



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region I – New England Regional Laboratory  
Laboratory Services and Applied Science Division  
11 Technology Drive, North Chelmsford, MA 01863

**Drafted Date:** October 30, 2019  
**Finalized Date:** November 19, 2019

**Subject:** Cambridge Stormwater  
City of Cambridge, MA  
Compliance Sampling Inspection Report

**From:** Michelle Coombs, Investigator, Laboratory Services and Applied Science  
Division – Field Services Branch (LSASD-FSB) \MRC\

**Reviewed By:** Jerry Keefe, Investigations Team Leader, LSASD-FSB \JCK\

**To:** Denny Dart, Water Compliance Section Chief,  
Enforcement and Compliance Assurance Division (ECAD-EWC)

**CC:** Todd Borci, Inspector, ECAD-EWC

**I. Facility Information**

A. Facility Name: City of Cambridge  
B. Facility Location: Cambridge, MA  
C. Facility Contact: Owen O' Riordan, DPW Commissioner  
T: 617-349-4845, ooriordan@cambridgemagov  
D. NPDES MS4 Permit #: MAR041076  
E. NPDES CSO Permit #: MA0101974

**II. Background Information**

A. Date/Start time of inspection: October 29, 2019/0900 HRs  
B. USEPA Representatives: Michelle Coombs and Todd Borci  
C. Federally Enforceable Requirements Investigated: 40 CFR Part 122.26  
D. Pollutants Sampled: Pharmaceuticals and Personal Care Products (PPCPs), E. coli/Enterococcus, Ammonia, Total Chlorine, and Surfactants

### **III. Disclaimer:**

Unless otherwise noted, this report describes conditions at the facility/property as observed by EPA inspector(s), and/or through records provided to and/or information reported to EPA inspector(s) by facility representatives and as understood by the inspector(s). This report may not capture all operations or activities ongoing at the time of the inspection. This report does not make final determinations on potential areas of concern. Nothing in this report affects EPA's authorities under federal statutes and regulations to pursue further investigation or action.

### **IV. Type and Purpose of Inspection**

The purpose of the compliance sampling inspection was to identify illicit connections or illegal discharges within the City of Cambridge, MA Municipal Separate Storm Sewer System (MS4) and/or Combined Sewer System (CSS) that may adversely impact the water quality in the Alewife Brook. Samples were collected from five (5) locations in accordance with the FSB Investigations Team Stormwater Program Plan.

### **V. Inspection Summary**

On October 29, 2019 EPA inspectors Michelle Coombs and Todd Borci ("the EPA Inspection Team") conducted a compliance sampling inspection within the City of Cambridge MS4 and Combined Sewer Overflows (CSOs) systems around the Alewife MBTA transit station at the locations described in Section VI. They were accompanied by City of Cambridge employees Jim Wilcox, Yilkal Bekele, and Catherine Woodbury for the duration of the inspection.

The inspection started at approximately 9:00AM. At the time of the inspection, the weather was cloudy with an ambient temperature of approximately 60 degrees Fahrenheit. According to The National Weather Service for Logan International Airport (KBOS), there was 1.43 inches of precipitation recorded on October 28, 2019, prior to the inspection.

The City of Cambridge, MA was issued Permit #MAR041076 under the National Pollutant Discharge Elimination System ("NPDES") program Phase II Small MS4 General Permit. The year 2018 is permit year 15 under the 2004 general permit. The City of Cambridge, MA was issued Permit #MA0101974 in 2009 under the NPDES program and is authorized to discharge from 12 CSOs to the receiving waters named Alewife Brook and Charles River.

The sampling locations described in Section VI were field screened using test kits for ammonia, surfactants, and total chlorine. In-situ measurements for specific conductivity, salinity, and temperature were also measured and recorded. Samples were delivered to and analyzed for E. coli/Enterococcus and Pharmaceutical and Personal Care Products (PPCPs) at the EPA New England Regional Laboratory (NERL) in North Chelmsford, MA. The following table(s) summarize the findings.

