

THE CITY OF WALTHAM  
MASSACHUSETTS

PURCHASING DEPARTMENT

**ENGINEERING SERVICES – ILLICIT DISCHARGE DETECTION  
AND ELIMINATION PROGRAM COORDINATOR (IDDE)**

**ADDENDUM NO. 2**

May 6, 2020

**CHANGES, CORRECTIONS AND CLARIFICATIONS**

The attention of bidders submitting proposals for the above subject project is called to the following addendum to the specifications. The items set forth herein, whether of omission, addition, substitution or clarification are all to be included in and form a part of the proposal submitted.

THE NUMBER OF THIS ADDENDUM (NO. 2) MUST BE ACKNOWLEDGED IN PRICE SHEET SECTION.

---

**ITEM 1: ANSWERS TO POSED QUESTIONS**

**Q1.** How do I obtain a copy of the Waltham IDDE AO (Administrative Order)?

**A1.** A copy of the USEPA Administrative order is attached.

**END OF ADDENDUM 2**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I

IN THE MATTER OF:	)	DOCKET NO.05-06
	)	
CITY OF WALTHAM	)	FINDINGS OF VIOLATION
MASSACHUSETTS	)	
	)	AND
Proceedings under Section 309(a)(3)	)	
of the Clean Water Act, as amended,	)	ORDER FOR COMPLIANCE
33 U.S.C. §1319(a)(3)	)	

STATUTORY AUTHORITY

The following findings are made and ORDER issued pursuant to Section 309(a)(3) of the Clean Water Act, as amended (the "Act"), 33 U.S.C. § 1319(a)(3). Section 309(a)(3) grants to the Administrator of the U.S. Environmental Protection Agency ("EPA") the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 308, 318 and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System ("NPDES") permit issued under Section 402 of the Act, 33 U.S.C. § 1342. This authority has been delegated to EPA's Regional Administrators and to the Director of the Office of Environmental Stewardship, Region I (the "Director").

The Order herein is based on findings of violations of Section 301 of the Act, 33 U.S.C. § 1311. Pursuant to Section 309(a)(5)(A) of the Act, 33 U.S.C. § 1319(a)(5)(A), the Order provides a schedule for compliance which the Director has determined to be reasonable.

## FINDINGS

The Director makes the following findings of fact:

1. The City of Waltham (the "City") is a municipality, as defined in Section 502(4) of the Act, 33 U.S.C. §1362(4), established under the laws of the Commonwealth of Massachusetts, and, as such, is a person under Section 502(5) of the Act, 33 U.S.C. § 1362(5).
2. The City is the owner and operator of a municipal separate stormwater system consisting of drains, which are designed to collect, convey, and discharge stormwater to receiving waters. These drains discharge to the Charles River and its tributaries, Class B waterways and navigable waters under Section 502(7) of the Act, 33 U.S.C. § 1362(7) and are point sources, as defined in Section 502(14) of the Act, 33 U.S.C. § 1362(14).
3. From June 2003 through October 2003, EPA caused to be collected and analyzed water samples from the Charles River at the ends of storm drains operated by Waltham and in nearby receiving waters of the Charles River and its tributaries. This data is summarized in Attachment 1 and indicates that Waltham is discharging sewage through its storm drains into the Charles River and its tributaries and contributing to

violations of Massachusetts Water Quality Standards by doing so. The discharge of sewage causing violations of water quality standards is occurring at, without limitation, storm drains L11, L12, R17, R22 and R23. It is believed that sewage discharges to the Charles River from Waltham drains because of illicit connections between pipes carrying sewage and the Waltham drainage system.

