd., SE	401846.97	130504.13
126	Potomac River	Oxon Run	Mississippi Ave.	Stanton Road	401909.10	130448.20
127	Potomac River	Oxon Run	Mississippi Ave.	19th street	402052.88	130538.20
128	Potomac River	Oxon Run	Mississippi Ave.	19th St.	402202.98	130562.06
129	Potomac River	Oxon Run			402263.50	130606.49
130	Potomac River	Potomac River	Mississippi Ave	SOUTH CAPITOL	402330.35	130618.71
131	Potomac River	Oxon Run	Southern Ave.		402327.23	130623.10
139	Anacostia River	Anacostia River	FD Bridge	Bus Station	399594.03	133186.63
140	Anacostia River	Anacostia River	FD Bridge	Bust Station	399597.01	133191.79

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
146	Anacostia River	Anacostia River	Access Road	11th street Bridge	400026.42	133522.65
147	Anacostia River	Anacostia River	Anacostia Drive SE	6 St. Bridge SE	400257.27	133444.76
151	Anacostia River	Anacostia River	Good Hope	Fairlarn	400787.10	133532.44
156	Anacostia River	Anacostia River	Access Road	Anacostia Bridge	401275.42	133892.99
157	Anacostia River	Anacostia River	Anacostia Drive, NE	Pennsylvania Ave.	401609.11	134085.08
161	Anacostia River	Anacostia River	Nicholsen	Anacostia Drive	401975.28	134237.79
163	Anacostia River	Anacostia River	Nicholsen	Anacostia Drive	402365.71	134403.98
164	Anacostia River	Anacostia River	Access Road	Boat launch ramp 300'	402224.97	134334.82
165	Anacostia River	Anacostia River	Access Road	Boat launch ramp 200'	402414.58	134445.93
166	Anacostia River	Anacostia River	Park Access Road	Boat launch ramp +/- 110' south	402514.55	134612.94
169	Anacostia River	Anacostia River	C Street	295	403144.60	135385.21
171	Anacostia River	Anacostia River	Anacostia Ave NE	East Capitol Street SE	403245.52	135709.37
172	Anacostia River	Anacostia River	E. Capitol Bridge	295	403248.81	135726.89
173	Anacostia River	Anacostia River	Anacostia Road	East Capitol	403268.23	135797.27
175	Anacostia River	Anacostia River	Anacostia Road		403360.71	136207.88
176	Anacostia River	Anacostia River	Anacostia Avenue	Benning Road	403374.22	136472.25
177	Anacostia River	Anacostia River	Hayes St., SE	Anacostia Ave., SE	404179.09	137397.88
183	Anacostia River	NORTHWEST ANACOSTIA	2ND ST SW	V ST SW	398815.03	132856.19
184	Anacostia River	Anacostia River	Half Street	W Street	399152.56	133130.00
185	Anacostia River	Anacostia River	Half Street	T Street	399206.54	133230.70
187	Anacostia River	Anacostia River	Potomac Avenue	First Street	399493.77	133739.59
199	Anacostia River	Anacostia River	12th St., SE	Water St., SE	401433.00	134277.25
205	Anacostia River	Anacostia River	Barnie Circle Eastbound, SE	G St., SE	402407.67	134839.94
207	Anacostia River	Kingman lake / Anacostia W Bank	RFK Statdium	E. Capitol St. Bridge	402742.18	135965.44
208	Anacostia River	Kingman lake / Anacostia West Bank	Benning Road, NE	Oklahoma Ave., NE	402710.93	136139.86
209	Anacostia River	Anacostia River	Langston Golf Course	Driving range	403000.85	136711.14
212	Anacostia River	Anacostia River	Langston Golf Course		402744.16	137417.53

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
213	Anacostia River	Anacostia River	36th Place	Service Road of Arboretum	403841.46	138716.63
216	Anacostia River	Anacostia/To Ramp Pond	New York Ave	South Dakota	404070.30	138937.31
217	Anacostia River	Anacostia River	Fort Lincoln Dr.	34th St.	404529.04	139437.71
218	Anacostia River	Hickey Run	New York Ave	National Arboretum N.Y. Ave Entrance	402679.19	138798.80
220	Anacostia River	Hickey Run	Hickey Lane Crossing	In National Arboretum	402867.95	138524.93
221	Anacostia River	Hickey Run	Hickey Lane Crossing	In National Arboretum	402875.11	138541.00
222	Anacostia River	Hickey Run tributary	New York Ave	Spring House Rd in National Arboretum	403299.81	138748.79
227	Anacostia River	Watts Branch-South Bank	End of Dean Ave.		404049.68	137620.71
229	Anacostia River	Watts Branch-North Bank	Mayfair	Anacostia	404407.31	137666.89
230	Anacostia River	Watts Branch-South Bank	Mayfair	Anacostia	404410.52	137625.47
231	Anacostia River	Watts Branch-North Bank	Mayfair	Anacostia	404558.69	137435.67
235	Anacostia River	Watts Branch			404734.54	137217.73
236	Anacostia River	Watts- South Bank	Kennilworth Terr.	Mayfair	404739.33	137177.70
237	Anacostia River	Watts Branch-South Bank	Kennilworth Ave	Jay	404784.11	137094.82
238	Anacostia River	Watts Branch-North Bank	Kennilworth Ave., NE	Jay Street., NE	404827.57	137079.87
239	Anacostia River	Watts Branch - South Bank	Minnesota Ave., SE	RR Bridge	404889.24	137048.01
240	Anacostia River	Watts Branch - South Bank	Nannie Helen Burroughs Ave	Pedestrian Bridge	404978.77	137039.18
241	Anacostia River	Watts Branch-North Branch	Nannie Helen Burroughs Ave		404997.57	137044.75
243	Anacostia River	Watts Branch	Hunt Place Overpass		405039.18	136972.54
244	Anacostia River	Watts Branch-South Bank	Paralled to Hunt Place		405091.50	136914.79
245	Anacostia River	Watts Branch-North Bank	Parallel to Helen Place		405130.29	136880.45
246	Anacostia River	Watts Branch-South Bank			405131.81	136857.52
247	Anacostia River	Watts Branch - South Bank	Under Gault St Bridge		405193.05	136799.90
248	Anacostia River	Watts Branch-South Bank	44th Street Bridge, NW	Grant St., NW	405271.01	136752.70
249	Anacostia River	Watts Branch-South Bank	44th	Grant	405323.90	136737.52
250	Anacostia River	Watts Branch-North Bank	46th	Gualt	405499.40	136764.12
252	Anacostia River	Watts Branch-South Bank	Below 48th Street Bridge		405721.71	136654.05

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
254	Anacostia River	Watts Branch-South Bank	49th		405877.76	136692.11
260	Anacostia River	Watts Branch-North Bank	54th		406538.28	136436.49
261	Anacostia River	Watts Branch-South Bank	Division St.		406371.66	136532.29
262	Anacostia River	Watts Branch-North Bank	Divison Ave Bridge	East Side	406405.83	136523.61
263	Anacostia River	Watts Branch-North Bank			406592.53	136427.07
264	Anacostia River	Watts Branch-South Bank	55th	EADS	406741.70	136346.73
265	Anacostia River	Watts Branch-South Bank	Below 55th Brdg	Dix	406778.49	136337.20
267	Anacostia River	Watts Branch - South Bank	56th		406878.52	136303.45
268	Anacostia River	Watts Brach- North Bank	57th	Clay Place	406991.32	136267.77
269	Anacostia River	Watts Branch - South Bank	57th	Clay Place as described	407003.28	136259.38
270	Anacostia River	Watts Branch-North Bank	East of Pedestrian Brdg		407082.39	136221.07
271	Anacostia River	Watts Branch-South Bank	58th		407111.18	136146.69
272	Anacostia River	Watts Branch-North Bank	58th St., NW	Clay St., NW	407156.88	136123.08
273	Anacostia River	Watts Branch-South Bank	Under 58th St. Brdg	Clay	407135.13	136133.03
274	Anacostia River	Watts Branch	60th St., NE	Clay St., NE	407360.00	135987.69
275	Anacostia River	Watts Branch-North Bank	Under 61st St Brdg/Culvert		407479.21	135968.73
276	Anacostia River	Watts Branch-South Bank	Under 61st St Brdg/Culvert		407484.35	135962.63
277	Anacostia River	Watts Branch	Bank	61st	407569.16	135985.28
278	Anacostia River	Watts Branch	63rd		407631.19	135945.10
279	Anacostia River	Watts Branch-South Bank	Southern Ave., SE	Bank Place, SE	407650.62	135906.85
280	Anacostia River	Watts Branch	E. Capital St.	Southern Ave.	407471.02	135794.45
283	Potomac River	Potomac River	17th Street	Independence	396640.41	135551.75
286	Potomac River	Potomac River	W - 15th Street	Freeway	397034.65	135187.37
287	Potomac River	Potomac River	W - 15th Street	Freeway	397050.51	135169.40
288	Potomac River	Potomac River	15th Street	SW Freeway	397093.37	135107.59
289	Potomac River	Potomac River	Raoul Wallenberg Pl.	Maine Ave. SW	397109.91	135067.90
290	Potomac River	Potomac River	15th Street	Ohio	397024.99	134925.17

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
293	Potomac River	Potomac River	Water Street	Under Ramp F	397466.63	134917.07
294	Potomac River	Potomac River	Water Street		397573.65	134840.57
295	Potomac River	Potomac River	9th Street	Water Street	397702.93	134698.80
296	Potomac River	Potomac River	9th Street	Water Street	397760.99	134641.83
297	Potomac River	Potomac River	7th Street	Water Street	397923.50	134476.92
298	Potomac River	Potomac River	7th Street	Water Street	397947.83	134452.87
299	Potomac River	Potomac River	East of 7th Street	Water Street	398006.75	134394.58
304	Potomac River	Potomac River	Water Street	6th Street	398200.99	134068.11
305	Potomac River	Potomac River	4th Street	O Street	398257.12	133930.85
306	Potomac River	Potomac River	4th Street	O Street	398281.86	133871.82
307	Potomac River	Potomac River	4th Street	P Street	398316.71	133797.17
330	Potomac River	Potomac River	Ohio	Washington Channel Drive	397278.54	134736.73
330.1	Potomac River	Potomac River	SW - Express Freeway Main Ave.		397299.48	134975.62
362	Rock Creek	Rock Creek	Virginia Ave	Rock Creek Parkway	394994.14	136980.01
368	Rock Creek	Rock Creek	Potomac	Whitehurst Rd. Bridge	394987.23	137147.11
370	Rock Creek	Rock Creek	Rock Creek Parkway	K ST.	394986.44	137160.42
371	Rock Creek	Rock Creek	Rock Creek Parkway	K-street Bridge	395008.46	137198.69
376	Rock Creek	Rock Creek	Rock Creek Parkway	C & O Canal	395108.22	137339.74
398	Rock Creek	Rock Creek	Rock Creek Parkway	P Street	395662.78	137943.50
419	Rock Creek	Rock Creek	Massachusetts Ave	California Ave	395078.52	138484.18
423	Rock Creek	Rock Creek	Massachusetts Ave	Belmont	394988.98	138556.48
427	Rock Creek	Rock Creek	Massachusetts Ave	Belmont	394902.17	138722.47
437	Rock Creek	Rock Creek	Rock Creek Pkwy	Massachusetts Ave (under bridge)	395046.05	138963.28
440	Rock Creek	Rock Creek	Waterside	Rock Creek & Potomac Parkway	395183.36	139021.68
455	Rock Creek	Rock Creek	Rock Creek Parkway	U.S. PP Horse Center	395664.15	139314.96
513	Rock Creek	Rock Creek	Porter St., NW	Klingle Road, NW	395578.14	140592.92
514	Rock Creek	Rock Creek			395584.22	140595.30

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
540	Rock Creek	Rock Creek	Beach Drive	Tilden	395517.34	141302.24
542	Rock Creek	Rock Creek	Beach Drive	Tilden Drive	395527.23	141327.14
579	Rock Creek	Rock Creek	Morrow Drive, NW	Madison St. NW	396565.82	143461.22
580	Rock Creek	Rock Creek	Morrow Drive, NW	Montague St. NW	396643.62	143507.74
586	Rock Creek	Rock Creek	Joyce Road, NW	Beach Dr., NW	396264.50	143671.86
591	Rock Creek	Rock Creek	Under Military Rd Bridge		396211.05	143740.87
611	Rock Creek	Rock Creek	Oregon Ave, NW	Nebraska Ave, NW	395385.90	144716.83
612	Rock Creek	Rock Creek	16th	Whittier	396796.56	144843.25
614	Rock Creek	Rock Creek	16th St., NW	Alaska Ave., NW	396810.92	145113.45
627	Rock Creek	Rock Creek	Daniel Lane	Oregon	395479.90	145967.32
631	Rock Creek	Rock Creek			396655.67	145852.52
632	Rock Creek	Rock Creek	Holly	17th	396740.35	145869.56
633	Rock Creek	Rock Creek	17th	Jonquil	396547.97	146040.73
634	Rock Creek	Rock Creek	End Juniper cul-de-sac		396514.95	146180.42
635	Rock Creek	Rock Creek	End of Juniper; cul-de-sac		396515.45	146171.98
636	Rock Creek	Rock Creek	West Beach Dr., NW		396388.20	146222.52
648	Rock Creek	Rock Creek	29th Street	C&O Canal	395071.70	137329.78
664	Potomac River	Potomac River	Canal Road, NW	Whitehust Pkw, NW	393772.59	137470.30
665	Potomac River	Potomac River	37TH	Canal Road	393731.26	137481.91
720	Potomac River	Potomac River	Reservor Road	V St.	391423.57	138796.62
731	Rock Creek	Rock Creek	32nd	S Street	394426.56	138670.23
737	Rock Creek	Rock Creek	End of Whitehaven St		394222.92	138871.60
742	Rock Creek	Rock Creek	Rock Creek Drive	Normanstone	395129.16	139093.83
743	Rock Creek	Rock Creek	Normanstone	Edgevale	395124.66	139099.86
744	Rock Creek	Rock Creek	Normanstone Dr.	Rock Creek Dr.	395100.35	139124.05
745	Rock Creek	Rock Creek	Normanstone Dr. NW (2800's)	Rock Creek Dr. NW(2600's)	395081.50	139150.81
748	Rock Creek	Rock Creek	Normanstone Lane	Normanstone Drive	394924.70	139254.03

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
750	Rock Creek	Rock Creek	30th Street	Normanstone	394765.83	139354.24
760	Rock Creek	Rock Creek	33rd Place	Garfield	394314.70	139885.40
769	Rock Creek	Rock Creek	Military Road	Klingle	395291.40	140557.30
773	Rock Creek	Rock Creek	Connecticut Ave	McComb	395169.36	140518.00
774	Rock Creek	Rock Creek	Devonshire Place	Connecticut Ave	395121.01	140505.54
776	Rock Creek	Rock Creek	Connecticut Ave	McComb	395118.27	140502.02
777	Rock Creek	Rock Creek	Connecticut Ave	McComb	395068.76	140502.89
784	Rock Creek	Rock Creek	Cortland	Klingle	394857.27	140301.79
786	Rock Creek	Rock Creek	Beach	Piney Branch	395941.18	140840.85
789	Rock Creek	Rock Creek	Piney Branch	Park Road Bridge	396060.65	140907.60
790	Rock Creek	Rock Creek	Piney Branch	17th Street	396274.00	140911.18
791	Rock Creek	Rock Creek	Piney Branch	Park Road Bridge	396180.56	140907.30
797	Rock Creek	Rock Creek	Piney Branch	17th Street	396415.19	140927.86
800	Rock Creek	Rock Creek	Piney Branch	17th Street	396473.02	140964.40
801	Rock Creek	Rock Creek	Piney Branch	17th Street	396496.61	141010.62
803	Rock Creek	Rock Creek	Piney Branch	17th Street	396546.10	141010.39
804	Rock Creek	Rock Creek	Piney Branch Pkwy. NW	17th St. NW	396611.21	141027.76
820	Rock Creek	Rock Creek	Rodman	Quebec	394424.55	141338.69
822	Rock Creek	Rock Creek	Rodman	Quebec	394285.00	141339.77
823	Rock Creek	Rock Creek	Rodman	Quebec	394524.35	141280.97
825	Rock Creek	Rock Creek	Tilden St., NW	Reno St., NW	394194.39	141357.76
829	Rock Creek	Rock Creek	Blagden Ave., NW	Mathewson Drive, NW	395930.05	141623.41
832	Rock Creek	Rock Creek	Albemerle	Broad Branch	395301.82	142048.54
834	Rock Creek	Rock Creek	Albemerle	Broad Branch	395123.80	142078.55
838	Rock Creek	Rock Creek	Audobon Terrace	29th St	394903.51	142011.11
849	Rock Creek	Rock Creek	Connecticut Ave NW	Albermarle	394455.76	142074.13
851	Rock Creek	Rock Creek	Albemarle	32nd St.	394447.47	142181.40

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
856	Rock Creek	Rock Creek	Broad Branch	Albemarled	395532.68	142369.86
860	Rock Creek	Rock Creek	Broad Branch	Brandywine	395428.69	142480.57
862	Rock Creek	Rock Creek			395298.63	142676.47
864	Rock Creek	Rock Creek	Broad Branch	Chesterfield Pl.	395187.33	142832.27
866	Rock Creek	Rock Creek			395032.41	142749.71
867	Rock Creek	Rock Creek			395040.44	142759.59
868	Rock Creek	Rock Creek			395022.68	142960.95
872	Rock Creek	Rock Creek	27th ST NW	Broadway	394945.02	143126.35
876	Rock Creek	Rock Creek	30th St., NW	Military Rd., NW	394815.42	143660.17
877	Rock Creek	Rock Creek	Newlands Road, NW	Kanawha St., NW	394950.12	143890.16
878	Rock Creek	Rock Creek	Broad Branch Road, NW	27th St., NW	394805.80	143325.15
879	Rock Creek	Rock Creek	Fessenden St.	Broad Branch Terrace	394358.95	143010.97
883	Rock Creek	Rock Creek	Joyce Road	Military	396393.90	143773.06
887	Rock Creek	Rock Creek	Joyce Rd	Military Rd Bridge	396572.69	143874.84
890	Rock Creek	Rock Creek	Joyce Rd	Military Rd Bridge	396612.81	143947.09
896	Rock Creek	Rock Creek	Fort Stevens St., NW	16th Street, NW	396811.50	144102.20
901	Rock Creek	Rock Creek	Oregon Ave	Beach	395449.04	145392.10
902	Rock Creek	Rock Creek	Beech Road, NW	Oregon Ave., NW	395429.41	145407.81
903	Rock Creek	Rock Creek	Beech		395342.11	145472.26
904	Rock Creek	Rock Creek	31st	Aberfoyle	395291.35	145463.63
905	Rock Creek	Rock Creek	Beech		395251.78	145558.18
907	Rock Creek	Rock Creek	Beech Street	32nd Street	395095.95	145578.44
908	Rock Creek	Rock Creek			395064.55	145607.96
911	Rock Creek	Rock Creek	Barnaby NW	Aberfoyle	394858.51	145564.53
912	Rock Creek	Rock Creek	Western Ave	Aberfoyle	394694.47	145589.74
913	Rock Creek	Rock Creek	Western Ave	Beech	394602.11	145611.20
914	Rock Creek	Rock Creek	Western Ave	Beech	394547.78	145612.00

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
915	Rock Creek	Rock Creek	W. Beach	Parkside Dr.	396341.38	146295.14
916	Rock Creek	Rock Creek	West Beach Road, NW	Parkside Drive, NW	396350.94	146395.48
917	Rock Creek	Rock Creek	Kalimia	West Beach	396321.76	146472.54
918	Rock Creek	Rock Creek	Kalmia	West Beach	396320.91	146514.08
920	Rock Creek	Rock Creek	West Beech Drive	Sudsbury Lane	396251.97	146658.39
922	Rock Creek	Rock Creek	North Portal Drive		396288.71	146656.76
923	Rock Creek	Rock Creek	Yorktown	West Beach	396254.65	146731.82
923.1	Rock Creek	Rock Creek	West Beach		396155.06	147270.13
924	Rock Creek	Rock Creek	Red-wood Terrace	East Beach	396254.88	146754.99
927	Rock Creek	Rock Creek	Sycamore	East Beach	396201.04	146897.58
928	Rock Creek	Rock Creek	West Beach	Primrose Drive	396148.30	146946.67
929	Rock Creek	Rock Creek	West Beech Terrace	Primrose	396141.43	147028.57
930	Rock Creek	Rock Creek	W. Beach		396148.84	147117.26
936	Rock Creek	Rock Creek			396314.69	146631.42
937	Rock Creek				396424.45	146701.05
938	Rock Creek	Rock Creek	Portal	Primrose	396500.35	146780.50
939	Rock Creek	Rock Creek			396551.88	146836.55
941	Rock Creek	Rock Creek			396575.11	146847.73
942	Rock Creek	Rock Creek			396638.01	146913.50
944	Rock Creek	Rock Creek			396737.70	146979.90
945	Rock Creek	Rock Creek	16th St., NW	North Portal, NW	396808.51	147045.31
946	Potomac River	Potomac River	44th Street	W Street	392650.41	139026.76
949	Potomac River	Potomac River	44th Street	Dexter	392468.79	139450.19
950	Potomac River	Potomac River	42nd Street	Edmundson Street	392900.54	139647.20
952	Potomac River	Potomac River	New Mexico Avenue, NW	Garfield Street, NW	392836.96	139932.92
953	Potomac River	Potomac River	New Mexico Ave. NW	Garfield Street, NW	392837.01	139931.85
962	Potomac River	Potomac River	Langely Circle	unnamed road	393111.66	141034.85

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
963	Potomac River	Foundry Branch	39th Street	Langley near Rodman	393117.85	141074.33
966	Potomac River	Potomac River	40th Street	Hospital	393119.05	141488.62
968	Potomac River	Potomac River	44th Street	Edmundson Street	392531.47	139773.50
972	Potomac River	Potomac River	Canal Road	Reservoir	391198.94	139156.64
978	Potomac River	Battery Kemble	49th NW	Calvert	391643.85	139477.83
981	Potomac River	Potomac River	49th St NW	Calvert	391726.03	139707.42
983	Potomac River	Potomac River	49th Street	Fulton Street	391794.98	139807.38
984	Potomac River	Potomac River	Foxhall Road, NW	Fulton Street, NW	392162.21	139834.01
986	Potomac River	Potomac River	49th St NW	Garfield	391857.51	139955.99
988	Potomac River	Potomac River	49th St.	Hawthorne	391850.85	140089.91
992	Potomac River	Potomac River	Nebraska Avenue	Foxhall Road	392023.94	140426.47
993	Potomac River	Potomac River	Nebraska Avenue	Foxhall Road	392072.52	140494.16
996	Anacostia River	Anacostia - MD	Chestnut	Elm	403468.81	140331.71
997	Anacostia River	Anacostia - MD	34th in MD	Otis in MD	403386.53	140714.91
998	Anacostia River	Anacostia - MD	22nd St., SE	Varnum., SE	402245.53	141662.66
999	Anacostia River	Anacostia - MD	Gallatin	14th St. NE	401259.88	142596.62
1000	Anacostia River	Anacostia-MD	Kennedy	Eastern Ave	400759.75	143241.06
1001	Anacostia River	Anacostia-MD	Eastern	Quakenbos	400001.44	143996.76
1002	Anacostia River	Anacostia-MD	Eastern	Rittenhouse	399904.71	144124.68
1003	Anacostia River	Anacostia-MD	Eastern	Kansas	399472.78	144497.98
1004	Anacostia River	Anacostia-MD	Eastern	2nd in MD	399346.09	144659.63
1005	Anacostia River	Anacostia-MD	Eastern (MD & DC)	Walnut	399069.49	144949.66
1006	Anacostia River	Anacostia River	Cedar Street	Eastern Ave	398541.35	145445.46
1007	Rock Creek	Rock Creek			396439.71	146745.74
1008	Rock Creek	Rock Creek	Western Ave	Between Wyndale NW	395117.29	146233.45
1009	Rock Creek	Rock Creek	Western Ave	Pinehurst PKWY NW	394820.12	145919.33
1010	Potomac River	Potomac River	Western Ave	McKinley	393024.78	144121.29

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
1011	Potomac River	Little Falls	Jenifer	44th	392469.74	143545.22
1012	Potomac River	Little Falls	Western Ave	45th St.	392304.43	143372.50
1013	Potomac River	Potomac River	NW Western Ave	Harrison Street (Maryland Side)	392143.81	143244.85
1014	Potomac River	Potomac River	Western Ave	Ellicot	391787.26	142881.33
1015	Potomac River	Potomac River	Dalecarlia Parkway	Warren Place	391033.63	141977.59
1016	Potomac River	Potomac River	50th Street, NW	50th Place, NW	391413.91	141962.91
1017	Potomac River	Potomac River	Dalecarlia Parkway	Warren Place	390982.34	141727.74
1018	Potomac River	Potomac River	Rockwood Parkway	Dalecarlia	390978.56	141222.01
1019	Potomac River	Potomac River	Clara Barton Pkw, nW	Chain Bridge Rd. NW	390294.06	140402.17
1020	Potomac River	Potomac River	Chain Bridge Road	Sherrier	391022.16	139627.96
1025	Potomac River	Potomac River	Sherrier Pl	Chain Bridge Road	391050.98	139494.28
1026	Potomac River	Potomac River	Sherrier Pl	Chain Bridge Road	391099.21	139492.98
1033	Anacostia River	Anacostia-MD	Central	Vista	403102.94	140069.09
1035	Anacostia River	Watts Branch	Douglas St., NE	Kenilworth Ave., NE	405444.14	137944.00
1036	Anacostia River	Watts Branch	Polk Street, NE	44th St., NE	405185.22	137986.76
1038	Anacostia River	Aquatics Garden - South bank	Polk St NE	Douglas Street NE	405034.74	138067.06
1039	Anacostia River	Anacostia River	Torque Street	Southern Avenue	405502.12	133753.98
1040	Potomac River	Oxon Run	Ft. Dupont	Southern Ave.	404700.90	132991.86
1041	Potomac River	Oxon Run	Southern Ave., SE	Suitland Rd., SE	404259.64	132529.67
1042	Potomac River	Potomac River	Southern Ave.	36 Pl/ Oxen Run Pl.	404010.78	132287.52
1043	Potomac River	Oxon Run	Fairhill Drive	Southern Ave.	403734.83	131988.24
1044	Potomac River	Oxon Run	Branch Ave.	Gainsville St.	403575.67	131958.71
1045	Potomac River	Oxon Run	Frankford St.	Branch Ave.	403549.29	132072.13
1046	Potomac River	Oxon Run	Southern	30th	403202.45	131446.12
1047	Potomac River	Oxon Run	Savanah Road; SE		402857.17	131231.09
1049	Anacostia River	Anacostia River	24th	Alabama	402339.40	131557.41
1050	Potomac River	Oxon Run	Southern Ave.	Galveston	400160.42	128423.76

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
1051	Potomac River	Oxon Run	Galveston	Southern Ave.	400141.68	128399.26
1052	Potomac River	Oxon Run - North Bank	Southern Ave.	6th St.	400070.48	128328.77
1054	Potomac River	Oxon Run- North Bank	Southern Ave.	South Capitol	399888.58	128158.43
1056	Anacostia River	Fort Chaplin Tributary - Scagg's Branch	D St.	Burns Ave.	404814.52	135233.25
1057	Anacostia River	Nash Run	Douglas Street NE	Polk Street NE	405036.33	138075.62
1060	Anacostia River	Watts/Pope Branch	Ridge	"""E"" St."	404639.60	134988.71
1063	Anacostia River	Anacostia River	E Street SE	32nd st alley	403222.64	134936.15
1064	Anacostia River	Anacostia River	G Street	Minnesota	403535.71	134803.07
1065	Anacostia River	Pope Branch	Minnesota	G St.; Randall Circle	403522.52	134806.68
1066	Anacostia River	Anacostia River	F Street	Minnesota	403579.34	134867.14
1067	Anacostia River	Anacostia River	G Street	Minnesota	403532.31	134709.45
1068	Anacostia River	Pope Branch	Branch	"""M"" Anacostia"	403302.36	134206.72
1069	Anacostia River	Pope Branch	34th Place	Mass. Ave	403819.37	134252.40
1070	Anacostia River	Pope Branch	33rd	"""N"" St."	403527.66	134056.13
1071	Anacostia River	Anacostia River	Ridge Road	Burns Road	405027.22	134221.28
1072	Anacostia River	Watts/Pope Branch	Burns Rd., SE	Ridge Rd., SE	405272.69	134117.89
1073	Anacostia River	Pope Branch	34th	Nash/Hawes	403731.68	133905.59
1074	Anacostia River	Pope Branch	37th	Nash	403806.79	133891.12
1075	Anacostia River	Pope Branch - South Bank	Texas Ave		404144.92	133889.37
1076	Anacostia River	Pope Branch	Texas Ave		404116.15	133862.50
1077	Anacostia River	Pope Branch	Texas Ave.	38th St.	403915.65	133206.77
1078	Anacostia River	Pope Branch	Pennsylvania	Alabama	404042.77	133153.25
1079	Anacostia River	Pope Branch - North Bank	Texas	Pennsylvania	403776.25	133258.53
1080	Anacostia River	Pope Branch	33rd St., NE	T St., NE	403623.55	133211.49
1084	Anacostia River	Pope Branch - North Bank	Branch Ave., NE	33rd. St., NE	403451.14	133172.49
1085	Anacostia River	Pope Branch	Branch	Park Dr.	403454.03	133136.72
1086	Anacostia River	Pope Branch	Branch	Park	403458.61	133130.02

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
1089	Anacostia River	Pope Branch	30th	Park Dr.	403033.64	133119.72
1090	Anacostia River				402773.57	133300.64
1091	Anacostia River	Pope Branch	Hillcrest		403127.06	132869.59
1092	Anacostia River	Pope Branch	Hillcrest		403161.47	132817.74
1093	Anacostia River	Anacostia River	Hillcrest Drive	W Street	403094.69	132894.57
1094	Anacostia River	Pope Branch	Hillcrest		403031.86	132952.34
1095	Anacostia River	Pope Branch	Hillcrest		402907.79	133001.03
1096	Anacostia River	Anacostia River	Hillcrest Drive	Park Drive	402869.58	133048.69
1098	Anacostia River	Pope Branch	28th St.	Hillcrest	402766.82	133244.80
1102	Anacostia River	Anacostia River	Ainger	Bruco	402196.29	132358.02
1103	Anacostia River	Pope Branch	Raynolds	Erie	402002.39	132178.75
1104	Anacostia River	Anacostia River	22nd Street	Hartford	402144.16	131798.16
1106	Anacostia River	Anacostia River	Douglass	Sayles	400748.41	132161.78
1108	Potomac River	Oxon Run	20th St.	Jasper St.	402224.16	131542.96
1109	Anacostia River	Anacostia River	Gainesville	16th	401620.29	131862.71
1120	Potomac River	Potomac River	MacArthur		391438.85	139277.15
1129	Rock Creek	Rock Creek	Military Road bridge	Klingle	395232.31	140552.74
1130	Rock Creek	Rock Creek	Piney Branch	17th	396640.06	141046.04
1131	Anacostia River	Anacostia River	New York Ave	Anacostia River	404830.89	138894.15
1132	Anacostia River	Anacostia River	Langston Golf Course		402741.81	137414.78
2000	ROCK CREEK	LUZON BRANCH	JOYCE RD NW	16TH ST NW	396821.71	144130.33
2002	Anacostia River	FORT DUPONT TRIBUTARY			403159.26	134927.60
2003	ROCK CREEK	ROCK CREEK	BEACH DR NW	SHERRILL DR NW	396545.22	145333.40
2004	ROCK CREEK	LUZON BRANCH	Joyce Rd NW	16th St NW	396822.34	144132.88
2005	ROCK CREEK	LUZON BRANCH	Joyce Rd NW	16th St NW	396819.07	144134.05
2006	ANACOSTIA RIVER	FORT DAVIS TRIBUTARY			403895.56	133205.63
2007	ANACOSTIA RIVER	TO MD - ANACOSTIA	EASTERN AVE NE	KENILWORTH AVE NE	405774.01	138353.18

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2008	POTOMAC RIVER	MILL CREEK	50TH PL NW	50TH ST NW	391374.37	141965.72
2009	POTOMAC RIVER	MILL CREEK	YUMA ST NW	YUMA PL NW	391180.37	142004.78
2010	POTOMAC RIVER	MILL CREEK	YUMA CT NW	YUMA ST NW	391377.04	141974.29
2011	ROCK CREEK	BINGHAM RUN	Bingham Dr NW	Oregon Ave NW	395385.00	144713.80
2013	ANACOSTIA RIVER	WATTS BRANCH	49TH ST NE	NANNIE HELEN BURROUGHS AVE NE	405877.76	136693.34
2014	ROCK CREEK	BINGHAM RUN	Bingham Dr NW	Oregon Ave NW	395386.64	144718.44
2015	POTOMAC RIVER	OXON RUN	23RD ST SE	SAVANNAH TER SE	402377.25	131399.43
2016	ANACOSTIA RIVER	ANACOSTIA RIVER	SOUTH DAKOTA AVE NE	NEW YORK AVE NE	404065.65	138932.81
2017	ANACOSTIA RIVER	WATTS BRANCH	GRANT ST NE	46TH ST NE	405494.72	136729.42
2018	POTOMAC RIVER	OXON RUN	1st St SE	Forrester St SE	399609.42	128592.70
2020	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391478.86	138520.30
2021	POTOMAC RIVER	OXON RUN	Southern Ave SE	Mississippi Ave SE	402288.97	130591.16
2022	POTOMAC RIVER	OXON RUN	SUITLAND PKWY SE		402732.01	131236.98
2023	ANACOSTIA RIVER	WATTS BRANCH	Dix St NE	53rd st NE	406539.92	136426.87
2024	ANACOSTIA RIVER	SUITLAND - STICKFOOT	CUITLAND PKWY SE		401976.02	131832.32
2025	ANACOSTIA RIVER	SUITLAND - STICKFOOT	CUITLAND PKWY SE		402097.03	131797.77
2026	ANACOSTIA RIVER	SUITLAND - STICKFOOT	SUITLAND PKWY SE	IRVING ST SE	402115.93	131768.47
2027	ANACOSTIA RIVER	WATTS BRANCH	48th Pl NE	Foote St NE	405721.25	136660.22
2028	ANACOSTIA RIVER	NASH RUN	ANACOSTIA AVE NE	DOUGLAS ST NE	405032.50	138089.24
2029	ANACOSTIA RIVER	BENNING - ECAP	TEXAS AVE SE	BURNS ST SE	404839.52	134911.68
2030	POTOMAC RIVER	OXON RUN	SOUTHERN AVE SE		402176.57	130514.35
2031	ROCK CREEK	KLINGLE VALLEY RUN	MACOMB ST NW	ROSS PL NW	394690.57	140582.53
2032	ROCK CREEK	KLINGLE VALLEY RUN	KLINGLE RD NW		394971.49	140531.30
2033	ROCK CREEK	MELVIN HAZEN VALLEY BRANCH	CONNECTICUT AVE NW	RODMAN ST NW	394843.78	141226.83
2034	ROCK CREEK	KLINGLE VALLEY RUN	KLINGLE RD NW	DEVONSHIRE PL NW	394940.28	140402.98
2035	ROCK CREEK	SOAPSTONE CREEK	Van Ness St NW east side dead end	Connecticut Ave NW	394780.10	141718.85
2036	ROCK CREEK	PINEY BRANCH	Piney Branch Pkway NW		396350.95	140923.17

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2037	ROCK CREEK	PINEY BRANCH	Piney Branch Pkway NW		396139.10	140914.46
2038	POTOMAC RIVER	FOUNDRY BRANCH	44TH ST NW		392564.54	139190.47
2039	POTOMAC RIVER	FOUNDRY BRANCH	FOXHALL RD NW	W ST NW	392406.65	139131.18
2040	ROCK CREEK	PINEHURST BRANCH	Oregon Knolls Dr NW	Oregon Ave NW	395269.79	145364.36
2041	POTOMAC RIVER	MILL CREEK	WARREN PL NW		391223.72	141985.39
2042	ANACOSTIA RIVER	TEXAS AVENUE TRIBUTARY	TEXAS AVE SE	28TH PL SE	402874.76	133303.58
2043	ANACOSTIA RIVER	FORT DAVIS TRIBUTARY	PARK RD SE	32ND ST SE	403341.82	133098.44
2044	POTOMAC RIVER	POTOMAC RIVER	OHIO DR SW	14TH ST SW	396654.40	134501.39
2045	POTOMAC RIVER	TIDAL BASIN	MAINE AVE SW	INDEPENDENCE AVE SW	396723.30	135503.32
2046	POTOMAC RIVER	WASHINGTON CHANNEL	MAINE AVE SW		397421.91	134937.90
2050	ANACOSTIA RIVER	ANACOSTIA RIVER	South Capitol St SW	T St SW	399223.51	133263.90
2051	POTOMAC RIVER	WASHINGTON CHANNEL			397809.59	134591.62
2052	ROCK CREEK	ROCK CREEK	JOYCE RD NW	BEACH DR NW	396350.44	143595.90
2053	ROCK CREEK	LUZON BRANCH	Joyce Rd NW	Military Road NW	396596.62	143903.89
2054	ROCK CREEK	BLADGEN RUN	Blagden Ave NW	Mathewson Dr NW	395930.41	141624.31
2055	ROCK CREEK	BLADGEN RUN	Blagden Ave NW	Mathewson Dr NW	395863.46	141663.00
2056	ROCK CREEK	BLADGEN RUN	Blagden Ave NW	Beach Dr NW	395775.12	141704.99
2057	ROCK CREEK	BLADGEN RUN	Blagden Ave NW	Beach Dr NW	395717.68	141707.78
2058	ROCK CREEK	BLADGEN RUN	Beach Dr NW	Blagden Rd NW	395688.48	141711.11
2059	ROCK CREEK	ROCK CREEK	BEACH DR NW		395639.56	141647.88
2060	ROCK CREEK	ROCK CREEK	BEACH DR NW		395613.49	141609.31
2061	ROCK CREEK	ROCK CREEK	BEACH DR NW		395569.33	141517.22
2062	ROCK CREEK	ROCK CREEK	Beach Dr NW	Park Rd Nw	395562.48	141431.98
2063	ROCK CREEK	PINEY BRANCH	PIERCE MILL RD NW		395971.77	140736.31
2064	ROCK CREEK	PINEY BRANCH	PINEY BRANCH PKWY NW	BEACH DR NW	395895.28	140821.84
2065	ROCK CREEK	ROCK CREEK	Klingle Rd NW	Beach Dr NW	395627.74	140611.46
2066	ROCK CREEK	ROCK CREEK	KLINGLE RD NW	BEACH DR NW	395730.49	140679.81

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2067	ROCK CREEK	ROCK CREEK	BEACH DR NW		395627.98	140509.55
2068	ANACOSTIA RIVER	BENNING - ECAP	ANACOSTIA AVE NE	BLAINE ST NE	403303.44	135979.20
2069	ANACOSTIA RIVER	Fort Chaplin Tributary - Scagg's Branch	D ST SE	Burns St SE	404809.69	135235.38
2070	ANACOSTIA RIVER	POPE BRANCH	BEHIND SCHOOL DRAINS ALLEY		404541.66	133698.55
2071	ANACOSTIA RIVER	POPE BRANCH	MINNESOTA AVE SE	M ST SE	403095.10	134340.84
2073	ANACOSTIA RIVER	FORT DAVIS TRIBUTARY	PENNSYLVANIA AVE SE	33RD PL SE	403694.20	133318.65
2074	ANACOSTIA RIVER	FORT DAVIS TRIBUTARY	ALABAMA AVE SE	37TH ST SE	403953.77	133037.89
2075	ANACOSTIA RIVER	FORT DAVIS TRIBUTARY	BRANCH AVE SE	T ST SE	403425.63	133291.55
2077	ANACOSTIA RIVER	RIDGE	ANACOSTIA FWY SE		403336.46	135508.01
2078	POTOMAC RIVER	TO MD - OXON RUN	SOUTHERN AVE SE	30TH ST SE	403204.55	131446.31
2079	ANACOSTIA RIVER	FORT STANTON TRIBUTARY	23RD ST SE	SKYLAND TER SE	402227.33	132612.84
2081	ANACOSTIA RIVER	WATTS BRANCH	KENILWORTH AVE NE	JAY ST NE	404808.49	137070.16
2082	ANACOSTIA RIVER	WATTS BRANCH	ANACOSTIA AVE NE	GRANT PL NE	404181.12	137183.11
2083	ANACOSTIA RIVER	WATTS BRANCH	HAYES ST NE		404247.20	137812.03
2086	ANACOSTIA RIVER	WATTS BRANCH	LEE ST NE	KENILWORTH AVE NE	404734.05	137220.08
2087	POTOMAC RIVER	TO MD	WESTERN AVE NW	RIVER RD NW	392082.55	143193.99
2088	POTOMAC RIVER	POTOMAC RIVER	MCGUIRE AVE SE	CHANUTE PL SE	397787.66	129231.52
2089	POTOMAC RIVER	POTOMAC RIVER	MURRAY LA SW	ROBINS RD SW	398384.35	131470.92
2090	ROCK CREEK	PINEHURST BRANCH	Beech St NW	32nd St NW	394947.98	145653.56
2092	POTOMAC RIVER	OXON RUN	SOUTHERN AVE SE		401684.06	130006.05
2093	ANACOSTIA RIVER	NORTHWEST ANACOSTIA	S ST SW	SOUTH CAPITOL ST SW	399304.73	133383.58
2098	POTOMAC RIVER	WASHINGTON CHANNEL	WATER ST SW		398080.06	134318.10
2099	POTOMAC RIVER	POTOMAC RIVER	Rock Creek & Potomac Pkway SW	Ohio Drive SW	395171.62	136078.36
2100	POTOMAC RIVER	C & O Canal			394047.34	137410.40
2101	POTOMAC RIVER	POTOMAC RIVER	30TH ST NW		394881.08	136989.57
2102	POTOMAC RIVER	BATTERY KEMBLE	CANAL RD NW		391253.27	139101.10
2103	POTOMAC RIVER	C & O Canal			390601.11	139758.90

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2105	POTOMAC RIVER	C & O Canal			390963.14	139451.57
2106	POTOMAC RIVER	C & O Canal	Canal Rd NW	east of Anzona Ave nw and soutn of Chain Bridge Rd NW	390918.90	139494.85
2107	POTOMAC RIVER	C & O Canal			390786.58	139596.45
2108	POTOMAC RIVER	C & O Canal			390438.00	139968.08
2109	POTOMAC RIVER	C & O Canal			390390.77	140066.00
2110	POTOMAC RIVER	C & O Canal			390343.87	140176.81
2111	ROCK CREEK	ROCK CREEK	CATHEDRAL AVE NW	WOODLEY RD NW	395741.17	139666.45
2112	POTOMAC RIVER	TIDAL BASIN	INDEPENDENCE AVE SW	HOME FRONT DR SW	396429.20	135494.99
2113	POTOMAC RIVER	TIDAL BASIN	INDEPENDENCE AVE SW		396263.70	135390.67
2116	ANACOSTIA RIVER	ANACOSTIA RIVER	ANACOSTIA DR SE	ENTRANCE TO US PARK POLICE	400432.30	133399.51
2117	ANACOSTIA RIVER	NORTHWEST ANACOSTIA			402390.10	134812.30
2118	ANACOSTIA RIVER	NORTHWEST ANACOSTIA			402382.47	134795.38
2119	ROCK CREEK	ROCK CREEK	MASSACHUSETTS AVE NW	WHITEHAVEN ST NW	394907.70	138811.29
2120	ROCK CREEK	NORMANSTONE CREEK	NORMANSTONE DR NW	30TH ST NW	394762.29	139324.94
2122	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW	CLARK PL NW	392465.25	137651.18
2123	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW	CLARK PL NW	392457.64	137654.02
2125	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392264.31	137729.38
2126	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392207.17	137755.14
2127	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392058.75	137839.23
2128	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392041.08	137850.13
2129	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391977.53	137895.58
2130	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391954.72	137913.80
2131	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391888.90	137969.67
2132	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391821.21	138037.07
2133	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391784.31	138074.32
2134	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391694.44	138171.53
2135	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391679.39	138191.14