Table 1: Summary of Sampling and Analytical Data

## **VI. Description of Sampling Locations**

*Photographs depicting each sample location can be found in Attachment A of this report.*

- **Alewife1**: In-stream sample of Alewife Brook, approximately 150 feet downstream of the CAM401A outfall. The sample collection point is adjacent to an MWRA CSO siphon structure and was accessed via the Fitchburg Cutoff Bike Path near the Alewife Transit Station.
- **CAM401A**: A single circular concrete outfall approximately 60 inches in diameter. The outfall was submerged approximately 1/3 of the total outfall height, so an estimated flow could not be determined. The outfall is an overflow pipe for combined wastewater and stormwater runoff. Sample location was accessed via a dirt footpath along the north side of the parking garage that is located at 1 Alewife Place, across the street from the Alewife transit station. (No picture included in Attachment A)
- **MH01**: The sample was collected out of a manhole in front of the parking lot entrance located at 87 Cambridge Park Drive. According to the Cambridge Cityviewer GIS system, the ID number for the manhole is ACCESS269.
- **MH02**: The sample was collected out of a manhole in front of the Hanover Apartment Building at 88 Cambridge Park Drive. According to the Cambridge Cityviewer GIS system, the ID number for the manhole is S72CMH0075.
- **MH03**: The sample was collected out of a manhole located on the southern end of the parking lot at 402 Rindge Avenue. According to the Cambridge Cityviewer GIS system, the ID number for the manhole is S72CMH0113.

### Map of Sample Locations





**Table 1: Summary of Sampling and Analytical Data**

Location	Site ID	Alewife1	CAM401A	MH01	MH02	MH03
	Sample Date	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019
	Sample Time	9:20 AM	9:40 AM	9:50 AM	10:10 AM	10:30 AM
Coordinates (decimal degrees)	North	42.396121	42.395643	42.394805	42.393439	42.392314
	West	-71.143899	-71.143976	-71.144309	-71.143530	-71.140078
YSI Meter	Salinity, ppt.	NA	0.4	NA	0.5	0.5
	Temperature, °C	NA	15.5	NA	15.0	14.9
	Conductivity, µS/cm	NA	851	NA	910	951
Field Test Kits (mg/L)	Ammonia	NA	1.0	1.0	1.0	3.0
	Chlorine	NA	0.0	0.1	0.0	0.0
	Surfactants	NA	1.5	1.5	1.5	0.5
Bacteria (MPN/100mL)	E. coli	5,654	6,932	5,199	6,212	2,595
	Enterococcus	5,475	12,997	6,131	1,439	2,382
Pharmaceuticals and Personal Care Products (ng/L)	Cotinine	36	32	38	17	22
	Acetaminophen	320	270	220	88	41
	Paraxanthine	110	120	110	88	69
	Atenolol	5.3	4.8	4.0	28	80
	Caffeine	3,700	2,400	3,400	2,400	980
	Metoprolol	2.6	2.8	2.8	2.2	3.2
	Diphenhydramine	1.6	2.2	1.7	2.6	2.2
	Carbamazepine	1.2	1.2	1.1	ND	ND

**Abbreviations and Notes:**

NA: Not Analyzed

ND: Not Detected Above Reporting Limit (RL)\*

E. Coli: Red ≥ 10,000 col/100ml, Orange ≥ 1,260 col/100ml, Yellow ≥ 235 col/100ml, Black < 235 col/100ml

Enterococcus: Red ≥ 1,000 col/100ml, Orange ≥ 350 Yellow ≥ 61 col/100ml, Black < 61 col/100ml

NH<sub>3</sub>: Red ≥ 6 mg/L, Orange ≥ 0.5 mg/L, Yellow ≥ 0.25 mg/L, Black < 0.25 mg/L

Cl<sub>2</sub>: Red ≥ 1.0 mg/L, Orange ≥ 0.3 mg/L, Yellow ≥ 0.02 mg/L, Black < 0.02 mg/L

Surfactants: Red ≥ 1.0 mg/L, Orange ≥ 0.5 mg/L, Yellow ≥ 0.25 mg/L, Black < 0.25 mg/L (may give false positive at salinity greater than 1 ppt)