4. On May 7, 2004, EPA provided this data to the City of Waltham and requested that the City undertake an effort to identify and eliminate all illicit connections in its drainage system that empties into the Charles River.
5. Waltham has not eliminated the discharge of sewage from its separate storm drains into the Charles River.
6. The discharges of pollutants from the identified storm drains described in the preceding paragraph are not discharges of "storm water" as defined in 40 C.F.R. § 122.26 (b) (13).
7. Fecal coliform bacteria is a pollutant as defined in Sections 502(6) of the Act, 33 U.S.C. § 1362(6). The Massachusetts Water Quality Standard for fecal coliform bacteria in Class B Waters such as the Charles River is a geometric mean of 200 colony forming units per 100 milliliters (cfu/100ml) with less than ten percent of the samples exceeding 400 cfu/100ml.
8. Section 301(a) of the Act, 33 U.S.C. § 1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES permit issued pursuant to Section 402

of the Act, 33 U.S.C. § 1342.

9. On May 1, 2003, EPA issued a general permit for stormwater water discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The MS4 general permit authorizes municipalities meeting population criteria to discharge stormwater from MS4s that they operate after notifying EPA of their intention to be covered by the general permit. The City of Waltham notified EPA that it was seeking coverage under the MS4 general permit on July 30, 2003 and received authorization under the general permit on December 5, 2003.
10. Part I.B.2.j of the general permit specifically provides that the stormwater permit does not authorize discharge of stormwater that is mixed with non-stormwater, unless in compliance with another NPDES permit or allowable under Part I.F of the permit. The discharges of sewage contaminated stormwater from Waltham drains are not in compliance with any other NPDES permit and are not otherwise allowable under Part I.F of the MS4 general permit.
11. Part I.B.2.k provides that the MS4 General Permit does not authorize discharges that would cause or contribute to instream exceedance of water quality standards. The discharge of sewage contaminated stormwater from Waltham drains causes or contributes to the instream exceedance of water quality standards for bacteria.
12. The discharges from Waltham storm drains identified in Attachment 1 are not authorized by an NPDES permit or any

other provision of the Act. These discharges described above are therefore a violation of Section 301 (a) of the Act, 33 U.S.C § 1311(a).

ORDER

Accordingly, pursuant to Section 309(a)(3) of the Clean Water Act, it is hereby ordered that the City shall comply with the following schedule:

1. By December 31, 2004, Waltham shall develop and submit to EPA for approval a comprehensive plan ("Plan") for identifying the sources, including illicit connections, of non-stormwater discharges from its storm drains discharging to the Charles River and its tributaries, including, without limitation, those identified in Attachment 1. Waltham should develop the Plan using applicable provisions of Attachment 2 which sets out a protocol for investigation of illicit connections. Where it cannot be demonstrated to EPA's satisfaction that in-house resources are adequate to execute the investigatory tasks ("Investigation"), Waltham shall execute a contract for completing the Investigation to determine the sources of non-stormwater pollutants in the identified storm drains.
2. By February 28, 2005, Waltham shall complete the Investigation and submit a report ("Report") to EPA and DEP documenting the findings. The Report shall include a list of illicit connections, the estimated flow from the connections, and the estimated cost of removing the connections. The Report shall also contain a monitoring plan ("Monitoring Plan") for

demonstrating the effectiveness of illicit connection removal efforts. The Monitoring Plan shall also contain a monitoring schedule that will enable the City to demonstrate by April 23, 2005 whether all illicit connections have been removed from Waltham's storm drains. The City shall implement the Monitoring Plan in accordance with the schedule contained therein until the City has completed the monitoring or until EPA directs otherwise.

3. The Report shall also state whether the City believes that third parties are responsible for the work necessary to remove any of the illicit connections. If so, the Report shall identify any such connections and describe the actions to be taken by the City to ensure that these connections are removed by April 23, 2005. The City shall thereafter take all actions necessary to ensure the removal of these connections by April 23, 2005.
4. By December 31, 2004, Waltham shall obtain funding for removal of illicit connections discovered during the Investigation (an amount of at least one hundred thousand dollars shall be budgeted for this purpose).
5. By April 23, 2005, Waltham shall remove all illicit connections in all of its storm drains discharging to the Charles River and its tributaries.
6. If the City believes that it is impossible to remove or ensure the removal of all illicit connections to the identified storm drains by April 23, 2005 despite all reasonable efforts, the

February 28, 2005 Report shall document why the City considers this to be the case, and the EPA and the City shall then discuss whether changes to this Order are appropriate.