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2136	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391640.78	138243.35
2137	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391581.83	138328.30
2138	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391547.82	138393.48
2139	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391464.59	138560.01
2140	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		391423.88	138655.52
2142	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW	RESERVOIR RD NW	391364.76	138793.27
2143	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW	CLARK PL NW	392483.84	137643.91
2144	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392752.17	137522.77
2145	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392797.29	137503.17
2147	POTOMAC RIVER	C & O Canal	CANAL RD NW	FOXHALL RD NW	393108.62	137541.06
2148	POTOMAC RIVER	FOUNDRY BRANCH	CHESTNUT LN NW	DUNMORE LN NW	392479.24	138820.03
2149	POTOMAC RIVER	FOUNDRY BRANCH	DUNMORE LN NW		392532.21	138824.02
2150	POTOMAC RIVER	C & O Canal	CANAL RD	FOXHALL RD	393249.78	137555.99
2151	POTOMAC RIVER	POTOMAC RIVER	Ohio Drive SW	North of Arlington Memorial Bridge overpass	395431.91	135631.69
2152	POTOMAC RIVER	POTOMAC RIVER	Rock Creek & Potomac Pkway SW	Ohio Drive SW Underpass	395425.05	135776.19
2153	POTOMAC RIVER	POTOMAC RIVER	Ohio Drive SW	South of Arlington Memorial Bridge overpass	395467.39	135569.72
2155	POTOMAC RIVER	POTOMAC RIVER	Ohio Drive SW	Lincoln Memorial Cir NW "exit" to Ohio Drive SW	395499.14	135528.57
2156	POTOMAC RIVER	POTOMAC RIVER	Ohio Drive SW	23rd St SW	395542.22	135481.78
2157	POTOMAC RIVER	POTOMAC RIVER	Ohio Drive SW	23rd St SW	395619.90	135400.88
2158	POTOMAC RIVER	POTOMAC RIVER	OHIO DR SW	WEST BASIN DR SW	395936.03	135093.40
2159	ROCK CREEK	MILKHOUSE RUN	Oregon Ave NW	Moreland Pl NW	395297.35	144198.70
2160	ROCK CREEK	MILKHOUSE RUN	Oregon Ave NW behind St Johns College Football field	Military Road NW	395374.70	144008.94
2161	POTOMAC RIVER	TO MD-OXON RUN			398942.50	127219.43
2162	POTOMAC RIVER	OXON COVE			398580.47	126842.77
2164	ROCK CREEK	PINEY BRANCH			396298.61	140916.61
2165	POTOMAC RIVER	TO MD - OXON RUN			399064.41	126953.90
2166	POTOMAC RIVER	POTOMAC RIVER	BLUE PLAINS DR SW		398718.22	127779.88

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
2170	ANACOSTIA RIVER	RFK	RFK PARKING LOT		402776.57	136428.48
2171	ANACOSTIA RIVER	RFK	RFK PARKING LOT		402713.63	136176.60
2172	ANACOSTIA RIVER	RFK	RFK PARKING LOT		402702.38	136091.66
2173	ANACOSTIA RIVER	RFK	RFK PARKING LOT		402730.22	135987.27
2174	ROCK CREEK	NORMANSTONE CREEK	NORMANSTONE RD NW	NORMANSTONE DR NW	395073.33	139149.95
2175	ROCK CREEK	ROCK CREEK	BEACH DR NW	CONNECTICUT AVE NW	395666.47	139277.72
2177	ANACOSTIA RIVER	ANACOSTIA RIVER	ANACOSTIA DR SE	GOOD HOPE RD SE	400834.51	133583.90
2178	ROCK CREEK	ROCK CREEK	PENNSYLVANIA AVE NW	ROCK CREEK & pOTOMAC PKWY NW	395141.73	137396.35
2179	ROCK CREEK	ROCK CREEK	Rock Creek & Potomac Pkwy NW	Waterside Dr NW	395210.78	139017.71
2180	ROCK CREEK	ROCK CREEK	Q ST NW	ROCK CREEK & POTOMAC PKWY NW	395556.29	138096.10
2181	ROCK CREEK	ROCK CREEK	BEACH DR NW	CONNECTICUT AVE NW	395655.58	139289.61
2182	ROCK CREEK	ROCK CREEK	BEACH DR NW		395715.35	139350.98
2184	ANACOSTIA RIVER	ANACOSTIA RIVER	36TH PL NE	NEW YORK AVE NE	403907.88	138756.09
2185	ANACOSTIA RIVER	ANACOSTIA RIVER	North Fort Lincoln Dr NE	Commodore Joshua Barney Dr NE	404425.78	139495.31
2186	POTOMAC RIVER	C & O Canal	CANAL RD NW	FOXHALL RD NW	393087.71	137534.34
2187	POTOMAC RIVER	C & O Canal	Canal Rd NW	east of Arizona Ave nw and soutn of Chain Bridge Rd NW	390918.97	139493.94
2188	ROCK CREEK	PINEY BRANCH	PHINEY BRANCH PKWY NW	17TH ST NW	396676.10	141098.12
2192	ANACOSTIA RIVER	TO MD - ANACOSTIA	BLADENSBURG RD NE	EASTER AVE NE	403673.79	140324.50
2193	POTOMAC RIVER	OXON RUN	SOTHERN AVE SE	6TH ST SE	399996.09	128255.12
2194	POTOMAC RIVER	OXON RUN	SOTHERN AVE SE	6TH ST SE	400079.65	128339.13
2195	ROCK CREEK	PINEY BRANCH	INGLESIDE TER NW	ALLEY	396289.38	140867.88
2196	ANACOSTIA RIVER	ANACOSTIA RIVER	New York Ave NE	33rd Dr NE	404602.24	139037.04
2197	ANACOSTIA RIVER	ANACOSTIA RIVER	COMMODORE JOSHUA BARNEY DR NE	HURSTON LANE NE	404134.37	139556.12
2198	ANACOSTIA RIVER	ANACOSTIA RIVER	South Dakota Ave NE	New York Ave NE	404130.65	138896.11
2199	ANACOSTIA RIVER	ANACOSTIA RIVER	South Dakota Ave NE	New York Ave NE	404103.06	138897.67
2200	ANACOSTIA RIVER	ANACOSTIA RIVER	South Dakota Ave NE	V Street NE	403860.04	138863.93
3000	ROCK CREEK	NORMANSTONE CREEK	34th St NW	Fulton St NW	394296.67	139820.21

Outfall ID	Watershed	Receiving Water	Road Intersection 1	Road Intersection 2	Easting	Northing
3001	ROCK CREEK	NORMANSTONE CREEK	34th St NW	Garfield St NW	394313.59	139884.97
3002	ROCK CREEK	LUZON BRANCH	JOYCE RD NW	16TH ST NW	396817.83	144131.76
3003	POTOMAC RIVER	OXON RUN	South Capitol SW	1st St SE	399611.33	128380.09
3005	ANACOSTIA RIVER	ANACOSTIA RIVER	ANACOSTIA DR SE	ENTRANCE TO US PARK POLICE	400433.37	133399.06
3006	ROCK CREEK	SOAPSTONE CREEK	Connecticut Ave NW	Yuma Street NW	394455.39	142069.97
3007	ROCK CREEK	SOAPSTONE CREEK	Connecticut Ave NW	Yuma Street NW	394458.06	142067.22
3008	POTOMAC RIVER	FOUNDRY BRANCH	RODMAN ST NW	39TH ST NW	393139.31	141366.33
3009	POTOMAC RIVER	OXON RUN	SUITLAND PKWY SE	SAVANNAH ST SE	402860.63	131224.65
3010	POTOMAC RIVER	TIDAL BASIN	INDEPENDENCE AVE SW	WEST BASIN DR SW	396260.66	135389.97
4000	ANACOSTIA RIVER	FORT STANTON TRIBUTARY	GOOD HOPE CT SE		402287.26	132676.69
4001	ROCK CREEK	PINEY BRANCH			396001.35	140878.27
4002	ANACOSTIA RIVER	RFK	BENNING RD NE		402935.76	136691.73
4003	ANACOSTIA RIVER	WATTS BRANCH	JAY ST NE		404559.57	137408.06
4004	ROCK CREEK	ROCK CREEK	ROCK CREEK & POTOMAC PKWY NW		394935.72	138613.05
4005	POTOMAC RIVER	WASHINGTON CHANNEL	WATER ST SW		398123.43	134245.85
4006	POTOMAC RIVER	TO MD - OXON RUN			398800.82	126802.93
4007	ANACOSTIA RIVER	ANACOSTIA RIVER	ISAAC HULL AVE SE	SICARD ST SE	400142.36	133869.32
4008	ANACOSTIA RIVER	RFK	26TH ST NE		402934.57	137028.40
4010	Potomac River	Foundry Branch	39th	Langley	393076.36	140829.83
4011	ANACOSTIA RIVER	WATTS BRANCH	JAY ST NE		404641.57	137313.68
4012	Rock Creek	Rock Creek	Porter St.	Beech St.	395705.15	140640.22
4013	POTOMAC RIVER	POTOMAC RIVER	CANAL RD NW		392329.58	137704.39
4014	ANACOSTIA RIVER	NORTHWEST ANACOSTIA	V ST SW	HALF ST SW	399062.53	132964.47
4015	POTOMAC RIVER	POTOMAC RIVER	BLUE PLAINS DR SW		398812.09	127951.24
4016	POTOMAC RIVER	POTOMAC RIVER	BLUE PLAINS DR SWQ		398882.34	128122.31
4017	POTOMAC RIVER	C & O Canal			391138.56	139208.60

Attachment 4: MS4 Facilities and Critical Sources Database

Facility Type	Facility Name	Facility Address
Auto Repair	Congress Auto Body & Repair Shop	1299 Kenilworth Ave, NE
	SW Liberty Station	3900 MLK Ave SE
	Good Hope Auto Center	2300 Pennsylvania Ave, SE
	Citi Auto	1420 Rhode Island Ave., NE
	Airport Express Automotive service	6000 Sligo Mill Rd., NE
	Brookland Exxon	1020 Michigan Ave., NE
	Fort Davis Exxon	3825 Alabama Ave, SE
	Murphy's Auto Body	1708 Good Hope Rd, SE
	Ghuman Inc. (AR)	39 Q St, SW
	Singh Transmission	1501 S. Capitol St., SW
	Giovani Auto Repair, Inc	4604 Nash Street, NE
	USA Motors	45 Q Street, SW
	Otis Auto Repair	2215 Fairlawn, SE
	KJ Auto Care	3426 18th Street, NE
	All Make Auto Inc	1800 Adams Street, NE
	J&J Towing	1801 Adams Street, NE
	Georgetown Auto Service	2145 Queens Chappel Rd, NE
	All Star Autobody	2405 22nd Street, NE
	W & J ASSOCIATES, INC.	4812 MACARTHUR Blvd., NW
	Precision Truck Repair, INC.	1075 Kenilworth Ave., NE
	Earls Auto Body	2600 28th Street, NE
	Narico, In. World Service Center	2417 Evarts Street, NE
	Union Cab Corp	2711 26th Street, NE
	Dial-A-Cab Company	2838 Bladensburg Rd, NE
	C&S Auto Repair	2912 Bladensburg Rd, NE
	Romulus Garage	3003 Earl Place, NE
	Transco Inc	3399 Benning Rd, NE
	Northeast Auto Body	3188 Bladensburg Rd., NE
	DYNAMIC AUTO CENTER	1830 Rhode Island Ave, NE
	SYSTEMS ENGINEERING/R.I. INC.	1620 Rhode Island Ave, NW
	BT & T AUTO SERVICE INC	3010 Rhode Island Ave, NE
	Capital Certified Collision Center	934 Michigan Ave, NW
	FC Auto Motor	301 Kennedy Street, NE
	Airport Express Shuttle	6000 Sligo Mill Rd, NE
	EASTERN AUTO REPAIR	6129 Kansas Ave, NE
	M.Mat Auto Body, Inc	1851 Adams St., NE
	D & T AUTO REPAIR	1325 KENILWORTH Ave., NE
	Imperial Auto Body	6420 Chillum Place,N.W.,20011
		6400 Chillum Place NW., 20011
	Julios Auto Repair Shop	7053 Spring Place, NW
	Exxon	7605 Georgia Ave, NW
	TenleyTown Exxon	4244 Wisconsin Ave.,N.W.,20016
	Tiger Auto Repair	1850 ADAMS ST., NE
	Spring Valley Exxon	4861 MASSACHUSETTS Ave., NW
	Connecticut Ave. Amoco. Inc.	5001 Connecticut Ave., NW
	WASHINGTON TRANSMISSION SPECIALIST	4451 Naannie Helen Burroughs Ave., NE
	Kiran Auto Repairs	1900-B Bladensburg Rd, NE
	District Line Auto Service	7825 Georgia Ave.,N.W.
	E & E Auto Repair	2626 Evarts St.,N.E.,20018
	Twin Rivers Auto Service Inc.	2507 Bladensburg Rd.,S.E.,20020
	Right Hour Auto Sales Inc	2201 Channing St.,N.E.,20018
	T & W Auto Repair and Body Work	1736 Rhode Island Ave.,N.E.,20018
	Dynasty Auto Body & Transmission	3621 Benning Rd.,N.E.,20019
	Super Salvage Inc.	1711 1st St.,S.W.
	SA AUTO REPAIR CORPORATION	3011 Martin Luther King Jr. Ave., SE
	International Limo Service	2300 T Street, NE
	Auto Repair	2206 Lawrence Ave.,N.E.,20018
	East Auto Body	2310 18th Pl.,N.E.,20018
	National Auto Parts	1810 Edwin St.,N.E.,20018
	Mr. WAMS Auto Body & Paint	7053 Spring Place, NW
	AIRPORT EXPRESS SHUTTLE	6000 Sligo Mill Rd., NE
	STAR AUTO CENTER INC	1911 New York Ave., NE
	PAN-AM TAXI CAB	2204 Lawrence Ave., NE
	AYT Advantage Auto Repair	2121 W. Virginia Ave.,N.E.,20002
	J & T Auto Service Center	2040 W. Virginia Ave.,S.W.,20002
	Tony Auto Repair and Body Shop	2040 W. Virginia Ave.,N.E.,20002
	West Virginia Body Shop	2040 W. Virginia Ave.,N.E.,20002
	Sangare's auto repair	2040 W. Virginia Ave.,N.E.,20002
	Circle Exxon	5521 Connecticut Ave, NW
	Connecticut Ave Amoco	5001 Connecticut Ave, NW
	DP AUTO SERVICE LLC	4940 Connecticut Ave, NW
	South Capitol Street Exxon LLC	3900 Martin Luther King Jr Ave., SW
	Ronnie's Transmission	1800 Rhode Island Ave., NE
	T & A Used Auto Part	1215 Kenilworth Ave.,N.E.,20019
	W & J ASSOCIATES, INC	4812 MacArthur Blvd, NW
	FT DAVIS SERVICE CENTER INC	3825 Alabama Ave., SE
	FORT DUPONT INC	4101 Alabama Ave., SE
	CAPITAL AUTO SERVICE	4900 Wisconsin Ave., NW
	ABC Towing	2715 Pennsylvania Ave., NW
	Minnesota Avenue Exxon	4100 Hunt Pl., NE
	Audvance Auto Service	1850 Adams St.,NE
	C & E Auto Services Inc.	1729 Bladensburg Rd.,N.E.
	GOODYEAR AUTO SERVICE CENTER #0223	3156 BLADENSBURG Rd., NE
	SAM'S AUTOCARE INC	3621 Benning RD., NE
	New Horizon Auto Body Repair	3621 Benning RD., NE
	Meineke Car Care Center	3190 Bladensburg Rd.,N.E.,20018
	Bills Garage	3012 Martin Luther King Jr. Ave.,S.E
	Singh Transmission	1505 S. Capitol St.,S.W.,20024
	Auto Ward Inc.	129 Q St.,S.W.,20024
	AUTO DOCTOR, INC. (THE)	4251 MINNESOTA Ave., NE
	Custom Towing & Auto Repair	1345 S. Capitol St.,S.W.
	Palace Cleaners	3232 Wisconsin Ave., NW
	Rex Cleaners	7346 Georgia Ave., NW
	Chevy Chase Circle Cleaners	5708 Connecticut Ave.,NW
	ZIPS Dry Cleaners	4418 Connecticut Ave.,N.W.,20008
	Regal Custom Cleaners	5021 Connecticut Ave.,N.W.,20008

Facility Type	Facility Name	Facility Address
Dry Cleaner	uptown Cleaners	3333 Connecticut Ave., NW, 20008
	American Valet Inc	5511 Connecticut Ave., NW, 20015
	Naylor Rd Valet Cleaners	3031 Naylor Rd, SE
	American Valet	4519 Wisconsin Ave., NW, 20016
	Betty Brite Cleaners	5123 Nannie Helen Burroughs Ave., NE
	Super Clean	4415 Bowen Rd.,S.E.,20019
	Global Cleaners	3700 ML King Jr. Ave.,S.E.,20032
	Service Cleaners	2841 Alabama Ave.,S.E.,20020
	Long Brothers Cleaners	655 LeBaum,S.E.,20032
	Dean Ave. Cleaners	4309 Nannie Helen Burroughs Ave., NE
	EMBASSY CLEANERS	4215 Connecticut Ave., NW
	PRESIDENT VALET II	4837 Wisconsin Ave., NW
	PRESIDENT VALET, INC	5514 Connecticut Ave., NW
	PALACE CLEANERS	5019 Wisconsin Ave., NW
	COMFY LAUNDROMAT,LLC	333 Hawaii Ave., NE
Laundromat	Jet Cleaners (L)	3507 Wheeler Rd SE
	Pan American Laundry	3715 Newark St.,N.W.20016
	Han Cleaner	4425 Wisconsin Ave.,N.W.,20016
	Park Laundromat	7723 Georgia Ave.,N.W.20012
	Metro Laundromat	1400 Rhode Island Ave, NE
	Congressional Auto	1910 Bladensburg Rd, NE
	Clean All	2149 Queens Chapel Rd.,N.E.,20018
	Laundromat	3915 Dix St.,N.E., # C, 20019
	Good Wash Laundromat	1603 Good Hope Rd.,S.E.,20020
	Spincycle Coin Laundry	3250 Pennsylvania Ave.,S.E.,20020
	Sheriff Road Laundromat	4338 Sheriff Rd., NE
	Quality Wash	2626 Naylor Rd.,S.E., # C, 20020
	MAMA'S LAUDROMAT INC	4528 Benning Rd., SE
	EDDIE'S LAUNDRYMAT	2107 Alabama Ave., SE
Car Wash	Kenilworth Citgo	1329 Kenilworth Ave., NE
	NEW YORK AVE HESS	1801 New York Ave., NE
	Montana Double Wash	2327 18th St., NE
	Best Car Wash	2334 L' Enfant Sq., SE
	Flagship Car Wash	4432 Connecticut Ave.,N.W.
	WASH & SHINE CAR WASH	5020 Wisconsin Ave., NW
	Dr. King Brushless Car Wash	2735 Martin Luther King Jr. Ave.,S.E.
HWG-SQG	CLARK KIEWIT CONSTRUCTION (EAST POTOMAC MAINTENANCE YARD)	1100 OHIO DRIVE SW
	ST ELIZABETH'S WEST CAMPUS (GSA OWNED W CAMPUS ONLY)	2700 MARTIN LUTHER KING JR AVENUE SE
	TRANSCO INC	3399 BENNING ROAD NE
	METROPOLITIAN POLICE DEPT - V STREET	3521 V STREET NE
	AMERICAN UNIVERSITY	4400 MASSACHUSETTS AVENUE NW
	KM INC EXXON SERVICE STATION #25488	5521 CONNECTICUT AVENUE NW
	TITO CONTRACTORS INC	7308 GEORGIA AVENUE NW
	WMATA BLADENSBURG	2250 26TH STREET NE
	FORT LESLIE J MCNAIR MDW US ARMY	4TH STREET SW AND P STREET SW
	MINNESOTA AVENUE EXXON	4100 HUNT PLACE NE
	EXXON CO USA #27582	1020 MICHIGAN AVENUE NE
	GEORGETOWN AMOCO	2715 PENNSYLVANIA AVENUE NW
	C & S AUTO REPAIR	2912 BLADENSBURG ROAD NE
HWG-CESQG	METROPOLITAN POLICE DEPT - WATER STREET	550 WATER STREET SW
	WASHINGTON INFORMATION CENTER	401 M STREET SW
	US PARK POLICE AVIATION SECTION	1900 ANACOSTIA DRIVE SE
	GWU MOUNT VERNON COLLEGE	2100 FOXHALL ROAD NW
	US NATIONAL ARBORETUM	3501 NEW YORK AVENUE NE
	METROPOLITAN POLICE DEPT - BLUE PLAINS DRIVE	4665 BLUE PLAINS DRIVE SW
	US BOTANIC GARDEN PRODUCTION FACILITY	4700 SHEPHERD PARKWAY SW
	CARNEGIE INSTITUTE OF WASHINGTON GEOPHYS LAB	5251 BROAD BRANCH ROAD NW
	ROCK CREEK PARK	5000 GLOVER ROAD NW
	NATIONAL PARK SERVICE - PRESIDENTS PARK	1000 OHIO DRIVE SW
	VERIZON DC BARRY ROAD SOC GLC 12234	2600 BARRY ROAD SE
	PATRIOTS PLAZA I	395 E STREET SW
	CAPITOL VIEW	425 3RD STREET SW
	MAGNOLIA PLUMBING INC	600 GALLATIN STREET NE
	US BRENTWOOD MAINTENANCE FACILITY	900 OHIO DRIVE SW
	EAST POTOMAC GOLF COURSE	970 OHIO DRIVE SW
	LANDMARK SERVICES TOURMOBILE INC	1000 OHIO DRIVE SW
	CAPITAL PAVING OF DC	1525 W STREET NE
	TAYLOR JAMES L TRASH REMOVAL	5201 HAYES STREET NE
	STAR ENTERPRISES	1765 NEW YORK AVENUE NE
	CRESTWOOD ENTERPRISE 1983 INC	6201 NEW HAMPSHIRE AVENUE NE
	First Transit	1710 17TH STREET NE
	PEPCO BUZZARD POINT FACILITY (PPR BUZZARD POINT)	1ST STREET SW AND V STREET SW
	BRAKE SERVICE COMPANY	1318 HALF STREET SW
	PAK-AMERICAN CORPORATION	1625 SOUTH CAPITOL STREET SW
	P & P AUTO BODY	822 HOWARD ROAD SE
	T J AUTO REPAIR	1810 BLADENSBURG ROAD NE
	F&A AUTO SERVICE	2325 18TH STREET NE
	STADIUM EXXON II	2651 BENNING ROAD NE
	WATERGATE EXXON	2708 VIRGINIA AVENUE NW
	HILLCREST AMOCO	2801 ALABAMA AVENUE SE
	EXXONMOBIL OIL CORP 22815	3201 PENNSYLVANIA AVENUE SE
	KM INC EXXON SERVICE STATION	3535 CONNECTICUT AVENUE NW
	VAN NESS TEXACO	4225 CONNECTICUT AVENUE NW
	AMERICAN VALET INC	4519 WISCONSIN AVENUE NW
	WINDSOR VALET	4938 WISCONSIN AVENUE NW
	KM INC EXXON SERVICE STATION	5030 CONNECTICUT AVENUE NW
	A1 ENGINE AND DIESEL REPAIR	1515 KENILWORTH AVENUE NE
	SONNYS AMOCO	5207 NANNIE HELEN BURROUGHS AVENUE NE
	HILLTOP CLEANER	2712 GOOD HOPE ROAD SE
	CHU CLEANERS	5443 MACARTHUR BOULEVARD NW
	RIGGS DRY CLEANERS	5585 SOUTH DAKOTA AVENUE NE
	New Town Cleaners	3174 1/2 BLADENSBURG ROAD NE
	PARKLANE CLEANERS	4304 CONNECTICUT AVENUE NW
	PREMIUM DISTRIBUTORS OF WASHINGTON DC	3500 FORT LINCOLN DRIVE NE

Facility Type	Facility Name	Facility Address
	PETER AND H ENTERPRISES INC.	4650 SOUTH CAPITOL STREET SE
	BETTY BRITE CLEANERS	2223 MINNESOTA AVENUE SE
	MICHIGAN PARK CLEANERS	3923 12TH STREET NE
HWG-LQG	WASHINGTON GAS EAST STATION	1240 12TH STREET SE
	NAVAL SUPPORT FACILITY ANACOSTIA	2701 SOUTH CAPITOL STREET SW
	UNIVERSITY OF THE DISTRICT OF COLUMBIA	4200 CONNECTICUT AVENUE NW
	NAVAL RESEARCH LABORATORY	4555 OVERLOOK AVENUE SW
	SPRING VALLEY FUDS	5225 LITTLE FALLS ROAD NW
	US BUREAU OF ENGRAVING AND PRINTING	14TH STREET SW AND C STREET SW
Bus and Truck Towing	FARCO TOWING	1923 NEW YORK AVE NE
	CAPITAL POST TOWING INC	200 RIGGS RD NE
	HAM'S TOWING INC.	1239 KENILWORTH AVE NE
	A.N.A. INC	1620 2ND ST SW
Federal facility (H)	Automobile Maint Fac	2800 V STREET NE
	Vehicle Main Facility	2702 SOUTH CAPITOL STREET SE
	United Industrial District Warehouse	3360 V STREET NE
	1933 Montana Avenue	1933 MONTANA AVENUE NE
	Shepherd Park Plaza	7820 EASTERN AVENUE NW
	Remote Delivery Site	2701 SOUTH CAPITOL STREET SE
	US NATIONAL PARK SERVICE	3842 ALABAMA AV SE
	Rds/Vmf Guardhouse	2701 South Capitol Street
DC Gov. facility (H)	DEPARTMENT OF TRANSPORTATION	4240 MASSACHUSETTS AV SE
	DEPARTMENT OF PUBLIC WORKS	4501 FORT TOTTEN DR NE
	DEPARTMENT OF PUBLIC WORKS	1801 MINNESOTA AV SE
	DEPARTMENT OF PUBLIC WORKS	2049 WEST VIRGINIA AV NE
	DEPARTMENT OF TRANSPORTATION	2600 SOUTH CAPITOL ST SE
	DEPARTMENT OF PUBLIC WORKS	4501 FORT TOTTEN DR NE
	DEPARTMENT OF PUBLIC WORKS	1801 MINNESOTA AV SE
	DEPARTMENT OF PUBLIC WORKS	2049 WEST VIRGINIA AV NE
	DEPARTMENT OF TRANSPORTATION	4240 MASSACHUSETTS AV SE
	BLADENSBURG BUS GARAGE	2250 26th Street, NE
	Western Metro Bus Garage	5230 Wisconsin Avenue, NW
	DEPARTMENT OF TRANSPORTATION	GOOD HOPE RD SE
DC Water facility	DC WATER & SEWER AUTHORITY	2637 BARRY RD SE
Restaurant	Tara Thai	4849 Massachusetts Ave.,N.W.
	Dominos Pizza	4539 Wisconsin Ave.,N.W.
	Chicken Out Rotisserie	4866 Massachusetts Ave.,N.W.
	Le Chat Noir	4907 Wisconsin Ave.,N.W.
	House of Philly	2311 Calvert St. N.W

Attachment 5: Quality Assurance Plans for Monitoring Program

QUALITY CONTROL WORK PLAN AND

QUALITY ASSURANCE PROJECT PLAN

FOR

THE DISTRICT OF COLUMBIA STORMWATER

COLLECTION & ANALYSIS PROJECT

Contract No. CW18061

Prepared by
Apex Companies, LLC
8854 Rixlew Lane
Manassas, VA 20109

Prepared for
District Department of the Environment
1200 First Street NE, 5th Floor
Washington, DC 20002

Project Manager Date: 12/04/2012

QA Officer Date: 12/04/2012

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Appendix

A. PROJECT MANAGEMENT

A3. Distribution List

Name: Nicoline Shulterbrandt
Title: Contract Administrator- Supervisory Environmental Protection Specialist
Organization: District of Columbia Department of the Environment
Contact Information:
Address: 1200 First Street NE, 5th Floor
Washington, DC 20002
Telephone: (202) 535-2194
Email: Nicoline.Shulterbrandt@dc.gov

Name: Jerusalem Bekele
Title: Environmental Protection Specialist
Organization: District of Columbia Department of the Environment
Contact Information:
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Washington, DC 20002
Telephone: (202) 535-1603
Email: Nicoline.jerusalem.bekele@dc.gov

Name: Andrea Owen
Title: Project Manager
Organization: Apex Companies, LLC
Contact Information:
Address: 8854 Rixlew Lane
Manassas, VA 20109
Telephone: (571) 428-2003
Email: AOwen@apexcos.com

Name: Ignatius Mutoti
Title: Quality Assurance/Quality Control Manager
Organization: Retaw Engineering
Contact Information:
Address: 2903 Sagecreek Circle
Midlothian, VA 23112
Telephone: (804) 744-1792
Email: Ignatius.Mutoti@retaweng.com

Name: Michael Arbaugh
Title: Data Quality Reviewer
Organization: Microbac Laboratories, Inc
Contact Information:
Address: 2101 Van Deman Street
Baltimore, MD 21224
Telephone: (443) 386-4170
Email: Ignatius.Mike.Arbaugh@microbac.com

A4. Project/Task Organization

Key Corporate Quality Assurance (QA) /Quality Control (QC) personnel for each specific task are as follows:

- Project Manager, Andrea Owen; Apex Companies, LLC
- QA/QC Manager, Ignatius Mutoti; Retaw Engineering
- Health and Safety Manager, Harold Heckman; Apex Companies, LLC
- Task Manager/Key Personnel, Amanda Hren and Nan Lin; Apex Companies,LLC
- Site Safety and Health Officer, James Naples; Apex Companies, LLC
- Field Sampling Team, Apex and Microbac Team (Multiple Individuals)
- Data Quality Reviewer, Michael Arbaugh; Microbac Laboratories, Inc.

Project Manager (PM). The Project Manager is accountable for the organization, coordination, and implementation throughout the duration of the project and utilizes the Task Leaders/Key Personnel for any technical assistance. The Project Manager may delegate authority to expedite and facilitate the implementation of the project plan. The Project Manager is responsible for:

- Coordination with client
- Budget control
- Subcontractor performance
- Project coordination to implement work plan
- Allocation of resources and staffing to implement the QA/QC program
- Allocation of resources and staffing to implement the Health and Safety Plan (HASP)
- Review of engineering and interim reports

QA/QC Manager. The QA/QC Manager is accountable to the Project Manager throughout the duration of the project and is responsible for validation of analytical data reports on all sampling and analysis data conducted under the storm water sampling project. The QA/QC Manager is also responsible for project-specific supervision and monitoring of the QA/QC Program.

- Will ensure that field personnel use proper sample procedures, field measurement techniques, sample identification, and chain-of-custody procedures.
- Coordinate with the analytical laboratory for the receipt of samples, the reporting of analytical results, and recommending corrective actions to correct deficiencies in the analytical or sampling protocol.
- Will audit field activities.
- Provide QA/QC reports to management.
- Will provide QA/QC technical assistance to the field sampling team.

Health and Safety Manager. The Health and Safety Manager serves as the administrator of the Apex Team's Corporate Health and Safety Program. He is accountable directly to the Project Manager for project health and safety concerns and is responsible for:

- Proper training for the Apex Team field personnel
- Medical clearance of the Apex Team field personnel

- Field personnel having adequate experience with personal protective equipment
- Providing guidance on Health and Safety Plan (HASP) data interpretation
- Determining levels of worker protection
- Evaluating compliance with the HASP through regular audits of field activities

Task Managers/Key Personnel. Task Managers/Key Personnel provide technical support to the Project Manager for implementation of the Work Plan relative to their respective tasks and have the following responsibilities:

- Prepare task reports and outlining field investigation requirements
- Review daily reports and field notebooks
- Task scheduling
- Task budget management
- Task work plan coordination
- Review of field and laboratory analysis data
- Coordinate field activities
- Schedule sampling and other field activities

Site Safety and Health Officer. The Site Safety and Health Officer (SSHO) is responsible for ensuring that field activities are carried out in accordance with the HASP. The SSHO provides technical assistance to the Project Manager and field personnel to help assure site safety. In addition, the SSHO performs the following duties:

- Monitor field activities
- Monitor personal exposure to chemical toxins
- Establish emergency response procedures
- Monitor for temperature stress
- Establish personnel and equipment decontamination procedures
- Stops work in the event unsafe work conditions are encountered

Field Sampling Team. Project personnel are drawn from the Apex Team irrespective of group or geographic assignment. The project personnel are selected on the basis of appropriate skills, experience, and availability. Tasks and subtasks are assigned to Task Managers. Personnel working on specific tasks report on a daily basis to their respective Task Managers. Task Managers, in turn, work under the daily direction of the Project Manager. Personnel follow the procedures described in the following sections to assure consistency in sample collection and handling. Other duties may include:

- Inspect and replace equipment
- Prepare daily and interim reports
- Prepare samples for shipment

Data Quality Reviewer. A qualified laboratory, which is responsible for performing chemical analyses of environmental samples collected at hazardous substance sites. The laboratory is local and is able to receive and prep samples 24/7. The laboratory is capable of providing complete environmental analytical services consistent with U.S. EPA protocols and site-related DQOs. The Laboratory Quality Assurance Manual (LQAM), provided by the approved laboratory, will supply details on laboratory operations, certifications, and personnel qualifications. The Data Quality Reviewer reviews all laboratory reports for quality and completeness before sending them to Apex and Microbac.

Apex has selected Retaw Engineering (Retaw) to provide QA/QC Support, additional technical, sampling and laboratory support.

RETAW ENGINEERING
2903 Sagecreek Circle
Midlothian, Virginia 23112
(804) 744-1792
Ignatius.mutoti@retaweng.com

Retaw and Apex have selected Microbac Laboratories, Inc. (Microbac) which is responsible for performing chemical analyses of stormwater samples. The laboratory will be capable of providing complete environmental analytical services consistent with 40 CFR part 136 U.S. EPA protocols and site-related DQOs. The Laboratory Quality Assurance Manual (LQAM), provided by the approved laboratory, will supply details on laboratory operations, certifications, and personnel qualifications. The LQAM is attached in Appendix 1.

Microbac Laboratories, inc.
Gascoyne Division
2101 Van Deman Street,
Holabird Business Park
Baltimore MD 21224
(410) 633-1800

Apex has worked extensively with both Retaw and Microbac on other projects and has assembled the Team to meet all of the anticipated projects outlined in the Solicitation.

A5. Problem Definition/Background

The DC Office of Contracting and Procurement have contracted Apex Companies, LLC (Apex) to perform storm water sample collection for the District of Columbia Municipal Separate Storm Sewer System (MS4) permit DC0000221. The project is designed to supply the DC Department of the Environment (DDOE) with the data necessary to show compliance with the National Pollutant Discharge Elimination System (NPDES) Permit issued in October of 2011.

In fulfillment of C.5.5 and C.5.6 of the Storm Water Collection and Analysis contract number Doc77984, the Work Plan (WP) and Quality Assurance Project Plan (QAPP) have been incorporated into this document. This document provides procedures for the sample collection,

analysis, and evaluation of data. The DC stormwater collection project will require close coordination with the client and the laboratory to ensure the viability of the samples and the integrity of the holding times.

Apex recognizes that analytical data quality management at all levels and phases of environmental work is critical to the ultimate success of any environmental project. Quality Assurance (QA) starts with the field crews taking the environmental samples in accordance with approved sampling methods, proper sample handling, preservation, sample shipment, and clear and accurate chain-of-custody forms. The process continues to the laboratory, where the samples are analyzed in accordance with 40 CFR Part 136 - approved analytical methods following good laboratory practices to ensure the precision, accuracy, representativeness, comparability, and completeness of the chemical analytical results. To achieve these goals, the laboratory chemists must properly and routinely maintain analytical instruments, and non-laboratory chemists must periodically audit laboratory operations and procedures.

The following sections describe Apex's approach to ensure that these QA goals are met for any environmental program conducted or managed by Apex. This approach applies to all environmental media samples, i.e., air, soils, storm water, surface water, groundwater, and sediments, etc.

A6. Project/Task Description and Schedule

The objective for the storm water sampling is to determine if the Separate Storm Sewer System is compliant with the NPDES Permit. The DDOE has identified six locations that storm water samples will be collected from by Apex. The six locations consist of two locations within the Anacostia River Watershed, two locations within the Potomac River Watershed, and two locations within the Rock Creek Watershed. These locations are described in the table below:

Table 1 – Watershed & Sampling Locations	
Watershed & Sample Location	
A. Anacostia River Subwatershed Sampling Sites	
A1	Anacostia High School/Anacostia Recreation Center – corner of 17th St. and Minnesota Ave. SE (Site 1)
A2	Gallatin & 14th St.,NE-across from the intersection of 14th St. and Gallatin St. in a large outfall (Site 2)
B. Rock Creek Subwatershed Sampling Sites	
B1	Walter Reed (Fort Stevens Drive) (Site 3)
B2	Soapstone Creek (Connecticut Avenue and Ablemarle Street) (Site 4)
C. Potomac River Subwatershed Sampling Sites	
C1	Battery Kemble Creek-49th and Hawthorne Streets, NW (Site 5)
C2	Oxon Run-Mississippi Avenue and 15th Street, SE (Site 6)

The flow characteristics for each location will be defined in advance of a storm event. The geometry of the outfall or storm water structure will be evaluated and a method of determining flow will be determined in advance of the sampling event. The flow will be determined by the cross sectional geometry of the outfall, depth of flow and the velocity of the water passing through the structure. The velocity of the flow will be estimated and recorded and the estimated flow rate will be recorded using a digital flow meter reading or other acceptable industry methods.

Sampling will occur during both wet and dry weather events. A wet weather sampling event will occur when rainfall amounts to 0.10 inches or more. A wet weather sampling event must occur 72 hours from previous 0.10 inches of recorded rain and the site must not have been previously sampled within a 30 day period. Samples will be collected using both grab and composite techniques. Samples will be collected at outfalls and manholes in each of the prospective watersheds as directed by the Permit. A dry weather event will commence on scheduled days following periods of dry weather (72 hours of no precipitation). Samples will be collected using only grab techniques and will be collected at outfalls and manholes in each of the prospective watersheds as directed by the Permit.

Samples from both dry and wet weather events will be delivered under the Chains of Custody to Microbac. Sample event reports will be produced within 30 days of the sampling event.

A7. Data Quality Objectives for Measurement Data

A7.1. Data Quality Objectives

Data Quality Objectives (DQOs) are developed to achieve the level of data quality required for the anticipated data use and are implemented so that for each task, the data is legally and scientifically defensible. The development of DQOs for a specific site and measurement takes into account project needs, data uses and needs, and data collection. These factors help in determining the appropriate quality assurance objectives necessary to ensure the quality and quantity of data are adequate for the end use of the data.

DQOs are attained through sound chemical quality management and achieved through the implementation of this plan. This QAPP is in accordance with applicable U.S. EPA and District Department of Transportation (DDOT) standards and regulations.

A7.2. Analytical Data Quality Assurance

The objective of the Analytical Quality Control Program is to provide sampling and analysis data of acceptable quality.

- Accuracy (Bias) is a measure of confidence that describes how close a measurement is to its "true" value. Accuracy for field and laboratory tests shall be determined using various approaches including: instrument calibrations, various types of QC checks – e.g. sample split measurements, sample spike recoveries, matrix spike duplicates, continuing calibration verification checks, internal standards, sample blank measurements (field and lab blanks), external standards), and performance audit samples (DMRQA). Accuracy shall be assessed using the following formula:

$$Accuracy = \frac{MeasuredValue}{TrueValue} \times 100$$

Precision. Measure of mutual agreement among repeated measurements of the same parameter, and provides information about the consistency of methods usually under

prescribed conditions. Precision is expressed in terms of the relative percent difference between two measurements (A and B). The objective for precision is to equal or exceed the precision demonstrated for similar samples, and should be within the established control limits for the methods. Precision shall be determined as follows:

For field measurements, precision shall be assessed by measuring duplicate samples at the same *locations* and as soon as possible to limit temporal variance in sample results. Field and laboratory precision shall be measured by collecting blind (to the laboratory) field duplicate samples. For paired and small data sets project precision is calculated using the following formula:

$$\Pr ecision = \frac{(A - B)}{((A + B)/2)} \times 100$$

For larger sets of paired precision data sets (e.g. overall project precision) or multiple replicate precision data, use the following formula:

RSD = 100*(standard deviation/mean)

- Completeness. Measure of the amount of valid data obtained from a measurement system compared to the amount expected under normal conditions. The objective is to generate a sufficient database with which to make informed decisions with statistical confidence. Project completeness is determined for each pollutant parameter using the following formula:

  $$\frac{T - (I+NC)}{T} \times (100\%) = \text{Completeness}$$

  Where T = Total number of expected sample measurements.
  I = Number of invalid sample measured results.
  NC = Number of sample measurements not produced (e.g. spilled sample, etc).

- Representativeness. Expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness includes what parameters to sample for, where to sample, type of sample (grab, continuous, composite, etc.) and frequency of sample collection and shall be in accordance with the DC 0000221 NPDES Permit. To meet the objective of obtaining representativeness of samples, a Work Plan is developed.

- Comparability. The confidence with which one data set can be compared to another collected by using standardized methods of sampling and analysis. Comparability shall be shown by referencing the appropriate measurement method approved by as specified in 40 CRF Part 136 or other approved methods for the parameter(s) to be sampled and measured (e.g., ASTM, Standard Methods). For each parameter to be analyzed, the method to be used and the measurement quality objective shall be listed to meet the overall data quality objectives. This applies to both direct field measurements (e.g., field pH meters, DO meters, etc.) as well as samples collected for subsequent laboratory analyses. This objective is met by using 40 CFR Part 136 and standard methods for sampling procedures and analyses, and by following techniques and methods set forth in the Work Plan.

- Sensitivity. Measure of a method's detection limits and ability to distinguish between two values. The sensitivity and detection limits of a method will be reviewed to determine a method based on the method's detection limit (MDL) and practical quantification limit (PQL).

A8. Special Training Requirements/Certification

Apex team leaders and full time staff are OSHA 40 Hour HAZWOPER trained. All staff members working on this project receive in house sampling and safety training. Microbac will be capable of providing complete environmental analytical services consistent with 40 CFR part 136 U.S. EPA protocols and site-related DQOs. The Laboratory Quality Assurance Manual (LQAM), provided by Microbac, will supply details on laboratory operations, certifications, and personnel qualifications. Laboratory certifications are presented in Appendix 1

Under the National Pollutant Discharge Elimination System (NPDES) program, the laboratory is required to participate in the annual Discharge Monitoring Report–Quality Assurance (DMR-QA) study program. DMR-QA evaluates the analytical ability of the laboratories that routinely perform self-monitoring analyses required by the NPDES permit. Microbac Laboratory will participate in this annual study.

The quality assurance (QA) laboratory will deliver the sample results and data package, which will be reviewed by the QA/QC Manager. The data reviewed will include all blank, sample, and internal quality control results such as spike and surrogate recoveries and replicate analyses. Any significant differences or problems discovered will be addressed; corrective action, such as reanalysis and/or resampling, may result at the Project Manager's discretion.