PPCP: Dark Pink ≥ 100x the RL; Pink ≥ 10x the RL; Light Pink ≥ 3x the RL; No Pink < 3x the RL\*

\*See RL values for each compound in attached Laboratory Report(s)

*EPA notes while there are currently no numerical standards to compare pharmaceutical results against, it is EPA's experience that acetaminophen is the single best bacterial source tracking compound of those listed above, and any detection of this compound may indicate a source of sanitary sewage. With respect to all of the above compounds, when a sanitary sewage source is present, depending on the type of source, distance from the sample location, and the strength of the source, concentrations of these compounds may range from the low ng/l range up to thousands of ng/L.*

## **VII. Attachments**

Attachment A: Photo Log

Attachment B: Laboratory Report for Pharmaceuticals and Personal Care Products (Source Tracking)  
Analysis

Attachment C: Laboratory Report for E. coli Analysis

Attachment D: Laboratory Report for Enterococcus Analysis

# Attachment A

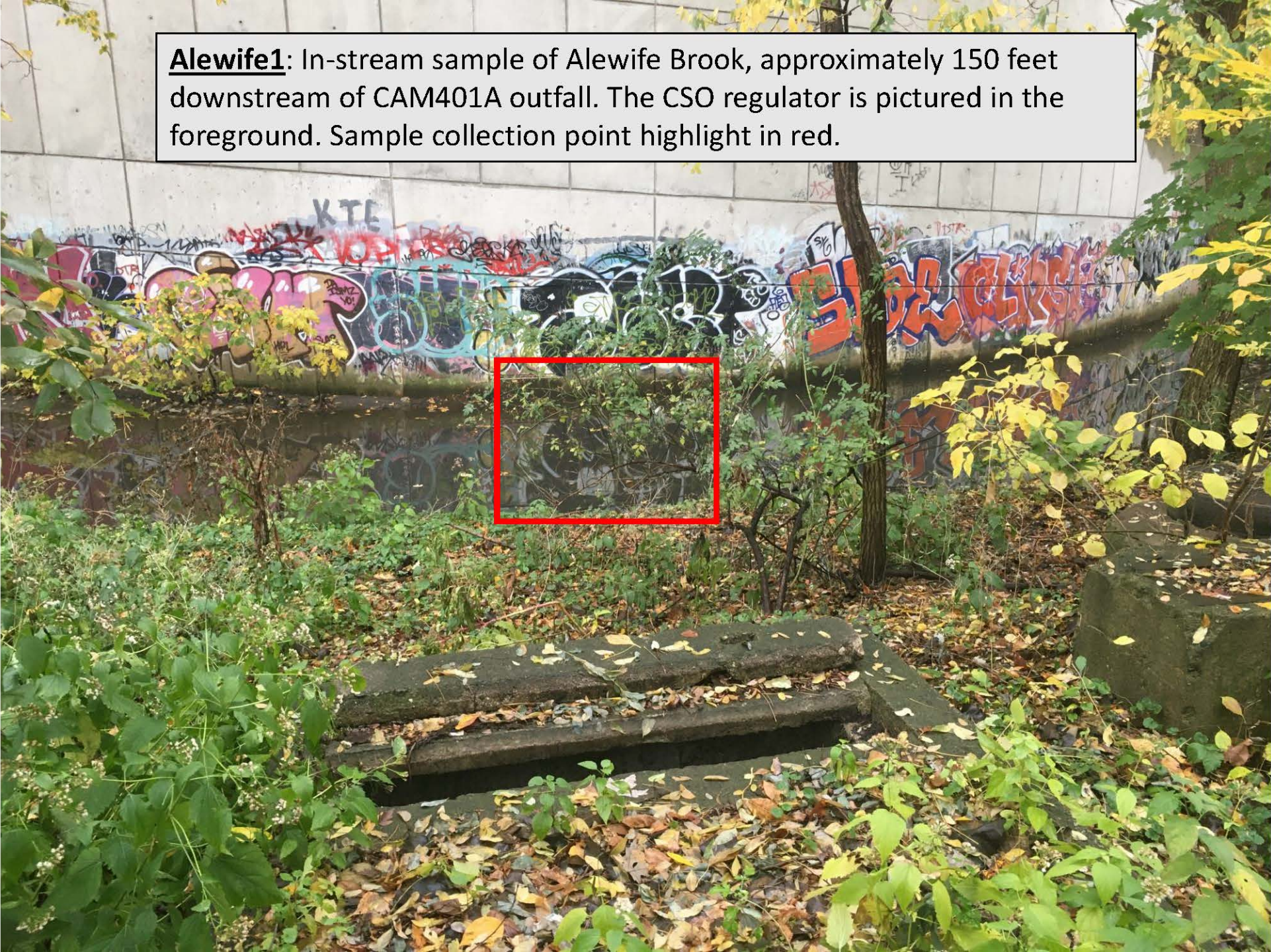
US EPA Inspection Photographs  
US EPA Inspection 10/29/2019