7. The City may in some cases be entitled to reimbursement from third parties for the work necessary to remove illicit connections. Nothing in this Order shall be construed to make the City responsible for costs which would ordinarily be borne by third parties.

#### Impossibility of Performance

8. If the City becomes aware that circumstances beyond its control will make it impossible to comply with any requirement of this Order despite all reasonable efforts, the City shall notify EPA in writing, within 14 days of the time it becomes aware of such circumstances. This notice shall describe in detail:
  - i. The reason for and anticipated length of time the noncompliance is expected to persist.
  - ii. The measures taken and to be taken by the City to minimize the noncompliance.
  - iii. The timetable by which such measures will be implemented. EPA and the City shall then discuss whether any modification to the requirements of this Order is appropriate.

#### NOTIFICATION PROCEDURES

1. Where this Order requires a specific action to be performed within a certain time frame, the City shall submit a written



notice of compliance or noncompliance with each deadline. Notification must be mailed within fourteen (14) days after each required deadline. The timely submission of a required report shall satisfy the requirement that a notice of compliance be submitted.

2. If noncompliance is reported, notification should include the following information:
  - a. A description of the noncompliance;
  - b. A description of any actions taken or proposed by the City to comply with the elapsed schedule requirements;
  - c. A description of any factors which tend to explain or mitigate the noncompliance;
  - d. An approximate date by which the City will perform the required action.
3. After a notification of noncompliance has been filed, compliance with the past requirement shall be reported by submitting any required documents or providing EPA with a written report indicating that the required action has been achieved.

Submissions required by this Order shall be in writing and should be mailed to the following addresses:

Stephen Perkins, Director  
Office of Environmental Stewardship  
U.S. Environmental Protection Agency  
JFK Federal Building - SEW  
Boston, MA 02203  
Attn: Water Technical Unit

Massachusetts Department of Environmental  
Protection  
One Winter Street  
Boston, MA 02108  
Attn: Madelyn Morris

#### GENERAL PROVISIONS

1. The City may, if it desires, assert a business confidentiality claim covering part or all of the information requested, in the manner described by 40 C.F.R. § 2.203(b). Information covered by such a claim will be disclosed by EPA only to the extent, and by means of the procedures, set forth in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA, the information may be made available to the public by EPA without further notice to the City. The City should read the above-cited regulations carefully before asserting a business confidentiality claim since certain categories of information are not properly the subject of such a claim. For example, the Clean Water Act provides that "effluent data" shall in all cases be made available to the public. See Section 308(b) of the Act, 33 U.S.C. § 1318(b).
2. This Order shall become effective upon receipt by the City.

11/09/04

Date

A handwritten signature in black ink, appearing to read "Stephen Perkins", written over a horizontal line.

Stephen Perkins, Director  
Office of Environmental Stewardship  
Environmental Protection Agency  
Region I

## Attachment 1

Date	Sample#	Site	Fecal	E.Coli	Wet/Dry	Comment
6/25/2003	162	BeB001	510	480	D	Beaver Brook*
7/24/2003	177	Elm	1,523	559	W	Center, downstream side of Elm*
7/24/2003	176	Elm North	2,000	1,300	W	N .bank downstream of Elm*
7/24/2003	175	Elm South	1,100	600	W	S bank upstream of Elm*
10/29/2003	213	Eplume	7,909	3,636	W	N bank downstream of Elm*
7/24/2003	179	Footbridge	1,100	900	W	Downstream of foot bridge*
7/24/2003	174	Midsou	900	900	W	Between Elm and Newton Sts.*
7/24/2003	180	Moody	600	600	W	Downstream of Moody St.*
7/24/2003	170	NewNor	1,766	667	W	N bank downstream of Newton St.*
7/24/2003	172	NewSouth	900	800	W	S bank downstream of Newton St.*
7/24/2003	171	Newton	1,739	541	W	Center downstream of Newton St.*
7/24/2003	178	Wal L11	14,000	18,000	W	drain upstream of Elm on N bank**
10/29/2003	214	Wal L12	12,455	7,727	W	drain under car wash at Elm**
10/29/2003	208	Wal L12	30,000	27,000	W	N bank beside Elm**
10/29/2003	215	Wal R17	8,273	4,273	W	S bank drain downstream of dam**
10/29/2003	207	Wal R22	12,818	8,818	W	S bank under Elm** St.
7/24/2003	173	Wal R23	>200,000	Too Numerous to count	W	drain upstream of Newton St.**