A9. Documents and Records

The records for this project will include field logs, field data worksheets, laboratory data reports, and sample event report. Field logs will include observations about weather conditions at the site when samples are collected and field analyses conducted. Any other pertinent observations or deviations from the procedures in this QAPP, deemed noteworthy by any member of the field team will also be recorded in the field log book. Field data worksheets (Appendix 2) will be used to record all field measurements. Each page of the field logs and field data worksheets will be dated and signed by the person making the entries.

The sample event report will be submitted within approximately 30 days of the actual sampling event and based on actual analytical results receipts from the Microbac laboratory. The results of the field parameters tested during the sampling event, field data collection sheet, site narrative report of the event and sampling locations where the actual storm water samples collected, site photographs and meteorological data predicting the storm-water event, flow monitoring, precipitation data including rainfall hydrograph, signed chain-of-custody forms and the laboratory analytical results of analyzed samples will be included in the sample event report. Two hard copies of the report and an electronic report copy will be submitted for each event report to the DDOE.

Data packages generated from analyses shall include the following:

1. Pertinent physical data presented in concise, easy to follow formats (i.e., sample number, client, date of sample preparation, date analyzed, percent moisture, etc.).

2. Data from each discrete sample reported using cross referencing between normal samples and quality control samples.

3. Reported data to include associated quality control samples such as blanks, spikes and spike duplicates, laboratory duplicates, field duplicates, and appropriate check standards.

4. Copies of chain of custody sheets.

Data reduction is the process that raw analytical data generated from laboratory instrument systems is converted into usable concentrations. The raw data, which may take the form of area counts, instrument responses or observations, is processed by the laboratory and converted into concentrations expressed in the part per million or part per billion range. Raw data from these systems include compound identifications, concentrations, retention times, and data system printouts. Raw data is usually reported in graphic form, bar-graph form or tabular form. Data reduction procedures will be discussed in greater detail in the LQAM (Appendix 1).

B. DATA GENERATION AND ACQUISITION

B1. Sampling Process Design

The storm water sample collection and analyses will supply the DDOE with the data necessary to show compliance with the NPDES Permit issued in October of 2011. The samples will be collected at the locations designated (1 manhole and 5 outfalls).

This project is specifically for the collection and analysis of storm water. A list of typical field equipment and devices used for sample collection are presented below. A description of the standard equipment decontamination procedure and solutions are also given.

Sampling Equipment:

- Personal Protective Equipment (Reflective Vests) & Rain Gear
- Mobile Phones
- Work, Safety and Traffic Control Plan
- Permits- DDOT, National Park Services (NPS), and DC Water.
- pH, dissolved oxygen, temperature, and specific conductivity meter
- Flow-meter
- Stainless Steel Buckets
- Auto-sampler
- Coolers
- Flashlights – Various Types
- Manhole Removal Tool
- Digital Camera
- Small Hand Tools
- Gloves

Field analytical equipment:

- Dissolved Oxygen Meter
- Combustible Gas Detector and Photoionization Analyzer
- pH meter
- Specific Conductivity Meter
- Chlorine Meter/Test
- Temperature Probe - YSI 3510

Field Sample Collection Devices:

- PVC/teflon bailers for groundwater/storm water samples
- Glass/plastic beaker or dipper for surface water samples
- Stainless steel buckets
- ISCO auto samplers

For each sampling location, the field sampling team will record estimated flow velocity, odor, pH, dissolved oxygen content, temperature, specific conductivity, and approximate water depth. The

field sampling team will complete a sample data collection form to document the event. Digital photography will be collected if necessary to further document conditions during the event.

B1.1. Dry Weather Sampling

Mobilization and preparing the sampling equipment starts with coordination and notification. Communication will come from the PM who then will notify the integral field sampling team. The field sampling team will begin by organizing and preparing all necessary sampling and sample transportation equipment for the scheduled sampling event approximately 24 hours in advance.

Dry weather sampling will commence on scheduled days following periods of dry weather (seventy-two (72) hours of no precipitation).

Once the sampling event has been completed, the field sampling team will meet with the designated lab or courier to deliver the event samples with their respective Chains of Custodies.

B1.1.1. Collection Procedures, Sampling Handling, and Transportation of Samples for Dry Weather Sampling

Collection Methods for Dry Weather Sampling:

GRAB SAMPLES

- Chloroform
- 1,1,2-Trichloroethylene
- 1,1,2,2-Tetrachloroethylene
- Tetrachloroethene
- Trichloroethylene(trichloroethene)
- Bis(2-ethylhexyl)phthalate
- Gamma-BHC
- Dieldrin
- Total PCBs
- Arsenic, Total
- Cadmium, Total
- Chromium, Total
- Copper, Total
- Lead, Total
- Nickel, Total
- Zinc, Total
- Cyanide, Total
- Phenols, Total
- Total suspended solids
- Total dissolved solids
- COD
- BOD5
- Oil and Grease
- E. Coli
- Fecal coliform

- Fecal streptococcus
- Dissolved phosphorous
- Total phosophorous (TP)
- Chlorophyll (a)
- Hardness
- Total nitrogen

FIELD ANALYSIS

- pH
- Temperature

1. The storm water samples shall be collected at the locations designated in the contract. Samples will be collected using only grab techniques using stainless steel grab samplers. Samples will be collected at outfalls and manholes in each of the prospective watersheds as directed by the Permit.

2. Data quality depends, in part, on proper collection and preservation to guarantee representativeness of the sample. Sample containers will be labeled with the following information: unique sample numbers, location identification, date, parameter(s) to be analyzed, time of collection, collector, and type of preservative. Once collected, samples will be immediately placed in a cooler filled with ice and held at 4°C. Disposable gloves and other appropriate Personal Protective Equipment (PPE) will be worn by the sampling personnel and changed between sampling points to avoid cross contamination. Personnel will also be equipped with appropriate safety gear. The information collected in the field shall be recorded in a dedicated field logbook and on the sample collection form at the time of sampling.

3. All samples will be collected and preserved in laboratory supplied containers.

4. The field sampling team will perform the required analytical field tests (Residual Chlorine, Dissolved Oxygen, pH, Temperature, and Flow) using direct reading equipment in accordance with manufacturers written procedures. These readings will be noted in the field data sheets.

5. It is the policy of Apex to calibrate required equipment, properly collect samples and to ensure that they maintain the characteristics of the sample source by the use of appropriate sampling and preservation techniques. It is critical that the sampling be performed correctly and documented thoroughly, following protocols. The techniques used are based on EPA-National Field Manual for the Collection of Water-Quality Data (USGS updated 2008), the NPDES Permit DC0000221, and the “NPDES Storm Water Sampling Guidance Document” (EPA 833-B-92-001).

6. When sampling an outfall, the field sampling team will stand downstream of the sampling location and work upstream to collect samples.

7. The field sampling team will complete the sample collection data forms, chain of custody forms and field logbook prior to moving to next site. The

team will perform a QC check to ensure that all required data has been captured prior to locating to the next location.

8. The team will meet at a predetermined location and the coolers for each location will be inspected for quality control, completeness and then packaged for transport to the laboratory. The samples will be transferred under chain of custody to one vehicle or to a courier service for transportation to the laboratory. This effort is expected to take approximately 30 minutes.

9. The proposed laboratory for this project is located Baltimore, MD and is approximately one hour from Washington, DC. This laboratory is equipped to receive samples on a 24 hour 7-days a week basis. Based on the above scenario and time frames, this will leave approximately 90 minutes at the lab to prepare the micro-biological samples and meet the six hour holding time for the micro-biological parameters.

10. All used field equipment will be properly decontaminated after each event.

B1.2. Wet Weather Sampling

Mobilization and preparing the samplers starts with coordination and notification. Communication will come from the PM who then will notify the integral field sampling team. The field sampling team will begin by organizing and preparing all necessary sampling and sample transportation equipment for the event approximately 24 hours in advance, so the equipment is charged and available when the storm reaches the monitoring area. Any in-situ autosamplers being used for the rain event are reviewed to ensure required bottleware, power sources, and sample preservation materials are in place. For direct sampling of sites, the field sampling team will mobilize to sampling site locations approximately 1-2 hours prior to the predicted beginning of a storm event.

Once the sampling event (3 hours for composite samples) has been completed, the field sampling team will meet with the designated lab or courier to deliver the event samples with their respective Chains of Custodies.

B1.2.1. Collection Procedures, Sampling Handling, and Transportation of Samples for Wet Weather Sampling

Collection Methods for Wet Weather Sampling:

GRAB SAMPLES
- E. coli
- Fecal coliform
- Chlorophyll a

COMPOSITE SAMPLES
- Total nitrogen
- Total phosphorus
- Total Suspended Solids

- Hardness
- Cadmium
- Copper
- Lead
- Zinc

FIELD ANALYSIS

- pH
- Temperature
- Dissolved oxygen

1. The storm water samples shall be collected at the locations designated in the contract and at a minimum of four (4) sites for each wet weather event. Samples will be collected using both grab and composite techniques. Samples will be collected at outfalls and manholes in each of the prospective watersheds as directed by the Permit. When a qualifying event (storms with at least 0.1 inch of precipitation, 72 hours, and one month since the last collection at a specific site) is anticipated based on the available meteorology, the auto-samplers will be charged and set up in advance using all appropriate safety precautions. The suction stub of the auto-sampler will be positioned upstream of the grab sample locations and field parameter test points.

2. The auto-samplers will be equipped with a pre-cleaned 2 1/2 gallon lab supplied glass container to collect composite samples. The auto-sampler will be packed with ice to ensure the composite sample is kept adequately preserved during sample collection.

3. When it is determined that a qualifying event is highly likely to occur, the field teams will mobilize to the site, don any required Personal Protective Equipment (PPE), and exercise appropriate safety precautions. Apex is experienced in after-hours sampling and minimizes safety concerns by working in teams, using reflective clothing and equipment, utilizing flashlights and headlamps, and following the Site Specific Traffic Control Plan (required by the DOT permit).

4. Data quality depends, in part, on proper collection and preservation to guarantee representativeness of the sample. Sample containers will be labeled in such a manner as shown in Section B3.2.2 and B3.2.3. Once collected, samples will be immediately placed in a cooler filled with ice and held at 4°C. Disposable gloves and other appropriate PPE will be worn by the sampling personnel and changed between sampling points to avoid cross contamination. Personnel will also be equipped with appropriate rain gear. The information collected in the field shall be recorded in a dedicated field logbook and on the sample collection form at the time of sampling.

5. The field sampling team will perform the required analytical field tests (Residual Chlorine, Dissolved Oxygen, pH, Temperature, and Flow) using direct reading equipment in accordance with manufacturers written procedures. These readings will be noted in the field data sheets.

6. It is the policy of Apex to calibrate required equipment, collect samples properly and to ensure that they maintain the characteristics of the sample source by the use of appropriate sampling and preservation techniques. It is critical that the sampling be performed correctly and documented thoroughly, following protocols. The techniques used are based on EPA-National Field Manual for the Collection of Water-Quality Data (USGS updated 2008), the NPDES Permit DC0000221, and the "NPDES Storm Water Sampling Guidance Document" (EPA 833-B-92-001).

7. When sampling an outfall, the field sampling team will stand downstream of the sampling location and work upstream to collect samples.

8. Grab samples will be collected for the required parameters and these will be placed in pre-cleaned containers prepared with the appropriate preservatives and properly labeled. The samples will be placed in a cooler charged with ice in preparation for delivery to the laboratory.

9. The auto-samplers will be checked and if they have completed the collection routine and the composite sampling is complete, the container will be removed from the unit and included in the shipment to the lab. The auto-samplers will be set to take samples as a time weighted average (TWA) at a minimum of every 15 minutes. The full composite sampling container will be transported to the laboratory for division into appropriate sample containers and will be preserved in accordance with the requirements of the specific analytical procedures.

10. The field sampling team will complete the sample collection data forms, chain of custody forms and field logbook prior to moving to next site. The team will perform a QC check to ensure that all required data has been captured prior to moving on to the next location.

11. The field sampling team will communicate via company supplied mobile phones to ensure that all scheduled sites can be completed within the 3 hour window for the event. These phones allow the sampling crews to check weather patterns and forecasts from the field as well as keep in contact with the PM via text messaging, emails, or phone. Sampling will be completed within the first three hours of a qualifying event.

12. The team will meet at a predetermined location and the coolers for each location will be inspected for quality control, completeness and then packaged for transport to the laboratory. The samples will be transferred under chain of custody to one vehicle or to a courier service for transportation to the laboratory. This effort is expected to take approximately 30 minutes.

13. The proposed laboratory for this project is located Baltimore, MD and is approximately one hour from Washington, DC. This laboratory is equipped to receive samples on a 24 hour seven day a week basis. Based on the above scenario and time frames, this will leave approximately 90 minutes at the lab to prepare the micro-biological samples and meet the six hour holding time for the micro-biological parameters.

14. All used field equipment will be properly decontaminated after each event.

B1.3. Field Documentation

The following information will be recorded in a field notebook and on the sample data collection form at the time of sampling:

- Sample location
- Name of field technicians present during sampling
- Method of sample collection utilized
- Time/date of sampling
- PID readings (if applicable)
- Type of sample
- Analyses required and sample container types
- Field measurements and calibration (if applicable)
- Observed conditions that may impact the chemistry of the sample
- Observations and remarks: A bound field logbook will be maintained in which to record the daily activities. All entries will be made in indelible ink. Incorrect entries will be corrected by a single stroke through the error and will be verified with the recorder's initials. Entries to the log book, in addition to the required sampling entries, will include:

    - Date
    - Start and finish times
    - Summary of work performed (including samples collected)
    - Names of personnel present
    - Weather observations
    - Calibration of equipment
    - Observations and remarks
    - Field measurements

B1.4. Decontamination of Sampling Equipment

To avoid cross-contamination of samples, equipment used in sampling must be clean and free from the residue of previous samples. To the greatest extent possible, Apex will utilize dedicated pre-cleaned and disposable equipment to minimize the potential for cross contamination. Non-dedicated sampling equipment must be cleaned initially and prior to being reused and will be appropriately packaged to prevent contamination. The following is the procedure for decontamination and does not apply to heavy equipment or drilling equipment.

- Wash and scrub with low phosphate, laboratory grade detergent (bucket 1)
- Tap water rinse

- Wash and scrub with low phosphate, laboratory grade detergent (bucket 2)
- Thorough rinse with distilled water
- Wash and scrub with low phosphate, laboratory grade detergent (bucket 3)
- Thorough rinse with distilled water
- Air dry
- Wrap appropriate equipment in aluminum foil, plastic sheets, plastic bags or place in clean ziplock bag

Note: A variation of the above decontamination procedure may be used depending on the DQO level and parameters to be sampled.

Field instrumentation shall be cleaned and calibrated per manufacturer's instructions. Probes, such as those used in pH and conductivity meters, and thermometers must be decontaminated and rinsed prior to and after use with deionized water and shall be properly calibrated.

B1.5. Decontamination Solutions

- Deionized demonstrated analyte-free water
- Low phosphate laboratory grade detergent
- Concentrated nitric acid (HNO_3)
- Concentrated hydrochloric acid (HCl)
- Distilled Water

Note: Decontamination fluids are highly specific to the type of sample being collected and the analysis being performed. To the greatest extent possible Apex will use dedicated disposable equipment to minimize equipment decontamination.

B1.6. Meteorological Event Planning Procedures

Accurate prediction, evaluation and documentation of qualifying weather events are necessary to determine when to engage each sampling team to the necessary locations. Accuracy in these matters also ensures close coordination with the client and the laboratories to ensure the viability of the samples and the integrity of the holding times.

Although meteorological and storm events can be unpredictable, they can be forecasted using various resources including electronic and broadcast media, historical weather trends, newspapers, and visual observation. Tools such as thermometers, barometers, electronic weather stations, and rain gauges accessed with staff smartphones will also be on-hand to aid in predicting a qualifying storm event. The project manager will use this data to produce weekly in-house weather forecasts each week and to alert field managers and sampling teams of pending storm events.

B1.7. Qualifying Storm Event Criteria

According to the EPA's guidelines, the storm water discharge permit requires that each qualifying rain event have the following criteria:

- The depth of the storm must be greater than 0.10 inch accumulation;
- The storm must be preceded by at least 72 hours of dry weather;
- The depth of rain and duration should not vary by more than 50 percent from the average depth and duration for each location.
- The same site is not to sampled more than once in a 30 day period.

This specific criterion ensures that:

- Adequate flow would be discharged from each location;
- Some build-up of pollutants during dry weather intervals occurs;
- The storm would be typical for the area (i.e. intensity, depth, and duration).

Data on local weather patterns is provided by the National Weather Service's (NWS) website at www.weather.gov and includes historic, future, and current weather conditions. National Oceanic and Atmospheric Administration (NOAA) supplies average rain and duration figures for the immediate and surrounding areas based on normal data records collected since 1971. This information will be analyzed to determine if the range of the storm is within the duration, intensity, and depth typical of the representative area and time of year.

A variety of sources will be used retrieve and verify weather data. Numerous sources have been investigated and deemed acceptable meteorological sources to predict upcoming weather patterns. Electronic resources will be the primary source of weather prediction; however, secondary sources such as newsprint, radio, and television will assist in forecasting.

NOAA's National Weather Service (NWS) website will serve as Apex's principal daily forecast source. The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States up to 10 days in advance. They also provide forecast maps that display anticipated amounts of precipitation to occur within the upcoming 72 hours. These interactive maps loop instantly in 6-hour increments to show expected depths of precipitation in this 72 hour window.

- National Oceanic and Atmospheric Administration's National Weather Service http://www.weather.gov/

- Reagan National Airport (Washington, DC)
  http://weather.noaa.gov/weather/current/KDCA.html

- Radio/Television
- FM radio channel: 88.5 WAMU or 103.5 WTOP
- The Weather Channel on various cable outlets

- Newsprint
- The Washington Times
- The Washington Post

- Electronic Tools
- Smartphones to access specific online tools

B1.8. Daily Weather Logs

The project manager or qualified representative will maintain a daily weather log using information from NOAA.gov

1. Time & Date of report- as 24-hour day, as day month year (1730 01/11/2006)
2. High and Low Daily Temperature in degrees Fahrenheit (Hi-85° F/Lo-35° F)
3. High and Low Record Temperature in degrees Fahrenheit (1905-Hi-85°F/1945-Lo-35°F)
4. Conditions- Categorized as
   CLEAR- little to no clouds
   CLOUDY- fifty percent or greater sky cover
   NON-QUALIFYING EVENT- less than one tenth of an inch (<00.1")
   QUALIFYING EVENT- greater than one tenth of an inch (>00.1")
   SEVERE STORM- severe winds and storms that create unsafe work environments
5. Wind Speed & Direction- at the time log is written in miles per hour (15.0mph)

The field sampling team will maintain a weather log for every qualifying weather event. They will record the following information;

1. Time & Date of report
2. Author's name
3. Current Weather alerts and warnings
4. Temperature in degrees Fahrenheit
5. Site locations expected to be sampled
6. Site locations actually sampled
- Time arrived on site
- Number and size of samples taken
- Time samples were taken
- Time left site
- Time Chain of Custody was completed

The QA/QC Manager will review these logs on a weekly basis.

B1.9. Coordination of Events for Storm Sampling

Apex's project manager will manage the notification of all involved parties in the event of a pending qualifying weather 24 hours in advance. Apex personnel are equipped with cell phones to facilitate efficient mobilization. The project manager will notify each member of the sampling teams to ensure proper dissemination of information regarding locations to be sampled and other vital information. An e-mail will be sent to the Contract Administrator or its designee notifying the DC government that a qualifying event will likely occur in the next 24 hours. Phone notifications will also be made and a follow up email, after demobilization, will be sent stating the locations and quantity of samples, if any, were collected and sent to the laboratory.

B2. Sampling Methods Requirements

Samples will be collected using the containers and preservatives specified in Appendix 3. Unless otherwise stated, the order of sample collection will be:

1. In-situ measurements
2. Volatile organic compounds (VOCs)
3. Microbiological
4. Extractable organics: semivolatiles, pesticides/PCBs, herbicides, etc.
5. Total metals, other parameters, etc.

Sample containers will be labeled with the following information: location identification, date, parameter(s) to be analyzed, and type of preservative (see B3.2.2). Samples will then be immediately placed in a cooler and held at 4°C. Disposable gloves will be worn by the sampling personnel and changed between sampling points. The field data collected shall be recorded in the field logbook and on the sample collection form at the time of sampling.

While performing any equipment decontamination, phthalate-free gloves (neoprene or natural rubber) will be worn in order to prevent phthalate contamination of the sampling equipment by interaction between the gloves and the organic solvent(s). To the greatest extent possible disposable sample collection equipment will be used and will be disposed of in accordance with applicable Federal, state and local regulation.

At the end of each sampling event, the sampling team shall report any problems requiring corrective action that were encountered during the event. Corrective action will be undertaken when a nonconforming condition is identified. A nonconforming condition occurs when QA/QC objectives for precision, accuracy, completeness, representativeness, or comparability are not met, or when procedural practices or other conditions are not acceptable. The report shall be filed with the Project Manager which documents the problems encountered and the corrective action implemented.

A table of parameters, holdings times and methods are listed in Table 2 and Table 3.

B3. Sample Handling and Custody Requirements

The samples will be packaged, preserved and handled in a manner to ensure the integrity of the sample. The laboratory may preserve sample containers before sending them to the field sampling team or they may be preserved in the field before or after sample collection depending on the analytical parameter and project specifications. All required preservatives would be specified by the particular analytical method to be used. The samples will be packaged and shipped in a manner to minimize the potential for breakage and ensure the holding time for all parameters is not exceeded.

1. Samples requiring pH adjustment in the sample jar shall be obtained with the appropriate preservative pre-measured in the sample container by the laboratory. If preservation of the sample causes effervescence, the sample will be submitted without pH adjustment and all samples will be cooled to +/- 4°C. Appropriate safety precautions when handling sample containers preserved with acids, or caustics.

2. Each cooler shall be prepared to contain the exact number and type of sample containers required for one suite of parameters for each outfall/location. The sample containers will be pre-labeled and preserved and all required sample packaging material will be prepared and included in the cooler.

3. After collection the samples will be placed in lined cooler using a large plastic bag. Each cooler will have the correct number of sample containers inside and the containers will be pre-labeled. Waterproof labels will be used.

4. The field sampling team will double check to ensure that all sample containers have been filled properly and are properly protected against breakage and will then secure the bag.

5. The field sampling team will complete the chain of custody for each cooler and will seal it in a ziplock bag. Chain of custody will filled-out to the greatest extent possible prior to mobilizing to the field and will be completed in the field. The bag will be taped to the interior lid of the cooler. The cooler will then be sealed with clear packaging tape and equipped with tamper proof seals and labeled for shipment to the Lab.

6. The sample coolers will be shipped to the lab using the most expedient method. This may include courier, commercial transporter or hand delivery.

B3.1. Overview

Sample custody during the field investigations will be performed in three phases. The first phase encompasses sample collection, pre-laboratory treatment procedures (preservation), packaging, and field custody shipping procedures. The second custody phase involves sample shipment, where mode of shipment, airbill numbers, dates, and times are documented. The third phase involves the custody procedures employed by the laboratory.

All three phases of sample custody will be performed to provide that:

- All samples are uniquely identified
- The correct samples are tested and are traceable to their source
- Important sample characteristics are preserved

- Samples are protected from loss or damage
- A record of sample integrity is established and maintained through the entire custody process

Custody and shipping procedures are modeled after standard U.S. EPA procedures.

B3.2. Field Custody Procedures

B3.2.1 Sample Identification

All samples collected must be identified with a sample label in addition to an entry on a chain-of-custody record. Indelible ink will be used to complete sample labels, then labels will be covered with clear plastic waterproof tape.

B3.2.2. Sample Labels

Sample labels will require the field team to complete the following information for each sample bottle:

1. Site Name
2. Sample Number
3. Sample Matrix
4. Parameters to be analyzed
5. Date of Collection
6. Time of Collection
7. Preservation Technique Employed
8. Sampler's Name

Sample labels will be attached to the sample bottles and covered with clear plastic waterproof tape.

B3.2.3. Sample Numbering

Samples shall be numbered in such a manner that the site, location, type of sample, and depth of sample or date of sample is evident. Below are suggested examples of sample numbering.

Stormwater samples will be labeled as follows:

SWXX - MMDDYY

SW:	Storm-water sample
XX:	Identifies site location (Per Table 2)
MMDDYY:	Date of sampling round

Field blanks will be labeled by adding FB to the end of the sample number.

Trip blanks will be labeled by adding TB to the end of the sample number.

B3.3. Chain-of-Custody Record

The chain-of-custody guidelines create an accurate written record that can be used to trace the possession and handling of the sample from the moment of its collection through analysis. Chain-of-custody forms will be completed for each sample at the time of collection and will be maintained while shipping the sample to the laboratory. A person is in custody of a sample if the sample is:

- Sample is in that person's physical possession.
- Sample is visible after being in that person's physical possession.
- Sample placed in a locked repository by that person.
- Placed in a secure restricted area by that person.

Prior to the sampling event or soon as practical after sample collection, preferably after decontamination, the following information must be entered on the chain-of-custody form. All information is to be recorded in ink.

1. Project number. Enter the alphanumeric designation that uniquely identifies the project site.

2. Project name. Enter the site name.

3. Samplers. Sign the name(s) of the sampler(s).

4. Sample number(s). Enter the sample number for each sample in the shipment. This number appears on the sample identification label.

5. Date. Enter a 6-digit number indicating the day, month, and year (MMDDYY) that each sample was collected.

6. Time. Enter a 4-digit number indicating the time of collection of each sample based on the 24-hour clock: for example, 1354.

7. Sample matrix. Enter the matrix (e.g., soil, aqueous, drum waste, etc.) of the sample.

8. Parameters for analysis. Enter the analyses to be performed for each sample.

9. Number of containers. For each sample number, enter the number of sample bottles that are contained in the shipment by parameter for analysis.

10. Remarks. Enter any appropriate remarks.

B3.4. Sample Shipment

Custody of samples must be maintained through the shipment of samples to the selected laboratory. All samples will be packaged and delivered so that the samples are not held at the site more than 6 hours. Samples will be delivered directly to the laboratory by sampling personnel or courier to ensure the 6-hour holding time for micro-biological samples is complied with. The samples will be packaged using the following procedures.

- Use waterproof high-strength plastic ice chests or coolers only.
- After filling out the pertinent information on the sample label and tag, put the sample in the bottle or vial and screw on the lid.
- Tape cooler drain shut.
- Place inert cushioning material such as bubble wrap will be placed in the bottom of the cooler. Styrofoam packing cannot be used when sampling for volatile organics.
- Enclose the bottles in clear plastic bags through which sample labels are visible, and seal the bag. Bottles are to be placed upright in the cooler in such a way that they do not touch and will not touch during shipment. Place cushioning material around the bottles.
- Enclose temperature blank in each cooler.
- Additional inert packing material will be put in to partially cover sample bottles (more than halfway). Place bags of ice or ice-gel packs around, among, and on top of the sample bottles in a separate plastic bag
- Custody seals will be applied to the front and back of the cooler.
- Tape will be used to secure lids. Wrap the cooler completely with strapping tape at a minimum of two locations. Do not cover any labels.
- Attach completed shipping label to top of the cooler. The shipping label shall have a return address.
- The cooler will be delivered/shipped via courier or directly delivered by Apex personnel to the respective laboratory or laboratory personnel.

Custody forms will be placed in a "ziplock" bag and taped to the inside cover of the shipping cooler.

B3.5. Laboratory Custody Procedures

When the sample arrives at the laboratory following shipment, the custodian receives the sample. The label will be identified upon receipt by the laboratory and cross-referenced to the chain-of-custody record. Any inconsistencies will be noted on the custody record.

Laboratory personnel will notify the Project Manager immediately if any inconsistencies exist in the paper work associated with the samples.

Laboratory personnel, following laboratory protocols, will maintain custody of the samples throughout analysis. The laboratory custody procedures are detailed in the LQAM.

B3.6. Documentation and Tracking Deficiencies

Complete documentation of sample custody and shipment will be performed. Copies of chain-of-custody forms and field documentation notes are to be kept on file by the Project Manager. Mode of shipment, airbill numbers, dates and times of all sample shipments will also be documented. Any deficiencies (including coolers lost by the shipper) requiring corrective actions will be reported to the Project Manager, who will document the problem and respond with corrective action after consultation with the QA/QC Manager. Corrective action may include resampling where the tracking deficiency resulted in exceeding sample holding times, etc. Additional information regarding nonconformance is presented in Section C2.1. Laboratory procedures for responding to deficiencies and the resultant corrective actions are discussed in further detail in the LQAM.

B4. Analytical Methods Requirements

Retaw and Apex have selected Microbac Laboratories, Inc. to be responsible for sample analysis. Analytical methods and parameters will be determined on a project-specific basis. A copy of the laboratory's standard operating procedures (SOPs) for common analytical methods will be included in the LQAM. The SOPs will include target analytes, practical quantitation limits, spiking conditions, and precision and accuracy criteria for all matrices.

The contract requires a specific set of analysis be performed on a highly specific schedule. Sample collection container and preservative requirements are depicted in Table 2 and Table 3 below:

Table 2 – Dry Weather Parameters

Parameter	Container Type	Preservation	Sample Type	Method	Holding Times
Chloroform	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	14 days
1,1,2-Trichloroethylene	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	14 days
1,1,2,2-Tetrachloroethylene	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	14 days
Tetrachloroethene	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	4 days
Trichloroethylene(trichloroethene)	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	14 days
Bis(2-ethylhexyl)phthalate	40 ml glass teflon lined VOA	Hydrochloric Acid	Grab	EPA 8260	14 days
Gamma-BHC	1000 ml glass amber narrow w/ Teflon liner	Unpreserved	Grab	EPA 608	7 days

Dieldrin	1000 ml glass amber narrow w/ Teflon liner	Unpreserved	Grab	EPA 608	7 days
Total PCBs	1000 ml glass amber narrow w/ Teflon liner	Unpreserved	Grab	EPA 608	7 days
Arsenic, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Cadmium, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Chromium, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Copper, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Lead, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Nickel, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Zinc, Total	500 ml plastic wide-mouth	Nitric Acid	Grab	EPA 200.7	180 days
Cyanide, Total	250 ml plastic wide mouth	Ascorbic Acid/Sodium Hydroxide	Grab	EPA 335.4	14 days
Phenols, Total	1000 ml glass amber narrow w/ Teflon liner	Sulfuric Acid	Grab	EPA 420.1	28 days
Total suspended solids	950 ml plastic	Unpreserved	Grab	SM 2540 D	7days
Total dissolved solids	950 ml plastic	Unpreserved	Grab	SM 2540 C	7days
COD	950 ml plastic	Sulfuric Acid	Grab	EPA 410.4	28 days
BOD_5	950 ml plastic	Unpreserved	Grab	SM 5210 B	2 days
Oil and Grease	1000 ml glass wide w/ Teflon liner	Hydrochloric Acid	Grab	EPA 1664 A	28 days
E. Coli	4 oz sterile polypropylene	Sodium Thiosulfate	Grab	SM 9221 F	6 hours
Fecal coliform	4 oz sterile polypropylene	Sodium Thiosulfate	Grab	SM 9221 E	6 hours
Fecal streptococcus	4 oz sterile polypropylene	Sodium Thiosulfate	Grab	SM 9230 B	6 hours
Dissolved phosphorous	500 ml plastic wide-mouth	Unpreserved	Grab	EPA 365.1	28 days
Total phosophorous (TP)	950 ml plastic	Sulfuric Acid	Grab	EPA 365.1	28 days
Chlorophyll (a)	4 oz glass amber narrow w/Teflon liner	Unpreserved	Grab	SM 10200 H	2 days
Hardness	950 ml plastic	Unpreserved	Grab	SM 2340 C	28 days
pH	N/A	N/A	In Field	N/A	N/A
Temperature	N/A	N/A	In Field	N/A	N/A
Total nitrogen	950 ml plastic	Sulfuric Acid	Grab	SM 4500N-org/NH3G	28 days

Table 3 – Wet Weather Parameters

Parameter	Container Type	Preservation	Sample Type	Method	Holding Times
E. coli	4 oz sterile polypropylene	Sodium Thiosulfate	Grab	SM 9221 F	6 hours
Total nitrogen	2.5 gallon glass jar	Unpreserved	Composite	SM 4500N-org/NH3G	28 days
Total phosphorus	2.5 gallon glass jar	Unpreserved	Composite	EPA 365.1	28 days

Total Suspended Solids	2.5 gallon glass jar	Unpreserved	Composite	SM 2540 D	7 days
Cadmium	2.5 gallon glass jar	Unpreserved	Composite	EPA 200.7	180 days
Copper	2.5 gallon glass jar	Unpreserved	Composite	EPA 200.7	180 days
Lead	2.5 gallon glass jar	Unpreserved	Composite	EPA 200.7	180 days
Zinc	2.5 gallon glass jar	Unpreserved	Composite	EPA 200.7	180 days
pH	N/A	N/A	In Field	SM 4500 H B	15 minutes
Fecal coliform	4oz sterile polypropylene	Sodium Thiosulfate	Grab	SM 9221 E	6 hours
Dissolved Oxygen	N/A	N/A	In Field	N/A	N/A
Hardness	2.5 gallon glass jar	Unpreserved	Composite	SM 2340 C	28 days
Chlorophyll a	4 oz glass amber narrow w/ Teflon liner	Unpreserved	Grab	SM 10200 H	2 days
Temperature	N/A	N/A	In Field	N/A	N/A

B5. Quality Control Requirements

Apex will ensure that Microbac participates in the annual U.S. Environmental Protection Agency's Discharge Monitoring Report-Quality Assurance Study Program (http://www.epa.gov/compliance/monitoring/programs/cwa/dmr/) and submit testing results for all parameters. All analytical laboratory instruments should have initial and subsequent daily calibration verified after every set of samples. Quantitative limits should be defined for individual parameters and should be expressed as the lowest calibration standard employed. Values below the quantitative limit should be reported as estimated values. Values below the laboratory method detection limit should be reported as less than the method detection limit. The method detection limit studies, analytical data and results should be on file at the laboratory.

QC Parameter	QC Limit	Frequency
Initial Calibration	(Intentionally blank)	A minimum of 3 concentration levels (or a specified by the method) and after the laboratory control sample, continuing calibration verification or method blank failure
Method blank	Method detection limit	One per set of sample
Lab control sample	85-115%	1 per batch
Continuing Calibration Verification	85-115%	at daily start up, 1 after each 10 determinations, and at the end of the batch
Laboratory Duplicate	20% relative percent	One per set of sample

	difference	
Matrix Spike	75-125%	One per set of sample

Definitions:

- Initial calibration curve: calibration is needed for all analytes for example, calibration standards for ion chromatography, turbidimetric and spectrophotometric tests (correlation coefficient.≥ .995). Initial calibration criteria must be met prior to analysis of samples.

- Continuing calibration verification (CCV): a verification of calibration is to be performed at the beginning of each analytical batch using a mid-range reference/ standard (as appropriate for method) from a source different from the initial calibration. If CCV is outside of QC limits, recalibrate instrument and rerun samples analyzed since the last compliant continuing calibration check.

- Laboratory control sample (LCS); a mid-level standard/reference (as appropriate for method) carried through the entire analytical procedure as for a sample. If QC criteria are not met for the LCS, determine the source of contamination, and repeat the analysis of the samples, method blank and LCS. The limits must be set for analysis to be acceptable.

- Method Blank: if the method blank is outside of QC limits, determine the source of contamination, and prepare a new blank and re-prepare all samples. Repeat until criteria are met.
  Duplicate: if the relative percent difference is outside of QC limits, flag the data results and report results in the narrative.

- Matrix Spike: If the percent recovery is outside of QC limits, flag the results and report. Spike levels are based on 2 x CRQL

B5.1. Field Quality Control

The QC checks employed for field instruments include the following:

Table 4 – Field Quality Control

QC Method	Purpose	Frequency
Calibration Check	Insures proper working order of field instruments. Measures accuracy and sensitivity.	Daily
Field Duplicate Sample	Measures instrument precision.	5 percent
Field Rinsate Blanks	Measures cross-contamination.	Daily

B5.2. Laboratory Quality Control

The analyses shall include the following QC procedures, when applicable:

Table 5 – Laboratory Quality Control

Procedure	Frequency
Calibration	As required
Standards	Daily
Method Blanks	Daily
Duplicates	5 percent
Matrix Spikes	5 percent
Surrogates	Each sample

Duplicate samples, rinsate blanks, and trip blanks will be collected in the field at the rate required for each particular project. Laboratory blanks, standards, and check samples will be run at the rate specified in the appropriate analytical method. Matrix spikes and matrix spike duplicates will be run at the rate of one per 20 samples or one per batch, whichever is more frequent. Performance evaluation samples will be run at a rate of once per calendar quarter or at a frequency determined by the Project Manager. Internal performance evaluation samples will be run at a frequency determined by the internal laboratory QC staff.

The analytical method performance will be evaluated by an examination of precision, accuracy, and completeness. Analytical data quality assurance objectives are presented in Section A7.2.

Precision is the ability to replicate a value. Precision is determined by measuring the agreement among individual measurements of the same property, under similar conditions. The degree of agreement, expressed as the relative percent difference (RPD), is calculated using the formula below.

Precision:

$$RPD = \frac{|V_1 - V_2| \times 100}{\frac{(V_1 + V_2)}{2}}$$

Where:

V_1=value 1
V_2=value 2

Accuracy is a measure of the closeness of an individual measurement to the true or expected value. To determine accuracy, a reference material of known concentration is analyzed or a sample that has been spiked with a known concentration is reanalyzed. Accuracy is expressed as a percent recovery and is calculated using the following formula.

Accuracy:

$$\%recovery = \frac{measured\ \ value}{true\ \ value} \ x\ \ 100$$

Completeness is a measure of the quantity of valid data acquired from a measurement process compared to the amount expected under the measurement conditions. Completeness is usually expressed as a percentage.

Data reduction is the process by which raw analytical data generated from laboratory instrument systems is converted into usable concentrations. The raw data, which may take the form of area counts, instrument responses or observations, is processed by the laboratory and converted into concentrations expressed in the part per million or part per billion range. Raw data from these systems include compound identifications, concentrations, retention times, and data system printouts. Raw data is usually reported in graphic form, bar-graph form or tabular form. Data reduction procedures will be explained in greater detail in the LQAM.

Laboratory audit procedures are presented in the LQAM.

B5.3. Field Audits

Field audits are performed by the QA/QC Manager or his designate on a periodic basis (based on project-specific needs) throughout the duration of the field program. The field audits will include an evaluation of sampling methods; sample handling and packaging; equipment use; equipment decontamination, maintenance, and calibration procedures; and chain-of-custody (COC) procedures. In addition, all records and documentation procedures will be reviewed to ensure compliance with the project requirements. Any deviations from the Work Plan (WP) or Quality Assurance Project Plan (QAPP) will be recorded in the field notebook by the person conducting the audit, which will then inform the personnel involved in the activity of the problem and notify the Project Manager for initiation of any necessary corrective action procedures.

B6. Instrument/Equipment Testing, Inspection, & Maintenance Requirements

B6.1. Preventive Maintenance

A preventive maintenance program is necessary to help prevent delays in project schedules, poor output performance, or erroneous results in investigative and/or remedial operations. Qualified personnel will perform preventive maintenance on laboratory analytical equipment used in this program. Maintenance of field equipment will be performed routinely for sampling events. More extensive maintenance will be performed, based on hours of use, by a qualified servicing organization. Repairs, adjustments, and calibrations will be recorded. Records will be available for inspection by the Project Manager on request.

B6.2. Field Equipment

The three elements of the field equipment maintenance program include normal upkeep of equipment, service and repair (when required), and formalized recordkeeping of all work performed on each piece of equipment. This section addresses the normal equipment upkeep element of the maintenance program. For most of the equipment, normal maintenance will consist of cleaning outside surfaces, lubrication of all moving parts, and, if applicable, a battery level check and recharge or replacement as necessary. This program will include the maintenance of all monitoring, measuring, and test equipment returning from field use or any equipment used on a daily basis. The frequency of maintenance checks will be dependent on the individual needs and use of each piece of equipment. Details regarding the required maintenance and operational procedures for the field equipment can be found in the associated manufacturer's handbook or instruction manual. Maintenance procedures will be only those necessary for keeping an instrument in service or to prepare for everyday use. Repair problems will be referred to the manufacturer or other qualified servicing organizations.

The QA/QC Manager or the designated task leader will be responsible for keeping all maintenance records, making sure all equipment used is maintained properly, informing field team members of any specific maintenance requirements for equipment used at the site, and shipping any instrument in need of repair to the correct source.

The field personnel responsibilities include maintaining each piece of equipment located at the site and the maintenance of equipment after use. A record of equipment maintenance and repair will be kept in the field logbook.

B6.3. Rental Equipment

Rental equipment used on the project will be obtained only from a reliable rental supplier. The equipment will require an equipment test sheet to verify accuracy, maintenance, and upkeep of the equipment. A receipt indicating that the equipment has been checked upon return will be required as well.

B6.4. Laboratory Equipment

An important factor in maintaining accuracy and precision, achieving required holding times, and addressing contract schedule is preventive maintenance. As part of the laboratory's standard operating procedures, service contracts will be held on critical analytical instruments.

B7. Instrument Calibration & Frequency

B7.1. Field Calibration Procedures

Measuring and test equipment shall have an initial calibration and shall be recalibrated at scheduled intervals against certified standards that have known and valid traceability to recognized national standards. Calibration intervals for each item shall be, at a minimum, in accordance with manufacturer's recommendations as defined in the equipment manual. Test equipment used for calibration of sensors shall be recalibrated at least once a year or when maintenance or damage indicates a need for recalibration.

Calibration standards shall be maintained and used in an environment with temperature, humidity, and cleanliness controls that are compatible with the accuracy and operating characteristics of the standards. An inspection will be made during the equipment calibration to evaluate the physical condition of the equipment. The purpose of the inspection is to detect any abnormal wear or damage that may affect the operation of the equipment before the next calibration. Equipment found to be out of calibration or in need of maintenance or repair will be identified and removed from service.

The QA/QC Manager shall be notified if the test equipment is found to be out of tolerance during inspection and calibration. The corrective actions to be taken include evaluating the validity of previous inspection or test results; evaluating the acceptability of the items inspected or tested since the last calibration check; and repeating the original inspections or tests using calibrated equipment when it is necessary to establish the acceptability of previous inspections or tests.

Each item of measuring or testing equipment in the calibration program shall be identified in such a way as to show its calibration status and calibration expiration date. Equipment history records for measurement and test equipment shall be used to indicate calibration status and conditions, corrections to be applied, results of in-service checks, and repair history. This will provide a basis for establishing calibration frequencies and for remedial action if the instrument is found to be out of calibration.

Calibration frequency and procedures for each piece of equipment can be found in the manufacturer's manual. Calibration documentation requirements are specified in Section 6.4.

B7.2. Laboratory Calibration Procedures

Laboratory instrumentation calibration procedures, frequency, and standards will be consistent with the requirements of the applicable analytical method. Additional information on instrumentation calibration procedures and frequency are presented in the LQAM.

B8. Inspection/Acceptance Requirements for Supplies and Consumables

The task manager will be responsible for inspecting sample containers before leaving for a dry or wet weather sampling event. The sample containers will be supplied by Microbac and will be inspected for cracks, ill-fitting lids, and other obvious defects before use and will be discarded if defects are found to be present.

The Microbac laboratory analyst assigned to conduct the analysis will be responsible for inspecting equipment and supplies upon receipt.

B9. Data Acquisition Requirements for Non-direct Measurements

No existing data was obtained or provided for this project.

B10. Data Management

B10.1. Data Management Locations

Data for this project will be produced in two locations: in the field and in the laboratory. The field data collection will be recorded on the field data sheets and in the field notebooks. The field data sheets and field notebooks will be submitted to the task manager when field activities are complete and will become part of the project file.