for

City of Cambridge, MA  
Department of Public Works  
147 Hampshire St  
Cambridge, MA 02139



**Alewife1**: In-stream sample of Alewife Brook, approximately 150 feet downstream of CAM401A outfall. The CSO regulator is pictured in the foreground. Sample collection point highlight in red.





**MH01**: Sample collected in the manhole in front of the parking lot at 87 Cambridgepark Drive. Manhole ID: ACCESS269.





**MH02**: Sample collected in the manhole in front of the Hanover Apartment Building at 88 Cambridge Park Drive. Manhole ID: S72CMH0075. Sample collection point highlighted in red.



**MH03**: Sample collected in the manhole at southern end of the parking lot at 402 Rindge Avenue. Manhole ID: S72CMH0113. Sample collection point highlighted in red.







## Laboratory Report

November 07, 2019

Todd Borci - Mail Code 04-4  
US EPA New England R1

Project Number: 19100047  
Project: NPDES Workshop  
Analysis: HPLC/MS/MS Source Tracking Analysis  
EPA Chemist: Peter Philbrook

Date Samples Received by the Laboratory: 10/29/2019

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIA-LCMS STA.1.

The SOP is based on an EPA Regional Analytical Method developed at the EPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by DANIEL BOUDREAU  
DN: c=US, o=U.S. Government, ou=Environmental  
Protection Agency, cn=DANIEL BOUDREAU,  
0.9.2342.19200300.100.1.1=68001003654558  
Date: 2019.11.07 16:10:09 -05'00'

19100047\$STA

**Qualifiers:**

**RL** = Reporting limit

**ND** = Not Detected above Reporting limit

**NA** = Not Applicable due to high sample dilutions or sample interferences

**NC** = Not calculated since analyte concentration is ND.

**J** = Estimated value

**J1** = Estimated value due to MS recovery outside acceptance criteria

**J2** = Estimated value due to LFB result outside acceptance criteria

**J3** = Estimated value due to RPD result outside acceptance criteria

**J4** = Estimated value due to LCS result outside acceptance criteria

**E** = Estimated value exceeds the calibration range

**L** = Estimated value is below the calibration range

**B** = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.

**R** = No recovery was calculated since the analyte concentration is greater than four times the spike level.

**P** = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.

**C** = The identification has been confirmed by GC/MS.

**A** = Suspected Aldol condensation product.

**N** = Tentatively identified compound.

**NPDES Workshop**

**HPLC/MS/MS Source Tracking Analysis**

Client Sample ID:	Alewife 1	Lab Sample ID:	AB83447
Date of Collection:	10/29/2019	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	36	1	0.40	
103-90-2	Acetaminophen	320	10	20	
611-59-6	Paraxanthine	110	1	2.0	
29122-68-7	Atenolol	5.3	1	2.0	
58-08-2	Caffeine	3700	10	40	
56392-17-7	Metoprolol	2.6	1	2.0	
58-73-1	Diphenhydramine	1.6	1	0.40	
298-46-4	Carbamazepine	1.2	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	91	59 - 137
Diphenhydramine-D3	99	19 - 135