10/29/2003	205	WalR23	15,636	4,364	W	S bank upstream of Newton St.**
10/29/2003	211	Wal R 23	31,000	ND	W	S. bank upstream of Newton St.**

\* Denotes instream sample

\*\* Denotes sample from storm drain

Fecal and E.Coli concentrations are in colony forming units/100 ml

**Attachment 2  
Lower Charles River Illicit Discharge Detection & Elimination (IDDE) Protocol  
November 2004**

**Purpose/Goal**

This document provides a common framework from which lower Charles River communities can develop and implement a comprehensive plan to identify and eliminate dry and wet weather illicit discharges to their separate storm sewer systems. Adopted from BWSC (2004) and Pitt (2004), the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry weather to complete a thorough inspection of the communities' storm sewers in a prioritized manner. The protocol is applicable to most typical storm sewer systems, however modifications to materials and methods may be required to address situations such as open channels, systems impacted by sanitary sewer overflows or sanitary sewer system under drains, or situations where groundwater or backwater conditions preclude adequate inspection. The primary focus of the protocol is sanitary waste, however, toxic and nuisance discharges may also be identified. Implementation of the protocol would satisfy the relevant conditions under Minimum Control Measure No. 3 (IDDE) of the communities' NPDES Small MS4 General Permit.

**Drainage Area/Outfall Prioritization**

Areas to consider for prioritizing investigative work include:

- Areas suspected to have significant problems (documented by EPA, the community, or others)
- Direct discharges to sensitive or critical waters (e.g. water supplies, town beach)
- Areas with inadequate sewer LOS or subject of numerous/chronic customer complaints
- Areas served by common manholes or underdrains
- Remaining areas prioritized through an outfall screening & ranking process

**Drainage Area Investigations**

1. Public Notification/Outreach Program

Provide letter/mailer to residents and building owners located within subject drainage basin and/or sewershed notifying them of scope and schedule of investigative work, and the potential need to gain access to their property to inspect plumbing fixtures. Where necessary, notification of property owners through letter, door hanger, or otherwise will be required to gain entry. Assessors records will provide property owner identification.

2. Field verification and correction of subarea storm sewer mapping

Adequate storm and sanitary sewer mapping is a prerequisite to properly execute an illicit discharge detection and elimination program. As necessary and to the extent possible, infrastructure mapping should be verified in the field and corrected prior to investigations. This effort affords an opportunity to collect additional information such as latitude and longitude coordinates using a global position system (GPS) unit if so desired. To facilitate subsequent investigations (see Part 5. below), tributary area delineations should be confirmed and junction manholes should be identified during this process. Orthophoto coverages (available from source sources as MassGIS, MapQuest, and TerraServer) will also facilitate investigations by providing building locations and land use features.

### 3. Infrastructure cleaning requirements

To facilitate investigations, storm drain infrastructure should be evaluated for the need to be cleaned to remove debris or blockages that could compromise investigations. Such material should be removed to the extent possible prior to investigations, however, some cleaning may occur concurrently as problems manifest themselves.

### 4. Dry weather criteria

In order to limit or remove the influence of stormwater generated flows on the monitoring program, antecedent dry weather criteria need to be established. An often used rule of thumb is to wait two (2) days after cessation of a precipitation event prior to monitoring activities. This duration can be adjusted to shorter or longer periods dependent upon the relative extent, slope, and storage of the system under investigation.