Field book entries will be completed for each day of field activities by the field sampling team and forwarded to the Project Manager. The report includes the weather during sampling, samples taken, instrument maintenance and calibration, and any field changes, problems, or corrective actions. The field books will document the enforcement of the Quality Control program through the field audit program.

All field books, laboratory data reports, and reports will be stored in one central location at Apex's office in Manassas, VA.

C. ASSESSMENT AND OVERSIGHT

C1. Assessment and Response Actions

Planned assessments include routine monitoring of field activities and the verification and validation of all reported data (conducted in accordance with sections D1 and D2). The monitoring of field activities will be conducted by the Project Manager or QA/QC Manager, on-site, at the time(s) when samples are being collected for both field and laboratory analysis and when field analyses are conducted. The purpose of this audit will be to identify any performance deficiencies and to verify conformance with the procedures discussed and referenced in this QAPP. The findings from this audit will be used to plan any follow-up actions needed to ensure resolution of performance deficiencies. The Project Manager or QA/QC Manager will have the authority to stop work on-site if he deems the findings from the audit to justify such actions. The Task Manager/Key Personel, in consultation with the Project Manager, will be responsible for corrective actions relating to field activities.

The narrative report included with each laboratory data report will include a discussion of the quality of the reported laboratory data, which will result from the Microbac Laboratory Director's audit of data quality according to SOP No. QM-001-020 Issue No. 001, "Quality Assurance Manual- Baltimore Division". The Microbac Laboratory Director will be responsible for corrective actions at the laboratory. The Project Manager or QA/QC Manager will review the results from all reported data to verify that it is useable for the purposes of this project, and that it is reasonable when taken with other facts known about the site. Sections D1 and D2 of this QAPP discuss the verification and validation process in detail.

If a particular analysis is deemed "out-of control," corrective action will be taken to ensure continued data quality. Actions that may be taken include, but are not limited to:

- Rechecking calculations
- Checking QC data on other samples
- Auditing laboratory procedures
- Reanalyzing the sample if the holding time requirements have not been exceeded
- Accepting data with the acknowledged level of uncertainty
- Discarding data

The coordinator of the laboratory's analytical section will be responsible for initiating laboratory corrective action when necessary. The laboratory Data Quality Reviewer will make recommendations for corrective actions outside the laboratory to the Apex Project Manager or QA/QC Manager.

C2. Reports to Management

Reports to management will include a DDOE Notifications and a Sampling Report following each successfully sampled qualifying rain event (greater than 0.1" of rain).

Apex will notify the DDOE by email of all attempts (successful or not successful) within 48-hours of the first business day following each attempt to collect samples.

Following successfully sampled rain events, Sampling Reports will be generated by the Project Manager for inclusion in DDOE's project file upon receipt of analytical results. Reports will be submitted no later than 30 days following each sampling event. These reports will include a summary description of sampling activities, field analysis results, a summary of analytical data, and a discussion of any problems encountered and associated corrective actions. Attachments will include field data sheets, Chain-of-Custody documents, precipitation data including hydrographs, and a full copy of the laboratory analytical report.

Field activity reports will be generated by Project Manager within two weeks of the sampling event. Laboratory analytical reports will be generated by Microbac laboratory staff and submitted to the Project Manager after receipt of the samples. Apex will then include the analytical information, in conjunction with the field information, in a Sampling Report to DDOE. Any significant QA problems encountered in the laboratory or in the field, as deemed by Microbac or the QA/QC Manager will be reported immediately to the Project Manager via telephone.

C2.1. Nonconformance Reporting

A nonconformance is defined as an identified or suspected deficiency in an approved document (e.g., technical report, analysis, calculation, computer program); or a deficiency in an item where the quality of the end item itself or subsequent activities using the document or item would be affected by the deficiency; or an activity that is not conducted in accordance with the established plans or procedures.

Any team member (including laboratory team members) engaged in project work that discovers or suspects a nonconformance is responsible for initiating a nonconformance report. This team member shall obtain a nonconformance report number from the QA/QC Manager. The QA/QC Manager shall evaluate each nonconformance report and shall provide a disposition that describes the actions to be taken.

The Project Manager shall ensure that no further project work dependent on the nonconforming item or activity is performed until approval is obtained and the nonconformance report is closed out. If the nonconformance is related to material, the Project Manager shall be responsible for marking or identifying, with the nonconformance report number, the nonconforming item (if practical), and indicating that it is nonconforming and is not to be used.

A copy of each closed nonconformance report shall be included in the quality assurance file. The QA/QC Manager shall maintain copies of all nonconformances.

D. DATA REVIEW AND USABILITY

D1. Data Validation and Usability

Data will be accepted if they meet the following criteria:

1. Field data sheets are complete and signed.
2. Field data and laboratory data were validated.
3. Actual sample locations and collection procedures match the proposed sample locations and collection procedures identified in sections A5 and B2, respectively.
4. Sample handling procedures are documented on COC forms.
5. Field book narrative matches the proposed sample handling procedures identified in sections B2 and B3 (e.g., samples properly preserved, microbiological holding time of six hours not exceeded).
6. Field QC was conducted as outlined and meets the acceptance criteria in section B5 (field equipment was calibrated daily, field duplicate sample results within 5%, field rinsate blank indicated no cross-contamination).

Any deviations from the QAPP must be reported in the field book or analytical data report. The analytical data report will include the information described in section A9. The EPA Project Manager will verify the content of these reports.

If the data fails to meet the criteria, they will be flagged by the Project Manager as estimated values. Any flagged data will be discussed with the project team and DDOE Water Quality Division to determine if the data point will be rejected and re-sampling done.

D2. Data Validation and Verification

The Project Manager will validate the field data and any problems identified during this process will be reported to the Project Manager in field book activity reports.

The Microbac Laboratory Director will validate the laboratory data according to SOP No. QM-001-020 Issue No. 001, “Quality Assurance Manual- Baltimore Division”. Any problems identified during this process will be reported to Apex Companies, LLC Project Manager in the analytical data report.

The Project Manager or QA/QC Manager will review and verify the field sheets, field book activity reports, and the analytical data report. Any problems or deviations identified will be discussed with the project team.

D3. Reconciliation with Data Quality Objectives

The laboratory shall review data prior to its release. Objectives for review are in accordance with the QA/QC objectives stated earlier in this document. The laboratory is required to evaluate their ability to meet these objectives. Outlying data shall be flagged in accordance with laboratory SOPs and corrective action shall take place to rectify the problem. Laboratory review SOPs will be found in the LQAM.

Under the National Pollutant Discharge Elimination System (NPDES) program, the laboratory is required to participate in the annual Discharge Monitoring Report–Quality Assurance (DMR-QA) study program. DMR-QA evaluates the analytical ability of the laboratories that routinely perform self-monitoring analyses required by their NPDES permit. Microbac Laboratory will participate in this annual study.

The quality assurance (QA) laboratory will deliver the sample results and data package, which will be reviewed by the QA/QC Manager. The data reviewed will include all blank, sample, and internal quality control results such as spike and surrogate recoveries and replicate analyses. Any significant differences or problems discovered will be addressed; corrective action, such as reanalysis and/or resampling, may result at the Project Manager's discretion.

The sample event report will be submitted within approximately 30 days of the actual sampling event and based on actual analytical results receipts from the Microbac laboratory. The results of the field parameters tested during the sampling event, field data collection sheet, site narrative report of the event and sampling locations where the actual storm water samples collected, site photographs and meteorological data predicting the storm-water event, signed chain-of-custody forms and the laboratory analytical results of analyzed samples will be included in the sample event report. Two hard copies of the report and an electronic report copy will be submitted for each event report to DC DOE.

Appendix 1

(Laboratory Quality Assurance Manual)

Microbac Laboratories, Inc., Baltimore Division
2101 Van Deman St.
Baltimore, MD 21224
Tel: (410) 633-1800

Microbac Laboratories, Inc., Richmond Division
2028 Dabney Road, Suite E-17
Richmond, VA 23230
Tel: (804) 353-1999

Controlled copy #_____

QUALITY ASSURANCE MANUAL
MICROBAC LABORATORIES, INC., BALTIMORE DIVISION

This Microbac Laboratories, Inc., Baltimore Division Quality Assurance Manual governs all testing performed by Microbac Laboratories, Inc., Baltimore and Richmond locations (hereafter jointly referred to as Microbac Laboratories, Inc.). The addresses and phone numbers above will allow you to reach all parties responsible for the laboratories.

The reference source for this Quality Assurance Manual is ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories". The laboratory management is committed to compliance with the NELAC and ISO/IEC 17025 standard and in following the requirements and guidelines stated in this standard for testing performed by the laboratory.

Quality Assurance Manual, *Issue 01 – Revision 020 and later revisions* is effective from *08/22/2012.* It supersedes and replaces the Microbac Laboratories, Inc., Baltimore Division QA Manual Revision *Issue 01 - Revision 19.*

This manual is approved by:

mark.horan@microbac.com
2012.08.01 14:35:39 -04'00'

Mark Horan
Laboratory Director / Division Manager

08/01/2012
Date

Digitally signed by Peter Kelly
Date: 2012.08.01 16:15:50 -04'00'

Peter Kelly
Lead Technical Director

08/01/2012
Date

Curtis Read
Technical Manager

8/1/2012
Date

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Emily Deya
Quality Assurance Manager

08/01/2012
Date

Changes to this manual must be approved by the Division Manager or Technical Personnel and Quality Assurance Manager.

TABLE OF CONTENTS

1. QUALITY POLICIES

To meet the quality mission previously set forth, Microbac Laboratories, Inc., Baltimore Division, conforms to the following policies:

1.1 To maintain an organization of well-qualified and properly trained personnel who are knowledgeable in and follow Microbac Laboratories, Inc. prescribed procedures and policies. Personnel are trained and qualified in order to perform specific tests.

1.2 In order to provide quality analytical data, it is essential to have qualified, well-trained personnel. In-house training of technical personnel is performed according to a written Standard Operating Procedure Gen-010 "Training Protocol" and ensuring that all personnel familiarize themselves with laboratory quality system documentation in order to implement the policy and procedures in their work.

1.3 In all Field Sampling procedures - to collect samples properly and to ensure that they maintain the characteristics of the sample source by the use of appropriate sampling and preservation techniques.

1.4 To collect and receive samples under chain-of-custody procedures adhering to proper sample preservation and collection techniques.

1.5 To maintain adequate facilities (physical plant and instrumentation) to allow personnel to perform chemical tests properly in a safe environment.

1.6 To obtain, maintain, and calibrate equipment and instrumentation as required to accurately and efficiently perform chemical tests as prescribed in the test methods.

1.7 To use, adapt, or develop "rugged" analytical methods. Whenever available, written methods from organizations such as USEPA, APHA/AWWA/WPCF (Standard Methods), ASTM, NIOSH, AOAC, FDA, USP or other recognized organizations are used.

1.8 To use suitable reagents and standards. These are purchased or prepared as appropriate. When required, calibration standards are traceable to NIST reference materials or traceable to some other certifying agency.

1.9 To maintain complete and accurate written documents that are created by, purchased, or obtained by this laboratory.

1.10 To maintain a clear, complete and accurate account of all laboratory data and supporting records.

1.11 To perform routine procedures for validation of the data generated in the laboratory to ensure correctness and to produce clear, concise, and complete reports for customers or their designated representative.

1.12 To perform quality control checks on instruments, methods and analysts in order to rapidly detect errors and prevent recurrence. This is accomplished through the use of standards, blanks, duplicates, and spiked samples to check accuracy, precision and matrix effects.

1.13 To conduct routine internal audits of both the laboratory departments and the support / quality system operations of the laboratory, to cooperate with outside auditors, and to take necessary preventive and corrective actions when and where needed.

1.14 To submit a monthly Quality Assurance Report to management.

1.15 To obtain and maintain certifications and accreditations to demonstrate Microbac Laboratories, Inc. competence and allows the laboratories to perform tests covered by these programs

1.16 To maintain an Advertising Policy that describes the laboratory's accredited status in a manner that does not imply accreditation in areas that are outside the laboratory's actual scope of accreditation.

1.17 To maintain an environment free of undue stress of both internal and external parties and improper influence that would compromise the independence or integrity of the laboratory's quality of work. The laboratory will work to ensure that there are no conflicts of interest between the laboratory and its customers or between the laboratory and government agencies or regulators.

- Customer inquiries concerning analytical testing are directed to Project Management personnel, Division Manager, Technical Directors and Quality Assurance personnel. This insulates the employees from external bias.

- Employees who receive undue internal pressure shall notify the appropriate manager and shall be fully investigated. The laboratory is operated under an Open Door Policy that enables every employee to have free access to senior management. This policy is intended to foster two-way communication and encourages employees to carefully consider their duty and responsibility to report inappropriate data production and reporting practices to the corporate leadership.

- Any information brought forward by an employee shall be handled with strictest confidence and respect for such information and for the employee consistent with the fair enforcement of the code of ethics and business conduct standards.

1.18 To maintain an environment in which all levels of personnel are able to voice any concerns or helpful suggestions through the monthly departmental team meetings.

1.19 To ensure that information about customers and proprietary rights are treated confidentially as outlined in Microbac Laboratories, Inc. Business Conduct Policy and Confidential Information Agreement.

1.20 To maintain a purchasing procedure that ensures that all goods and services purchased are of known and documented quality and meet the technical requirements and acceptance criteria of Microbac Laboratories, Inc..

1.21 To comply consistently with NELAC, ISO 17025 and AOAC to ensure quality testing and to continually improve the effectiveness of the Quality Management System.

1.22 To make the Quality Assurance Manual available to all employees and laboratory auditors. The Quality Assurance Manual is available to customers upon request. Any Quality Assurance Manual distributed to customers or agencies apart from Microbac Laboratories, Inc., Baltimore Division is considered an uncontrolled copy of the Quality Assurance Manual.

1.23 The policies stated herein may be amended, or departed from in those rare situations that may occur from time to time. A departure or amendment must be approved in writing by the President, Division Manager / Laboratory Director and / or Regional Director / Vice-President.

1.24 Through the authorization of the Division Manager/Lab Director or Regional Director/Vice-President, adequate resources are provided to fulfill the Quality Mission. He has assigned authority to the Quality Assurance Manager to implement this Quality Assurance Plan. The Division Manager/Laboratory Manager has given the authority to all members of management and all company workers to stop any unsafe work or any work that is deemed of inadequate quality.

1.25 Requirements in quality policies are documented and incorporated into an updated version of the QA Manual. All appropriate personnel are notified of the change, and the updated portion of the QA Manual is distributed.

Approved by:	Mark Horan (Division Manager)	Emily Deya (Quality Manager)
Sign:	mark.horan@microbac.com 2012.08.01 14:36:20 -04'00'	emily.deya@microbac.com 2012.08.01 15:30:45 -04'00'
Date:	08/01/2012	08/01/2012

2. ORGANIZATION AND MANAGEMENT STRUCTURE

Microbac Laboratories, Inc. is a national network of testing laboratories, staffed with well-qualified and properly trained personnel who are knowledgeable in and follow prescribed procedures and policies. All personnel are trained and qualified in order to perform specific tests. The corporate organization of Microbac Laboratories, Inc. is shown on the Division Organization Chart (APPENDIX B) included at the end of this Quality Assurance Manual. The structure of the Baltimore Division incorporates the Richmond location and is shown in the organization chart included in this section of the Quality Assurance Manual.

Any reference to the Baltimore Division hereafter also incorporates the Richmond location.

2.1 ANALYTICAL QUALIFICATION OF PERSONNEL

Microbac Laboratories, Inc., has established written preferred qualifications for all positions at the division level. These qualification requirements are maintained by Human Resources and are used to qualify prospective new employees and to establish guidelines for current employee advancement to positions of greater responsibility. These qualifications are periodically reviewed by the management staff and updated accordingly. The President and/or Division Manager can amend the job requirement qualifications and special considerations may be applied on a case by case basis.

The analyst has the primary responsibility for the quality of the data being produced. The responsibilities of the various positions as they relate to the quality of the analyses performed are as follows:

2.1.1 President

As owner of the company, the President is ultimately responsible for all operations. He has assigned the management duty of overseeing daily operations of the Baltimore Division to the Division Manager.

Other related duties of the President include:

1. Approval of increasing the total number of staff
2. Approval of all capital expenditures
3. Approval of physical enhancements made to the facility structure

2.1.2 Regional Director

Directs all operation of independent commercial laboratory that provides a wide range of analytical testing and research support services. Also, oversees secondary division(s) and division manager(s). Minimum requirements include a BS, MS or PhD in Analytical chemistry, biology, or closely related science. Additional experience is preferred and will be taken into consideration. Reports directly to the CEO and COO.

2.1.3 Division Manager / *Responsible Official*

The Division Manager / *Responsible Official* is responsible for authorization of the quality objectives and policies of Microbac Laboratories, Inc., Baltimore Division and for overseeing the progress of the quality assurance program as reported to him in the monthly QA Officer's Report. The Division Manager / *Responsible Official* is the agent in charge of all laboratory activities.

The Division Manager / *Responsible Official* has final responsibility for all test results and other related information reported in the Certificates of Analysis. The reports are reviewed and signed by the Division Manager, and at his discretion he may also authorize this responsibility to the Technical Director, Quality Assurance Officer, and/or staff managers.

Other related duties of the Division Manager / *Responsible Official* include:

1. Overall supervision of the production areas of the company which includes the laboratory departments, field services and customer services.
2. Authorization of proposals, bids and quotes.
3. Approval of new equipment purchases.
4. Approval of hiring of new personnel.
5. Maintaining an approved list of subcontractor laboratories, with QA Officer and Customer Services Manager.
6. Overseeing the annual review of the quality system.
7. Assuming the critical duties of the Quality Assurance Officer in his/her absence.

Division Manager / *Responsible Official* preferred job qualifications are: BS/BA in Chemistry or related science (must include 4 semesters college chemistry), 10 years related experience or AA degree plus 15 years related experience, with 2 years project management experience, computer knowledge and excellent communication skills.

In the case of an extended absence of the Division Manager, the Regional Director will cover these duties.

2.1.4 Technical Director

Technical Directors at Microbac Laboratories, Inc., have primary responsibility for the overall quality of the data produced in their section. In the extended absence (15 consecutive calendar days) of a Technical Director another qualified Technical Director or the Division Manager shall oversee their duties. Their responsibilities include:

1. Supervising the section personnel in the daily production of laboratory test results.
2. Ensuring that all relevant SOPs are being followed.
3. Approving analytical data produced by their section and approving completed jobs in the LIMS.
4. Reviewing and maintaining records for completeness and accuracy.
5. Hiring and training qualified personnel for their department (including cross-training personnel).
6. Selecting and maintaining the equipment, calibration standards and reagents necessary to produce quality data according to the methods selected.
7. Documenting and reporting incidents of nonconformance and corrective actions to the QA Officer
8. Performing analyses when necessary or performing non-routine testing.
9. Conducting periodic team meetings.
10. Developing and approving the use of department specific SOPs.
11. Working with other Technical Directors/Managers in order to share personnel resources.
12. Selecting, testing and validating all new software programs to ensure data integrity.
13. Approving all computer and computer related supplies purchases.
14. Supervising the training of all laboratory personnel on the proper use of the laboratory information management software (LIMS).
15. Developing utilities to aid management in their assessment of LIMS information.
16. Developing and approving the use of department specific SOPs.
17. Maintaining the local area network and computer hardware.
18. Ensuring the security of the LAN.
19. Configuring computers in the laboratory that are connected to the LAN

The Technical Director Job qualifications are: BS/BA in Chemical, Biological or Physical Sciences, Environmental or Engineering (must include 24 college semester credit hours in chemistry) plus 5 years related laboratory experience and 2 years supervisory experience.

The Manager preferred job qualifications are: BS/BA in Chemistry or related science (must include 4 semesters college chemistry) plus 3 years related experience.

2.1.5 *Technical Manager*

The Technical Manager at Microbac Laboratories, Inc., has primary responsibility for the overall quality of the data produced in their section. In the extended absence (15 consecutive calendar days) of a Technical Manager another qualified Technical Manager / Technical Director or the Division Manager shall oversee their duties. Their responsibilities include:

1. *Supervising the section personnel in the daily production of laboratory microbiology test results.*
2. *Ensuring that all relevant SOPs are being followed.*
3. *Approving analytical data produced by their section and approving completed jobs in the LIMS.*
4. *Reviewing and maintaining records for completeness and accuracy.*
5. *Training personnel for their department (including cross-training personnel).*
6. *Selecting and maintaining the equipment, calibration standards and reagents necessary to produce quality data according to the methods selected.*
7. *Documenting and reporting incidents of nonconformance and corrective actions to the QA Officer*
8. *Performing analyses when necessary or performing non-routine testing.*
9. *Developing and approving the use of department specific SOPs.*
10. *Working with other Technical Directors/Managers in order to share personnel resources.*
11. *Supervising the training of all laboratory personnel on the proper use of the laboratory information management software (LIMS).*
12. *Developing and approving the use of department specific SOPs.*

The Technical Manager Job qualifications are: BS/BA in Chemical, Biological or Physical Sciences, Environmental or Engineering (must include 16 college semester credit hours in Biology / Microbiology) plus 1 years related laboratory experience.

The Technical Manager preferred job qualifications are: BS/BA in Chemistry or related science (must include 4 semesters college chemistry) plus 1 years related experience.

2.1.6 Quality Assurance *Manager* / Officer

The Quality Assurance Officer reports directly to the Division Manager and acts independently from the production aspect of the laboratory. In the absence of Quality Assurance Officer, the Division Manager or Technical Director shall oversee the critical duties of the QA Officer.

QA Officer's responsibilities include:

1. The implementation of the quality program.
2. Developing, approving, maintaining, and distributing the QA Manual and other quality procedures documentation.
3. Arranging internal audits of lab activities according to schedule and/or management requests.
4. Responsible for security of master SOPs and archived SOPs and the control and distribution of SOPs.
5. Ensuring company compliance with the QA Manual via analysis of performance samples, approval of corrective action reports, and conducting training to communicate to employees the policies and procedures of the QA Manual.
6. Stopping production when situations occur that may produce incorrect data.
7. Obtaining and maintaining certifications and accreditations required to demonstrate capabilities and competence to meet regulatory guidelines and customer specifications.
8. Arranging audits of the laboratory by customers, state regulatory agencies or third party accrediting organizations; responding to these audits and verifying any required changes.
9. Investigating and responding to customer inquiries concerning data quality.

10. Preparing monthly Quality Assurance report that is given to the Division Manager and the corporate Quality Assurance Director.
11. Compiling special quality assurance packages for customers
12. Maintaining an approved list of subcontractor laboratories, with Division Manager and Customer Services Manager and IT Manager in LIMS

QA Officer preferred job qualifications are: BS/BA in Chemistry or related science (must include 4 semesters of college chemistry and training in statistics) plus 5 years related experience.

2.1.7 Administrative

The Office Manager is responsible for:

1. Maintaining an up-to-date Personnel Manual and a Corporate Procedures Manual that describes internal and company-wide policies in sufficient detail to ensure that all personnel have a clear understanding of the policies.
2. Maintaining all personnel records to include qualifications, payroll, performance evaluations, health and safety, and archived training records.
3. Maintaining security system.
4. Overseeing hiring process by use of pre- and post-hire checklists.
5. Overseeing benefits program.
6. Developing and verifying the use of Administrative area SOPs.
7. Maintaining an updated list of laboratory personnel that includes signatures and written initials

2.1.8 Business Development Manager

The Business Development Manager is responsible for:

1. Initiating new customer contacts
2. Reviewing and approving new customer bids
3. Generating sales
4. Representing Microbac Laboratories, Baltimore Division at trade shows, conferences, symposiums, etc.
5. Reviewing Requests for Proposals

The Business Development Manager preferred job qualifications are: BS/BA in Marketing plus 2 years laboratory experience.

2.1.9 Chemical Hygiene Officer (CHO)

Chemical Hygiene Officer is responsible for:

1. Developing policies for approval by senior management, updating and implementing the policies upon approval.
2. Maintaining the Health and Safety Manual.
3. Monitoring regulations to assure compliance.
4. Assuring the effectiveness of the program through audits, surveys and inspections.
5. Reinforcing the commitment of management to the policies and program.
6. Providing advice and guidance to the various Managers, drawing on his knowledge of safety and industrial hygiene.
7. Serving as liaison between management, employees and various regulatory agencies.
8. Designing, overseeing and participating in the safety and health training programs.

9. Investigating and reporting on accidents, injuries and incidents (near misses) and report to Human Resources.
10. Maintaining records, catalogs and books related to safety hygiene considerations.
11. Reviewing construction plans for safety and hygiene considerations.
12. Immediately stopping potentially hazardous work practices.

2.1.10 Analyst III

Analyst III are responsible for:

1. Performing complex and routine analyses using specified analytical methods as outlined in the Division SOPs. The individual performing the test has the primary responsibility for the quality of the data being produced.
2. Troubleshooting and method development.
3. Training and supervision of subordinates.
4. Assuming the administrative duties of the Manager when assigned.
5. Developing department specific SOPs.

The Analyst III preferred job qualifications are: BS/BA in Chemistry or related science (must include 4 semesters college chemistry) plus 2 years related experience. Experience may be substituted for formal education.

2.1.11 Analysts I and II

Analysts are responsible for:

1. Conducting analyses as trained using specified analytical methods as outlined in the Division SOPs. The individual performing the test has the primary responsibility for the quality of the data being produced.
2. Completing all documentation (worksheets, logbooks, notebooks, QC charts) required for the analyses performed.
3. Entering data into the LIMS system and verifying those entries are correct and ready for Manager approval.
4. Noting and reporting any deviations or nonconformance conditions to the Manager or Senior Analyst.

The Analyst II preferred job qualifications are: 2 semesters of college chemistry plus 3 years related experience.
The Analyst I preferred job qualifications are: High School Diploma plus High School Chemistry

2.1.12 Laboratory Technician

Technicians are responsible for:

1. Conducting analyses as trained using specified analytical methods as outlined in the Division SOPs. The individual performing the test has the primary responsibility for the quality of the data being produced.
2. Completing all documentation (worksheets, logbooks, notebooks, QC charts) required for the analyses performed.
3. Entering data into the LIMS system and verifying those entries are correct and ready for Manager approval.
4. Noting and reporting any deviations or nonconformance conditions to the Manager or Senior Analyst.

The Laboratory Technician preferred job qualifications are: High School Diploma

2.1.13 Customer Services / Field Operations Department

Customer Services Manager is responsible for:

1. Supervising the department personnel.
2. Ensuring that all relevant SOPs are being followed.
3. Approving analytical data produced by their section and approving completed jobs in the LIMS.
4. Reviewing and maintaining records for completeness and accuracy.
5. Hiring and training qualified personnel.
6. Selecting and maintaining the equipment, calibration standards and reagents necessary to produce quality data according to the methods selected.
7. Documenting and reporting incidents of nonconformance and corrective actions to the QA Officer.
8. Conducting periodic team meetings.
9. Developing and approving the use of department specific SOPs.
10. Maintaining an approved list of subcontractor laboratories, with Division Manager and Quality Assurance Officer.

The Customer Services Manager preferred job qualifications are: 4 semesters of college chemistry plus 3 years' experience and 1 year supervisory experience.

Field Operations Manager is responsible for:

1. Supervising the department personnel.
2. Ensuring that all relevant SOPs are being followed.
3. Approving analytical data produced by their section and approving completed jobs in the LIMS.
4. Reviewing and maintaining records for completeness and accuracy.
5. Hiring and training qualified personnel.
6. Selecting and maintaining the equipment, calibration standards and reagents necessary to produce quality data according to the methods selected.
7. Documenting and reporting incidents of nonconformance and corrective actions to the QA Officer.
8. Performing analyses when necessary or performing non-routine testing.
9. Conducting periodic team meetings.
10. Developing and approving the use of department specific SOPs.
11. Maintaining an approved list of subcontractor laboratories, with Division Manager and Quality Assurance Officer.

Field Operations Manager preferred job qualifications are: 4 semesters college chemistry plus 3 years' experience and 1 year supervisory experience.

Senior Field Operations Technician is responsible for:

1. Collecting samples according to specified procedures.
2. Performing field tests as necessary.
3. Documenting sampling operations using the proper forms.
4. Assuming the administrative duties of the Field Operations Manager when assigned.
5. Developing department specific SOPs.

The Senior Field Operations Technician preferred job qualifications are: 2 semester's college chemistry or equivalent plus some supervisory skills.

Field Technicians are responsible for:

1. Collecting samples according to specified procedures.
2. Performing field tests as necessary.
3. Properly labeling all containers.
4. Ensuring proper sample preservation.
5. Transporting the samples to the laboratory ensuring Chain-of-Custody protocol.
6. Documenting sampling operations using the proper forms.

Sample Receiving Technician is responsible for:

1. Receiving and distributing samples according to Chain-of-Custody protocol.
2. Logging samples into the LIMS.
3. Consulting with project managers regarding sample anomalies.
4. Maintaining proper sample storage conditions in sample receiving area (refrigerators, etc.).
5. Shipping samples to subcontractor laboratories.

The Senior Field Technician preferred job qualifications are: 2 semesters of college chemistry or equivalent plus some supervisory skills.

The Field Technician / Sample Receiving Technician preferred job qualifications are: High School Diploma.

All Customer Services / Field Operations Personnel that drive company vehicles to pick-up and transport samples are required to have a good driving record and must be able to lift one hundred pounds.

2.1.14 Project Manager:

Project Managers are responsible for:

1. Acting as liaison between customer and laboratory.
2. Communicating with customers to ensure that their quality and analytical needs and data turn-around times are met.
3. Assuring that customer projects are set-up and logged in correctly.
4. Performing final review of reports for completeness.
5. Handling customer inquiries and complaints according to established protocol.
6. Maintaining/updating all project related information either in customer files or LIMS.

Project Manager's preferred job qualifications are: 4 semesters college chemistry plus 1 year related experience; or 3 semesters college chemistry plus 2 years related experience; or 1 semester college chemistry plus 4 years related experience

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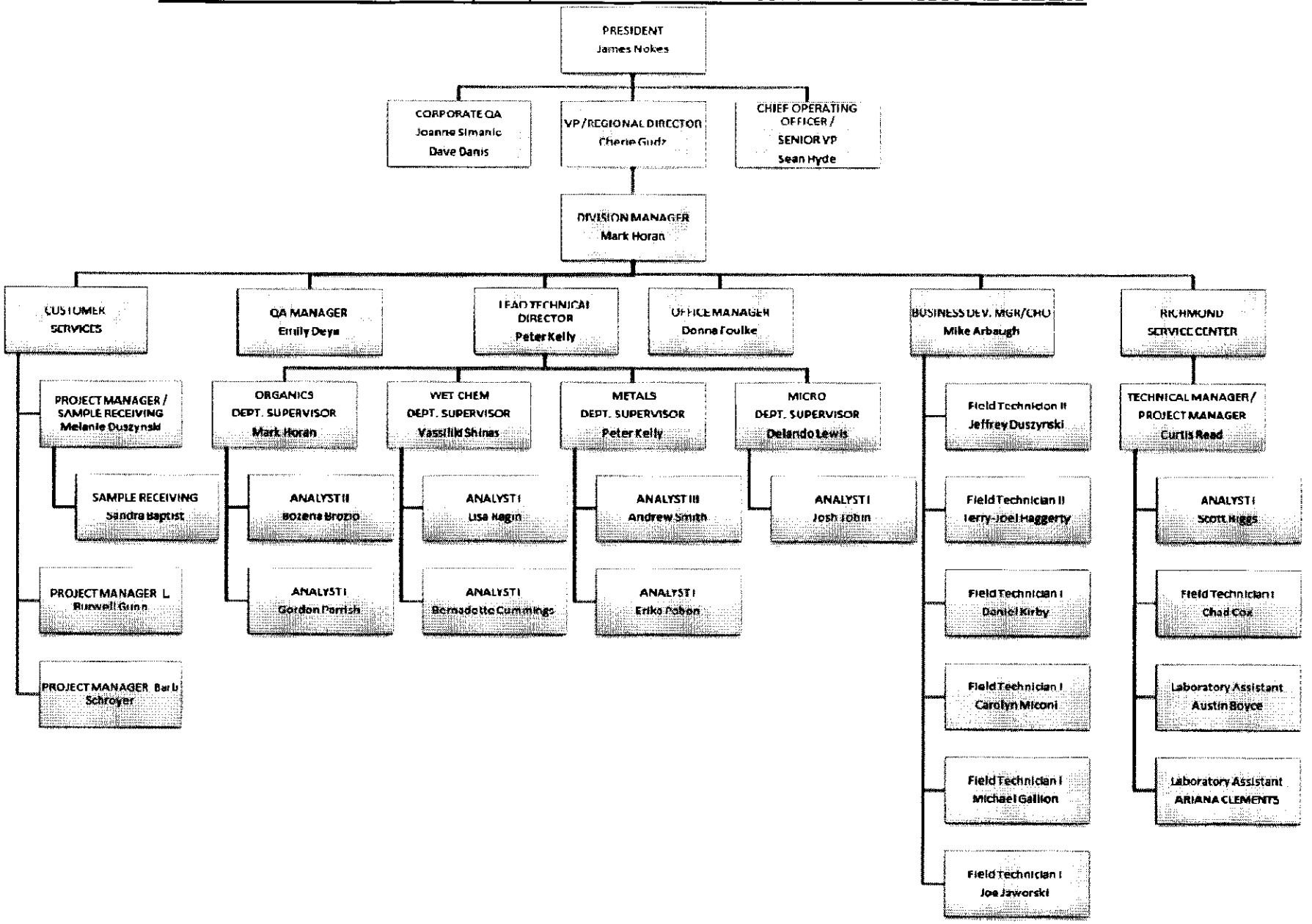
MICROBAC LABORATORIES, INC., BALTIMORE DIVISION ORGANIZATIONAL CHART



3. DOCUMENT CONTROL

3.1 It is the policy of Microbac Laboratories, Inc. to maintain complete and accurate written documents that are created by, purchased, or obtained by the laboratories. These documents are the property of Microbac Laboratories, Inc., Baltimore Division

3.2 Microbac Laboratories, Inc., tracks the distribution of controlled documents as listed below. Tracking the distribution means the documents are numbered and tracked specifically to individuals. Outdated controlled copies are retrieved and destroyed; only the master is retained. Other documents have a control number but are not tracked to individuals. There is no signature for receipt and no retention of change. Once updated, the outdated copies of this type of documents are retrieved and destroyed.

3.3 Procedures for controlled document revision are described in SOPs GEN-001 "Preparation and Control of Work Instruction SOPs" and GEN-016 "Document Control".

The documents of concern are as follows:

1. Quality Assurance Manual*
2. Standard Operating Procedures (SOPs)*
3. Analytical Test Methods, References, and Field Sampling Procedures*
4. Computer Software Library
5. Certificates of Laboratory Certifications and Accreditations
6. Health and Safety Manual*
7. Team Manual
8. Worksheets and Forms

* Denotes controlled distribution

3.3.1 **Quality Assurance Manual** - The Quality Assurance Manual is the document that defines the laboratory's quality assurance program. The manual outlines the laboratory's plan and procedures to ensure that the data produced from the laboratory's testing is valid.

QA Manual Review – The Quality Assurance Manager is responsible for the preparation, maintenance and updating of this manual, with input from the Division Manager and Staff Managers. The master copy of the manual is maintained by the Quality Assurance Officer. The QA Manual is reviewed on an annual basis by the staff managers to ensure continuing suitability and to make any necessary updates. Each section of the QA Manual is reviewed for accuracy and completeness. Any updates that may have occurred from the previous revision are incorporated. Changes and improvements are made with the approval of the Division Manager, *Technical Director(s)* and the *Quality Assurance Officer(s).* The updated *section* revision is sequentially numbered and replaces the previous version. Controlled copies are numbered and are made available in eacb analytical laboratory, Field Operations, the Project Management Area, and the offices of the QA Officer and the Division Manager. The signature of an individual laboratory employee who receives the QA Manual is kept on a master list by the QA Officer. Outdated copies are retrieved from all areas of the company and replaced with the latest revision. The retrieved copies of the outdated revision of the QA Manual are discarded by the QA Officer. The master copy of the outdated revision is archived by the QA Officer.

Changes in the contents of the quality assurance program due to changes in Microbac Laboratories, Inc. policies or procedures are made as they occur in order to ensure that the contents of the controlled copies of the manual accurately reflect the quality assurance program currently in effect at the laboratories. Upon request, uncontrolled copies of the manual are generated for distribution to prospective customers, regulatory agencies and accrediting bodies. No effort is made to keep uncontrolled customer copies of the QA Manual current. In addition, no effort is made to retrieve outdated uncontrolled copies.

3.3.2 **Standard Operating Procedures (SOPs)** - Standard Operating Procedures are documented protocols to be followed by all laboratory personnel to ensure that a test method, a sample collection, a customer service procedure, or a day to day quality operation of the laboratory is routinely performed correctly and consistently, independent of the person performing the function. SOPs are prepared, controlled, revised and archived according to written instruction in SOP GEN-001, "Preparation and Control of Work Instruction SOPs". Copies of the original SOPs are controlled documents that are assigned to laboratory personnel. The master document of each SOP is kept in a restricted access area and outdated master documents are archived. These archived master documents are under the control of the QA Officer. The SOPs are archived for a minimum of five years. For drinking water testing and industrial hygiene analyses, the SOPs are archived for a minimum of twelve years.

3.3.3 **Analytical Test Methods, References and Field Sampling Procedures References** – Procedures that are used by Microbac Laboratories, Inc. field personnel for the purpose of collecting and evaluating samples are published methods that have been widely tested, used and accepted. Whenever possible, the methods should be from a recognized reference source, promulgated by a regulatory agency or traceable to a standards setting organization (e.g., EPA, ASTM, etc.).

3.3.4 **Computer Software Library** - This includes purchased computer software programs that are not modified and are verified by the vendor. Other software programs are used to create forms for secondary applications (i.e. spreadsheet applications). These secondary applications are validated according to the latest version of a Computer Services Department SOP. The procedure for storage of computer software is documented in this SOP. Control is under the Computer Services Department and computer software is retained for a minimum of five years, except (drinking water testing and industrial hygiene analyses) where the laboratory retains information for a period of twelve years.

3.3.5 **Certificates of Laboratory Certifications and Accreditations** - These certificates are documents that are issued by State Government, Federal Government, or third party accrediting bodies. These documents detail the time frame and scope of approval of laboratory testing. The original certificates are posted in the lobby of the laboratory as specified by the provider of the certificate. Copies of these certificates are made available upon request to customers.

3.3.6 **Health and Safety Manual** - The health, safety and well-being of each employee at Microbac Laboratories, Inc. is of the utmost importance. To comply with the OSHA regulation, "Occupational Exposure to Hazardous Chemicals in Laboratories", 29 CFR 1910.1450, Microbac Laboratories, Inc. has developed its Health and Safety Manual. At the start of employment, each employee is made aware that the entire plan is readily available for his or her use. The plan defines the company's policies and establishes a program for working safely, whether in the laboratory or collecting samples in the field. The plan is designed to educate all employees concerning workplace hazards and to instruct them of the procedures to be followed to ensure a safe workplace.

The plan is reviewed by management on an annual basis. Document control is under the Chemical Hygiene Officer. Upon request, uncontrolled copies of the plan are generated for distribution to prospective customers or regulatory agencies. No effort is made to keep uncontrolled customer copies of the Health and Safety Manual current. In addition, no effort is made to retrieve outdated uncontrolled copies.

3.3.7 **Team Manual** – Microbac Laboratories, Inc., Baltimore Division Personnel Manual is designed to acquaint all personnel with company polices and the benefits available to them.

3.3.8 **Notebooks, Logbooks, Worksheets and Forms** – Uniquely coded laboratory notebooks, logbooks (sequentially numbered pages), worksheets and forms are used to record observations, raw data, calculations, etc. The procedure for recording information in these Notebooks, Logbooks, Worksheets and Forms is documented in GEN-008, "Daily Laboratory Recordkeeping for Analysts".

The Notebooks, Logbooks, Worksheets and Forms are kept in the individual laboratories. Completed notebooks and logbooks are stored in the laboratories for several months for reference purposes and then archived. Laboratory notebooks, logbooks, worksheets and forms are kept for a minimum of five years, environmental lead program ten years after completion (except for those pertaining to drinking water testing and industrial hygiene analyses or other legal requirements) where the laboratory retains information for a period of twelve and are under control of the laboratory department. Original worksheets and forms are periodically reviewed and updated under the control of Production Manager.

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4. REVIEW OF REQUEST, TENDERS AND CONTRACTS

4.1 Approval of Receipt of Samples for Testing (New Work)

4.1.1 Project Managers perform the review of incoming work and document the review via the use of a Checklist. If this review reveals areas of concern that cannot meet the quality needs and expectations of the customer, then the appropriate management person is consulted.

4.1.2 This procedure is outlined in PM-001, "Project Manager Duties". The review of incoming work is also discussed at production meetings. The authorization of all proposals, bids and quotes is made by the Division Manager or his designee. SOP PM-003, "Procedure for Review of Request, Bids and Contracts" describes this procedure.

4.1.3 Periodically, customer projects are either non-routine or of sufficient complexity or importance that they need special attention in order to ensure successfully meeting the customer's needs. For these situations, a Project Plan may be prepared.

4.2 Approval of New Test Procedures

4.2.1 If work is requested that does not have a corresponding test code in LIMS the Project Managers will request a review. Prior to quoting new test procedures, a review is conducted and approved by the Division Manager with input from the appropriate management staff.

4.2.2 The approval is documented on the "New / Change Customer Information" form. New test procedures are those not currently listed in the Customer Reference Guide or a current test procedure that is to be performed on a sample of a different type of matrix. This review may encompass the following criteria:

a) The customer's Data Quality Objective(s)
b) Availability of a published method
c) Method to be used
d) Laboratory's ability to obtain necessary equipment
e) Laboratory's ability to obtain reagents for the method
f) Adequate laboratory environment to safely and effectively conduct the procedure
g) Sufficiently trained personnel to satisfactorily perform the analysis.

4.2.3 If the above criteria are satisfied, a quote is issued and approved by the customer prior to the commencement of a new test procedure. The authorization of all proposals, bids and quotes is conducted by the Division Manager or his designee. The new test procedure may be performed subject to on-going review to ensure that the objective of the procedure is achieved.

4.2.4 Development and approval of a new test method is a planned activity that follows the procedure in the latest revision of SOP Gen-017.

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5. SUBCONTRACTING OF TESTS

5.1 Microbac Laboratories, Inc. assumes responsibility for all subcontracted work.

5.2 The Laboratories shall normally perform tests for which they hold accreditation and shall only sub-contract testing in exceptional circumstances, namely:

a) The laboratory is unable to perform certain tests required by the client

b) Where the volume of testing required exceeds the capacity of the laboratory to such an extent that the quality of work or reporting requirements would be compromised

c) When equipment is out of service

5.3 The laboratory shall notify the customer in advance that their samples are being subcontracted.

5.4 Project Managers are responsible for work that is sub-contracted to ensure that the correct samples are sent out to an approved laboratory.

5.5 When it is necessary to subcontract testing that is on this laboratory's A2LA, and NELAC scope of accreditation, only A2LA, and NELAC accredited laboratories shall be used.

5.6 The subcontract laboratory shall report the result to Microbac and all original subcontract reports are provided to the customer as part of the final report. A copy of all the subcontract information is retained with the file copy of the Report of Analysis.

5.7 For information concerning subcontract, refer to SOP PM-001 "Project Manager Duties" and GEN-032 "Outside Testing Subcontracting Policy".

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6. PURCHASING SERVICES AND SUPPLIES

6.1 Microbac Laboratories, Inc. maintains a purchasing policy that ensures that all goods and services are of known and documented quality and meet the technical requirements and acceptance criteria of Microbac Laboratories, Inc.