**Comments:** Extract was re-run at 10X Dilution to bring acetaminophen and caffeine into calibration range.



**NPDES Workshop**

**HPLC/MS/MS Source Tracking Analysis**

Client Sample ID:	Cam 401A	Lab Sample ID:	AB83448
Date of Collection:	10/29/2019	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	32	1	0.40	
103-90-2	Acetaminophen	270	10	20	
611-59-6	Paraxanthine	120	1	2.0	
29122-68-7	Atenolol	4.8	1	2.0	
58-08-2	Caffeine	2400	10	40	
56392-17-7	Metoprolol	2.8	1	2.0	J
58-73-1	Diphenhydramine	2.2	1	0.40	J
298-46-4	Carbamazepine	1.2	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	79	59 - 137
Diphenhydramine-D3	87	19 - 135

**Comments:** Extract was re-run at 10X Dilution to bring acetaminophen and caffeine into calibration range.

J = Estimated value due to 47% recovery of internal standard (50-150% required). The internal standard recovery was low due to matrix interference.

**NPDES Workshop**

**HPLC/MS/MS Source Tracking Analysis**

Client Sample ID:	MH01	Lab Sample ID:	AB83449
Date of Collection:	10/29/2019	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	38	1	0.40	
103-90-2	Acetaminophen	220	10	20	
611-59-6	Paraxanthine	110	1	2.0	
29122-68-7	Atenolol	4.0	1	2.0	
58-08-2	Caffeine	3400	10	40	
56392-17-7	Metoprolol	2.8	1	2.0	J
58-73-1	Diphenhydramine	1.7	1	0.40	J
298-46-4	Carbamazepine	1.1	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	76	59 - 137
Diphenhydramine-D3	81	19 - 135

**Comments:** Extract was re-run at 10X Dilution to bring acetaminophen and caffeine into calibration range.

J = Estimated value due to 47% recovery of internal standard (50-150% required). The internal standard recovery was low due to matrix interference.

**NPDES Workshop**

**HPLC/MS/MS Source Tracking Analysis**

Client Sample ID:	MH02	Lab Sample ID:	AB83450
Date of Collection:	10/29/2019	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	17	1	0.40	
103-90-2	Acetaminophen	88	1	2.0	
611-59-6	Paraxanthine	88	1	2.0	
29122-68-7	Atenolol	28	1	2.0	
58-08-2	Caffeine	2400	10	40	
56392-17-7	Metoprolol	2.2	1	2.0	
58-73-1	Diphenhydramine	2.6	1	0.40	
298-46-4	Carbamazepine	ND	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	74	59 - 137
Diphenhydramine-D3	92	19 - 135

**Comments:** Extract was re-run at 10X Dilution to bring caffeine into calibration range.



**NPDES Workshop**

**HPLC/MS/MS Source Tracking Analysis**

Client Sample ID:	MH03	Lab Sample ID:	AB83451
Date of Collection:	10/29/2019	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	22	1	0.40	
103-90-2	Acetaminophen	41	1	2.0	
611-59-6	Paraxanthine	69	1	2.0	
29122-68-7	Atenolol	80	1	2.0	
58-08-2	Caffeine	980	5	20	
56392-17-7	Metoprolol	3.2	1	2.0	
58-73-1	Diphenhydramine	2.2	1	0.40	
298-46-4	Carbamazepine	ND	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	76	59 - 137
Diphenhydramine-D3	82	19 - 135

**Comments:** Extract was re-run at 5X Dilution to bring caffeine into calibration range.

**NPDES Workshop**

**Laboratory Blank**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	10/30/2019	Amount Prepared:	500 mL
Date of Analysis:	10/30/2019	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ng/L	Dilution	RL ng/L	Qualifier
486-56-6	Cotinine	ND	1	0.40	
103-90-2	Acetaminophen	ND	1	2.0	
611-59-6	Paraxanthine	ND	1	2.0	
29122-68-7	Atenolol	ND	1	2.0	
58-08-2	Caffeine	ND	1	4.0	
56392-17-7	Metoprolol	ND	1	2.0	
58-73-1	Diphenhydramine	ND	1	0.40	
298-46-4	Carbamazepine	ND	1	0.40	