### 5. Manhole inspection and flow monitoring methodology

Beginning at the uppermost junction manhole(s) within each tributary area, drainage manholes are opened and inspected for visual evidence of contamination after antecedent dry weather conditions are satisfied (e.g. after 48 hours of dry weather). Where **flow is observed**, and determined to be contaminated through visual observation (e.g. excrement or toilet paper present) or field monitoring (see Parts 5. & 6. below), the tributary storm sewer alignment is isolated for investigation (e.g. dye testing, CCTV; see Part 7. below). No additional downstream manhole inspections are performed unless the observed flow is determined to be uncontaminated or until all upstream illicit connections are identified and removed. Where **flow is not observed** in a junction manhole, all inlets to the structure are partially dammed for the next 48 hours when no precipitation is forecasted. Inlets are dammed by blocking a minimal percentage (approximately 20% +/- depending on pipe slope) of the pipe diameter at the invert using sandbags, caulking, weirs/plates, or other temporary barriers. The manholes are thereafter reinspected (prior to any precipitation or snow melt) for the capture of periodic or intermittent flows behind any of the inlet dams. The same visual observations and field testing is completed on any captured flow, and where contamination is identified, abatement is completed prior to inspecting downstream manholes.

In addition to documenting investigative efforts in written and photographic form, it is recommended that information and observations regarding the construction, condition, and operation of the structures also be compiled.

#### 6. Field Measurement/Analysis:

Where flow is observed and does not demonstrate obvious olfactory evidence of contamination, samples are collected and analyzed with field instruments identified in Table 1. Measured values are then compared with benchmark values using the flow chart in Figure 1 to determine the likely prominent source of the flow. This information facilitates the investigation of the upstream stormsewer alignment described in Part 7. Benchmark values may be refined over the course of investigations when compared with the actual incidences of observed flow sources.

In those manholes where periodic or intermittent flow is captured through damming inlets, additional laboratory testing (e.g. toxicity, metals, etc.) should be considered where an industrial batch discharge is suspected for example.

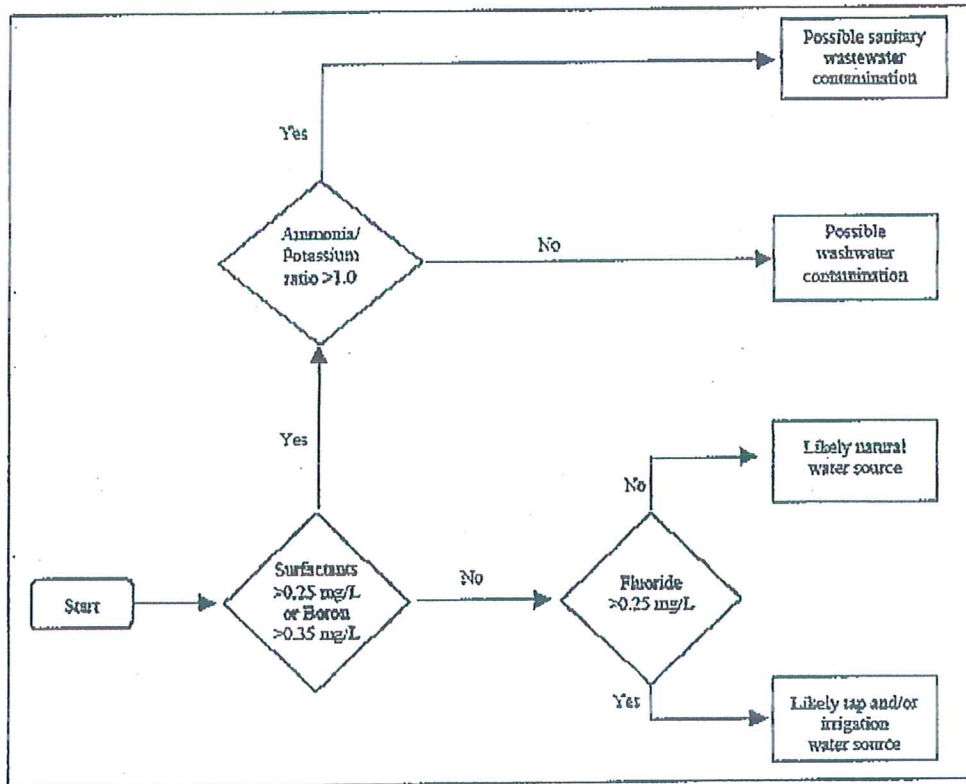
**Table 1 - Field Measurements, Benchmarks, and Instrumentation**