6.2 This policy is detailed in SOP IT-010, "Purchasing Policy".

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7. COMPLAINTS

7.1 Procedures for dealing with customer inquiries / complaints

In the event of customer or regulatory question of data, a customer inquiry / corrective action report is initiated in LIMS and the appropriate department is notified that an inquiry has been initiated.

The procedure for reviewing customer inquiries concerning test sample data or Certificates of Analysis is documented in PM-001, "Project Manager Duties".

The validation checks may include, but are not limited to:

- 7.1.1 Transcription Errors - check data for correct transcription, sample mislabeling, etc.
- 7.1.2 Calculations - check all calculations for data in question, verify quality control data acceptability
- 7.1.3 Sample Condition - check for proper container, holding times, preservation and physical description.
- 7.1.4 Instruments - check instrument function and calibration data.
- 7.1.5 Standards and Titrants - were expiration dates exceeded or standards contaminated or prepared improperly?
- 7.1.6 Method - was method appropriate and performed properly?
- 7.1.7 Repeat Analysis - if the above investigation fails to identify any problems, the customer is notified that the data remains unchanged. If the investigation results in a question of the original data, it may be necessary, where possible, to repeat the analysis in question.

7.2 When a revision of the original report is necessary, a revised Certificate of Analysis is issued indicating the change made from the original report.

7.3 The revised Certificate of Analysis includes the same report number as the original, but has the date of reissue recorded on the revised report. The correction is made and the reason for the correction is added as a footnote to the revised report.

Any complaint about the quality of reported results may be referred to the accrediting body if such complaints cannot be resolved directly with the customer.

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8. CONTROL OF NONCONFORMING TESTING

8.1 In the event that testing that is being performed did not comply with any aspect of quality control requirements or the results of the work do not conform to the agreed upon specification required by the customer, a decision will be made regarding the impact of the situation.

8.2 It is the responsibility of the Quality Assurance Manager or designee to stop the work and the release of test result, when non-conformances occur.

8.3 Customers are notified by the Customer Services Manager / Project Manager when work does not conform to the requirements. Resumption of work is authorized by the Quality Assurance Manager or designee after the course of action is decided and implemented.

8.4 The steps describing the identification and evaluation of the non-conformance, the need for corrective action, the decision of the acceptability of the non-conforming work, the impact to the customer, and the responsibility for resuming work are defined in SOP GEN-023 "Procedure for Non-Conforming Testing"

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9. CORRECTIVE ACTION

9.1 Corrective action is necessary when nonconforming work or departures from the policies and procedures in the quality system or technical operations have been identified. Microbac Laboratories, Inc. has established and maintains SOP GEN-024, "Procedure for Corrective Action", which describes the process with which managers and staff identify and address corrective actions.

9.2 Upon discovery of any significant incidence of noncompliance or nonconformance with Microbac Laboratories, Inc., quality policies and procedures, an electronic Corrective Action Report (CAR) form must be completed. Routine maintenance problems and their correction (such as failure of an instrument or a calibration) require no documentation (other than in appropriate logbooks) if corrected by minor maintenance or recalibration. All personnel have the responsibility for reporting any observed non-conformances to the appropriate management level.

9.3 Non-conformances are investigated by the appropriate Manager of the laboratory department or his / her designated senior analyst. Non-conformances may also be investigated by the Division Manager or Quality Assurance personnel as appropriate.

9.4 The Corrective Action Report (CAR) form must identify the person initiating the form and the date, the person(s) that investigate the problem, and a description of the problem (including who was involved, what happened, when did the problem first appear, where did the problem occur, why did the problem happen, how many other systems are affected by the current problem). Documentation should consist of objective evidence, including dates, times, frequencies, results, etc. (e.g. historical data, quality control recoveries, customer-related correspondence, etc.). The investigation must then address the root cause of the problem. There must be documentation to identify the underlying cause in order to remove it so the problem does not recur.

9.5 Once the root cause(s) is determined, corrective actions must be proposed and documented. The CAR Form is then approved by the Manager and submitted to the Quality Assurance Manager. The course of action is then decided and implemented. If the scope of the corrective action plan is singular in nature to that department, involving testing techniques, equipment, etc. the plan is discussed and finalized by the Quality Assurance Manager and the Manager. The Quality Assurance Manager provides final approval of the form. All Corrective Action Report forms are maintained within the laboratory's LIMS.

9.6 If the scope of the corrective action plan is broad in nature, pertains to more than one department, or affects aspects of the quality system, the plan is discussed, decided upon and finalized by the Quality Assurance Manager, Division Manager and all appropriate Managers. The Quality Assurance Manager verifies that the corrective action plan is in place during the internal audit process. The verification is indicated by approval documented on the CAR.

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10. PREVENTIVE ACTION

10.1 SOP GEN-019 Preventive Action procedure is used to gather and review information concerning potential problems and to take appropriate and effective action to prevent or minimize their occurrence.

10.2 The procedure is also used to implement needed improvements to the quality system. This proactive approach requires anticipation of problems by all employees. Preventive Action forms are maintained within the laboratory's LIMS.

10.3 Preventive action reports may be initiated from the results of audit findings (internal and external), employee suggestions, weekly management meetings, management review of the quality system, data review, etc.

10.4 A preventive action report form is initiated by any employee. Documentation of the management review and discussion is made on the form.

10.5 Any final action that is taken is also recorded on the form. The approval of the action plan is documented by way of approval on the form within LIMS by the appropriate Manager or Division Manager.

10.6 The person or department that initiated the form is notified of the action plan. The plan is implemented and all appropriate employees are notified of any procedural changes, if applicable.

10.7 The topics are reported during quarterly company meetings. Preventive actions that were implemented during the year are evaluated during the annual management review to determine if the actions taken were appropriate to prevent occurrence of nonconformities.

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11. CONTROL OF RECORDS

11.1 It is the policy of Microbac Laboratories, Inc. to maintain a clear, complete and accurate account of all laboratory quality and technical records.

11.2 Microbac Laboratories, Inc. Performs sampling and analysis of a large variety of materials in order to provide accurate and reliable measurement information for its customers and regulators to make cost effective decisions. The data generated from these operations and the reports thereof are Microbac Laboratories, Inc. only product. It is important that integrity and confidentiality be maintained.

The records of concern are as follows:

11.2.1 Certificates of Analysis
11.2.2 Chain-of-Custody Forms
11.2.3 Laboratory Notebooks / Logbooks
11.2.4 Electronic Information
11.2.5 Hardcopy Instrument Output
11.2.6 Equipment Maintenance Logs
11.2.7 QC Control Charts and Records
11.2.8 Field Reports
11.2.9 Customer Communication
11.2.10 Electronic Communications (define as LIMS only)
11.2.11 Training Records
11.2.12 Assessment Records from Audits
11.2.13 Subcontractor Reports
11.2.14 Employee Confidentiality Agreement
11.2.15 Employee Ethics Agreement
11.2.16 Customer Reference Guide (CRG)
11.2.17 Approved Sub-Contractor Laboratories List

11.3 Records must be stored and retained in a way that they are readily retrievable. Handwritten records are written in ink. The person responsible for the generation of the record is identified either by their signature or initials. Sufficient information is recorded to ensure that the entire process or sample analysis can be recreated at a later date. All changes are accomplished by drawing a single line through the error and writing the correct information nearby. The change is initialed and dated. If the change is a major alteration of the data, the reason for the change should also be documented. The procedures to be followed for record maintenance are described in GEN-008, "Daily Laboratory Recordkeeping for Analysts". The procedure for making changes to Certificates of Analysis is described in IT-009, "Project Management, Sample Login and Reporting Using Element LIMS".

11.4 All records will be retained by Microbac Laboratories, Inc. in accordance with the current revision of SOP GEN-022, Control of Technical and Quality Records. In the event that a facility closes, responsibility for records will be transferred to the President of Microbac Laboratories, Inc as detailed in the current revision of SOP GEN-030. The records will be retained at another division of Microbac Laboratories, Inc. or at a corporate-designated storage facility for a minimum of five (5) years. Drinking water testing and industrial hygiene analyses records are archived for a minimum of twelve years from the generation of the records. Records will be made available for inspection as needed.

Appropriate regulatory and state legal requirements concerning laboratory records will be followed in the unlikely event of bankruptcy. In the event that the ownership of Microbac Laboratories, Inc., is transferred to another party, this policy will be amended to reflect the policy of the new owner.

At Microbac Laboratories, Inc., after the retention time for records has elapsed, the records are discarded.

11.4.1 **Certificates of Analysis**- Test results are reported to the customer on a certificate issued by Microbac Laboratories, Inc. The certificate is titled "Certificate of Analysis", with the laboratories' name and address and telephone number printed at the top of each page. The certificates have the laboratory header information printed in colored ink in order to make it easily identifiable as the original document.

11.4.2 Reports are assembled and processed by the Customer Services Department, and reviewed for completeness by the Technical Director or his designee. A minimum of five percent of the reports are reviewed by the QA Officer. The final report is signed by the Technical Director, or other designated party. Electronic copies of reports are kept in Network or archived in a secure area. These are under the control of IT Manager or designee. Copies of reports and supporting documentation are kept for a minimum of five years and then destroyed except for those pertaining to drinking water testing, special customer requests, government consent orders or other legal requirements to keep the records longer. If it becomes necessary to remove Certificates of Analysis from the premises for legal proceedings, duplicates are prepared and placed in the files pending return of the original records. A record of the removal of the original copy of the Certificate of Analysis is maintained by Office Administration.

11.4.3 All Microbac Laboratories, Inc., personnel are aware that Certificates of Analysis and all supporting documentation associated with the test items are confidential customer information. Supporting documentation includes any information concerning the test sample that is provided by the customer (i.e. proprietary rights or formulations of a customer product or specific proprietary test procedure) and any information concerning the test sample generated in the laboratory (i.e. Chain-of-Custody, phone logs, raw test data, calculations, results, etc.). The contents of reports and other customer data are not divulged except upon written request by the customer, subpoena, or during state certification inspections that make certain data available for review under statute (e.g., drinking water data). Reports do not leave the premises except for intended purposes. However, in rare circumstances when it is necessary for a report to be removed for other than legal reasons, written permission must be given by Office Administration before an employee is allowed to remove a Certificate of Analysis from laboratory property. The employee is made aware that he or she is fully responsible for protecting the confidentiality of the information contained in the report.

11.4.4 **Chain-of-Custody Forms** - Chain of Custody (C-O-C) forms are used to record the source and transfer of samples between the customer and the laboratory (sample tracking). The original C-O-C forms are retained by the Office Manager and kept in the file. C-O-C electronic copies are attached to the LIMS work order and are associated with the electronic copies of the Certificates of Analysis (final report). A copy of the C-O-C form is sent to the customer with the final report.

11.4.5 **Laboratory Notebooks/Worksheets** - Uniquely coded laboratory notebooks or method specific pre-printed worksheets are used to record observations, raw data, calculations, etc.

The procedure for recording all analytical information is documented in GEN-008, "Daily Laboratory Recordkeeping for Analysts". The notebooks are kept in the individual laboratories. Completed notebooks are stored in the laboratories for several months for reference purposes and then archived. Laboratory notebooks are kept a minimum of five years after completion (except for those pertaining to the drinking water program, or other legal requirements) and are under control of the laboratory department. Worksheets are either pre-printed laboratory controlled documents, or are produced through the LIMS. Completed worksheets are scanned into the LIMS as pdf documents that are attached to the analytical batch, and are subject to the same electronic storage policies listed below.

11.4.6 **Electronic Information**- Chromatographic data, e.g., GC/MS data, which is stored electronically, is kept for a minimum of five years. LIMS data is kept on-line for a minimum of one year. Data archived from the LIMS system is retained for a minimum of five years (except for data pertaining to the drinking water program, or for other legal requirements). The procedure for storage of electronic information from the LIMS is documented in the use, security and maintenance SOPs for the LIMS system.

11.4.7 **Hardcopy Instrument Output**- Records are archived for a minimum of five years (except for those pertaining to the drinking water program, or other legal requirements) and are under the control of each laboratory department. In some circumstances, selected records i.e. chromatograms, AA data, etc. are archived with the Certificates of Analysis under Office Administration.

11.4.8 **Equipment Maintenance Logs** - Equipment logs are kept to record instrument condition and maintenance. Each department in Microbac keeps instrument logs to track the performance and maintenance history of all major pieces of equipment. Analysts, making in-house repairs and manufacturer's service representatives will record their actions in the instrument's logbook or maintenance log. A manufacturer's service representative may reference a service order number that can be used to track the service call in the event that no hard-copy service record is provided. Logs are kept in each department and then archived. These records are kept for a period of five years (except for those pertaining to the drinking water program, or other legal requirements) and are under the control of the laboratory department.

11.4.9 **QC Control Charts and Records** - Control charts are maintained in the LIMS. Method detection limit (MDL) data, precision and accuracy (P&A) statements, calibration data, records of spikes, duplicates, etc. are retained in the laboratories where it is accessible for determining whether the laboratory procedures are performing as prescribed in the analytical methods in use. Copies of MDL and P&A data are kept in Element LIMS. QC records are stored in the laboratories for reference purposes and then archived. QC records are kept a minimum of five years except for those analyses where record retention is extended (e.g. drinking water, etc.). Record control is under the laboratory department and QA Officer.

11.4.10 **Field Reports** – Field reports are generated by the Microbac Field Operations Department at the time of sampling. These are used to record field test data, observations and conditions of the sampling site, etc. Field reports are provided to the customer in the final Certificate of Analysis. Copies of field reports are retained with the copies of the final reports.

11.4.11 **Customer Communication** – All customer correspondence related to a specific job is retained within QA Department, Customer Services and Field Operations or with the Certificate of Analysis. Telephone logs are kept by all Customer Services personnel.

The procedure for reporting test results or divulging information concerning test samples via telephone or fax transmission is documented in, PM-001, "Project Manager Duties".

11.4.12 **Electronic Communications** - Microbac Laboratories, Inc., cannot guarantee that the confidentiality of electronically transmitted information is secure once transmission has started.

11.4.12.1 The following statement appears on all fax transmission cover sheets:

"This information is privileged and confidential, and is intended solely for the use of the individual named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copy of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately at (410) 633-1800 and destroy the original message. Thank you."

11.4.12.2 When test results are being faxed, the following statement is also included on the fax cover sheet:

"This data does not contain all required items of a complete and official hard-copy Certificate of Analysis (e.g.: signature, issue date, total number of pages, etc.)."

After a fax has been sent, a transaction report will print out with a copy of the first page of the fax. The transaction report is kept with the copy of the Certificate of Analysis and is used for verification purposes. If a printed report is not available from the fax machine, then the faxed information is initialed and dated.

11.4.12.3 The following statement appears on all email transmissions:

"The information contained in this e-mail message and any attachments is confidential information intended only for the use of the individual or entities named above. If the reader of this message is not the intended recipient you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by e-mail at the originating address and delete the original message."

When test results are being emailed, the following statement is also included on all email transmissions:

"This data does not contain all required items of a complete and official hard-copy Certificate of Analysis (e.g.: signature, issue date, total number of pages, etc.)."

11.4.13 **Training Records** - At the start of employment, a training form is initiated for each employee. In-house training of technical personnel is performed according to SOP GEN-010 "Training Protocol". These records are under the control of each Manager. When an employee leaves the company, the training record is transferred to the employee's personnel file that is kept for five years after the employee's completion of employment and is under the control of the Office Manager.

11.4.14 **Assessment Records from Audits** - These records can be from external audits (i.e. third party) or internal audits of the laboratory. The records and the responses to these records are under the control of the Quality Assurance Officer and are retained for a minimum of five years.

11.4.15 **Subcontractor Reports** - Any testing that is subcontracted is so noted on the Certificate of Analysis and any data or information received from the sub-contractor is submitted to the customer. A copy is retained in Microbac Laboratories, Inc., records following the same procedure as the Certificates of Analysis.

11.4.16 **Employee Confidentiality Agreement** - At the start of employment and renewed annually each employee must sign a company confidentiality agreement. This agreement informs the employee that all information concerning services performed for customers by this laboratory is confidential and private. Information provided by the customer, such as supporting documentation, proprietary rights or test procedures or proprietary formulations of customer products is also considered confidential. By reviewing and signing this document, the employee is instructed that all information is confidential and is not to be divulged except upon written consent of the customer, subpoena, or during state certification inspections which make certain data available for review under statute. This document is retained in the employee's personnel file that is kept for five years after the employee's completion of employment and is under the control of the Office Manager.

11.4.17 **Employee Ethics Agreement** – Ethics training is conducted for all new hires by the Office Manager and the Quality Assurance Officer within one week of employment with an annual refresher every year. The training is conducted in accordance with the latest revision of the Microbac Laboratories, Inc. Ethics and Data Integrity Policy. Employees are required to sign an Ethics and Data Integrity Agreement upon initial training and after each annual refresher. This is placed in their personnel file that is kept for five years after the employee's completion of employment and is under the control of the Office Manager.

11.4.18 **Customer Reference Guide (CRG)** – Microbac Laboratories, Inc., Customer Reference Guide is a book of information detailing all aspects of doing business with Microbac Laboratories, Inc.,. It lists: statement of qualifications, sample requirements, lists of test performed at, on-site services provided by, information on regulatory lists and requirements, test groups and other useful information for our customers. This guide is periodically reviewed and updated as needed. This document is stored in LIMS.

11.4.19 **Approved Sub-Contractors** - Microbac Laboratories, Inc., limits subcontracted work as much as possible. The amount of work subcontracted is a small fraction of our customer requests. The subcontract work is highly specialized and requires particular instrumentation and/or a dedicated laboratory environment. Sub-contractor laboratories are selected and qualified based upon their suitable qualifications, appropriate accreditations and certifications. This information is kept on file and is under control of the Client Services Manager.

Approval of subcontract laboratories is carried out in the same manner as for other vendors of supplies and services.

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12. AUDITS

12.1 Audits are conducted to verify compliance by Microbac Laboratories, Inc., with the policies and procedures specified in this manual. Non-conformances are documented, addressed and corrected to prevent recurrence.

12.2 The laboratory is subject to several different kinds of audits. These include:

12.2.1 **Internal Audits** - The quality assurance department performs or oversees internal audits of laboratory activities and operations according to SOP GEN-005, "Quality Assurance Department Duties and Responsibilities", in accordance with a predetermined schedule. The audits are to verify that operations comply with the requirements set forth in the laboratory's Quality Assurance Manual and ISO 17025. A final report summarizing the audit findings is prepared by the person performing the audit. This report is addressed to the management staff. A copy of this report is included in the monthly quality report addressed to the division manager and corporate Quality Assurance. The report includes all findings for the areas reviewed, deficiencies found with associated CARs and any observations or suggestions for improvement.

12.2.2 **Customer Audits** – Microbac Laboratories, Inc. cooperates fully with customers who wish to inspect the laboratory or to conduct audits of the data generated during the analysis of their samples.

12.2.3 **Certifying / Accrediting Agencies** - The various organizations that certify or accredit Microbac Laboratories, Inc. conduct laboratory audits and on-site inspections on either a periodic or random basis to verify that the laboratory is complying with the inspecting organizations' requirements and standards.

12.2.4 **Quality System Audit** - The audit of the quality system at Microbac Laboratories, Inc., is a two-part process:

(1) the annual staff management review of the system, and

(2) the review of the QA Manual on an annual basis, with updates when necessary.

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13. MANAGEMENT REVIEW

13.1 The review of the laboratory's policies, processes, facilities and equipment (present and future needs) is conducted annually by the Division Manager, Quality Assurance Officer, Technical Directors and Production Managers per GEN-020, Management Review.

13.2 The items that are taken into account as requirements of NELAC, ISO/IEC 17025 and AOAC are:

a. Matters from previous management review

b. Suitability of policies and procedures

c. Reports from managerial and supervisory personnel

d. Outcome of internal audits

e. Corrective and preventive actions

f. Assessments by External audit

g. Assessments by External audit

h. The results of inter-laboratory comparisons or proficiency tests

i. Changes in volume and type of the work

j. Customer feedback

k. Complaints and Recommendations for improvement

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14. TRAINING

14.1 In order to provide quality analytical data, it is essential to have qualified, well-trained personnel.

14.2 In-house training of technical personnel is performed according to SOP GEN-010, "Training Protocol". During training, analysts and technicians may perform tests on customer samples under the supervision of a qualified individual. Prior to performing these analyses alone, the employee is required to demonstrate his or her competence to the Supervisor by successfully analyzing a series of performance samples. Managers maintain a record of methods and procedures that a particular analyst is qualified to perform. This is recorded on a Training Form specifically designed to document this information.

14.3 Microbac Laboratories, Inc. accomplishes its goals of demonstrating capability in various jobs with:

14.3.1 Written / oral test.
14.3.2 Review of work assigned (data review).
14.3.3 Successful analysis of PT samples or P&A statement.
14.3.4 Observation of task performance.

14.4 Analyst training is considered up-to-date if the training file contains an initial demonstration of capability (DOC) statement for each method performed and documentation of continued proficiency.

14.4.1 Acceptable performance of a blind sample (single blind to the analyst)

NOTE: Successful analysis of a blind performance sample on similar test method using the same technology, for example, GC/MS volatiles by purge and trap for 524.2, 624, or 5035/8260 would only require documentation for one of the test methods.

14.4.2 At least four consecutive laboratory control samples with acceptable levels of precision and accuracy. Another demonstration of method performance - the analysis of authentic samples that have been analyzed by another trained analyst with statistically identical results.

14.5 Microbac Laboratories, Inc. funds and encourages employee participation in seminars, technical meetings and professional societies. All employees may request additional training in any area that they deem such additional training is necessary for them to perform the task in a quality manner.

14.6 Training needs are identified according to analyst's discipline. The individual and management together are responsible for setting and pursuit of the training as well as educational goals. The annual performance evaluation process can be used by the individual and management to discuss training possibilities. This process will enable the individual and management the opportunity to identify areas of training and discuss towards achieving the goals.

14.7 All appropriate laboratory personnel are instructed on the quality policies and objectives contained in this Quality Assurance Manual by the QA Officer. This instruction is then documented on the employee's training form.

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15. FACILITIES AND EQUIPMENT

15.1 It is the policy of Microbac Laboratories, Inc., Baltimore Division to maintain adequate facilities (physical plant and instrumentation) to allow personnel to perform chemical tests properly in a safe environment.

15.2 The **Baltimore Division** is a 20,500 square foot laboratory facility. All lab departments are air conditioned and ventilated separately. This reduces mixing of air between laboratories resulting in reduced opportunity for cross-contamination.

The laboratory has adequate services in the following areas:

15.2.1 Electrical services to allow major instrumentation to be kept on dedicated or limited use circuits

15.2.2 A reverse osmosis - deionized water system to meet the needs of the laboratories

15.2.3 UV/filtration system for preparing water suitable for use in microbiological analyses

15.2.4 Appropriate facilities for handling compressed gases

15.2.5 Ample refrigeration capacity for proper sample storage

15.3 A forty-plus node network supplies computer needs for the Laboratory Information Management System (LIMS), word processing, and other network applications.

15.4 Laboratory fume hoods are placed strategically throughout the building. These are maintained and monitored in accordance with Microbac Laboratories, Inc., Health & Safety Manual.

15.5 The importance of good housekeeping, i.e., clean workbenches, clutter-free environment, is emphasized to each employee as a preventive measure to protect against contamination of test samples. It is also a safety issue. Laboratory housekeeping procedures are outlined in the Health & Safety Manual.

15.6 The following is a description of the Baltimore Location laboratory layout (Figure 1) and major instrumentation.

15.6.1 Organics Analysis Laboratory

Volatiles Instrument Laboratory – 18' x 24' laboratory space, approximately 36 linear feet of bench space

Semi-Volatiles Instrument Laboratory- 27' x 50' laboratory space, approximately 64 linear feet of bench space

Preparation Laboratory- 27' x 50' laboratory space, approximately 85 linear feet of bench space, three 8-ft wide exhaust hoods vented outside the building.

15.6.2 Metals Analysis Laboratory

Instrument Laboratory - 27' x 50' laboratory space, approximately 100 linear feet of bench space, two exhaust hoods (6 ft., and 4 ft. wide) vented outside of the building. Local exhaust systems eliminate fumes from the instruments.

15.6.3 Metals Prep/General Chemistry Laboratory

27' x 50' laboratory space, approximately 150 linear feet of bench space, two 4 foot and two 8 foot hoods which vent outside of the building..

15.6.4 Microbiology Laboratory

Microbiology Media Prep Area - 6' x 12' laboratory space, approximately 12 linear feet of bench space also 12' x 15' of additional microbiology laboratory space with approximately 14 linear feet of bench space.

Microbiology Laboratory - 21' x 21' laboratory space, approximately 20 linear feet of bench space, 9 feet of desk space, with incubators, refrigeration units and a 6-ft laminar flow hood.

15.6.5 Sample receiving Area

24' x 24' serves as the sample receiving area. The area contains an 8' x 8' walk-in refrigerator, small refrigerators for volatile samples and 8 linear feet of bench space, with exhaust hood.

10' x 40' serves as the reporting storage area.

15.6.6 Field Operations Area

2400 square feet of space adjacent to the main building with deionized water service, walk-in refrigerator, and freezer for ice storage and drive-up ramp for ease in loading vehicles and boats.

15.6.7 Water Chemistry

Water Chemistry Laboratory - 24' x 50' laboratory space, approximately 102 linear feet of bench space one 6-ft wide exhaust hood vented to outside the building

15.6.7 Major Instrumentation

- Gas Chromatography (GC)
- Gas Chromatography - Mass Spectrometry (GC/MS)
- Axial Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) Inductively Coupled Plasma - Mass Spectrometry (ICP/MS)
- Atomic Absorption Spectroscopy - Flame
- Mercury Analysis System - FIMS-100
- Horizon Technology Oil & Grease Analyzer
- Ion Chromatograph - Dionex
- Total Organic Carbon Analyzer
- UV/Visible Spectrophotometer
- Auto Analyzer – SEAL discrete analyzer
- Available Cyanide Auto Analyzer

15.7 Figure 2 describes the Richmond Location laboratory layout. Detailed below are the major instrumentation held at the Richmond laboratory.

15.7.1 General Analytics

Spectrophotometers	*HACH DR/2000*
Turbidimeter	*HACH 2100A*
Dissolved Oxygen Meter	*YSI 58*
pH Meter	*Thermo Orion Star*

15.7.2 Microbiology

Autoclave	*VWR AS12*
Quantitray Sealer	*IDEXX Model 2X*

Reference Thermometer: Ertco, Serial # 1404; range -1 to 201°C
Reference Weights: Permas (Fisher); Class S, Serial #A303

15.8 Other Instrumentation

Other equipment such as balances, pH and DO meters, equipment for the extractions required for TCLP and sonication apparatus, mixers, stirrers, continuous liquid-liquid extraction apparatus, automatic sample concentrators, incubators for microbiology and BOD analysis, ovens, programmable ashing oven, autoclaves, flash point testers, automatic titrators, automatic Karl Fischer titrator, microwave, bomb calorimeter, composite samplers, flow-proportional compositing samplers, pumps, etc.

The laboratory maintains multiple pieces of major instrumentation. A complete list of laboratory and office equipment with model and serial numbers is available. The records of condition upon purchase are located in the accounting office. A copy of the manufacturers' operating instructions is readily available to all analysts using that particular piece of equipment.

It is Microbac Laboratories, Inc., policy to purchase equipment from well-known and respected companies that specialize in laboratory testing equipment

15.9 Instrument Maintenance

In order to provide quality data, it is important for all equipment to be in satisfactory operating condition. Microbac Laboratories, Inc., performs preventive maintenance as recommended by the manufacturers of the equipment used in the laboratories and field operations.
Performing preventive maintenance and cleaning as required helps to ensure that equipment will perform to specifications and is in operation when needed to perform analyses in a timely manner.

Each department keeps instrument logs to track the performance and maintenance history of all major pieces of equipment.
The procedure for documenting equipment maintenance and repairs is outlined in GEN-008, "Daily Laboratory Recordkeeping for Analysts". Preventive maintenance schedules are included in the individual maintenance logs or in the specific laboratory SOPs.

Spare parts are usually kept in inventory to allow for minor maintenance. Service contracts are maintained for some of the major instruments, balances, and critical equipment. Some service contracts provide for loaner equipment while the original piece of equipment is sent for repair. Copies of service contracts are kept in the each appropriate lab department and/or in the accounting office.

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FIGURE 1: LABORATORY LAYOUT – BALTIMORE LOCATION

Microbac Laboratories, Inc., Baltimore Division
Baltimore, MD 21224
410-633-1800

Microbac Laboratories Inc.
Baltimore, MD. Floor Plan

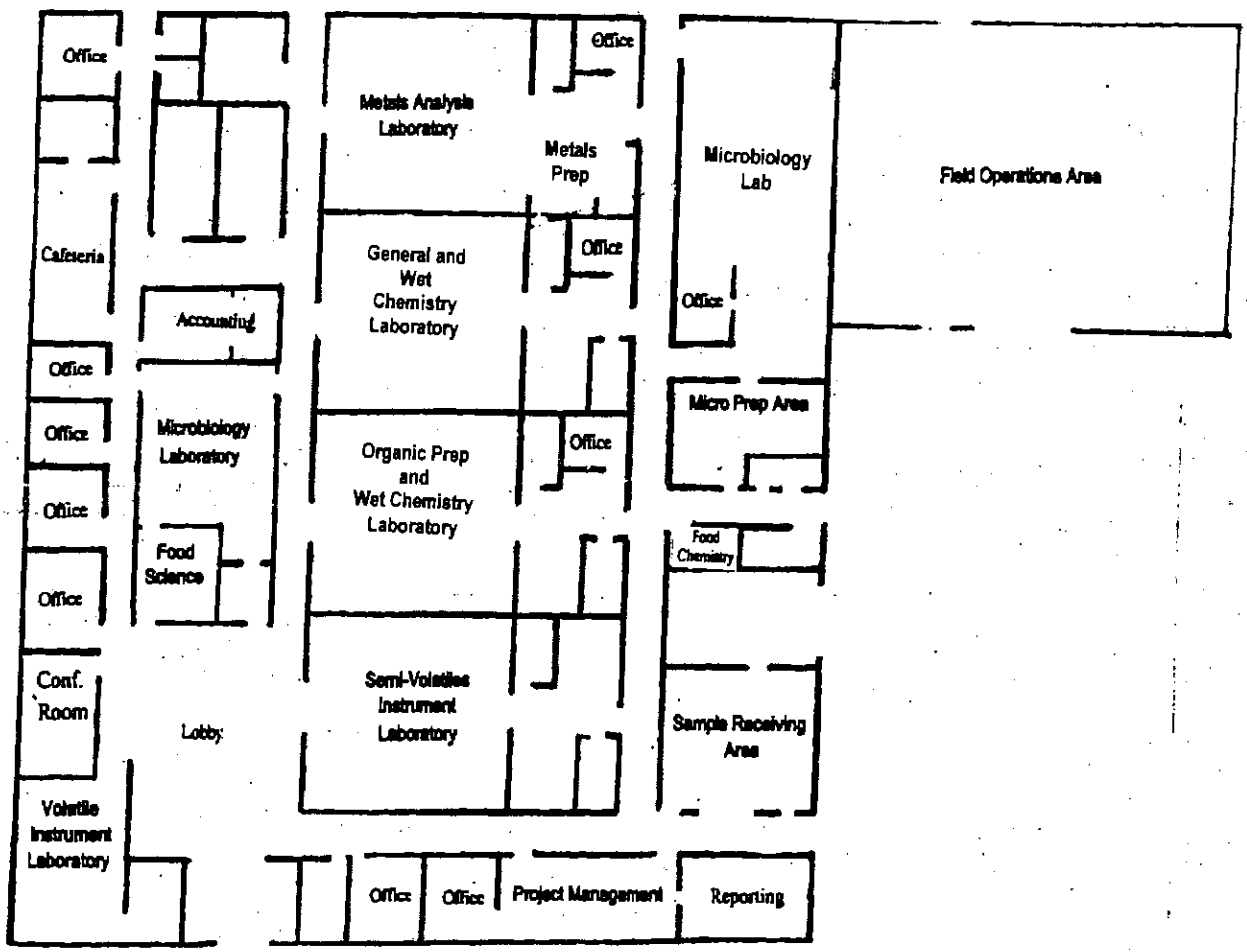
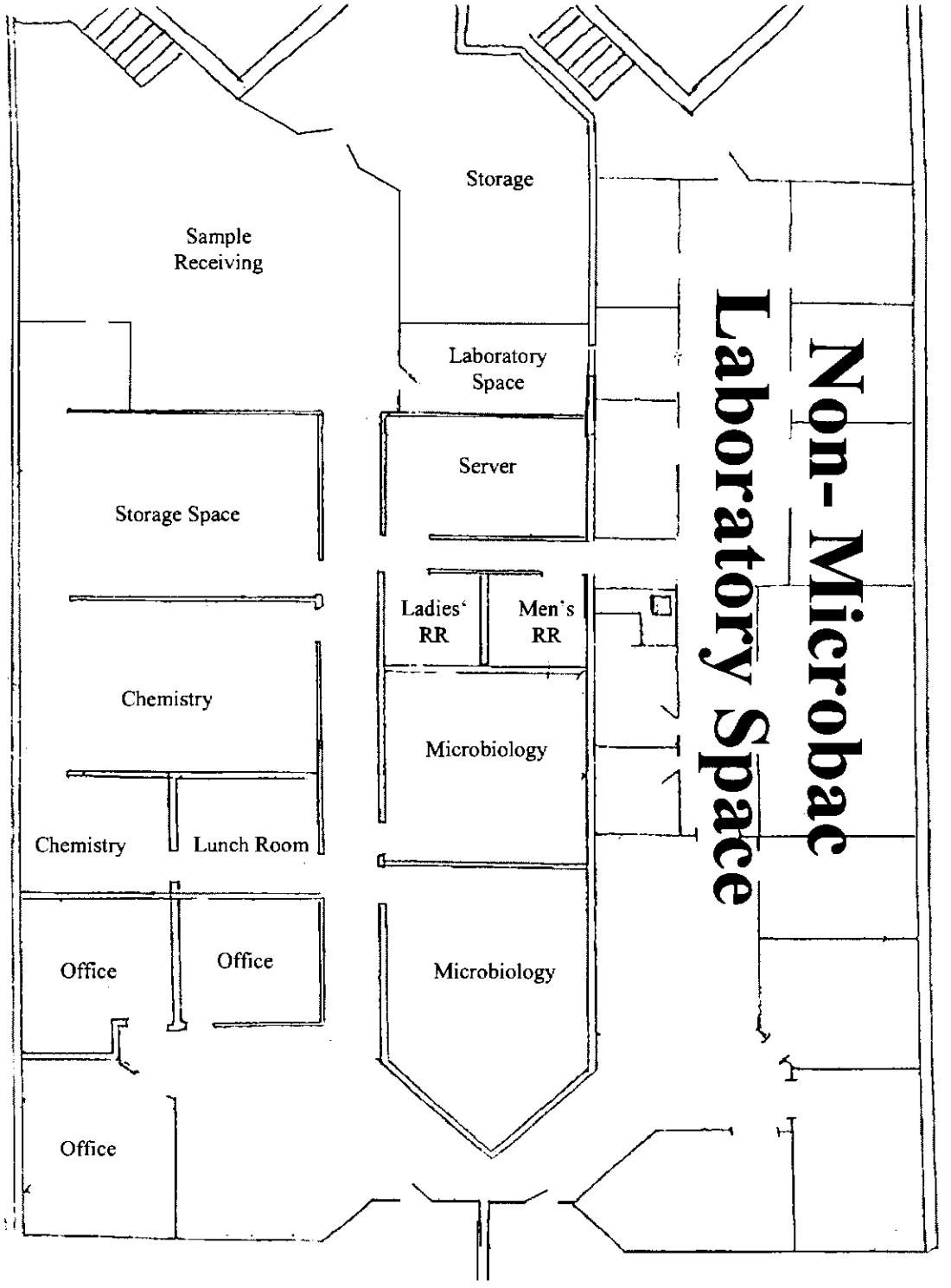


***FIGURE 2:** LABORATORY LAYOUT – RICHMOND LOCATION*



16. ANALYTICAL METHODS AND METHOD VALIDATION

16.1 It is the policy of Microbac Laboratories, Inc., Baltimore Division to use, adapt, or develop "rugged" analytical methods. Whenever available, the latest written valid edition of a standard method from organizations such as USEPA, APHA / AWWA / WPCF (Standard Methods), ASTM, NIOSH, AOAC, USP, FDA, BAM, CFR 21 or other recognized organizations are used.

16.2 This is accomplished through laboratory periodic review of organizations' websites and reviews of the most recent revision dates for the method in use. The Corporate office of Quality Improvement also provides notification of updates on standards on a regular basis via email.

16.3 Approval of Analytical Methods

16.3.1 Methods that are used for analyses are approved by the Division Manager and / or the Technical Director, or the QA Officer for use in the analysis of customer samples. Approval is documented by appropriate signatures on the cover page of the standard operating procedure (SOP).

16.3.2 Under some circumstances (e.g. due to matrix interferences, or when required by the customer's data quality objectives) deviations from work instruction SOPs are allowed. These deviations may only be done with approval of the Technical Director and must be thoroughly documented on the data review checklist. This is a unique occasion and may require that the Certificate of Analysis be flagged.

16.4 A complete list of available test parameters and analytical methods, sample quantity, preservation requirements and holding times are found in the Customer Reference Guide and in ELEMENT LIMS.

16.5 Where laboratory designed methods, non–standard analytical methods, or standard methods are used outside the current scope, validation of the method is required. This method creation and validation is a planned activity that follows the procedure in the latest revision of SOP GEN-017 (Method Validation).

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17. EQUIPMENT CALIBRATION

17.1 It is the policy of Microbac Laboratories, Inc., to obtain, maintain, and calibrate equipment and instrumentation as required to accurately and to efficiently perform chemical tests as prescribed in the test methods. Microbac Laboratories, Inc has established and maintains SOP GEN-002, Calibration of Laboratory Thermometers, Bottle-Top Dispensers and Fixed Volume Pipettes, SOP GEN-028, Calibration of Balances and SOP MICRO-016-1.08, Equipment and Supply Quality Control (for Microbiology) as procedures for calibrating laboratory equipment.

17.2 All equipment must be properly calibrated before collecting data or analyzing samples. Without acceptable calibration data, it is impossible to demonstrate that the data produced by the analytical procedure is valid.

17.3 After initial calibration, the equipment may be used after performing a calibration check. Many methods allow analysis of samples after demonstrating that the calibration check sample is within the required limits of the last calibration curve. The acceptance criteria for calibration are found in the latest revision of each work instruction SOP. If the acceptance criteria are not met, the action to be taken is also stated in that SOP.

17.4 All calibration data is recorded in laboratory notebooks, calibration logs, or if the equipment produces hard copy, the output is stored in a file or loose-leaf binder.

17.5 Recognized calibration procedures are referenced from a specific method, SOP, or from manufacturer's instructions. Calibration standards should be NIST SRMs or traceable to NIST materials whenever possible. This may not always be possible due to lack of availability. The laboratory endeavors to obtain certificates of traceability from manufacturers accredited to ISO 17025 or by an accredited testing laboratory that issues an accredited test report containing statements of measurement results, measurement of uncertainty, traceability and endorsed by accreditation body's logo or accreditation certificate number, where applicable.

17.5.1 **Balances** - Balances are checked daily against Class 1 equivalent weights (NIST traceable), and must be recorded. These weights are calibrated every five years by a calibration laboratory accredited to ISO 17025 or by an accredited testing laboratory that issues an accredited test report containing statements of measurement results, measurement of uncertainty and traceability against an NIST traceable weights, or new NIST traceable Class 1 weights are purchased. The test certificate must state measurement of uncertainty and endorsed by accreditation body's logo or accreditation certificate number. The QA Officer keeps the certificate on file.

17.5.2 **Thermometers** - Mercury thermometers are calibrated annually and other types of thermometers are calibrated quarterly against a NIST traceable thermometer. Each thermometer is tagged after calibration with the correction factor, date and analyst's initials. Accurate thermometers are critical for monitoring refrigerated sample storage and certain analytical procedures (ovens, incubators, etc.). Daily temperatures are recorded in appropriate logs. The NIST traceable thermometer is calibrated annually by a calibration laboratory accredited to ISO 17025 or by an accredited testing laboratory that issues an accredited test report containing statements of measurement results, measurement of uncertainty and traceability against an NIST traceable thermometer. The test certificate must state measurement of uncertainty and endorsed by accreditation body's logo or accreditation certificate number. The QA Officer keeps the certificate on file.

17.5.3 **Analytical Instrumentation** - is calibrated according to procedures described in appropriate work instruction SOPs.

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18. TRACEABILITY OF MEASUREMENTS

18.1 Handling of Standards and Reagents

Microbac Laboratories, Inc., ensures traceability of measurements by complying with A2LA's Policy on Measurement Traceability. It is the policy of Microbac Laboratories, Inc., to use suitable reagents and standards when performing analyses. These are purchased or prepared as appropriate. When required, and if available, calibration standards are traceable to NIST reference materials or traceable to some other certifying agency.

18.2 Materials (calibration standards, chemical reagents, solvents, gases, etc.) are available in many grades of purity. In order to produce quality reproducible data, it is necessary to obtain materials of the appropriate quality required for the analyses to be performed. It is also important to ensure that the quality of reagents used for specific procedures is consistent from purchase to purchase.

18.3 Microbac Laboratories, Inc., purchasing procedure is designed to ensure that all goods and services purchased are of known and documented quality and meet the technical requirements and acceptance criteria of the laboratory.

All standards, chemicals, reagents and consumables that may affect the quality of the analytical process are logged into the LIMS system for tracking. All traceability information (receipt date, expiration date, manufacturer, lot information, purity and concentration) is recorded in LIMS. A unique ID number is generated by LIMS and is used for traceability with all analytical batches for which the item is used.

18.3.1 **Reagent Labeling** - To ensure that reagents used are of satisfactory quality, analytical reagent grade, ACS grade, or better, materials are used. The labels on all materials are inspected upon receipt to determine whether the reagent quality meets the specifications for the analytical method of use and to determine whether the material has an extended shelf life. All reagent containers are marked showing the date of receipt, expiration date, and date of opening and analysts' initials.

18.3.2 **Deionized Water** - The deionized water system extends to all of the laboratories and is serviced by a commercial supplier. The DI water is prepared from tap water using an activated carbon-reverse osmosis process. The water is then held in a storage tank and is continuously recirculated through activated carbon, deionization tanks, an ultraviolet sterilization lamp and a 0.2 µm filter. The DI water is adequate for all laboratory applications and is monitored according to SOP GEN-013, Laboratory Deionized Water System.

18.3.3 **Standards** - Calibration standards and Quality Control Verification Standards are prepared from high quality materials. Standards should be NIST SRMs or traceable to NIST materials whenever possible. Other sources of standards are commercial suppliers. The laboratory endeavors to obtain certificates of traceability where applicable. This may not always be possible due to lack of availability. Standard storage and use limitations are outlined in each specific test method work instruction SOP.

18.3.4 **General Inorganic Analyses** - Analytical reagent grade chemicals and solvents are sufficient for this application according to EPA, AOAC, USP, and other cited reference methods. Analytical procedures are checked for special chemical grade requirements and storage conditions.

18.3.5 **Metals Analyses** - All calibration standards are NIST SRM or traceable to SRMs. In order to have satisfactory blanks without significant background contamination, high purity acids or equivalent are used.

18.3.6 **Organics Analyses** - Solvents used for sample preparation are of sufficient purity so as not to interfere with target analyte determination. Acceptable solvent grades are specified in the SOP for each method. Calibration standards should be reference grade and whenever possible traceable to NIST SRMs or equivalent. Compressed gases used for gas chromatography are of high purity and may be filtered prior to use.