Surrogate Compounds	Recoveries (%)	QC Ranges
Phentermine-D5	72	59 - 137
Diphenhydramine-D3	64	19 - 135

**Comments:**

**NPDES Workshop**

**MATRIX SPIKE (MS) RECOVERY**

Sample ID: AB83448

PARAMETER	SPIKE ADDED ng/L	SAMPLE CONCENTRATION ng/L	MS CONCENTRATION ng/L	MS % REC	QC LIMITS (% REC)
Acetaminophen	120	270	370	83	61 - 100
Atenolol	120	4.8	133	107	59 - 122
Caffeine	240	2400	NC	ND	54 - 128
Carbamazepine	24.0	1.2	18.8	73	61 - 120
Cotinine	24.0	32.0	46.2	58	48 - 124
Diphenhydramine	24.0	2.2	18.2	67	30 - 130
Metoprolol	120	2.8	84.0	68	59 - 128
Paraxanthine	120	118	189	59	42 - 125



**NPDES Workshop**

**Laboratory Duplicate Results**

Sample ID: AB83451

PARAMETER	SAMPLE RESULT ng/L	SAMPLE DUPLICATE RESULT ng/L	PRECISION RPD %	QC LIMITS
Acetaminophen	41.0	43.8	6.4	50
Atenolol	80.0	84.1	5.5	50
Caffeine	980	1080	9.7	50
Carbamazepine	ND	ND	NC	50
Cotinine	22.0	23.8	7.0	50
Diphenhydramine	2.2	2.59	18	50
Metoprolol	3.2	3.21	0.00	50
Paraxanthine	69.0	72.1	4.0	50

**NPDES Workshop**

**Laboratory Fortified Blank (LFB) Results**

PARAMETER	LFB AMOUNT SPIKED ng/L	LFB RESULT ng/L	LFB RECOVERY %	QC LIMITS %
Acetaminophen	120	96.4	80	53 - 105
Atenolol	120	105	88	62 - 117
Caffeine	240	215	90	50 - 127
Carbamazepine	24	21.0	88	28 - 126
Cotinine	24	19.8	83	52 - 134
Diphenhydramine	24	18.0	75	30 - 130
Metoprolol	120	116	97	33 - 139
Paraxanthine	120	101	84	61 - 113

**Comments:**

**Samples in Batch:** AB83447, AB83448, AB83449, AB83450, AB83451



### CHAIN OF CUSTODY RECORD

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United States Environmental Protection Agency  
Laboratory Services and Applied Science Division  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Microbiology Laboratory Report

November 18, 2019

Todd Borci - Mail Code 04-4  
US EPA New England R1

Project Number: 19100048  
Project: NPDES Workshop  
Analysis: E. Coli Defined Substrate  
Analyst: Jack Paar

Date Samples Received by the Laboratory: 10/29/2019

**Analytical Procedure:**

All samples were received and logged in by the laboratory according to the USEPA LSASD SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, TC/ECColilert4.

Sample preparation and analysis was done following the EPA Region I method: Total Coliform/E. coli by Defined Substrate.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England LSASD Biology QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8604.

Sincerely,

Jack A. Paar, III  
Biology Laboratory Manager

19100048ECMM



## **Water Microbiology Laboratory Data Qualifier Codes**

**J** = Estimate  
**H** = Exceeds holding time  
**I** = Exceeds incubation time  
**At** = Atypical overgrowth  
**S** = Lost sample  
**V** = Insufficient sample volume  
**TNTC** = Too numerous to count  
**MB** = Media blank  
**+++** = Positive control  
**- - -** = Negative control  
**SP** = Spiked Sample  
**L** = Estimated, result below reporting limit (RL)  
**ND** = Not Detected, result less than RL  
**D** = Lab Duplicate  
**P** = Plate counts outside preferred range  
**FDUP** = Field Duplicate collect time not specified on Chain of Custody. Field duplicate  
LIMS default time = 12:00AM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 REGION 1 - NEW ENGLAND  
 LABORATORY SERVICES BRANCH  
**NPDES Workshop**  
**E. Coli Defined Substrate**