<u>Analyte</u>	<u>Benchmark</u>	<u>Instrumentation<sup>1</sup></u>
Surfactants (as MBAS)	>0.25 mg/L	MBAS Test Kit (e.g. CHEMetrics K-9400)
Potassium (K)	(ratio below)	Portable Ion Meter (e.g. Horiba Cardy C-131)
Ammonia (NH <sub>3</sub> )	NH <sub>3</sub> /K > 1.0	Portable Colorimeter or Photometer (e.g. Hach DR/890, CHEMetrics V-2000)
Fluoride (F)	>0.25 mg/L	Portable Colorimeter or Photometer (e.g. Hach DR/890, CHEMetrics V-2000)
Temperature	Abnormal	Thermometer
pH	Abnormal	pH Meter

<sup>1</sup> Instrumentation manufacturers and models provided for informational purposes only. Mention of specific products does not constitute or imply EPA endorsement of same.



Figure 1. Flow Chart for Determining Likely Source of Discharge (Pitt, 2004)



## 7. Isolation and confirmation of illicit sources

Where field monitoring has identified storm sewer alignments to be influence by sanitary flows or washwaters, the tributary area is isolated for implementation of more detailed investigations. Additional manholes along the tributary alignment are inspected to refine the longitudinal location of potential contamination sources (e.g. individual or blocks of homes). Targeted internal plumbing inspections/dye testing or CCTV inspections are then employed to more efficiently confirm discrete flow sources.

### Post-Removal Confirmation

After completing the removal of illicit discharges from a subdrainage area and before beginning the investigation of downstream areas, the subdrainage area is reinspected to verify corrections. Depending on the extent and timing of corrections, verification monitoring can be done at the initial junction manhole or the closet downstream manhole to each correction. Verification is accomplished by using the same visual inspection, field monitoring, and damming techniques as described above.

### Work Progression & Schedule

Since the IDDE Protocol requires the verified removal of illicit discharges downstream through the storm sewer system, preparations should include investigations in other subareas to facilitate progress while awaiting results. Since work progress will be further constrained by the persistence of weather events, consideration must be given to providing adequate staffing to perform concurrent investigations in several subareas.

### Program Evaluation

The progress of the IDDE Program should be evaluated by tracking metrics such as:

- Number/% of manholes/structures inspected
- Number/% of outfalls screened
- Number/% of illicit discharges identified through:
  - visual inspections
  - field testing results
  - temporary damming
- Number/% of homes inspected/dye tested
- Footage/% of pipe inspected by CCTV
- Number/% of illicit discharges removed
- Estimated flow/volume of illicit discharges removed
- Footage and location of infrastructure jetting/cleaning required
- Infrastructure defects identified and repaired
- Water main breaks identified and repaired
- Cost of illicit discharge removals (total, average unit costs)

**References Cited**

Boston Water & Sewer Commission, 2004, *A systematic Methodology for the Identification and Remediation of Illegal Connections*. 2003 Stormwater Management Report, chap. 2.1.

Pitt, R. 2004 *Methods for Detection of Inappropriate Discharge to Storm Drain Systems. Internal Project Files*. Tuscaloosa, AL, in The Center for Watershed Protection and Pitt, R., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*: Cooperative Agreement X82907801-0, U.S. Environmental Protection Agency, variously paged. Available at: <http://www.cwp.org>.

**Instrumentation Cited (Manufacturer URLs)**

MBAS Test Kit - CHEMetrics K-9400: <http://www.chemetrics.com/Products/Deterg.htm>

Portable Photometer - CHEMetrics V-2000: <http://www.chemetrics.com/v2000.htm>

Portable Colorimeter - Hach DR/890: <http://www.hach.com/>

Portable Ion Meter: Horiba Cardy C-131: <http://www.wq.hii.horiba.com/c.htm>