18.3.7 **Microbiological Analyses** - Dehydrated media are purchased from commercial vendors and are of a quality that meet specification as required by EPA, AOAC, FDA, and other cited reference methods.

18.3.8 **Storage of Reagents** - Reagents, standards and solvents are stored in accordance with manufacturer's instructions. Microbac Laboratories, Inc. Health and Safety Manual or the individual Technical Directors are consulted whenever storage or handling procedures are not clear. Reagent storage and use limitations are outlined in each specific test method work instruction SOP.

18.3.9 **Verification of Standards** – Before use of a new source or lot of a reference/calibration standard, the protocol for verifying the acceptability of the standard is followed and documented. This procedure is specified in GEN-008, "Daily Laboratory Recordkeeping for Analysts".

18.3.10**Verification of Reagents** – Before use of a new source or lot of a reagent, the protocol for verifying the acceptability of the reagent is followed and documented. This procedure is specified in GEN-008, "

18.4 It is the policy of Microbac Laboratories, Inc., to obtain, maintain, and calibrate equipment and instrumentation as required to accurately and to efficiently perform chemical tests as prescribed in the test methods.

18.5 All equipment must be properly calibrated before collecting data or analyzing samples. Without acceptable calibration data, it is impossible to demonstrate that the data produced by the analytical procedure is valid.

18.6 After initial calibration, the equipment may be used after performing a calibration check. Many methods allow analysis of samples after demonstrating that the calibration check sample is within the required limits of the last calibration curve. The acceptance criteria for calibration are found in the latest revision of each work instruction SOP. If the acceptance criteria are not met, the action to be taken is also stated in that SOP.

All calibration data is recorded in laboratory notebooks, calibration logs, or if the equipment produces hard copy, the output is stored in a file or loose-leaf binder or electronically

18.7 Recognized calibration procedures are referenced from a specific method, SOP, or from manufacturer's instructions. Calibration standards should be NIST SRMs or traceable to NIST materials whenever possible. This may not always be possible due to lack of availability.

The laboratory endeavors to obtain certificates of traceability from manufacturers accredited to ISO 17025 or by an accredited testing laboratory that issues an accredited test report containing statements of measurement results, measurement of uncertainty, traceability and endorsed by accreditation body's logo or accreditation certificate number, where applicable.

18.8 **Reference Standards Handling, Use, Storage and Transport:**

The laboratory has a selection of thermometers for everyday use. These must be traceable to NIST by means of calibration against a suitable reference device whose purpose is only for calibration (NIST traceable thermometer). NIST Traceable thermometers are sent to an accredited calibration service annually. Before calibration, the referenced thermometer is inspected for damage. Cracks or breaks in the glass are considered to be damaged. Only if the reference thermometer is undamaged, should the calibration proceeds. Reference thermometer is pack in box adequate to prevent breakage during storage, handling, and transportation. It is sealed securely by taping around the box opening. The box is marked with the reference thermometer number assigned by the laboratory. Any correction factors for these thermometers are entered in the Thermometer Calibration Log and are used to determine the true value. Certificates are kept on file by QA and the NIST reference thermometers are kept in the QA office when not in use.

18.9 Reference NIST Traceable balance weights are sent to an accredited calibration service every 5 years or replaced. In order to keep balance weights in optimum condition, weights are kept in a dedicated storage case to keep them clean, dry and away from chemical contamination. Weights are kept in this case whenever they are not in use. Weights must not be handled with bare hands. A lint-free cotton gloves should be worn. Weights that are small are handled with tweezers. Care must be taken to avoid knocking weights together. Surfaces on which weights are placed such as the weighing pan of the balance must be clean and dry. Weight Certificates that show appropriate traceability are kept on file by QA.

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19. FIELD SAMPLING

19.1 It is the policy of Microbac Laboratories, Inc. to collect samples properly and to ensure that they maintain the characteristics of the sample source by the use of appropriate sampling and preservation techniques.

19.2 It is critical that the sampling be performed correctly and documented thoroughly. For environmental samples, the techniques used are based on Environmental Protection Agency guidelines, described in the Handbook for Sampling and Sample Preservation of Water and Wastewater, (EPA-600-4-82-029), Test Methods for Evaluating Solid Wastes (EPA SW-846, Third Edition, Volume II) and Field Sampling Procedures Manual, New Jersey Department of Environmental Protection and Energy, May 1992. All SWDA compliance samples collected for the state of Maryland must be collected by a certified sampler and the sampler's certification number documented on the associated Chain of Custody.

19.3 Food sample collections are conducted using guidelines from customer HACCP plans (Hazard Analysis and Critical Control Points), the FDA Food Code, 2001, U.S. Public Health Service, US Department of Health and Human Services, Washington DC 20204; Official Methods of Analysis, Kenneth Helrich, ed., Association of Official Analytical Chemists, Arlington, VA; Compendium of Methods for the Microbiological Examination of Foods, Frances Pouch Downes, Keith Ito, editors, American Public Health Assoc., 4th Edition, 2001.

19.4 Microbac Laboratories, Inc., Baltimore Division maintains a well-equipped, full-time, experienced and certified Field Operations Department.

19.5 The following criteria are observed during all sampling events:

19.5.1 **Containers**: Sample bottles are either new or pre-cleaned according to a written SOP.

19.5.2 **Equipment**: Equipment used to obtain the sample is either new or pre-cleaned according to standard protocol to ensure that external contamination of the sample is avoided.

19.5.3 **Sample Integrity**: Trip blanks, field blanks, filter blanks and equipment rinsate blanks may be taken to test for cross contamination during sampling and transport.

19.5.4 **Documentation**: Field reports include site location and conditions; field tests; sample collection, preservation, and proper labeling; date and time of collection; and field operations personnel present at time of sampling. The report must be completed in order to ensure the validity of the sample. A chain-of-custody form is initiated at this point.

19.6 Sampling Procedures (refer to Field Sampling SOPs) for the following types of matrices are available through Microbac Laboratories, Inc. Field Operations Department:

- Groundwater Sampling
- Wastewater Sampling
- Aqueous Surface and Sub-surface Sampling
- Drinking Water Sampling

- Soil Sampling
- Sludge and Sediment Sampling
- Drum Sampling
- Wipe Sampling
- Food Sampling

19.7 Other services provided by the Field Operations Department include:

19.7.1 **Field Testing:** Trained personnel for those parameters that require immediate determination conduct Field testing. Examples of these tests are pH, Residual Chlorine, Specific Conductance, Dissolved Oxygen and Temperature.

19.7.2 **Sample Containers and Coolers:** The Field Operations Department is responsible for maintaining and distributing sample containers that are appropriate to the required testing. Sample coolers, if needed to maintain required temperature conditions, are distributed to customers. Upon request, sample containers are prepared with proper preservatives. Distribution of sampling instructions and hazard warnings is also the responsibility of the Field Operations Department.

19.7.3 **Sample Pick-Up:** The Field Operations Department is responsible for scheduling pickups and deliveries.

19.7.4 **Site Plans and Information Manuals:** Site monitoring information manuals are created for sites as needed or upon request. These manuals will contain information regarding past sampling history, special QA/QC requirements and maps of the site. The Field Operations Manager keeps these manuals.

19.7.5 **Sampling Plans:** When appropriate, site specific sampling plans are prepared in accordance with chapter 9 of the EPA manual Test Methods for Evaluating Solid Waste SW-846, Third Edition, Volume II.

19.7.6 **Sanitation Inspections:** Providing inspection services for the food industry to meet the needs of their HACCP plans (Hazard Analysis and Critical Control Points) in accordance with guidelines from the ServSafe Certification program of the National Restaurant Association Educational Foundation.

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20. SAMPLE HANDLING

20.1 It is the policy of Microbac Laboratories, Inc., to receive samples under chain-of-custody procedures adhering to proper sample preservation and collection techniques.

20.2 **Sample Delivery** - Samples are delivered to the laboratory by Microbac Laboratories, Inc., personnel, direct customer delivery, or commercial delivery services.

20.2.1 If samples are collected by Microbac Laboratories, Inc., Baltimore Division field personnel, it is done according to the latest revision of Field Operations SOPs, depending upon the type of sample matrix and required testing.

20.2.2 Samples are labeled with information as available, including: sample ID, customer name, sampling site, date and time of collection, preservatives used, tests to be performed, and the name or initials of the person collecting the sample.

20.2.3 Upon delivery to the laboratory, Chain-of-Custody protocol is followed to complete the transfer of custody of the samples to laboratory personnel.

20.3 **Chain-Of-Custody** - The Sample Submittal / Chain of Custody form is designed to track and document the generation and transfer of a sample or group of samples from sample collection to delivery at the laboratory. This is a two-part form. The yellow bottom copy is the customer sample submittal receipt that is retained after the form is completed by the individual submitting the sample. The white original is the lab record that is retained with the permanent laboratory files.

20.3.1 For selected routine monitoring performed by Microbac Laboratories, Inc. and for food analyses customized chains-of-custody forms may be used. A copy of the form stays in the laboratory file and a copy is provided with the final report. Customers' chain-of-custody forms are used when submitted.

20.4 **Sample Custody** - A sample is considered to be in custody if it is:

1. In the possession of authorized individual
2. In a secure area or locked vehicle
3. In the Baltimore lab facility in one of the secure areas (a lab department or sample receiving)

20.4.I Once the Chain-of-Custody form for a sample is signed at the sample receiving area in the main laboratory building, the sample is considered to be in custody throughout the secure area of the building. Sample containers that are transferred between laboratory departments do not require a signature record of the transfer unless this is required by the customer.

20.4.2 Customer Services personnel determine the viability of the sample and the distribution of the sample throughout different departments of the laboratory. Sample receipt and distribution procedures are documented in the latest revision of SOP SIM –001, "Sample Receipt and Handling".

20.5 **Sample Rejection Policy** - If there is any uncertainty as to requested testing, sample condition (container, preservation, holding time), amount of sample, or turn-around time, the customer is called to resolve the issue. This procedure is described in the latest revision of SOP PM-001, "Project Manager Duties".

After the customer has been informed of an improper sample condition and the customer decides to proceed with the testing, the data on the final report is footnoted with appropriate statements indicating the improper sample condition.

20.5.1 If samples are rejected or analyses are cancelled, the samples are logged into the LIMS for tracking purposes, with the status set to cancelled. Details of the cancellation are recorded in LIMS.

20.6 **Sample Login** - After the sample is received, the sample log-in procedure is initiated. This procedure is described in SOP IT-009 "Project Management and Reporting using Element LIMS".

20.6.1 A unique work order number is automatically generated by the LIMS system. This documents the arrival of the job at the laboratory. Information is used to track the samples from sample receipt through the laboratory process to the final reporting of data. The information entered into the LIMS includes:

a) A unique work order number.
b) Customer Name and Customer Code
c) Number of samples (each container is assigned a unique number)
d) Date and time of sample collection
e) Date and time of receipt at the laboratory
f) Tests to be performed (test codes)
g) Appropriate comments

20.6.2 After the samples are logged into the LIMS, they are delivered to the appropriate department with the associated paperwork. This procedure is outlined in GEN-008, "Daily Laboratory Recordkeeping for Analysts".

20.7 **Sample Storage** - Prior to, during, and after completion of testing, test samples are properly stored under specific storage conditions according to required testing protocol. NOTE: After completion of testing, some samples may not be stored according to proper storage requirements.

20.7.1 If retesting is performed on a sample that has not been properly maintained, the reanalysis data, if reported, is flagged as estimated.
20.7.2 If samples are refrigerated, the refrigerator temperatures are monitored daily and the temperatures are documented. The test samples are stored in the laboratory in various departments or in the sample receiving area. These areas have restricted access to help ensure sample integrity. Each specific department has the responsibility of storing its' particular samples or sub-samples under its' departmental storage conditions.

20.8 **Sample Disposal** - After completion of testing, non-food samples are retained for approximately three weeks after the analysis is complete. The disposal of all laboratory waste will be performed in compliance with all applicable regulations enforced by U.S. Environmental protection Agency (EPA), the Maryland Department of the Environment (MDE) and the City of Baltimore. For specific information refer to CHO-001 "Laboratory Waste Management".

20.8.1 Food samples that are composited for microbiological or chemical testing are disposed immediately after compositing; only the composite is retained. All food for microbiological testing (composites and samples that are not composited) are discarded a week after testing.

20.8.2 Food samples that are submitted for chemical analyses (composites and samples that are not composited) are discarded two weeks after testing.

20.8.3 FDA detention samples are held until FDA has approved shipment. Provisions may be made for a longer sample retention period upon customer request. Assigned laboratory personnel are given the responsibility for removing samples from storage and ensuring of their proper disposal. Samples may also be returned to the customer. If the samples are returned to the customer, this action is documented on the work order receipt form.

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21. QUALITY CONTROL

21.1 It is the policy of Microbac Laboratories, Inc., to perform quality control checks on instruments, methods and analysts in order to rapidly detect errors and prevent recurrence. This is accomplished through the use of standards, blanks, duplicates, and spiked samples to check accuracy, precision and matrix effects. Results are monitored for rapid detection. Corrective action must be taken and documented whenever a process is outside of the specified control limits.

21.2 There are a number of quality control tools that are used in order to determine whether data being generated is of satisfactory quality and within prescribed requirements for accuracy and precision. These tools are described below. The frequency of use, and acceptance criteria are outlined in each specific test method work instruction SOP. All of the quality control tools listed below may not be applicable to every test procedure conducted by Microbac Laboratories, Inc.

21.2.1 Blanks - Blanks are artificial samples that are used to determine whether there has been contamination of samples, equipment or reagents. There are several types of blank samples that may be analyzed. The types of blank samples to be analyzed for a particular job or analytical method may vary.

21.2.1.1 Method Blank (MB) – Also known as a Laboratory Reagent Blank (LRB) – Usually an organic or aqueous solution that is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis.

21.2.1.2 Field Blank – Serves as a check on reagent and environmental contamination at the time of sample collection. Field blanks may be collected according to either the professional judgement of the sampler, the requirement of a project data quality objective, or a regulatory requirement.

21.2.1.3 Trip Blank – Serves as a check on sample contamination originating from sample transport, shipping, and from the site conditions. Additional blanks may be collected according to a project data quality objective or a regulatory requirement. Customers are encouraged to submit trip blanks per job site. Trip blanks are normally used only when volatile organic samples are being shipped.

21.2.1.4 Rinsate, Filter or Equipment Blanks – Serves as a check on sampling device cleanliness. Rinsate, filter or equipment blanks may be collected according to either the professional judgement of the sampler, the requirement of a project data quality objective, or a regulatory requirement.

21.2.2 CALIBRATION – All equipment is calibrated prior to conducting analyses. Calibration polices are described in Section 17 of this document. The number of calibration standards and the required frequency of instrument calibration is method dependent and is defined in the method specific SOP.

21.2.2.1 Calibration Blank - is used to give the null reading for the instrument response.

21.2.2.2 Calibration Standard - A solution containing a known quantity of analyte that is used in conjunction with standards of other known concentrations to determine instrument response (a standard curve).

21.2.2.3 Calibration Curve is the plot of concentrations of known analyte standards versus the instrument response to the analyte.

21.2.2.4 Calibration Check Standard (Initial Calibration Verification ICV) - A solution containing a known quantity of analyte that has been purchased or prepared from a different source than the stock reference standard solution used to calibrate the equipment. This is used to verify instrument calibration.

21.2.3 SPIKED SAMPLES - Spiked samples are those having a predetermined amount of solution, containing certain analytes of interest, added to a sample prior to sample extraction/digestion and analysis. The spiking material is from an independent source or lot as compared to the reference calibration standard used in the initial or daily calibration of test equipment. Spiked samples are analyzed to determine the performance of a method or analyst, or the stability of the analyte in the sample matrix. The spiked sample is carried through the entire analytical procedure to demonstrate the accuracy of the method.

21.2.3.1 Matrix Spike (MS) - is employed to provide a measure the effect of the matrix on the accuracy. Failure to achieve the recovery specified in the method being used may indicate an analytical problem or a matrix interference or incompatibility. In the event of unacceptable spike recovery data, the analysis may be repeated to confirm the original result. The analytical result is flagged as suspect if an unacceptable spike recovery is obtained.

21.2.3.2 Laboratory Control Sample (LCS) - Is a method blank containing a known amount of analyte that is analyzed exactly like the samples. Results should be within limits specified by the method or by the manufacturer for purchased check samples. The purpose of the LCS is to ensure that the entire analytical process is in control on a day to day (batch to batch) basis. It can also be used to determine if the laboratory is capable of making accurate and precise measurements and may be used to determine the accuracy of measurement at the method detection limit. In some methods LCS is identified as QCS.

21.2.4 DUPLICATE SAMPLES - Samples are analyzed in duplicate to verify the precision of the analytical procedure. Both analytical results are compared to each other to determine if the relative percent difference (RPD) is within the limits specified for the method. A Field Duplicate is two separate samples taken from the same source, in separate containers. This measures the precision of both the sampling process and the analytical method.

Matrix spike duplicates are analyzed for those test methods that usually result in non-detects for the analyte of interest. This requires the analysis of three samples: the native sample, a matrix spike sample, and a second matrix spike sample (matrix spike duplicate). This gives two checks: the accuracy (percent recovery of analyte) and the precision (relative percent difference between the two percent recoveries of the spiked samples) of the method for the particular matrix.

21.2.5 SURROGATE COMPOUNDS - Surrogates are organic compounds that are similar to analytes of interest in chemical composition, extraction, and chromatography, but which are not normally found in environmental samples. These compounds are added to all blanks, standards, samples and spiked samples and are carried through sample preparation and analysis. Satisfactory recoveries of these compounds demonstrate that the analytical process is in control.

21.3 CONFIRMATIONAL TESTING

In those instances where doubt exists to the presence or absence of a specific target analyte, confirmational testing may be employed. Examples would be:

21.3.1 Use of multiple but dissimilar Gas Chromatography columns or detectors.
21.3.2 Use of Gas Chromatography/Mass Spectroscopy to supplement the initial Gas Chromatography testing.
21.3.3 Use of Atomic Absorption Spectroscopy to supplement initial ICP Spectroscopy testing.
21.3.4 Use of a different but related testing technology to confirm the initial test result.
21.3.5 The use of a different test technology to obtain additional information about the test sample.

21.4 METHOD DETECTION LIMIT

The Method Detection Limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. MDLs are statistically determined from the analysis of a sample set in a given matrix type containing the analyte. The procedure for determining MDLs is found in the latest revision of SOP Gen-015 based on the Federal Register 40 CFR 136 Appendix B or EPA SW-846 Chapter 1 - QA/QC July 1992. MDLs serve to demonstrate the ability of the laboratory to perform the method to a degree of precision that may be compared to the limit listed in the method or between laboratories performing the same test.

MDL studies are performed on an annual basis for all analytes for which a spike solution exists. MDL studies are required for analytes that may be reported with estimated concentrations below the reporting limit.

21.5 LIMIT OF DETECTION

The Limit of Detection (LOD) is the minimum concentration of a substance that can be detected above three times the noise level or average blank level for the analytical method. The LOD is at or below the level of the Reporting Limit/Limit of Quantitation.

The LOD is verified analytically on an annual basis for all analytes for which a spike solution exists. The LOD applies only to analytes that may be reported with estimated concentrations below the reporting limit.

21.6 LABORATORY REPORTING LIMIT (RL) OR LIMIT OF QUANTITATION (LOQ)

The laboratory-reporting limit or LOQ is the lowest concentration that can be reliably quantitated within specified limits of precision and accuracy during routine laboratory operating conditions. The reporting limit is generally 5 to 10 times the Method Detection Limit (MDL) and may be nominally chosen within these guidelines to simplify data reporting. The reporting limit may be based upon the lowest non-zero concentration in the calibration curve and/or the value cited by the reference method.

Determining the reporting limit/LOQ for a specific analyte is method, technique and instrument dependent. The RL/LOQ is also highly matrix-dependent; each sample is unique in nature and composition, and may vary over a broad range for many sample types.

Reporting limits/LOQs must be at least three times the MDL concentration, or three times the "background noise" level or average blank concentration. LOQs must be verified annually for each analyte on each instrument used to perform the analysis.

Details of the procedures for determining and verifying MDL, LOD and LOQs are provided in the latest revision of SOP GEN-015.

21.7 PRECISION AND ACCURACY STATEMENTS

Demonstration of capability (DOC) is performed using known spiked samples (e.g., the LCS) which are analyzed several times by the analyst to qualify the analyst to perform the analytical procedure.

21.8 MEASUREMENT UNCERTAINTY

Reporting of measurement uncertainty is required under ISO 17025 when the uncertainty is "relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit". Evaluation of the aspects of a test procedure that contribute to the uncertainty of the result enables the laboratory to verify that the procedure is capable of generating valid data. Errors in measurements can be either random or systematic. Random effects from a variety of sources affect the result each time the measurement is made. Systematic errors remain unchanged under the same conditions of measurement and may be reduced when recognized.

Uncertainties are classified into two categories based on their method of evaluation: Type A, which is statistically determined from repeated observations, and Type B which is evaluated by alternate means, for example by judgment from previous measurements, or manufacturer's specifications.

Components of uncertainty are evaluated and expressed as standard deviation and each is referred to as a **standard uncertainty**. The standard uncertainties are combined to yield an overall value of uncertainty which is referred to as the **combined standard uncertainty**.

Expanded uncertainty is used to provide a greater confidence interval about the measured result. In this laboratory the standard uncertainty is expanded by a factor k=2, to express the uncertainty at the confidence level of approximately 95%.

Alternatively, the measurement uncertainty may be taken directly from the chemical and biological published regulatory or consensus methods (EPA, ASTM, APHA/AWWA, etc.) when the uncertainty is stated and when that method procedure and reporting instructions are followed as written.

21.9 INTER-LABORATORY TESTING PROGRAMS

In order to demonstrate laboratory competence, qualify new analytical methods, and maintain certifications it is often necessary to analyze samples submitted to the laboratory by outside organizations or other laboratories. Microbac Laboratories, Inc. participates in many such programs. These include:

21.9.1 Potable Water, Non-Potable Water and Solids Proficiency Testing Samples – These series supplied by Wibby Environmental, a third-party proficiency testing supplier are used by many states and the NELAP program to obtain or maintain certification to analyze wastewater, drinking water and solid matrix samples for chemistry and microbiology parameters. The laboratory routinely analyzes samples of each matrix on a semi-annual basis.

21.9.2 AIHA - ELPAT - the American Industrial Hygiene Association conducts the Environmental Lead Proficiency Analytical Testing or ELPAT program. The samples submitted to the participating laboratories are used to assess competence in the analysis of environmental samples for lead contamination. These samples are submitted to the laboratory on a quarterly basis.

21.9.3 Microbac Check Sample Program – Samples for a variety of tests are periodically provided by the corporate office to all divisions. These samples are used to demonstrate proficiency and determine areas that need improvement within the corporate structure. Samples are also made available for divisions that are adding new testing capabilities.

21.9.4 American Proficiency Institute (API) – Food samples for a variety of microbiological and chemical tests are periodically analyzed for verification of laboratory proficiency.

Results for performance samples are tabulated for the various departments. Results of performance samples are considered during department performance reviews.

21.10 CONTROL CHARTS

Control charts are very useful for determining whether an analytical process is in control. There are two types of charts in use at Microbac Laboratories, Inc. These charts are generated in the LIMS from batch quality control data that is entered along with sample data.

21.10.1 Charts for Accuracy / Recovery - these charts plot the recoveries of laboratory control samples, matrix spikes, and surrogate compounds. Results should fall within control limits specified by the supplier of commercial check samples, limits specified by the method, or those determined in-house from the analysis of a minimum of twenty samples. The value of charts is the ability to see trends and bias in the results before the problem becomes severe enough to force the results beyond the control limits.

21.10.2 Charts for Precision - these charts plot the relative percent difference for duplicate or matrix spike duplicate sample results. The results should fall within control limits determined in-house from the analysis of a minimum of twenty duplicates (either duplicate sample analysis or matrix spike / matrix spike duplicate analysis).

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22. DATA EVALUATION & REPORTING

22.1 It is the policy of Microbac Laboratories, Inc., to ensure that the information about customers and proprietary rights are treated confidentially as outlined in Microbac Laboratories, Inc. Business Conduct Policy and Confidential Information Agreement. It is the policy to perform routine procedures for evaluation of the data generated in the laboratory to ensure correctness and to produce clear, concise, and complete reports. The reports will only be released to the named contact person or customer in the submittal form or contract, or their designated representative. A written approval must be submitted by the customer to release data to an outside firm or contact.

22.1 ANALYST REVIEW - Conducted by the analyst performing the test procedure

Data are generated and processed by the analyst. The data can be instrument readings, calibration data, calculations, observations, etc. **The analyst has the primary responsibility for the quality of the data being produced.** The first level review of all data is performed by the analyst and is documented by a data review checklist. If a discrepancy is found, corrective action is taken prior to approval of sample data. The completed data is entered into the LIMS system so that it is available for Manager or assigned personnel's approval and reporting. In certain circumstances preliminary test results are provided to the customer after only the analysts' review and this is noted as "Preliminary Data".

22.2 SUPERVISOR REVIEW / APPROVAL - Conducted by the Supervisor or Assigned Personnel

All analytical data undergo a second review at the department level. The second review process is a check of the test data that includes initial and continuing calibration data, quality control data (as appropriate), and a review of the sample results. This review is performed and documented according to IT-008, "Batch Preparation, Data Entry and Review in Element LIMS".

The Manager has the responsibility for overall quality of the data being produced by the laboratory. When the Manager is satisfied that the work is acceptable for reporting, they approve the job in the LIMS system, thus releasing the data for reporting to the customer. The authority to review and release data may be delegated by the Manager to a senior analyst or other qualified analyst on a case-by-case basis. This authorization, if assigned to other than a senior analyst, is documented on the work order receipt form. If a discrepancy is found during the review process, corrective action is taken prior to approval of sample data in the LIMS.

22.3 CUSTOMER SERVICES REVIEW - Conducted by the Project Manager

After the data has been approved by the Manager or assigned personnel, the paperwork is submitted to the Project Manager who prints the final report. A review of the final report is conducted by the Project Manager and is essentially a sanity check to make sure that the analysis is complete and that the customer's data quality objectives (DQOs) are met, if known. The Project Manager has the authority to release test results to the customer.

22.4 QUALITY ASSURANCE REVIEW – Conducted by Quality Assurance

At a minimum ten percent of all laboratory data is reviewed by QA. The review includes an examination of the chain-of-custody form submitted with the samples, the sample condition, testing performed as per request, completion of internal paper-work, and review of any sample or testing nonconformance.

This review may also include a check of the results in terms of data calculations, results of quality control data, comparison of results to any previous testing and/or applicable regulatory standards, consistency and/or confirmation of data between departments when complementary testing is performed on the same sample. The data that is in the LIMS system may also be checked for transcription errors. If any discrepancies are noted, a request is forwarded to the appropriate department to rectify or confirm the test result or sample information in question. If necessary, the QA Officer will inspect the original samples and confirm the preparation and analysis with the analyst. Once the review process is deemed satisfactory and any updated information is incorporated in the final report, the job is then approved in the LIMS system by the QA Officer.

Monthly the control charts for LCS/LCS duplicate is observed for bias or trends for selected analytes. If bias is observed, the QA officer notifies section manager to start the investigation and plan for action. Corrective action is initiated for any failures identified.

22.5 FINAL REVIEW - Conducted by the Technical Director or other designated signatory

The final report is generated by the Project Manager and is then reviewed and signed by the Technical Director or other designated party.

22.6 STANDARD LABORATORY CERTIFICATES OF ANALYSIS CONTAIN:

1. Laboratory name and address
2. Title (e.g. "Certificate of Analysis")
3. Report number
4. Customer name and address
5. Page number and total number of pages in report
6. Sample identification including date and time of sample collection
7. Date of receipt at the laboratory
8. Unique laboratory sample identification number
9. Parameter(s) measured or test(s) performed
10. Test result(s)
11. Units for each parameter* (including identifying if results are on a dry weight basis)
12. Reporting Limit*
13. Analytical method used
14. Initials of prep analyst*
15. Extraction or prep method*
16. Date and time the extraction or prep was started*
17. Date and time the analysis was started
18. Initials of analyst(s) performing the test
19. Statement of sample condition and that the test results conform to NELAC standards unless otherwise noted
20. Statement of laboratory or method non-conformance or quality control failure*
21. Signature of Technical Director or other designated party
22. Date of issue
23. A copy of the Chain-of-Custody or Sample Submission form
24. A Field Sampling Report, if sample was collected by personnel, referencing collection method(s)*
25. A statement saying that the reported information represents only the samples analyzed and is not to be reproduced in part, without written approval of the laboratory.

* Where applicable per testing procedure

22. 7 QUALITY CONTROL DATA PACKAGES

Quality control data reported includes various levels of supporting documentation depending upon customer request and the type of analyses performed. Microbac offers but is not limited to the following:

Method Blanks, Matrix Spike/Matrix Spike Duplicate Recoveries, Laboratory Control Sample Recovery, Surrogate Recovery Data (if applicable), Laboratory Duplicate Results (if applicable), Sample Raw Data, Calibration Summary (GC/MS tuning summary), Raw Standards Data, Raw Quality Control Data, Tentatively Identified Compounds (TICs), Laboratory Chronicle, Methods Summary and References.

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23. QUALITY ASSURANCE REPORTS TO MANAGEMENT

23.1 It is the policy of Microbac Laboratories, Inc., Baltimore Division to present a monthly Quality Assurance Report to management.

23.2 Each month, the QA Officer provides a report to the Division Manager, Technical Director(s) and the corporate Quality Assurance Director. The report contains the following information:

a) Audits
- External – attached report
- Internal – performed during the month with outcome summarized

b) PT Studies
- Scheduled / In-house

c) Corrective Action Closure – attach CAR log

d) Changes in Certification / Accreditation

e) Test methods covered by accreditation, certification or customer approval: _____%

f) Training Received or Conducted

g) Customer Feedback

h) Personnel Changes

i) Other: QA Activities, Changes in volume and type of work, etc.

23.3 The report is provided to management so that actions may be taken to address or correct situations that may compromise the quality of the data produced by the laboratory. Copies of these monthly reports are kept on file by the QA Officer.

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24. CERTIFICATIONS AND ACCREDITATIONS

24.1 It is the policy of Microbac Laboratories, Inc. to obtain and maintain certifications and accreditations to demonstrate competence and allow Microbac Laboratories, Inc., to perform tests covered by these programs.

24.2 A copy of the summary of Microbac Laboratories, Inc. certifications and accreditations are found in APPENDIX C. A complete list of the scopes of accreditations that are currently held by the laboratory is available upon request.

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25. ETHICS AND DATA INTEGRITY POLICY

25.1 Microbac employees have a responsibility to conduct themselves and the business of Microbac Laboratories in a professional and ethical manner.

25.2 The success of this Quality Assurance plan is based on the ethical behavior of all employees. Microbac believes that any short-term gain as a result of unethical behavior is not worth the long-term consequence.

25.3 It is our policy that all operations of the laboratory are handled in a manner to ensure that our personnel are free from any commercial, financial or other pressures that may affect the quality of their work.

25.4 In order to ensure that employees are aware of the high standards of integrity that are expected of them as Microbac personnel, each employee is required to read and sign the Microbac Ethics and Data Integrity Policy within one week of hire or prior to reporting customer data, whichever comes first.

25.5 Annually, the data integrity procedures are reviewed and updated by Management. In addition, all employees participate in annual Ethics and Data Integrity training. Copies of the training records are kept in the Quality Assurance Officer file.

25.6 The policy includes an open door approach for confidentially reporting violations and concerns. Laboratory management are informed of Policy violation cases that may require further detailed investigations. Investigation into allegations and data impact are assessed and documented.

Policy violation cases are reviewed annually by management to look for any reoccurring root causes or trends.

25.7 Falsification of data or any unethical practice under any circumstances is a violation of the Microbac Business Conduct Policy and is subject to disciplinary action, up to and including dismissal.

25.8 These principles are discussed further in the Ethics and Data Integrity Policy SOP Q-002.

25.9 Investigation procedures and documentation requirements for ethics and data integrity questions are covered in the latest revision of SOP GEN-005.

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26. ADVERTISING POLICY

26.1 Policy Memorandum for Use of the term "A2LA" and "A2LA Accredited" symbol

26.1.2 This memorandum establishes Microbac Laboratories Inc., policy and procedure for the use of term "A2LA" and "A2LA Accredited" symbol. The laboratory must be accredited in order to use the term "A2LA" and "A2LA Accredited" symbol. It is the responsibility of all laboratory management personnel to ensure that laboratory procedures comply with the requirements of the certification program as specified in ISO 17025.

26.1.3 There are tests Microbac Laboratories, Inc., performs that are not carried out within the laboratories official A2LA Scope of Accreditation. The results of these tests are reported in the certificate of analysis sent to the customer with the results from the tests within the laboratory's scope of accreditation. Because of this, the "A2LA" and "A2LA Accredited" symbol will not be used on final reports, work proposals or quotes.

26.1.4 If the laboratory is requested to provide proof of accreditation, and where both accredited and non-accredited tests are included, an annotation must be made on non-accredited tests accompanying the final reports, proposals or quotations stating "This laboratory maintains A2LA accreditation to ISO 17025 for specific tests listed in A2LA Certificate Number. However, these test results are not covered by this accreditation".

26.1.5 Included in this policy is the laboratory's responsibility that there is no misrepresentation of its accreditation status. If the laboratory's accreditation is suspended or terminated, the laboratory will no longer use the term "A2LA" and "A2LA Accredited" symbol in all its documents.

26.1.6 It is also the responsibility of the laboratory management to ensure that all personnel understand their duties in response to certifications and those analytical activities in support of accreditation meet the needs of both the customer and A2LA Certification Programs.

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27. REVISION HISTORY

REV. NO.	CHANGES FROM PREVIOUS REVISION	DATE
16	Updated Laboratory Director and QA Officer; Identified SOP's referenced in manual; Updated Org Chart; Changed disposal of records to 'discarded' from 'destroyed'; Removed 10 year requirement for lead testing records to 5 based on latest NLLAP requirements; Added references to LIMS for record keeping; Revised third-party provider of proficiency testing in Sec. 21; Added Ethics Policy to Sec. 25; Removed references to AIHA accreditation; Removed Appendix D and replaced with this table.	10/29/10
17	Added description for Regional Director to Sec. 2.0; Duties of the IT Director were placed under Technical Director; Senior Analyst has been changed to Analyst III; M. Horan changed to Division Manager; B. Gunn changed to Project Manager; Regional Director added to C. Gudz's title; Added NLLAP requirements for handling complaints to Sec. 7; Added reference to A2LA's traceability policy to Sec. 18 and Appendix A; Added reference to NLLAP to Appendix A; Removed items from Appendix B that were not test methods conducted at Microbac Baltimore	07/12/11
18	Add deputies to key management positions to section 2; reference to new test method development to section 4; add LIMS use for traceability to section 18; add LOD and LOQ to section 21; make Appendix A glossary, revise format of Appendix B with methods; move analytical method sources to Appendix C and Certifications List to Appendix D	11/04/11
19	Title Page (QM-00a) and Org charts (QM-002) updated to include C. Read as Technical Manager / QAO and E. Deya as QAM. Addition of Richmond Division throughout QAM. Richmond Division QAM Rev 7 has since been retired. Addition of Richmond location laboratory lay out in QM-015. Addition of Richmond location accreditation and removal of State of North Carolina certification and USDA Soil Permit (QM-028D). Addition of Richmond Division references in QM-028C Addition of definitions in QM-028a. Update of QM-028bwith current Baltimore scope and addition of Richmond accredited methods. Moved corporate organizational chart to Appendix B. Test methods available on LIMS as per QM-016.	06/15/12
20	*Title page – QAO removed for Curtis Read; QM-002 organizational charts updated. Role of technical manager included; QM-028c Addition of SM online; QM-028b Updated VELAP Cert no., removal of VA SDWP, Removal of reference to NJ drinking water certification.*	*08/22/12*

All changes from previous version are in *italics* in the body of the document.

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28A. APPENDIX A: GLOSSARY

28a.1 Acceptance Criteria: specified limits placed on characteristics of an item, process, or service defined in requirement documents.

28a.2 Accreditation: the process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards.

28a.3 Accrediting Authority/ Accrediting Body: the territorial, state, or federal agency having responsibility and accountability for laboratory accreditation.

28a.4 Accuracy: the degree of agreement between an observed value and an accepted reference value. Accuracy includes a combination of random error (precision) and systematic error (bias) components which are due to sampling and analytical operations. Accuracy is a data quality indicator.

28a.5 Aliquot: measured portion of a sample, or solution, taken for sample preparation and/or analysis.

28a.6 Analyst: the designated individual who performs the hands-on analytical methods and associated techniques and who is the one responsible for applying required laboratory practices and other pertinent controls to meet the required level of quality.

28a.7 Analysis Date/Time: the date (including the year) and time (military time) of the injection or start of analysis of the sample or standard.

28a.8 Analyte: the component of a system to be analyzed for.

28a.9 Analyzed Reagents (AR): Chemicals for which impurities are analyzed and where the level of impurities is reported in accordance with the specifications of the Committee on Analytical Reagents of the American Chemical Society.

28a.10 Audit: a systematic evaluation to determine the conformance to quantitative and qualitative specifications of some operational function or activity.

28a.11 Batch: environmental samples that are prepared and/or analyzed together with the same process and personnel, using the same lot(s) of reagents.

28a.11.1 A preparation batch is composed of one to twenty environmental samples of the same matrix, meeting the afore-mentioned criteria and with a maximum time between the start of processing of the first and last sample of the batch to be 24 hours.

28a.11.2 An analytical batch is composed of prepared environmental samples (extracts, digestates or concentrates) which are analyzed together as a group. An analytical batch can include prepared samples originating from various environmental matrices and can exceed 20 samples.

28a.12 Bias: A systematic error inherent in a method or caused by some artifact or idiosyncrasy of the measurement system. Temperature effect and extraction inefficiencies are examples of the first type of bias; blanks, contamination, mechanical loses, and calibration errors are examples of the latter.

Bias may be either positive or negative, and several kinds can exist concurrently, so net bias is all that can be evaluated except under special conditions.

28a.13 Blank: a sample of known analyte-free media, designed to assess sources of laboratory contamination.

28a.13.1 Equipment Blank – blank that has been used to rinse common sampling equipment to check the effectiveness of the decontamination process.

28a.13.2 Field Blank - blank prepared in the field by filling a clean container with laboratory grade water and appropriate preservative for the specific sampling being performed.

28a.13.3 Instrument Blank – A laboratory blank processed through the instrumental steps of the analytical process – used to determine instrument contamination.

28a.13.4 Method Blank – A sample of matrix similar to the samples, known to be free of the analytes of interest, processed along with the sample batch through all steps of the preparation and analysis.

28a.14 Blind Sample: A sub-sample for analysis with a composition known to the submitter, but not to the analyst.

28a.15 Calibration: a set of operations that establish, under specific conditions, the relationship between values to quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards.

28a.15.1 In calibration of support equipment, the values realized by standards are established through the use of reference Standards that are traceable to the International System of Units (SI)

28a.15.2 In calibration according to test methods, the values realized by standards are typically established through the use of reference materials that are either purchased by the laboratory with a certificate of analysis or purity, or prepared by the laboratory using support equipment that has been calibrated or verified to meet specifications.

28a.16 Calibration Curve: the graphical relationship between the known values, such as concentrations, and their instrument response.

28a.17 Calibration Factor (CF): a measure of the instrument response of a target analyte to the concentration injected. The calibration factor is analogous to the Relative Response Factor (RRF).

28a.18 Calibration Standard: a substance or reference material used to calibrate an instrument.

28a.19 Certified Reference Material (CRM): a substance with a property or value which is certified by a technically valid procedure, accompanied by or traceable to a certificate or other documentation which is issued by a certifying body.

28a.20 Chain of Custody Form: record that documents the possession of the samples from the time of collection to receipt in the laboratory.

This record generally includes: the number and types of containers; the mode of collection; collector; time of collection; preservation; and requested analyses.

28a.21 Characterization: a determination of the approximate concentration range of compounds of interest used to choose the appropriate analytical protocol.

28a.22 Clean Surface: an experimental surface having no surface contamination observable by means of the used method.

28a.23 Coefficient: proportionality constant between two quantities of different dimension

28a.24 Confirmation: verification of the identity of a compound through the use of an approach with a different scientific principle from the original method.

28a.25 Conformance: an affirmative indication or judgment that a product or service has met the requirements of the relevant specifications, contract, or regulation.

28a.26 Contamination: a component of a sample or an extract that is not representative of the environmental source of the sample. Contamination may stem from other samples, sampling equipment, while in transit, from laboratory reagents, laboratory environment, or analytical instruments.

28a.27 Control Limit: The limits shown on a control chart beyond which it is highly improbable that a point could lie while the system remains in a state of statistical control.

28a.28 Corrective Action: the action taken to eliminate the causes of an existing nonconformity.

28a.29 Data Reduction: the process of transforming raw data by arithmetic or statistical calculations, standard curves, concentration factors, etc., and collation into a more useable form.

28a.30 Deficiency: an assessment conclusion supported by objective evidence that identifies a deviation from the requirements of the standard being assessed.

28a.31 Demonstration of Capability: a procedure to establish the ability of the analyst to generate acceptably accurate data for a given procedure.

28a.32 Detection Limit: the lowest concentration or amount of the target analyte that can be identified, measured, or reported with confidence that the analyte concentration is above zero. Also Limit of Detection (LOD).

28a.33 Document Control: the act of ensuring that documents (and revisions thereto) are proposed, reviewed for accuracy, approved for release by authorized personnel, distributed and controlled to ensure use of the correct version at the location where the prescribed activity is performed.

28a.34 Extractable: a compound that can be partitioned into a solvent from the sample matrix and is amenable to analysis.

28a.35 Holding Time: the maximum time that samples may be held prior to analysis and still be considered valid or not compromised.

28a.36 Homogeneity: the degree to which a property or a constituent is uniformly distributed throughout a quantity of material. A material may be homogeneous with respect to one analyte or property but heterogeneous with respect to another. The degree of heterogeneity (the opposite of homogeneity) is the determining factor of sampling error.

28a.37 Initial Calibration (ICAL): analysis of analytical standards for a series of different specified concentrations; used to define the linearity and dynamic range of the response of the measuring instrumentation.

28a.38 Internal Standard: a known amount of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method in the specific matrix.

28a.39 Instrument Detection Limit (IDL) the minimum concentration that can be measured by the instrument, in reagent water with 99% confidence that the concentration is greater than zero

28a.40 Insufficient Quantity: when there is not enough volume (water sample) or weight (soil/sediment) to perform any of the required operations: sample analysis or extraction, percent moisture, MS/MSD, etc.

28a.41 Laboratory Control Sample: a quality system matrix spiked with a verified known amount of the analyte(s) of interest, used to establish intra-laboratory and analyte specific precision and bias or to assess the performance of all or a portion of the measurement system. Also Fortified Blank, Spiked Blank, Quality Control Sample.

28a.42 Limit of Detection (LOD): see Detection Limit

28a.43 Limit of Quantitation (LOQ): the lowest concentration of an analyte that can be reported within a specified degree of confidence. Also Reporting Limit (RL), Quantitation Limit (QL or CRQL), Method Reporting Limit (MRL).

28a.44 Linear Range: concentration range over which the intensity of the signal obtained is directly proportional to the concentration of the species producing the signal.

28a.45 Material Safety Data Sheet (MSDS): compilation of information required under the US OSHA Hazard Communication Standard on the identity of hazardous substances, health and physical hazards, exposure limits and precautions.