Matrix: Water

<b>Sample Number</b>	<b>Lab ID</b>	<b>Date of Collection</b>	<b>Date of Analysis</b>	<b>Compound</b>	<b>Concentration MPN/100 mL</b>	<b>RL MPN/100 mL</b>	<b>Qualifier</b>
Alewife 1	AB83452	10/29/19 9:20 am	10/29/19 2:50 pm	E. Coli Defined Substrate	<b>5654</b>	4	
Cam 401A	AB83453	10/29/19 9:40 am	10/29/19 2:50 pm	E. Coli Defined Substrate	<b>6932</b>	4	
NH01	AB83454	10/29/19 9:58 am	10/29/19 2:50 pm	E. Coli Defined Substrate	<b>5199</b>	4	
NH02	AB83455	10/29/19 10:10 am	10/29/19 2:50 pm	E. Coli Defined Substrate	<b>6212</b>	4	
NH03	AB83456	10/29/19 10:30 am	10/29/19 2:50 pm	E. Coli Defined Substrate	<b>2595</b>	4	

Number of Samples: 5



## CHAIN OF CUSTODY RECORD

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United States Environmental Protection Agency  
Laboratory Services and Applied Science Division  
11 Technology Drive  
North Chelmsford, MA 01863-2431

Microbiology Laboratory Report

November 18, 2019

Todd Borci - Mail Code 04-4  
US EPA New England R1

Project Number: 19100048  
Project: NPDES Workshop  
Analysis: Enterococcus in Water  
Analyst: Jack Paar

Date Samples Received by the Laboratory: 10/29/2019

**Analytical Procedure:**

All samples were received and logged in by the laboratory according to the USEPA LSASD SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, ECA Enterolert3.

Sample preparation and analysis was done following the EPA Region I method: Enterococcus by Defined Substrate

Data were reviewed in accordance with the internal verification procedures described in the EPA New England LSASD Biology QA Plan.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8604.

Sincerely,

Jack A. Paar, III  
Biology Laboratory Manager

19100048ENTERO

## **Water Microbiology Laboratory Data Qualifier Codes**

**J** = Estimate  
**H** = Exceeds holding time  
**I** = Exceeds incubation time  
**At** = Atypical overgrowth  
**S** = Lost sample  
**V** = Insufficient sample volume  
**TNTC** = Too numerous to count  
**MB** = Media blank  
**+++** = Positive control  
**- - -** = Negative control  
**SP** = Spiked Sample  
**L** = Estimated, result below reporting limit (RL)  
**ND** = Not Detected, result less than RL  
**D** = Lab Duplicate  
**P** = Plate counts outside preferred range  
**FDUP** = Field Duplicate collect time not specified on Chain of Custody. Field duplicate  
LIMS default time = 12:00AM



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 REGION 1 - NEW ENGLAND  
 LABORATORY SERVICES BRANCH  
**NPDES Workshop**  
**Enterococcus in Water**

Matrix: Water

Sample Number	Lab ID	Date of Collection		Date of Analysis		Compound	Concentration MPN/100mL	RL MPN/100mL	Qualifier
Alewife 1	AB83452	10/29/19	9:20 am	10/29/19	2:50 pm	Enterococcus in Water	<b>5475</b>	10	
Cam 401A	AB83453	10/29/19	9:40 am	10/29/19	2:50 pm	Enterococcus in Water	<b>12997</b>	10	
NH01	AB83454	10/29/19	9:58 am	10/29/19	2:50 pm	Enterococcus in Water	<b>6131</b>	10	
NH02	AB83455	10/29/19	10:10 am	10/29/19	2:50 pm	Enterococcus in Water	<b>1439</b>	10	
NH03	AB83456	10/29/19	10:30 am	10/29/19	2:50 pm	Enterococcus in Water	<b>2382</b>	10	

Number of Samples: 5



## CHAIN OF CUSTODY RECORD

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