28a.46 Matrix: the predominant material of which the sample to be analyzed is composed. Matrix is NOT synonymous with phase (liquid or solid). Recognized matrices are:

28a.46.1 Drinking Water – any aqueous sample that has been designated a potable or potential potable water source.

28a.46.2 Non-Potable Water – any aqueous sample excluded from the definition of Drinking Water, includes surface water, groundwater, effluents, water treatment chemicals, and extracts.

28a.46.3 Solid and Chemical Materials – includes soils, sediments, sludges, products and by-products of an industrial process that results in a matrix not previously defined.

28a.46.4 Biological Tissue – any sample of a biological origin such as animal tissue or plant material. Such samples shall be grouped according to origin.

28a.46.5 Air and Emissions – whole gas or vapor samples including those contained

28a.47 Matrix Effect: the effect of a particular matrix (water or soil/sediment) on the constituents with which it contacts. Matrix effects may prevent extraction/detection of target analytes, or non-target analytes may be extracted/detected that cause interferences.

28a.48 Matrix Spike: aliquot of a matrix (water or soil) fortified (spiked) with known quantities of specific compounds and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery.

28a.49 Matrix Spike Duplicate: a second aliquot of the same matrix as the matrix spike (above) that is spiked in order to determine the precision of the method.

28a.50 Method Detection Limit (MDL): the minimum concentration that can be measured by the method in a matrix with 99% confidence that the concentration is greater than zero. MDLs are statistically determined.

28a.51 Noise: the random fluctuations occurring in a signal that are inherent in the combination of instrument and analytical method.

28a.52 Percent Difference (%D): a comparison between two values, the percent difference indicates both the direction and the magnitude of the comparison, i.e., the percent difference may be either negative, positive, or zero. (In contrast, see relative percent difference).

28a.53 Percent Moisture: an approximation of the amount of water in a soil/sediment sample made by drying an aliquot of the sample at 105°C. The percent moisture determined in this manner also includes contributions from all compounds that may volatilize at or below 105°C, including water.

28a.54 Phase: an entity of a material system which is uniform in chemical composition and physical state - gas, liquid and solid are common phases.

28a.55 Precipitation: the sedimentation of a solid material (a precipitate) from a liquid solution in which the material is present in amounts greater than its solubility in the liquid.

28a.56 Precision: the closeness of agreement between independent test results obtained by applying the experimental procedure under stipulated conditions. The smaller the random part of the experimental errors which affect the results, the more precise the procedure.

28a.57 Quality Assurance: the guarantee that the quality of a product (analytical data set, etc.) is actually what is claimed on the basis of the quality control applied in creating that product. Quality assurance is meant to protect against failures of quality control.

28a.58 Quality Control: the maintenance and statement of the quality of a product (data set, etc.) specifically that it meets or exceeds some minimum standard based on known, testable criteria.

28a.59 Reagent Water: water in which a target analyte or interferent is not observed at or above the minimum quantitation limit of the parameter(s) of interest.

28a.60 Relative Percent Difference (RPD): a comparison between two values, based on the mean of the two values, and reported as an absolute value, i.e., always expressed as a positive number or zero. (In contrast, see percent difference).

28a.61 Reporting Limit: The "less than" value to which sample results are reported.The value is generally above the MDL. It is chosen based on MDL data, industry standards and convenience.

28a.62 Reproducibility: the closeness of agreement between independent results obtained with the same method on identical test material but under different conditions.

28a.63 Response: (or Instrumental Response) a measurement of the output of the detector in which the intensity of the signal is proportionate to the amount (or concentration) detected.

28a.64 Sample: a portion of material to be analyzed that is contained in single or multiple containers and identified by a unique sample number.

28a.65 Sample Handling: any action applied to the sample before the analytical procedure. Such actions include the addition of preservatives, separation procedures, storage, protection, loading, etc.

28a.66 Sediment: a highly concentrated suspension of a solid in a liquid

28a.67 Standard Operating Procedure: A written document which details the method of an operation, analysis or action whose techniques and procedures are thoroughly prescribed and which is accepted as the method for performing certain routine or repetitive tasks. Also referred to as a procedure.

28a.68 Stoichiometry: the relationship between the amounts of substances that react together in a particular chemical reaction, and the amounts of products that are formed.

28a.69 Target Compound List (TCL): a list of compounds designated by the client for analysis. Also "Compounds (or Analytes) of Interest

28a.70 Traceability: the property of a result or measurement whereby it can be related to appropriate standards, generally international or national standards, through an unbroken chain of comparisons.

28a.71 Uncertainty: The range of values within which the true value is estimated to lie. It is the best estimate of possible inaccuracy due to both random and systematic error.

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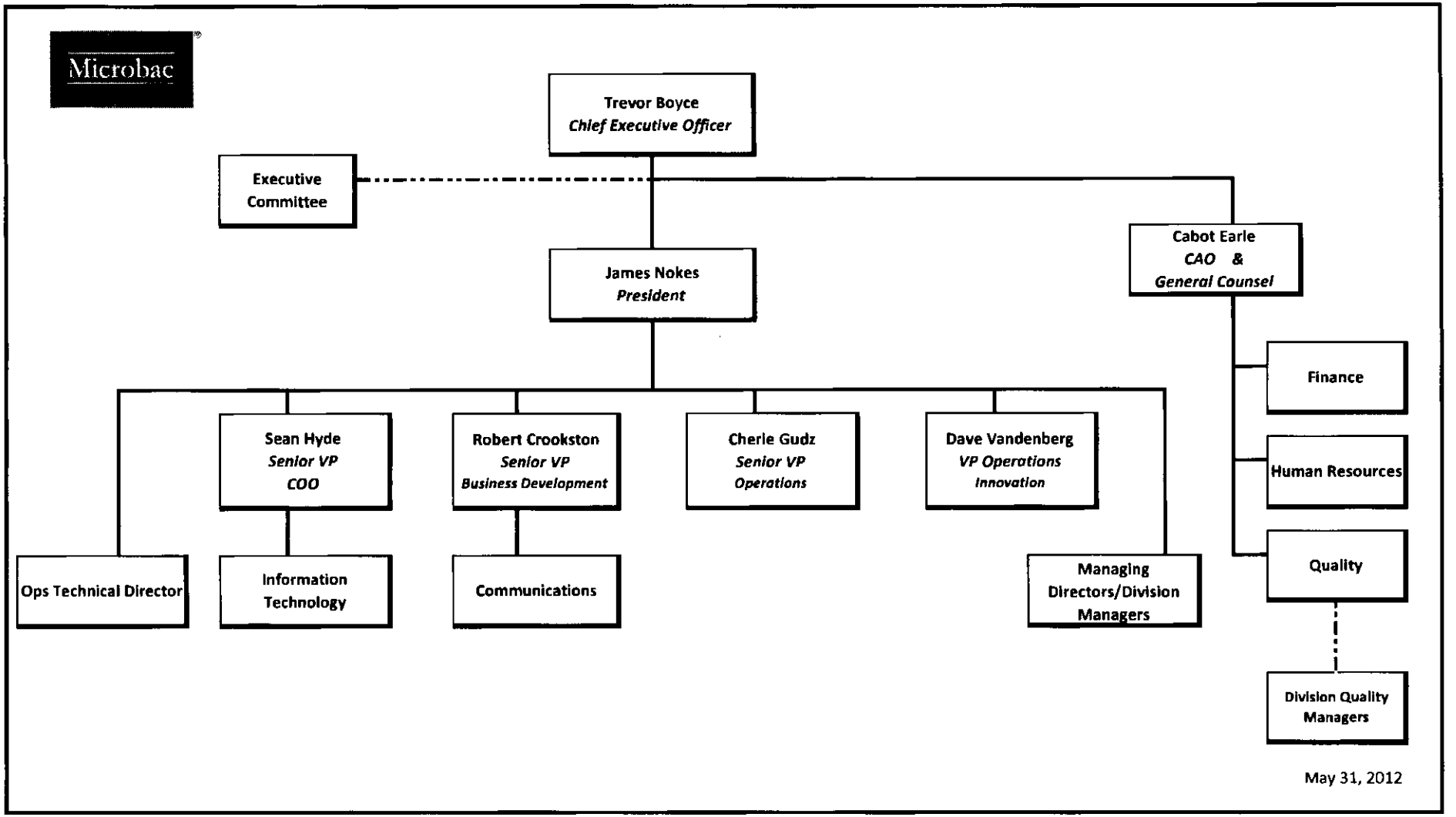
Microbac Laboratories Inc. Corporate Organization Chart



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.28C. APPENDIX C: SOURCES OF ANALYTICAL METHODS

28c.1 Wherever possible, the methods should be published methods promulgated by a regulatory agency or traceable to a standards setting organization.

28c.2 The following is a list of the primary sources for obtaining analytical methods. This list is not all-inclusive.

28c.2.1 Methods for Chemical Analysis of Water and Wastes, J.F. Kopp and G.D. McKee, USEPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, EPA-600/4-79-020, revised March 1983.

28c.2.2 Federal Register 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Appendix A, Appendix B, Appendix C, updated annually

28c.2.3 Test Methods for Evaluating Solid Waste, SW-846, Third Edition, USEPA Office of Solid Waste and Emergency Response, Washington, DC November 1986. Also included are Final Update I July 1992, Final Update II September 1994, Update IIA August 1993, and Update IIB January, 1995, Final Update III, December 1996.

28c.2.4 Federal Register 40 CFR Part 261 et al., Vol 55, No. 61 March 29, 1990 and Vol 55, No. 126 June 29, 1990, Toxicity Characteristic Leaching Procedure (TCLP), Final Rule and Vol 57, No. 227 November 24, 1992 Revision of the TCLP.

28c.2.5 Standard Methods For The Examination of Water and Wastewater, L.S. Clesceri, et. al, editors, American Public Health Assoc., American Water Works Assoc., Water Pollution Control Federation, 20th Edition, 1995 (or earlier editions *or SM Online at http://www.standardmethods.org/).*

28c.2.6 Methods for Determination of Organic Compounds in Drinking Water, USEPA Environmental Monitoring Systems Laboratory, Cincinnati, OH EPA/600/4-88/039, December 1988, Supplement I EPA-600/4-90/020 July 1990, Supplement II EPA-600/R-92/129 August 1992, Supplement III EPA-600/R-95/131 August 1995.

28c.2.7 Methods for Determination of Metals in Environmental Samples, USEPA Office of Research and Development Washington, DC, EPA/600/4-91/010 June 1991, Supplement I EPA-600/R-94-111 May 1994.

28c.2.8 Methods for the Determination of Inorganic Substances in Environmental Samples, USEPA Office of Research and Development, Washington, DC, EPA/600/R-93/100, August 1993.

28c.2.9 Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater, USEPA Office of Water (WH-552) Washington, DC EPA/821/R/92/002 1992

28c.2.10 Annual Book of ASTM Standards, American Society for Testing and Materials, Philadelphia, PA, published annually.

28c.2.11 NIOSH Manual of Analytical Methods, Fourth Edition, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for

Occupational Safety and Health, Division of Physical Sciences and Engineering, Cincinnati, OH, August 1994.

28c.2.12 OSHA Analytical Methods Manual, U.S. Department of Labor, Occupational Safety and Health Administration, Salt Lake City Analytical Laboratory, Salt Lake City, UT Part I - Organic Substances Second Edition, 1990 and Part II - Inorganic Substances 1985.

28c.2.13 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA-600/4-89/017, USEPA Atmospheric Research and Exposure Assessment Laboratory, Research Triangle Park, NC June 1988.

28c.2.14 Federal Register 40 CFR Part 60, July 1, 1992, "Standards of Performance for New Stationary Sources" Test Methods - Appendix A

28c.2.15 Official Methods of Analysis, 15 Edition, Kenneth Helrich, ed., Association of Official Analytical Chemists, Arlington, VA, 1990 (or updates)

28c.2.16 Analytical Procedures for Determining Organic Priority Pollutants in Municipal Sludges, EPA-600/2-80-030, MERL, March 1980.

28c.2.17 Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, J.E. Longbottom and J.L. Lichtenberg, EPA-600/4-82-057, USEPA Physical and Chemical Methods Branch EMSL, Cincinnati, Ohio, July 1982.

28c.2.18 Methods of Soil Analysis, Second Edition, Arnold Klute, Editor, American Society of Agronomy, Inc., Soil Society of America, Inc., Madison, WI, 1986.

28c.2.19 Procedure for Handling and Chemical Analysis of Sediment and Water Samples, R. H. Plumb, USEPA, EPA/CE-81-1, 1981

28c.2.20 The United States Pharmacopoeia/The National Formulary, United States Pharmacopoeial Convention, Inc., Rockville, MD.

28c.2.21 Manual for the Certification of Laboratories Analyzing Drinking Water - Criteria and Procedures Quality Assurance - Fourth Edition EPA 815-B-97-001 March 1997

28c.2.22 Field Sampling Procedures Manual, New Jersey Department of Environmental Protection and Energy, May 1992.

28c.2.23 Standard Methods For The Examination of Dairy Products, H. Michael Wehr, PhD, Joseph F. Frank, PhD, editors, American Public Health Assoc., 17th Edition, 2004.

28c.2.24 Compendium of Methods for the Microbiological Examination of Foods, Frances Pouch Downes, Keith Ito, editors, American Public Health Assoc., 4th Edition, 2001.

28c.2.25 Bacteriological Analytical Manual, US Food & Drug Administration, Center for Food Safety & Applied Nutrition, January 2001 (or updates), BAM Online @ www.cfsan.fda.gov/~ebam/bam-toc.html

28c.2.26 FDA Food Code, 2001, U.S. Public Health Service, US Department of Health & Human Services, Washington DC 20204

28c.2.27 21 CFR; FDA CDRH on line Database @ www.accessdata.fda.gov

28c.2.28 EPA, Office of Water, Washington, DC EPA-821-R-06-013, Method 1681

28c.2.29 EPA, Office of Water, Washington, DC EPA-821-R-04-26, Method 1680

28c.2.30 AOAC International Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food and Pharmaceuticals, March 2010 Edition.

28c.2.31 AOAC International, 18th Edition

28c.2.32 EPA National Lead Laboratory Accreditation Program

28c.2.33 A2LA P-102: Policy on Measurement Traceability

28c.2.34 National Environment Laboratory Accreditation Conference, 2009 TNI Standard, EL-VI-2009, September 8, 2009

28c.2.35 National Environment Laboratory Accreditation Conference, 2003 TNI Standard, June 5, 2003

28c.2.36 Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition, EPA 815-R-05-004, January 2005

28c.2.37 "American National Standards Specification and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC E-4)", 1994

28c.2.38 ISO/IEC 17025:2005 General Requirements for the Competence of Calibration and Testing Laboratories

28c.2.39 QA/G-6: Guidance for the Preparation of Standard Operating Procedures for Quality-Related Operations EPA/600/B-07/001, April 2007

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28D. APPENDIX D: CERTIFICATIONS AND ACCREDITATIONS

American Association for Laboratory Accreditation (A2LA)	**Non-potable Water; Solid/Haz. Waste:**	Trace Metals, Inorganics, Microbiology, Semi volatile and Volatile Organics,
Certificate No's.: 0410.01 and 0410.02	**Potable Water:**	Trace Metals, Inorganics, Microbiology, VOCs, HAAs
	Paint and Dust:	Environmental Lead Analysis
	Children's Products:	Lead Analysis
State of Maryland	**Drinking Water:**	Trace Metals, Microbiology
Certification No.: 109		Nitrate/Nitrite/Fluoride/Cyanide
		VOCs incl. THMs, HAAs
Commonwealth of Pennsylvania	**Drinking Water:**	Trace Metals, Select Inorganics,
(Primary NELAC)		VOCs incl. THMs, HAAs
Lab ID No.: 68-00339	**Non-Potable Water:**	Trace Metals, Inorganics, VOCs
		SVOCs, Pest/PCBs, Coliforms
	Solid/Haz. Waste:	Trace Metals, Select Inorganics,
		VOCs, SVOCs, Pest/PCBs
State of New Jersey	**Non-Potable Water:**	Trace Metals, Inorganics, VOCs
(Secondary NELAC)		SVOCs, Pest/PCBs, Coliforms
Lab ID No.: MD008	**Solid/Haz. Waste:**	Trace Metals, Select Inorganics,
		VOCs, SVOCs, Pest/PCBs
Commonwealth of Virginia	**Drinking Water:**	Trace Metals, Select Inorganics
(Secondary NELAC)		VOCs incl. THMs
Baltimore VELAP ID No.: 460170	**Non-Potable Water:**	Trace Metals, Inorganics, VOCs
Certificate No.: *1829*		SVOCs, Pest/PCBs, Coliforms
	Solid/Haz. Waste:	Trace Metals, Select Inorganics
		VOCs, SVOCs, Pest/PCBs
Commonwealth of Virginia	**Drinking Water:**	HPC, Coliforms
(Primary NELAC)		
Richmond VELAP ID: 460022	**Non-Potable Water:**	Coliforms
Certificate No.: *1834*		
State of West Virginia	**Non-Potable Water:**	Available Cyanide
Certificate No.: 054		
Complete lists of certified testing methodologies or scopes of accreditations are available upon request.		

QUALITY ASSURANCE MANUAL, BALTIMORE DIVISION

Approved by:	Mark Horan (Division Manager)	Emily Deya (Quality Manager)
Sign:	mark.horan@microbac.com 2012.08.29 08:42:08 -04'00'	emily.deya@microbac.com 2012.08.30 17:36:56 -04'00'
Date:	08/01/2012	08/01/2012

Appendix 2

(Sample Field Collection Sheet)

8854 Rixlew Lane
Manassas, VA 20109
Phone: 703-396-6730
Fax: 703-396-6743

Watershed: **Outfall ID#/Name:** **Outfall Address:**	**Samplers:** **Signature** x	**Date:** **Time of Arrival:** **Time of Departure:**
Outfall Weather: Temperature (F˚) (C˚): General Conditions:	**Sampling Methods:**	**Composite Sample Time Started:** **Composite Sample Time Ended:** **Grab Sample Time:**
Field Measurements: Temperature of Water (F˚): Chlorine: pH Level: Dissolved Oxygen (mg/L) Depth of Discharge (ft): Width of Discharge (ft): Velocity (ft/min) of Discharge: **Flow Rate at Outfall (GMP):**	**Comments/Remarks:**	

Appendix 3

(Sample Chain of Custody Form)

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Work Order Number:

Chain of Custody Record

WET WEATHER

Page __1__ of __1___

Client Name: Apex	**Project: DDOE - MS4 Sampling**	**Turnaround Time**	**QC/EDD Type (Required)**
Address: 8854 Rixlew Lane	**Location:**	7 day per quote	[x] Level I [x] EDD
City, State, Zip: Manassas, VA 20109			[ ] Level II Format: Excel
Contact: Andrea Owen			[ ] Level III Comments:
Telephone #: (703) 396-6730		(needed by)	[ ] Level IV CLP-like
Sampled by (PRINT):	**Sampler Signature:**		

Send Report via [x] e-mail (address): AOwen@apexcos.com ignatius.mutoti@retaweng.com [ ] Mail [ ] Telephone [ ] Fax (fax #)

***Matrix Types: Surface water (S)** ***Preservative Types:** H2SO4 - Sulfuric Acid, HCl - Hydrochloric Acid, HNO3 - Nitric Acid, NaOH - Sodium Hydroxide, Na Thio - Sodium Thiosulfate, Asc – Ascorbic Acid

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	Preservative	No. of Containers	Sample Type	Container
	S	x					Na THio	1	E. coli, Fecal Coliform	4 oz sterile polypropylene
	S		x				Unpreserved	1	Total Nitrogen, Total Phosphorus TSS, Hardness Cd, Cu, Pb, Zn	2.5 gallon glass jar
	S	x					Unpreserved	1	Chlorophyll (a)	4 oz glass amber narrow w/ teflon liner

Possible Hazard Identification [ ] Hazardous [x] Non-Hazardous [ ] Radioactive **Sample Disposition** [x] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers: 3	**Relinquished By (signature)**	**Printed Name/Affiliation**	**Date/Time**	**Received By (signature)**	**Date/Time**	**Printed Name/Affiliation**
Cooler Number:						
Temp upon receipt(°C):	**Relinquished By (signature)**	**Printed Name/Affiliation**	**Date/Time**	**Received By (signature)**	**Date/Time**	**Printed Name/Affiliation**
Sample Received on Ice or						
Refrigerated from Client: Yes / No	**Relinquished By (signature)**	**Printed Name/Affiliation**	**Date/Time**	**Received for Lab By (signature)**	**Date/Time**	**Printed Name/Affiliation**

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Work Order Number:

Chain of Custody Record

DRY WEATHER

Client Name: Apex	**Project: DDOE - MS4 Sampling**	**Turnaround Time**	**QC/EDD Type (Required)**
Address: 8854 Rixlew Lane	**Location:**	7 day per quote	[x] Level I / [ ] Level II / [ ] Level III / [ ] Level IV CLP-like
City, State, Zip: Manassas, VA 20109			[x] EDD Format: Excel
Contact: Andrea Owen		(needed by)	Comments:
Telephone #: (703) 396-6730			
Sampled by (PRINT):	**Sampler Signature:**		

Send Report via [x] e-mail (address): AOwen@apexcos.com, ignatius.mutoti@retaweng.com [ ] Mail [ ] Telephone [ ] Fax (fax #)

***Matrix Types: Surface water (S)** ***Preservative Types:** H2SO4 - Sulfuric Acid, HCl - Hydrochloric Acid, HNO3 - Nitric Acid, NaOH - Sodium Hydroxide, Na Thio - Sodium Thiosulfate, Asc – Ascorbic Acid

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	Preservative	No. of Containers	Sample Type	Container
	S	x					Na THio	2	E. coli, Fecal Coliform, Fecal Strep	4 oz sterile polypropylene
	S	x					H2SO4	1	Total Nitrogen, Total Phosphorus, COD	950 ml plastic
	S	x					Unpreserved	2	TSS, Hardness, TDS, BOD	950 ml plastic
	S	x					HNO3	1	As, CD, Cr, Cu, Pb, Ni, Zn	500 ml plastic wide-mouth
	S	x					Unpreserved	1	Chlorophyll (a)	4 oz glass amber narrow w/ teflon liner
	S	x					HCl	2	8260 VOCs	40 ml glass teflon lined VOA
	S	x					Unpreserved	2	Total PCBs (608)	1000 ml glass amber narrow w/ teflon liner
	S	x					ASC/NaOH	1	Cyanide	250 ml plastic wide mouth
	S	x					H2SO4	1	Phenols	1000 ml glass amber narrow w/ teflon liner
	S	x					HCl	1	Oil & Grease	1000 ml glass wide w/ teflon liner
	S	x					Unpreserved	1	Dissolved Phosphorus	500 ml plastic wide-mouth

Possible Hazard Identification [ ] Hazardous [x] Non-Hazardous [ ] Radioactive **Sample Disposition** [x] Dispose as appropriate [ ] Return [ ] Archive

	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Date/Time	Printed Name/Affiliation
Number of Containers: 15						
Cooler Number:						
Temp upon receipt(°C):	**Relinquished By (signature)**	**Printed Name/Affiliation**	**Date/Time**	**Received By (signature)**	**Date/Time**	**Printed Name/Affiliation**
Sample Received on Ice or						
Refrigerated from Client: Yes / No	**Relinquished By (signature)**	**Printed Name/Affiliation**	**Date/Time**	**Received for Lab By (signature)**	**Date/Time**	**Printed Name/Affiliation**

MS4 Monitoring for Trash

QUALITY ASSURANCE PROJECT PLAN
And
MONITORING PLAN

Amended on: August 21, 2013

ANACOSTIA WATERSHED SOCIETY
4302 Baltimore Ave.
Bladensburg, MD 20710
Tel: 301-699-6204
Fax: 301-699-3317

Project Manager:	Masaya Maeda
Quality Assurance Plan Prepared by:	Cynthia Collier
Quality Assurance Manager:	Mary Abe

APPROVED _____ DATE Aug 21, 2013

District Department of the Environment

APPROVED BY Matthew D. Robinson DATE 8/22/13

Table of Contents

Attachment

A3 - Distribution List

James Foster - 1 copy
Mary Abe - 1 copy
Erin Castelli – 1 copy
Masaya Maeda - 1 copy
James Collier - 1 copy

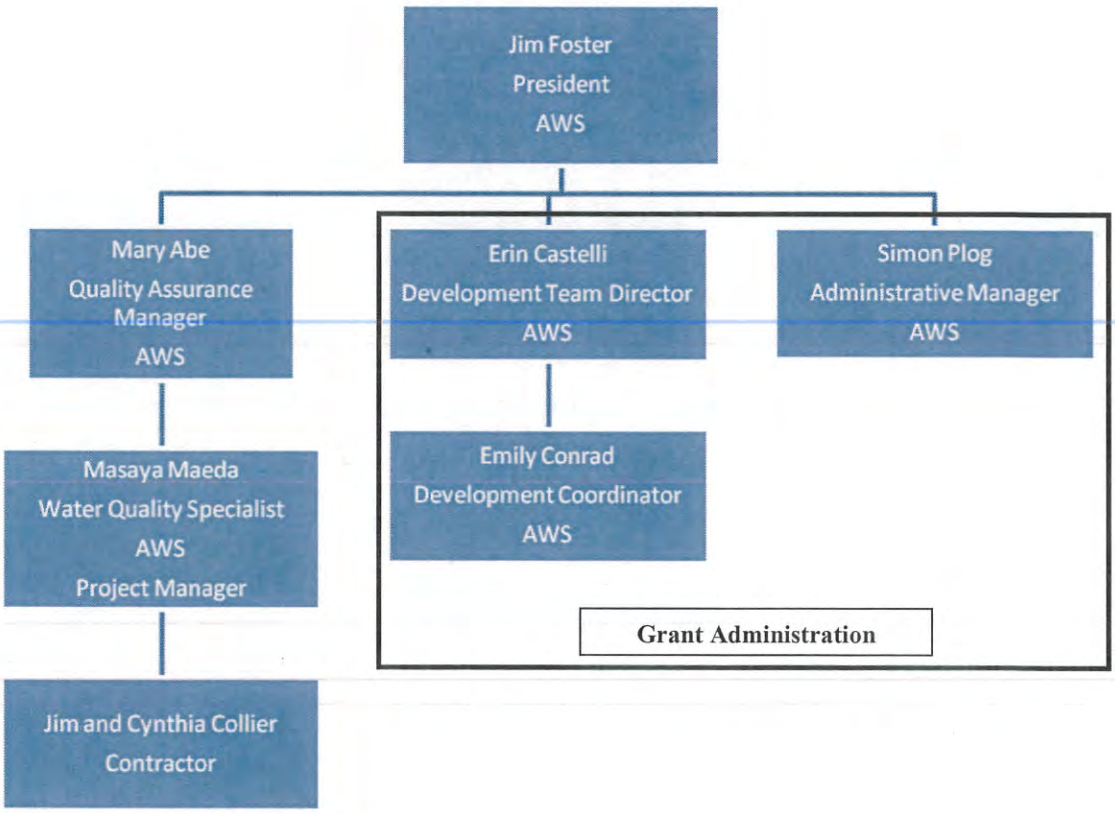
Matthew Robinson - 3 copies + electronic

A: PROJECT MANAGEMENT

A4 - Project/Task Organization

The District of Columbia Department of the Environment (DDOE) has awarded a grant to the Anacostia Watershed Society (AWS), which has the responsibility for performing the project. Mr. James Foster is the President of the AWS and will ensure staff has met all project obligations. Mr. Foster will be informed and involved in all important decisions. Ms. Mary Abe will be the official Quality Assurance Officer for the project. Masaya Maeda is the Water Quality Specialist at AWS and the project manager. AWS will contract with James and Cynthia Collier for delivery of components of the projects.

James and Cynthia Collier and AWS staff will work cooperatively to generate all data.



A5 - Problem Definition/Background

The District of Columbia, State of Maryland and EPA prepared a Total Maximum Daily Load for Trash in the Anacostia River. Allocations were made to the District of Columbia and various jurisdictions in Maryland. Consequently, EPA has issued a renewal of the District's municipal separate storm sewer system (MS4) permit with requirements to monitor the loads of trash from the storm sewers. This project will provide the District of Columbia with a quantification of trash loads being discharged from the MS4 system at six outfalls into the District's waterways for permit reporting compliance.

A6 - Project/Task Description

The District of Columbia is subject to a total maximum daily load (TMDL) for Trash in the Anacostia River. The U.S. Environmental Protection Agency (EPA) listed trash as a priority pollutant in the District's new MS4 permit. This project will monitor six MS4 outfalls to quantify the amount of trash being discharged so that the data can be provided to DDOE to be reported in the MS4 Annual Report/Discharge Monitoring Reports (DMR) to EPA.

A7 - Quality Objectives and Criteria

Six outfalls, including three locations identified in the MS4 permit, will be monitored three times a year at a minimum. Trash collection devices must capture all trash greater than 1 square inch exiting the outfall. Storms to be monitored for stations located within the piedmont physiographic province (i.e. Walter Reed and Battery Kemble) must exceed 0.1 inches of rainfall, and storms monitored for stations located within the coastal plain (i.e. all other stations) must exceed 0.25 inches of rainfall. Development of the Anacostia Trash TMDL revealed that it takes at least 0.25 inches of rain to move trash through and out the District's MS4. However, all of those stations were located within the coastal plain which possesses gentler slopes than the piedmont. In order to gain a better understanding of the conditions required to facilitate loading of trash to local waterways, a smaller volume standard is being established for monitoring stations located within the Piedmont.

All sampling events will be separated from the last rainfall event by at least 72 hours. Data on trash from a minimum of three and a maximum of six storms per station will be obtained, with a separation of 30 days between samples. Trash will be separated from vegetative material and a drained wet weight of trash and vegetation will be obtained. The trash will be inventoried according to the categories used for the Anacostia Trash TMDL outfall monitoring study inventory categories. (see: "Anacostia Outfall Trash Monitoring and TMDL Executive Summary" athttp://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/cover_and_exec_summary.pdf). Data from the trash monitoring and a brief narrative will be provided to DDOE for the annual stormwater discharge monitoring report.

A8 - Special Training/Certification

There is no specialized training necessary for the surveying of the quantities of trash and debris. If other workers are used to assist in monitoring, at least one of the AWS

sampling team members named on page 3 will be present to ensure that proper protocols are followed.

A9 - Documents and Records

The QAPP will be developed jointly by AWS and the contractor James Collier. Upon the AWS Quality Assurance Officer approval it will be submitted to the DDOE. AWS will return a signed copy of the approved QAPP to the contractor. Any amendments to the original QAPP will be processed in the same manner with a new date and signature by the QA officer.

A sample data sheet is included in the appended Monitoring plan. The data will be transferred from the paper data sheets into an electronic database. Paper sheets will be scanned and electronic copies provided to AWS and DDOE.

The Garmin etrex legend GPS equipment will be checked against a known reference point. The scale used to weigh samples is a Pelouze digital hanging scale, model 7750, which registers a minimum graduation of one ounce and has a maximum capacity of 50 pounds. The scale will be calibrated before use using known weights. Precipitation data will be obtained from the Reagan National Airport rain gauge via the National Weather Service. Localized storm information may be obtained from other local rain gauges closer to each station via commercial weather services such as Weather Underground.

Hard copies and electronic copies will be retained by AWS as required under the terms of the grant agreement. DDOE will be provided hard copies and electronic copies for their records retention.

The report package to DDOE will include:
-Paper and electronic copies of the field data sheets
-Tables of rainfall data for the rainfall event and two days preceding the rainfall event for all sampling events
-All Excel spreadsheets with data entered
-Copies of narrative reports

AWS and DDOE will retain all data reports in perpetuity.

B: Data Generation and Acquisition Elements

B1- Sampling Process Design (Experimental Design)

The purpose of the project is monitoring for compliance with the trash reduction requirement in the DC MS4 permit DC0000221, issued October 7, 2011. The general requirements are contained in Section 5 and 6 of the permit. In addition, sampling must comply with 40 CFR S122.21(g)(7).

1. Monitor six stations distributed amongst the Rock Creek, Anacostia River, and Potomac River watersheds.
2. Collect a minimum of three wet weather samples per year.
3. Samples shall be collected a minimum of 30 days apart.
4. Events for sites sampled in the piedmont province shall be equal to or larger than 0.1 inches of precipitation. Events for sites located within the coastal plain province shall be equal to or larger than 0.25 inches of precipitation.
5. All events sampled must be separated from the last precipitation event by 72 hours.
6. Where feasible, the depth of rain and the duration of the event should not vary by more than 50 percent from the average depth and duration (to ensure that the storm would be 'representative', i.e. typical of the area in terms of intensity, depth and duration).

Three historic water quality monitoring stations have been selected from the MS4 permit as being feasible for trash monitoring.

Walter Reed-Fort Stevens Drive: 16th Street and Fort Stevens Road, N.W. at outfall
-Rock Creek Watershed; low, medium, and high density residential land use
Battery Kemble Creek: 49th and Hawthorne Streets, N.W. at outfall
-Potomac Watershed; low density residential land use
Oxon Run: Mississippi Avenue and 15th Street, S.E. into Oxon Run via outfall
-Potomac Watershed; medium density residential, institutional, commercial and open space land use

An additional three locations were selected in collaboration with DDOE. These stations will provide data on other types of land use not addressed in the three stations above required by the MS4 permit. These stations were monitored previously for the development of the Anacostia TMDL.

McDonald's: Minnesota Avenue NE and Nannie Helen Burroughs Ave NE at outfall
-Anacostia Watershed; industrial, commercial, and residential land use
Benning Road: Benning Road NE and Anacostia Avenue NE at outfall
-Anacostia Watershed; commercial and industrial land use
New York Avenue: New York Avenue NE and South Dakota Avenue NE interchange stormwater pond outfall
-Anacostia Watershed; transportation right-of-way land use

Additional information about the monitoring sites is included in the appended monitoring plan.

The method used for monitoring will be similar to the data collection methods used during the development of the Anacostia Trash TMDL (see: "Anacostia Outfall Trash Monitoring and TMDL Executive Summary" at http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/cover_and_exec_summary.pdf). Trash will be captured at the outfall at the stream. The trash capture devices will be constructed of metal mesh with openings compatible with the regulatory definition of trash (i.e. one square inch). The monitoring will capture at least 3 rainfall events for each station according to the storm volume requirements for each station previously noted on page six. All sampling events will be isolated from other storm events by at least 72 hours, with each sampled rainfall separated by 30 days.

B2 - Sampling Methods

In order to ensure that three acceptable samples are available for reporting, up to six samples may be collected. All sampling events will adhere to the criteria noted in section B1 above. Trash capture devices will be cleaned and serviced after rain events that do not meet the criteria. Once an acceptable sample is collected, trash capture devices may be removed from the outfalls to allow a separation of 30 days between samples. Trash capture devices will be constructed of 1 inch wire mesh over a metal frame custom made to fit each outfall so that all trash and debris over one square inch in size will be captured.

B3 - Sample Handling and Custody

Trash items that are collected within the trash capture devices are placed in clean, labeled plastic trash bags. The trash bags will be secured to assure that no loss or augmentation of material occurs during transportation and processing. The bags will be transported to an outdoor concrete pad at a residence at 3031 Oliver Street NW, Washington, DC where sample processing was done for the TMDL data collection.

To process a sample, several holes roughly ½ inch in diameter will be immediately poked or cut into the bottom and corners of the bag to allow excess water to drain out without losing any of the sample material. The bagged samples rest on a sloped concrete pad while water drains away. Bags are allowed to sit and drain until no more water seeps from the bag, which may take a few minutes or several hours depending on the initial wetness of the sample. At that point, natural material and trash will be separated and weighed. Trash will be sorted and quantified according to the categories and methodology used in establishing the Anacostia Trash (see: "Anacostia Outfall Trash Monitoring and TMDL Executive Summary" at http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/cover_and_exec_summary.pdf). Samples will be processed within 72 hours of collection to avoid decomposition of the organic components. After data collection is complete, the trash will be disposed of at an appropriate trash disposal facility. Most of the trash collected is too dirty for recycling to be a reasonable option. No laboratory analysis is involved. A detailed monitoring plan is appended.

B4 - Analytical Methods
The trash that is found in streams has a considerable amount of water and sediment involved. Excess water will be allowed to drain from the sample and any bottles or cans containing fluid will be emptied before weighing. The weight of the organic matter such as leaves will also be determined. Samples will be sorted and weighed within 72 hours of collection to prevent decomposition of the organic components.

B5 - Quality Control
The sampling methodology consists of one person observing the type and quantity of trash items and a second person recording the observation. Quality control checks will be performed by reversing the roles of the personnel and comparing the data sheets. Accuracy of the total should be within 5 percent and accuracy of any individual item should be within 10 percent.

B6 - Instrument/Equipment Testing, Inspection, and Maintenance
Both handheld digital scales and GPS units will be used. The GPS is a Garmin etrex legend. The scale is a Pelouze digital hanging scale, model 7750, which registers a minimum graduation of one ounce and has a maximum capacity of 50 pounds. It will be initially checked with known weights and the GPS will be checked against known locations. These instruments are easily and quickly replaceable if there is a malfunction.

B7 - Instrument/Equipment Calibration and Frequency
The scales used for weighing trash will be calibrated before and after each monitoring episode.

B8 - Inspection/Acceptance of Supplies and Consumables
The project does not require any laboratory consumables.

B9 - Non-direct Measurements
Weather observation data, including precipitation, recorded at the Reagan National Airport for the rainfall event and two days preceding the rainfall event will be obtained from the NOAA website. Localized storm information may be obtained from other rain gauges closer to each station via commercial weather services such as Weather Underground. Data obtained will be standard final data.

B10 - Data Management
The number of trash and debris items will be compiled on paper data sheets during processing. The information on the data sheets will be transferred to a Excel computer database and the paper data sheets scanned and saved in an electronic format. Data sheets will be maintained in the project file to be used in case of computer failure. Computer records will be transferred to a second computer for duplicate storage.

The primary database will be MS Excel and a sample of the data sheets is included in the appended monitoring plan. Copies of the data sheets and the MS Excel database will be provided to AWS and DDOE by the contractor at the end of the project.

C: ASSESSMENT AND OVERSIGHT

C1 - Assessments and Response Actions

Data will be collected after significant rainfall events. The data will be reviewed and inspected for any unexpected trends or findings. The quality assurance manager will arrange a briefing with DDOE, with the contractor present, for a discussion of any changes in procedures that are needed to ensure that the data meets the desired end use.

C2 - Reports to Management

Reports will be prepared quarterly and submitted to the Quality Assurance Manager. Any modification and actions will be discussed with the Project Manager and other AWS management as necessary to approve any significant modifications that may affect the grant's deliverables and/or schedule.

D: DATA VALIDATION AND USABILITY

D1 - Data Review, Verification, and Validation

The collection of scientifically valid data on trash is a new and emerging field of science. The factors that affect the levels of trash are not well documented, but data that is beyond three standard deviations would be held in abeyance until there is an understanding of the factors causing such a data point.

D2 - Verification and Validation Methods

A data collection sheet is attached. There will be no samples transported to any laboratory; therefore, there is no transfer of chain of custody form needed.

D3 - Reconciliation with User Requirements

The data collected will be presented to the DDOE on a quarterly basis, or as requested. Factors affecting the data such as weather patterns will be discussed. Results of trash collection devices and possible modifications to improve the quality of the data will be reviewed.

Attachment: Monitoring Plan

Purpose and Background

The purpose of this project is to comply with the trash monitoring provisions of the MS4 permit issued to the District of Columbia by the EPA. A Total Maximum Daily Load (TMDL) for Trash was developed for the Anacostia River and approved by EPA in 2010. The TMDL includes allocations to the DC storm sewers, and trash is listed as a priority pollutant in the MS4 permit issued to the District in 2011. As a result, DC is required to monitor for trash from the MS4 and report the monitoring data in the MS4 Permit Annual Report/ DMR to U.S. EPA Region III. The monitoring will provide baseline data on the amount of trash currently being discharged and document reductions in the amount of trash discharged. In addition to reporting for permit compliance, monitoring data will be used by the District to make more informed decisions when applying trash reduction strategies. This project will also provide experience with different forms of compliance monitoring for trash and assist in the development of a long-term compliance monitoring plan.

Objectives and Activities

In order to comply with the general requirements contained in Sections 5 and 6 of the DC MS4 permit DC0000221, issued October 7, 2011, and with 40 CFR S122.21(g)(7), the monitoring must meet the following conditions:

1. Monitor six stations distributed amongst the Rock Creek, Anacostia River, and Potomac River watersheds.
2. Collect a minimum of three wet weather samples per year.
3. Samples shall be collected a minimum of 30 days apart.
4. Events for sites sampled in the piedmont province shall be equal to or larger than 0.1 inches of precipitation. Events for sites located within the coastal plain province shall be equal to or larger than 0.25 inches of precipitation.
5. All events sampled must be separated from the last precipitation event by 72 hours.
6. Where feasible, the depth of rain and the duration of the event should not vary by more than 50 percent from the average depth and duration (to ensure that the storm would be 'representative', i.e. typical of the area in terms of intensity, depth and duration).

The outputs for the project are as follows:

1. A Quality Assurance Project Plan (QAPP) for compliance monitoring will be prepared.
2. Six trash traps will be installed under this project at designated outfalls.
3. Data on trash from a minimum of three, and a maximum of six, storms per station will be obtained and submitted to DDOE.
4. An annual report on the project will be submitted to DDOE that provides the sample data, an analysis of the data, and a brief discussion of the findings or areas needing further research or action.

The specific activities that will be undertaken are as follows:

1. Coordinate with DDOE to select monitoring sites and methods to be used at each site.
2. Submit a QAPP for DDOE approval.
3. Design and construct six trash traps that can be installed at the outfalls within 10 days of obtaining permission to monitor.
4. Collect samples from trash traps in accordance with the requirements noted on page 12.
5. Sort samples into natural vegetation and man-made components. The weight in pounds of each component will be recorded.
6. Quantify the manmade items into the same categories used in the TMDL data collection.
7. Enter the data into an Excel database and analyze for trends.
8. Identify any trash hotspots or illegal dumping in the vicinity of the monitoring stations
9. Submit reports to DDOE every four months from the date of QAPP approval, or when requested by DDOE.
10. Prepare annual reports of no more than 10 pages showing monitoring results.
11. AWS and its contractor will monitor for two years from the inception of this project.

Methods

The outfalls will be monitored using the same methods as were used to collect the data for the TMDL development. A minimum of three storms must be sampled to meet the MS4 permit requirements and up to three additional storms will be sampled to ensure that if a storm or data set becomes disqualified, additional data sets are available. Trash traps strain out all the trash over 1 square inch in size as the stormwater exits the outfall. The objective is to collect trash from at least three rainfall events in accordance with the sampling requirements noted on page 12. Official rainfall data will be obtained from the National Oceanic and Atmospheric Administration (NOAA) National Weather Service website for the Reagan National Airport rain gauge. Traps will be emptied and restored to working order after events that do not meet the criteria. When a suitable sample is obtained, all trash and natural material contained in the trash trap will be retrieved and placed in labeled plastic trash bags with holes poked in the bottom to allow excess water to drain away. The trap contents will be transported to a residence at 3031 Oliver Street NW, Washington, DC, which is the same place samples were processed during the data collection for the TMDL. The bagged samples will be set on a sloped concrete pad to allow water to drain away. No processing of the samples will take place at the outfall sites. Samples will be processed within 72 hours of collection since any organic matter and paper products tend to degrade quickly. The sample contents will be sorted into trash and natural material and each portion weighed using a calibrated scale. The trash will then be sorted into the individual components and quantified using the categories used for the TMDL, shown on the data sheet in Figure 1 on the next page. The sample material will then be disposed of at an appropriate trash disposal facility. The data will be analyzed and reported to DDOE annually for inclusion in the MS4 DMR.

Figure 1 Data Sheet

Station Name:_____ Page ____ of ____

	Date	Time	Personnel
Trap Deployed			
Trap Retreived			
Processed			Sorter:
Rain Amount	Date	Time	Item Identifier:
			Data Recorder:

Trash Weight:	Natural Debris Weight:

Trash Items

Plastic bags	Paper bags	Liquor bottles
Beer bottles	Beer cans	
Soda bottles	Soda cans	
Water bottles	Sports drinks	
Juice cans	Juice bottles	Juice packs
Styrofoam cups	Plastic cups	Paper cups
Food Wrappers		
Take-out food packaging		
Smoking related stuff, Cigarettes		
Napkins, Paper towels, Tissues		
Lids, straws		
Beverage Rings, Cartons	Toiletries	Drugs
CDs, Cassettes	Toys, balls	Misc. recreation
Newspaper, Magazine, Book	Advertising, Signs, Cards	
Misc. Paper		
Misc. Plastic		
Misc. Metal	Organic waste	Home food packaging
Styrofoam plates	Foam packaging	
Styrofoam chunks, large	Styrofoam chunks, small	
Other misc. cartons	Other metal, foil packets	
Other fabric	Clothing	
Auto Products Containers	Broken Glass	
Vehicle parts, Small <1 sq ft	Vehicle parts, Large >1 sq ft	Tires
Construction Debris, Small	Construction Debris, Large	Appliances, bicycles, carts
Carpet	Misc. Large Debris	Misc Plastic Debris

Field Comments Processing Comments

Trash Trap Design

There are two main styles of trash traps that are likely to be used in this project. Traps are designed to cause little to no interference with the outfall structure and functioning, while straining out all the trash from the exiting stormwater. During heavy flows, the traps break away from the outfall before water can backup and cause flooding upstream. Cable ties with a tensile strength of no more than 120 lbs will be used to secure the metal mesh to the trap frame, which enables the mesh to break away from the frame so more water can escape. The ropes and attachment points securing the traps are also designed to allow high water pressure during heavy flows to detach the traps from the outfall relatively easily. While each trap and location is different, traps will generally break away from the outfall at intensities greater than 4 inches per hour and/or rainfall depths greater than 2 inches. Variations such a leaf fall in the autumn may lead to early clogging and breakaway before these limits are reached. If the trap is subject to lateral forces due to installation in the stream channel, then upstream rainfall and flow velocity of the stream begins to affect the trap integrity. The rope used to secure the traps to the stakes will have a known break strength and the generally accepted reduction from knots is 35%. Because sampling will be conducted during autumn leaf fall, additional capacity will be added to the traps beyond what was needed for similar sized outfalls during the TMDL monitoring so water can still drain when the traps start filling with leaves. No attachments are made to the outfall structure itself. Traps are held in place with ropes tied or clipped to heavy-duty stakes or posts driven into the streambed or bank. To service the traps, the attachments are untied or unclipped from the stakes and the trap gently pushed/pulled away from the outfall. If the traps interfere with dry weather sampling for other pollutants, the traps can easily be unhooked and pushed aside, then reattached when the sample is obtained. Tubing from wet weather composite sampling can be threaded between the frame and the outfall or the monitoring teams can coordinate so that the trash traps are not on the outfalls when other sampling occurs.

Box Style Trash Trap

A rigid metal box frame is covered with metal mesh. The frame is pushed flush against the outfall and tied in place to stakes in the streambed or bank. Box traps can be built large enough to allow doors over outfalls to swing open unimpeded. In the event of heavy flow, the force of the water on the box will pull the box free of the stakes and push the trap away from the outfall or the mesh can tear away from the frame. The rigid frame of the box trap prohibits the development of a cinch to keep trash inside the trap after it pulls away from the outfall.

Figure 2 Box Trash Trap on Meade Outfall.

Sock Style Trash Trap

A metal hoop is slipped over the protruding outfall pipe. A long metal mesh bag is attached to the hoop, allowing a large surface area for water to escape the sock even as trash and debris accumulates at the toe of the bag. The hoop is tied to stakes in the streambed or bank, not attached directly to the outfall. In the event of heavy flow, the force on the bag will pull the ties loose and the hoop will slip off the outfall or the bag can break away from the metal hoop. A cinch will be developed to close off the opening to the trap if it pulls away from the outfall so that trash already inside the trap does not escape. Trash trapped by the cinch will be removed and disposed of at an appropriate trash disposal facility.

Figure 3 Sock style trash trap at McDonald's Outfall. Socks for monitoring will be longer to allow more room for water to escape before hitting the trash accumulating at the toe.

Monitoring Site Information

Walter Reed Ft Stevens Rd NW and 16th Street NW
This is an existing MS4 monitoring station in the Rock Creek Watershed that drains about 50 acres of low, medium and high density residential land. A sock style trap will be used to collect samples.

Figure 4 Walter Reed Outfall near Ft Stevens Road

Battery Kemble Creek Hawthorne Street NW and 49th Street NW
This is an existing MS4 monitoring station in the Potomac Watershed that drains a low density residential area of about 13 acres. A modified box trash trap with a sock extension will be used to capture trash.

Figure 5 Outfall to Battery Kemble Creek

Oxon Run Mississippi Avenue S.E. and 15th Street S.E.
This is an existing MS4 monitoring station in the Potomac Watershed that drains about 65 acres of medium density residential, institutional, commercial and open space land uses. A box trash trap will collect samples.

Figure 6 Oxon Run Outfall

Benning Road Benning Road NE and Anacostia Avenue NE

This is a previous TMDL monitoring station in the Anacostia Watershed that drains about 12 acres of primarily commercial and some industrial land use. A box style trap will be used to collect samples.

Figure 7 Benning Road Outfall into the Anacostia River, partially submerged at high tide

McDonald's Minnesota Avenue NE and Nannie Helen Burroughs Avenue NE
This is a previous TMDL monitoring station on Watts Branch in the Anacostia Watershed that drains about 7.4 acres of commercial, industrial and residential land use. A sock style trap will be used to collect samples.

Figure 8 McDonald's Outfall into Watt's Branch

New York Avenue New York Avenue and South Dakota Avenue interchange stormwater pond This is a previous TMDL monitoring station in the Anacostia Watershed that drains about 1.5 acres of Transportation Right of Way land use. A box style trap will be used to collect trash.

Figure 9 New York Avenue Outfall

Attachment 6: Summary of Pollutant Loading

Year	Site	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	TSS (mg/L)	E. Coli (MPN/100 mls)	Cadmium (mg/L)	Copper (mg/L)	Lead (mg/L)	Zinc (mg/L)
2013	Anacostia High School	4.79	0.36	30.8	486	0.00064*	0.0041	0.0019[b]	0.049
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Gallatin & 14th St. NE	3.67	0.3	25.5	1,446	ND	0.021	0.0011	0.074
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Water Reed	3.02	0.26	20	185.3	ND	0.022	0.0061	0.073
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Soapstone Creek	3.29	0.35	39.5	266	0.00021*	0.043	0.0085	0.063
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Battery Kemble Creek	2.99	0.3	22.3	389	ND	0.11	0.0085	0.039
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Oxon Run	3.29	0.18	24.4	452.1	0.00035*	0.035	0.0068	0.13
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
2014	Anacostia High School	3.55	0.16	36.43	1062	0.000258*	0.014	0.0084	0.0579
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Gallatin & 14th St. NE	2.87	0.23	20.97	9042	0.0003	0.0185	0.0062	0.07
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Water Reed	3.42	0.24	30.57	29374	0.00050*	0.0203	0.0072	0.0806
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Soapstone Creek	2.51	0.28	53.8	8595	0.00025*	0.0284	0.0081	0.1002
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Battery Kemble Creek	2.47	0.27	23.89	13904	0.00025*	0.1197	0.0062	0.0329
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)
	Oxon Run	3.48	0.17	12.97	5763	0.00025*	0.0201	0.0032	0.0607
		(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)	(n=3)

* If a sample result is below the reporting limit, one-half the reporting limit is used in the calculation of the geometric mean

Year	Station	TSS (lb./yr.)	TN (lb./yr.)	TP (lb./yr.)	Cd (lb./yr.)	Cu (lb./yr.)	Pb (lb./yr.)	Zn (lb./yr.)
2013	Anacostia High School	6,498.00	488.3	41,782.70	2.98E+12	0	5.5	2.6
	Gallatin & 14th St. NE	14,309.40	1,169.70	99,425.20	2.55E+13	0.85	0	4.3
	Water Reed	710.4	38.5	2,966.10	1.24E+11	0	3.3	0.9
	Soapstone Creek	5,877.20	625.2	70.562.8	2.15E+12	0.5	76.8	15.1
	Battery Kemble Creek	1,923.40	193	14,345.50	1.13E+12	0	70.7	5.5
	Oxon Run	10,968.20	600	81,344.60	6.80E+12	1.2	116.7	22.7
	Load Estimates Anacostia Watershed (lbs/yr)	418,020.67	33,309.22	2,836,866.71	5.72E+14	17.08	110.5	138.62
	Load Estimates Potomac Watershed (lbs/yr)	61,791.69	6,225.51	689,701.08	2.13E+13	4.69	751.34	150.08
	Load Estimates Rock Creek Watershed (lbs/yr)	610,932.92	37,580.27	4,534,753.84	3.76E+14	56.87	8,880.89	1,336.40
	Total Load Estimates (lbs/yr)	**1,090,745.28**	**77,115.00**	**8,061,321.63**	**9.69E+14**	**78.63**	**9,742.72**	**1,625.10**
2014	Anacostia High School	62,143	6,056	273	ND	23.88	14.33	100.64
	Gallatin & 14th St. NE	102,811	14,071	1,128	1.47	90.7	30.4	343.19
	Water Reed	4,588	633	32	0.07	1.62	0	6.64
	Soapstone Creek	38,025	569	498	0.55	39.09	0	88.84
	Battery Kemble Creek	19,325	1,998	218	ND	96.83	5.02	2.08
	Oxon Run	54,371	14,588	713	ND	84.26	13.41	254.46
	Load Estimates Anacostia Watershed (lbs./yr.)	1,434,725	175,056	12,182	12.79	996.61	389.01	3,860.38
	Load Estimates Potomac Watershed (lbs./yr.)	6,728,927	1,514,447	85,012	0	16,534.45	1682.77	23,424.04
	Load Estimates Rock Creek Watershed (lbs./yr.)	505,076	14,240	6,282	7.35	482.57	0	1,131.72
	Total Load Estimates (lbs./yr.)	**8,668,729**	**1,703,743**	**103,475**	**20.14**	**18,013.63**	**2071.78**	**28,416.14**

TSS: Total Suspended Solids

Attachment 7: Inspection and Enforcement Standard Operating Procedures

Watershed Protection Division	DOCUMENT NUMBER SOP #WPD-320
TYPE **Inspection and Enforcement Branch**	REVISION 0
TITLE **Soil Erosion and Sediment Control Inspections**	EFFECTIVE DATE MAY 20 2014

PURPOSE

This procedure provides instructions for conducting inspections in the District of Columbia for compliance with erosion and sedimentation control regulations.

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REVISION SUMMARY

Revision 0 is new procedure.

APPROVED BY

Branch Chief Walter K Caldwell Date 4/3/14

Associate Director Sheila A. Besse Date 4/3/14

Director [signature] Date 05/20/14

The Inspection and Enforcement Branch (IEB) of the District Department of the Environment (DDOE) Watershed Protection Division is authorized to inspect land disturbing activities in the District of Columbia for compliance with erosion and sediment control regulations set forth in Title 21 DCMR Chapter 5. As part of the requirements of the District of Columbia building permit process, IEB inspectors conduct periodic inspections to enforce compliance with approved erosion and sediment control plans and to determine whether the measures required in the plan are effective in controlling erosion and sedimentation for land disturbing activities. These procedures set forth the steps for conducting soil erosion and sediment control inspections.

1.0 Pre-Construction Meeting Requirements

1.1 After obtaining a building permit from the D.C. Department of Consumer and Regulatory Affairs (DCRA), an owner/agent must contact the Inspection and Enforcement Branch (IEB) of the Watershed Protection Division at 202-535-2977 to schedule a pre-construction meeting at least 72 hours before the start of excavation or the land disturbing activity.

1.2 The Program Specialist enters the information regarding the pre-construction meeting and inspection request into the IEB database. In the absence of the program specialist, the Branch Chief, or the Branch Chief's designee, may be contacted for processing inspection requests. The program specialist's voice mail message should provide the Branch Chief's telephone number and the scheduling email address, ieb.scheduling@dc.gov, as alternatives for scheduling pre-construction meetings and inspections.

1.3 To create an assignment, the program specialist enters the following information into the database:

1.3.1 Permit type and number (Building permit, raze permit, etc.);

1.3.2 Property address;

1.3.3 Name of developer;

1.3.4 Contractor/permittee contact information;

1.3.5 Date inspection request received;

1.3.6 Type of inspection requested (Erosion & Sediment Control or Stormwater); and

1.3.7 Contact information.

1.4 Once the data is entered, the system will automatically generate an e-mail informing the inspector and the Branch Chief that a request for a pre-construction meeting or inspection has been received for the inspector's attention. The email should include all information needed by the inspector to conduct the pre-construction meeting or the requested inspection.

1.5 Inspectors assigned to a specific construction site will be responsible for inspecting for both erosion and sediment control (ESC) and for construction of the Stormwater Management (SWM) best management practice(s) (BMPs) approved for the site. Thus, the assigned inspector will conduct both ESC inspections and SWM facility construction inspections, if required, for the site location.

1.6. Inspectors receiving pre-construction requests directly from permit holders or their agents should direct them to contact the program specialist at (202) 535-2977, as described on the DDOE plan approval sticker affixed to approved ESC and SWM Plans and also stipulated in the SWM and ESC Guidebooks, DDOE Website, and informational brochure.

2.0 Pre-Construction Meeting

2.1 Once the inspector receives the assignment, it is his/her responsibility to follow up with the owner/agent/contractor/permittee to arrange the pre-construction meeting. The inspector will also be responsible for arranging any subsequent inspections of the site.

2.2 Inspectors shall attend pre-construction meetings to review and discuss the implementation of the soil erosion and sediment control measures before the start of excavation. At the pre-construction meeting, the inspector should review with the owner/agent/contractor/permittee:

2.2.1 A description of all pollutant control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in stormwater discharges. Each major activity in the site construction process should be clearly defined and the BMPs related to that activity should be listed;

2.2.2 A description of interim and permanent stabilization practices for the site, including a schedule of when the practices will be implemented;

2.2.3 A description of the intended construction sequencing and timing of major events, including major grading activities, when construction activities are to cease temporarily or permanently on a portion of the site and when stabilization measures are to be initiated;

2.2.4 A description of structural practices to divert flows from exposed soils, retain/detain flows or otherwise limit runoff and/or the discharge of pollutants from exposed areas of the site;

2.2.5 A description of all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed;

2.2.6 A description of the measures to prevent the discharge of solid or hazardous materials or any other pollutant other than sediment, including building materials, to the waters of the United States, as required by the Stormwater Pollution Prevention Plan (SWPP), where applicable; and

2.2.7 A description of the measures to minimize, to the extent practicable, off-site vehicle tracking of sediments onto paved surfaces and the generation of dust.

2.3 A pre-construction meeting with IEB is optional for minor construction activity (where less than 50 square feet of disturbance will occur, the total construction cost does not exceed $2,500, and an ESC plan is not required).

2.4 Any inspector who enters a construction site where the contractor failed to schedule a pre-construction meeting should ask the permit holders or their agents to call (202) 535-2297, the telephone number at IEB, to schedule a pre-construction meeting. Where appropriate, the inspector may issue an enforcement notice for noncompliance with District regulations as described in the Standard Operating Procedure Enforcement Guidance for failure to schedule a pre-construction meeting.

3.0 Pre-Inspection Procedures

3.1 Prior to the inspection, the inspector should review available documents, such as permits and copies of the site plan. Check for any previous inspections, violations and enforcement actions.

3.2 Before going to the site, the inspector must have the necessary inspection materials, such as:

3.2.1 Proper DDOE credentials;

3.2.2 Copies of the permit and appropriate inspection forms;

3.2.3 Field Inspection Notebook;

3.2.4 Digital camera. Ensure that the date/time stamp is accurate, the battery is fully charged (or take extra batteries), and enough memory is available (or take extra memory cards);

3.2.5 Cellphone;

3.2.6 Computer or tablet, if assigned; and

3.2.7 Personal Protective Equipment, as necessary, such as:

3.2.7.1 Hard hat;

3.2.7.2 Steel-toed boots;

3.2.7.3 Protective goggles; and

3.2.7.4 Protective vest.

3.3 Vehicle. When using a government vehicle, complete an online reservation form. Log in and out the inspection destination and mileage in the logbook that is maintained in the vehicle. Inspectors with an assigned government vehicle must leave the keys for the vehicle with the branch chief before going on leave.

4.0 ESC Inspection Procedures

4.1 Scheduling Inspections.

4.1.1 Where applicable, after the pre–construction meeting and approval for the installation of the soil erosion and sediment BMPs has been given, the inspector shall conduct an initial inspection before grading and/or excavation may begin at the site to ensure that the ESC measures have been installed in accordance with the approved ESC plan and District Standards and Specifications for Erosion and Sediment Control. After excavation begins, the inspector shall conduct periodic inspections throughout the construction process as are deemed necessary to ensure that all control measures installed are being maintained until construction is complete.

4.1.2 Site inspections shall be conducted on a routine basis throughout the duration of the land-disturbing activity. The number of inspections shall be scheduled based on project phase. For example, during heavy grading activities, the inspections should be more frequent, while once interior building activity has begun, less frequent inspections are required. Wet-event inspections of construction sites shall be completed within 24-hours of an appreciable rainfall event.

4.1.3 The inspector should plan his or her inspection schedule to target sites that are in priority areas, such as sites discharging to water quality-impaired waters, sites near surface waters, areas undergoing rapid development, large construction sites over an acre, or sites with a history of noncompliance.

4.1.4 Inspectors shall conduct a Final Inspection for ESC of the completed earth disturbance, stabilization and landscaping as per the approved ESC plan within two (2) weeks after receiving a notice or request for Final Inspection for ESC.

4.2 Act in a courteous and professional manner. Be on time for the inspection and call the owner/agent if running late. Develop a working relationship with the construction operator or other members of the public at the site.

4.3 Take safety precautions. The inspection of construction sites always poses a certain degree of safety risk. To avoid unnecessary risks, the inspector should be familiar with all safety obligations and practices and should:

4.3.1 Use safety equipment in accordance with available guidance and labeling instructions.

4.3.2 Maintain safety equipment in good condition and proper working order.

4.3.3 Dress appropriately for the particular activity and wear appropriate protective clothing. For example, wear a hard hat when on the construction site.

4.3.4 Use any safety equipment customary in the establishment being inspected (e.g., hard hat or safety glasses).

4.3.5 Never enter confined spaces unless properly trained, equipped, and permitted (if applicable).

4.3.6 For any safety-related questions check with supervisor.

4.4 Upon entering a construction site for inspection, inspectors shall identify themselves by presenting their picture identification with badge to the owner or agent in charge of the construction activity. The following steps should be taken once an inspector arrives on-site:

4.4.1 Request to see the owner, operator or site foreman/supervisor.

4.4.2 Introduce yourself as a DDOE inspector, show credentials, and explain the authority and purpose of the inspection. The proper DDOE badge indicates that the holder is a lawful representative of the agency and is authorized to perform inspections. The badge must be presented whether or not identification is requested.

4.4.3 Establish the identity of all responsible parties, including the person you are interviewing, from the owner/contractor. Document the names, titles, addresses, telephone numbers, and email of all parties with whom you speak during the inspection. Collect business cards if possible.

4.4.4 Establish an understanding of the procedures being implemented.

4.5 The owner/agent shall be given the opportunity to accompany the inspector during the inspection.

4.6 Each inspection should be thorough, consistent, and cover all areas of the construction site and all BMPs. Throughout the life of the project, the inspector needs to ensure that erosion and sediment controls are installed and maintained properly and are in working order in accordance with the construction site plan. The inspector should:

4.6.1 Assess perimeter controls (e.g., silt fence);

4.6.2 Assess construction entrances;

4.6.3 Perform a walk-through of the site to assess stabilization practices (e.g., seeding), structural sediment control practices (e.g. sediment trap), discharge points, and housekeeping practices described on the plan (e.g., general construction site waste management); and

4.6.4 Assess off-site areas to determine if adjacent properties or receiving waters are being adversely affected by construction activities.

4.7 Document the Inspection. The inspector should document and track all findings at the construction site using inspection forms and checklists, photographs, and field notes. This documentation will aid the inspector in supporting enforcement actions, escalating enforcement, or pursuing more stringent penalties if the site is in continuous noncompliance.

4.7.1 As much as possible, the inspector should fill out inspection reports while at the construction site being inspected and have the owner/agent sign to receive a copy of the inspection report or forward a copy to the owner/agent.

4.7.2 In addition to documenting observations as part of the specific ESC Field Inspection Report, field notes may be recorded in an Inspection Notebook or secure electronic file. The notes should contain sufficient detail to allow the inspector to complete his/her inspection report and to support observed issues of compliance.

4.7.2.1 Record facts and pertinent observations. Avoid ambiguity to prevent problems when the information is reviewed at a later date.

4.7.2.2 Do not record personal feelings or terminology.

4.7.3 In addition to completing the inspection checklist, the inspector may record the following types of information that will validate evidence:

4.7.3.1 Weather conditions. Note weather conditions such as snowfalls/rain events prior to and during the inspection;

4.7.3.2 Unusual conditions and problems. Describe in detail unusual conditions and problems;

4.7.3.3 Names and Titles. List the names and titles of the construction personnel and any statements they have made;

4.7.3.4 Permit information. List information regarding the presence or absence of permits on the site; and

4.7.3.5 Samples collected.

4.7.4 When possible, photographs should be taken to document problems and to identify areas contractors will need to take corrective action to be in compliance.

4.7.4.1 Document each photograph so that its content can be identified with the site, date, who took the photograph, and a short description of the purpose of the picture (if this information is not entered into the camera).

4.7.4.2 Photograph, diagram, if necessary, and identify the location of each potential violation or regulatory concern.

4.7.4.3 Photos should be clear, well lit, and at proper range to show that the photo was taken at the inspected site and to show the violation in context.

4.8 All ESC Inspection Events are to be entered into the ESC database within 24 hours or the next business day. All documents should be retained in the soil erosion and sediment control or SWM Construction site File maintained by the inspector or Central Records. See Section 6.0, below.

5.0 Changes to the ESC Plan

5.1 Except for minor construction activity, an approved ESC plan must be on-site at the time of the inspection.

5.2 During an inspection, if it is determined by the inspector that the soil erosion and sediment control measures in the approved plan are inadequate, the inspector is authorized to request that the owner/agent install additional control measures or make minor changes (such as seed and straw for temporary ground cover, additional silt or super silt fencing, additional straw bale dikes, use of portable sediment traps or relocation of construction entrance locations and tire wash stations). A justification as to why minor changes are needed for the approved ESC are to be included in the Inspection summary of the ESC Inspection Report.

5.3 Major or substantial plan changes as described by the ESC Guidebook (structural measures including earth dike use and location, excavated sediment traps and ponds as well as grading changes) require a revised Erosion and Sediment Control plan to be submitted to Technical Services Branch (TSB) through the Department of Consumer and Regulatory Affairs (DCRA) One Stop Permit and Business Center for review and approval by the TSB.

6.0 ESC Construction File

6.1 The ESC Construction Site File should contain ESC inspection reports with the file number, site address, copy of the building permit, copy of notice of any violation/infraction (if any), event dates, and photos of the site.

6.2 Inspectors should maintain and update the Construction Site file and BMP Tracking Database within 24 hours or the next business day after inspection.

6.3 Complete an ESC Field Inspection Report for every ESC inspection event (Pre-Construction, Initial, Routine, Final).

6.3 Record the dates and times of all phone calls made or received regarding the inspections of the site. Describe any follow-up action taken (if any) in response to the calls.

6.4 If a digital camera was used to take pictures, download and authenticate your pictures immediately for the ESC Construction File. Record the following information on each picture:

6.4.1 Name and address of the site;

6.4.2 When the picture was taken – date and time;

6.4.3 Your signature.

6.5 Sign and date the inspection report.

6.6 A signed copy of each inspection report for ESC is to be given to the owner/agent and maintained in the case file for ESC, and where applicable, in the Stormwater Management Facility Construction file.

6.7 Tracking Inspections.

6.7.1 For the purpose of tracking the number of inspections, inspection of all temporary erosion and sediment control measures should be considered one inspection event.

6.7.2 Use a specific inspection form for each SWM BMP and for all inspection events during its construction.

6.7.3 Use one inspection form for each inspection event for ESC inspections.

7.0 Enforcement

7.1 If upon final inspection, or during any interim inspection, the inspector determines that the owner/agent has failed to comply with the ESC plan, the inspector shall use appropriate enforcement action(s) as described in the SOP for Enforcement of Soil Erosion and Sedimentation Control and Stormwater Management.

7.2 Re-inspection. Re-inspection of properties for which there are pending violations is imperative. Violations cannot be considered abated without re-inspection. Unabated items cannot be referred for enforcement action unless it has been verified that the violations still exist and efforts at compliance have not been made. After re-inspection of the site:

7.2.1 Indicate the item or condition on the deficiency list of the inspection report that has been abated.

7.2.2 Indicate those conditions on the deficiency list that have been partially corrected.

7.2.3 Attempt to contact by telephone and/or email the responsible person to ascertain the reason for non-compliance and/or to verify the receipt of orders. If unable to contact the responsible person during working hours, telephone in the evening, early morning, or on weekends. Record the essentials of the call and how, where and when to contact the responsible person in the future.

7.2.4 Take the following action if the responsible person is contacted:

7.2.4.1 If a valid reason is given, recommend an additional reasonable time for compliance.

7.2.4.2 In the absence of a valid reason for non-compliance, proceed with a Corrective Action Notice (CAN), Notice of Violation (NOV), or Notice of Infraction (NOI).

7.2.5 Add the record of the re-inspection report to the case history/file.

7.3 If an inspector discovers a violation at a construction site that they have not been assigned to, he or she should perform an inspection documenting the violation (s) and contact the inspector assigned to the area and inform them of your intent to issue an Enforcement Notice for the site, and provide the assigned inspector with a copy of the Inspection Report and Enforcement Notice (for the SWM/ESC site construction file). Update the BMP tracking database with information about the Inspection type and date, and the date of the Enforcement Notice

8.0 Reference Documents

8.1 Stormwater Management Facility Construction Inspection SOP

8.2 Erosion and Sediment Control Field Inspection Report Site Inspection Checklist

8.3 Enforcement of Soil Erosion and Sedimentation Control and Stormwater Management SOP

8.4 Stormwater Management Guidebook 2013, found at:
http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/2013%20SW%20Rule.pdf

Watershed Protection Division	DOCUMENT NUMBER SOP # WPD-305
TYPE Inspection and Enforcement Branch	REVISION 0
TITLE Stormwater Management Facility Construction Inspections	EFFECTIVE DATE MAY 20 2014

PURPOSE

This procedure provides instructions for conducting inspections in the District of Columbia for compliance with stormwater management facility construction regulations.

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REVISION SUMMARY

Revision 0 is new procedure.

APPROVED BY

Branch Chief _____ Date 4/1/2014

Associate Director _____ Date 4/3/14

Director _____ Date 05/20/14

The Inspection and Enforcement Branch (IEB) of the District Department of the Environment (DDOE) Watershed Protection Division (WPD) is authorized to inspect land-disturbing activities in the District of Columbia for compliance with stormwater management (SWM) regulations set forth in Title 21 DCMR Chapter 5, as amended. As part of the requirements of the District of Columbia building permit process, IEB inspectors conduct on-site inspections of SWM facility construction and installation at different stages of construction, as specified in the SWM plan. These procedures set forth the steps for conducting SWM facility construction inspections and for preparing the Final Approval Notice for the facility construction.

1.0 Pre-construction Meeting Requirements

1.1 After obtaining a building permit from the D.C. Department of Consumer and Regulatory Affairs (DCRA), an owner/agent must contact the Inspection and Enforcement Branch (IEB) of the Watershed Protection Division (WPD) at 202-535-2977 to schedule a pre-construction meeting at least 72 hours before beginning construction of the SWM facility.

1.2 The Program Specialist enters the information regarding the pre-construction meeting and inspection request into the IEB data system. In the absence of the program specialist, the Branch Chief or the Branch Chief's designee may be contacted for processing inspection requests. The program specialist's voice mail message should include the Branch Chief's telephone number and the scheduling email address, ieb.scheduling@dc.gov, as alternatives for scheduling pre-construction meetings and inspections.

1.3 To create an assignment, the program specialist enters the following information into the database:

1.3.1 Construction permits (building permit, raze permit, etc.);

1.3.2 Property address;

1.3.3 Name of developer;

1.3.4 Contractor/permittee contact information;

1.3.5 Date inspection request received;

1.3.6 Type of inspection requested (Erosion & Sediment Control or Stormwater); and

1.3.7 Contact Information.

1.4 Once the data is entered, the system will automatically generate an e-mail informing the inspector and the Branch Chief that a request for a pre-construction meeting or inspection has been received for the inspector's attention. The email should include all information needed by the inspector to conduct the pre-construction meeting or requested inspection.

1.5. Inspectors assigned to a specific construction site will be responsible for inspecting for both erosion and sediment control (ESC) and for construction of the Stormwater Management (SWM) best management practice(s) (BMPs) approved for the site. Thus, the assigned inspector will conduct both ESC inspections and SWM facility construction inspections, if required, for the site location.

1.6. Inspectors receiving pre-construction requests directly from permit holders or their agents should be directed to contact the program specialist at (202) 535-2977, as described on the DDOE plan approval sticker affixed to approved ESC and SWM Plans and also stipulated in the SWM and ESC Guidebooks, DDOE Website, and informational brochure.

2.0 Pre-Construction Meeting

2.1 Once the inspector receives the assignment, it is his/her responsibility to follow up with the owner/agent/contractor/permittee to arrange the pre-construction meeting. The pre-construction meeting is the first step in all stormwater management facility construction inspections.

2.2 Inspections are performed at different stages of construction of the SWM facility. At the pre-construction meeting an inspection schedule and requirements for compliance with District regulations for construction of stormwater management facilities are discussed.

2.3 Inspectors attend the pre-construction meetings to review and discuss the implementation of the SWM plan (SWMP) with the owner/agent of the SWM facility before the start of construction.

2.4 The Inspector prepares a SWM Facility Construction File for the facility that includes:

2.4.1 "General Information" from the storm water approval;

2.4.2 A copy of the Building Permit;

2.4.3 The appropriate Stormwater Management Facility Construction Inspection Report; and

2.4.4 An Erosion and Sediment Inspection Report.

2.5 Any inspector who enters a construction site where the contractor failed to schedule a pre-construction meeting shall ask the permit holders or their agents to contact the IEB at (202) 535-2297 to schedule a pre-construction meeting and, where appropriate, issue an enforcement notice for noncompliance with District regulations as described in the Standard Operating Procedure Enforcement Guidance for failure to schedule a pre-construction meeting.

3.0 Pre-Inspection Procedures

3.1 Prior to the inspection, the inspector should review available documents, such as permits and copies of the SWMP. Check for any previous inspections, violations and enforcement actions.

3.2 Before going to the site, the inspector must have the necessary inspection materials, such as:

3.2.1 Proper DDOE credentials;

3.2.2 Copies of the permit and appropriate inspection forms;

3.2.3 Field notebook;

3.2.4 Digital camera. Ensure that the date/time stamp is accurate, the battery is fully charged (or take extra batteries), and enough memory is available (or take extra memory cards);

3.2.5 Cell phone;

3.2.6 Computer or tablet (if assigned); and

3.2.7 Personal Protective Equipment, as necessary, such as:

3.2.7.1 Hard hat;

3.2.7.2 Steel-toed boots;

3.2.7.3 Protective goggles; and

3.2.7.4 Protective vest.

3.3 Vehicle. When using a government vehicle, complete an online reservation form. Log in and out the inspection destination and mileage in the logbook that is maintained in the vehicle. Inspectors with an assigned government vehicle must leave the keys for the vehicle with the Branch Chief before going on leave.

4.0 Scheduling Inspections

4.1 Initial Inspection. After the pre-construction meeting and after approval for the construction of the SWM facility has been given, the inspector conducts an initial inspection before construction may begin.

4.2 Inspectors conduct inspections at pre-determined stages of the facility construction, as specified in the approved SWMP and the Stormwater Management Facility Construction Inspection Report, or determined at the pre-construction meeting. DDOE may require additional inspections at a particular stage of construction by specifying that requirement in the pre-construction inspection report or in the report of the pre-construction meeting.

4.3 The owner/operator may not proceed with work past a stage of construction that has been identified as requiring an inspection until:

4.3.1 The inspector inspects the work previously completed, records the inspection event on the appropriate Stormwater Management Facility Construction Inspection Report, and enters the Inspection Event into the BMP tracking database;

4.3.2 DDOE has approved a plan modification that eliminates the inspection requirement; or

4.3.3 DDOE otherwise eliminates or modifies the inspection requirement in writing.

4.4 DDOE shall make reasonable efforts to accommodate a request by the owner/operator for an inspection outside of DDOE's normal business hours if the request:

4.4.1 Is made during the DDOE's normal business hours;

4.4.2 Includes the information the DDOE requires, including the matters to be inspected, the location of the site work to be inspected, and details for site access; and

4.4.3 Includes payment or proof of payment of the after-hours inspection fee.

4.5 If the inspector is not contacted for inspections as determined at the pre-construction meeting and specified on the SWM Facility Construction report, the inspector who conducted the pre-construction meeting or the inspector assigned to the permitted site for SWM facility construction inspections shall conduct an inspection within six months of the pre-construction meeting to obtain an update of the status of the SWM facility construction.

4.6 In order to schedule an inspection required for a stage of construction or other construction event, the owner/agent must contact IEB at least three (3) business days before the anticipated inspection.

4.7 Final Inspection. The owner/agent is responsible for notifying the IEB to request a final construction inspection within one week of completion of the SWM facility. See procedures below for final SWM facility construction approval.

5.0 SWM Facility Construction Inspection Procedures

5.1 Act in a courteous and professional manner. Be on time for the inspection and call the owner/agent if running late. Develop a working relationship with the construction operator or other members of the public at the site.

5.2 Take safety precautions. The inspection of construction sites always poses a certain degree of safety risk. To avoid unnecessary risks, the inspector should be familiar with all safety obligations and practices and should:

5.2.1 Use safety equipment in accordance with available guidance and labeling instructions;

5.2.2 Maintain safety equipment in good condition and proper working order;

5.2.3 Dress appropriately for the particular activity and wear appropriate protective clothing. For example, wear a hard hat when on the construction site;

5.2.4 Use any safety equipment customary in the establishment being inspected (e.g., hard hat, safety vest, or safety glasses);

5.2.5 Never enter confined spaces unless properly trained, equipped, and permitted (if applicable); and

5.2.6 For any safety-related questions, check with supervisor.

5.3 Upon entering a construction site for inspection, the inspector identifies himself by presenting a picture identification with badge to the owner or agent in charge of the construction activity. The following steps should be taken once an inspector arrives on-site:

5.3.2 Introduce yourself as a DDOE inspector, show credentials, and explain the authority and purpose of the inspection. The proper DDOE badge indicates that the holder is a lawful representative of the agency and is authorized to perform inspections. The badge must be presented whether or not identification is requested.

5.3.3 Establish the identity of all responsible parties, including the person you are interviewing, from the owner/contractor. Document the names, titles, address, telephone numbers, and email of all parties with whom you speak during the inspection. Collect business cards if possible.

5.4 The professional engineer of record or agent responsible for certifying the As-built plans for the project may accompany the inspector on facility construction inspections at any time, but is not required to do so.

5.5 Each inspection should be thorough, consistent, and cover all areas of the construction site to ensure compliance with the SWM regulations and that the construction is in compliance with the approved SWMP.

5.6 Document the Inspection. The inspector should document and track all findings at the construction site using inspection checklists, photographs, notes, or written logs. The inspector enters all inspection events into the IEB BMP Tracking Database. This documentation will aid the inspector in supporting enforcement actions, escalating enforcement, or pursuing more stringent penalties if the site is in continuous noncompliance. As much as possible, the inspector should fill out inspection reports while at the construction site being inspected. See Storm Water Management Facilities Inspection Report. All documents should be retained in the SWM site construction file maintained by the inspector or Central Records.

5.6.1 Immediately record observations, conversations, and documentation in the notebook using coherent sentences and precise terminology. The inspection notebook should contain sufficient detail to allow the inspector to complete his/her inspection report and to support observed issues of compliance.

5.6.1.1 Use a bound notebook and record entries in ink.

5.6.1.2 Record facts and pertinent observations. Avoid ambiguity to prevent problems when the information is reviewed at a later date.

5.6.1.3 Do not record personal feelings or terminology.

5.6.2 In addition to completing the inspection checklist, the inspector may record the following types of information that will validate evidence:

5.6.2.1 Weather conditions. Note weather conditions such as snowfalls/rain events prior to and during the inspection;

5.6.2.2 Unusual conditions and problems. Describe in detail unusual conditions and problems;

5.6.2.3 Names and Titles. List the names and titles of the construction personnel and any statements they have made;

5.6.2.4 Permit information. List information regarding the presence or absence of permits on the site; and

5.6.2.5 Samples collected.

5.6.3 When possible, photographs should be taken to document problems and to identify areas where contractors may need to make corrections.

5.6.3.1 Document each photograph so that its content can be identified with the site, date and time, (if a date and time stamp are not set by the camera) who took the photograph, and a short description

5.6.3.2 Photograph, diagram, if necessary, and identify the location of each potential violation or regulatory concern.

5.6.3.3 Photos should be clear, well lit, and at proper range to show that the photo was taken at the inspected site and to show the violation in context.

6.0 Changes to the SWM Plan (SWMP)

6.1 An approved SWM Plan (SWMP) must be on-site at the time of the inspection.

6.2 A person may not change an approved SWMP or its implementation without DDOE approval.

6.3 If the change is not substantial, the owner/operator may secure written approval from the inspector in the field or WPD staff. If an inspector is not sure whether the change is substantial, he or she should see the SWM Guidebook (5.1.2 Resubmission of SWMP) or ask for guidance from the Branch Chief.

6.4 If the change is substantial, the owner/operator must resubmit a revised plan to DDOE for approval of any revisions, alternative designs, or any changes to approved plans.

6.5 A change in an approved plan is substantial if it may result in failure to comply with the SWM requirements or has a significant effect on the discharge of pollutants to the District's waters.

6.6 Substantial and Non-Substantial changes are defined in the DDOE Stormwater Guidebook 2013.

7.0 SWM Facility Construction Inspection Reports

7.1 The SWM Facility Construction Case File should contain:

7.1.1 A copy of the building permit;

7.1.2 Plan approval general information sheet;

7.1.3 All inspection reports with the file number and site address;

7.1.4 Event dates;

7.1.5 Copies of all enforcement notices (if any);

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7.1.6 Photos of the site;

7.1.7 Final Approval Notice; and

7.1.8 Any other information the inspector deems pertinent to the case.

7.2 Inspectors should maintain and update the SWM Facility Construction File in the BMP Tracking Database within 24 hours or one business day of inspection.

7.3 The inspection report documents all inspections and enforcement actions. Record the dates and times of all phone calls made or received regarding the inspections of the site. Describe any follow-up action taken (if any) in response to the calls.

7.4 If a digital camera was used to take pictures, download and authenticate your pictures immediately for your file. Record the following information on each picture:

7.4.1 Name and address of the property and owner/contractor;

7.4.2 When the picture was taken – date and time;

7.4.3 Brief description of the photo; and

7.4.4 Your signature.

7.5 Complete, sign and date the inspection report.

7.6 A signed copy of each inspection report for SWM facility construction is to be given to the owner/agent and maintained in the SWM case file.

8.0 Enforcement of SWM Facility Construction Requirements

8.1 If, upon final inspection, or during any interim inspections, the inspector determines that the owner/agent has failed to comply with the SWMP, the inspector shall use appropriate enforcement action(s) as described in the Enforcement SOP.

8.2 Re-inspection. Re-inspection of properties for which there are pending violations is imperative. Violations cannot be considered abated without re-inspection. Unabated items cannot be referred for enforcement action unless it has been verified that the violations still exist and efforts at compliance have not been made. After re-inspection of the facility:

8.2.1 Indicate the item or condition on the deficiency list of the inspection report that has been abated.

8.2.2 Indicate those conditions on the deficiency list that have been partially corrected.

8.2.3 Attempt to contact by telephone the responsible person to ascertain the reason for non-compliance and/or to verify the receipt of orders. If unable to contact the responsible person during working hours, telephone in the evening, early morning, or on weekends. Record the essentials of the call and how, where and when to contact the responsible person in the future.

8.2.4 Take the following action if the responsible person is contacted:

8.2.4.1 If a valid reason is given, recommend an additional reasonable time for compliance.

8.2.4.2 In the absence of a valid reason for non-compliance, proceed with a notice of infraction.

8.2.5 Add the record of the re-inspection report to the case history/file.

8.3 If an inspector discovers a violation at a construction site that they have not been assigned to, he or she should either search the IEB BMP Tracking Database for the assigned inspector or contact his/her supervisor to determine if the site is assigned to another inspector. Prior to taking any enforcement action, the inspector must check with the inspector assigned to the site.

9.0 As-Built Plan Review and Approval

9.1 The inspector provides a signed copy of the Final Inspection Report for the SWM facility construction to the owner/agent, with a notice of the due date that the owner/agent must submit the As-built plans to the IEB for review and approval. A copy of the Final SWM Facility Construction Inspection Report is kept in the case file.

9.2 Within twenty-one (21) days of the final facility construction inspection date, the owner/agent must submit an as-built package containing a Mylar copy of the as-built SWMP certified by a professional engineer licensed in the District of Columbia and the supporting documents specified in the DDOE Stormwater Management Guidebook (SWMG).

9.3 The inspector reviews the As-built plan using the As-built plan checklist or review sheet.

9.4 If the As-built plan does not meet DDOE requirements, it is returned with comments to the project engineer or agent for revision.

9.5 If the As-built plan does meet DDOE requirements and is approved, the arrival date of the As-built is entered into the BMP Tracing Database.

9.6 After receipt and approval of the As-built plan, the inspector prepares a SWM Final Approval Notice (FAN) for distribution to the permit holder and the IEB maintenance team. The FAN is addressed to the owner/agent listed on the building permit and sent within 30 days of the As-built approval date.

9.7 The date of the FAN is recorded in the BMP Tracking Database within one business day of its issuance.

9.8 The inspector submits the As-built Plan and complete SWM Facility Construction File to Central Records for archive within five business days of issuance of the FAN.

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8.2.4.1 If a valid reason is given, recommend an additional reasonable time for compliance.

8.2.4.2 In the absence of a valid reason for non-compliance, proceed with a notice of infraction.

8.2.5 Add the record of the re-inspection report to the case history/file.

8.3 If an inspector discovers a violation at a construction site that they have not been assigned to, he or she should perform an inspection documenting the violation(s) and contact the inspector assigned to the area and inform them of your intent to issue an Enforcement Notice for the site, and provide the assigned inspector with a copy of the Inspection Report and Enforcement Notice (for the SWM site construction file). The inspector shall than update the BMP tracking database with information about the Inspection type and date, and the date and type of Enforcement Notice.

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10.0 Reference Documents

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10.1 Soil Erosion and Sediment Control Inspections SOP

10.2 Storm Water Management Facilities Inspection Report

10.3 Enforcement of Soil Erosion and Sedimentation Control and Storm Water Management SOP

10.4 Stormwater Management Guidebook 2013, found at:
http://ddoe.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/2013%20SW%20Rule.pdf