UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
Laboratory Services and Applied Science Division
11 Technology Drive
North Chelmsford, Massachusetts 01863-2431

Drafted Date: June 17, 2021
Finalized Date: August 3, 2021

Subject: Reconnaissance and Sampling Inspection Report
Clean Water Act – National Pollutant Discharge Elimination System
Town of Swampscott, MA

From: Michelle Coombs, Inspector \MRC\
Field Services Branch (FSB)
Laboratory Services and Applied Science Division (LSASD)

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

CC: Neil Handler, Environmental Engineer, ECAD-EWC

I. Facility Information

A. Facility Name: Town of Swampscott, MA
B. Facility Location: 22 Monument Avenue, Swampscott, MA 01907
C. Facility Contact: Gino A. Cresta, Jr., Director of Public Works
(781)596-8860, gcresta@town.swampscott.ma.us
D. NPDES Permit ID: MAR041064 (MS4)

II. Background Information

A. Date/Start time of recon inspection: June 15, 2021/7:30 AM
B. Weather conditions: Cloudy, foggy, ~65°F
C. USEPA Representatives: Michelle Coombs & Douglas Koopman
D. State/Local Representatives: None

E. Date/Start time of sampling inspection: June 16, 2021/7:30 AM
F. Weather conditions: Partly cloudy, ~65°F
G. USEPA Representatives: Michelle Coombs & Douglas Koopman
H. State/Local Representatives: None
I. Federally Enforceable Requirements Investigated:
Stormwater discharges and certain non-stormwater discharges from the Town of Swampscott (the Town's) Municipal Separate Storm Sewer (MS4) are authorized by the National Pollutant Discharge Elimination System (NPDES) General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (hereinafter, the Permit), issued by the Environmental Protection Agency (EPA)

Region 1. The Town obtained coverage under the Permit with NPDES Permit ID MAR041064.

J. Pollutants Sampled: Pharmaceuticals and Personal Care Products (PPCPs), E. coli/Enterococcus, Ammonia (nitrogen), 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(s)

The purpose of the reconnaissance inspection was to locate stormwater outfalls, associated manholes, and/or catch basins which discharge into Nahant Bay while noting appearance, presence of flow, and access requirements for one or more sampling inspections.

The purpose of the compliance sampling inspection was to identify potential illicit connections or illegal discharges within the Town of Swampscott MS4 that may adversely impact the water quality in the Nahant Bay. Samples were collected from three (3) locations in accordance with the FSB Investigations Team Stormwater Program Plan. Sample sites were identified during a reconnaissance inspection conducted on June 15, 2021.

V. Permittee Details

The Town of Swampscott occupies approximately 7 square miles in Essex County, MA, approximately 15 miles northeast of Boston, MA. The Town shares borders with the municipalities of Lynn to the southwest, Marblehead to the east, and Salem to the north. According to the 2010 U.S. Census, the population of Town was 13,787. The Town is a co-permittee with the Lynn Water and Sewer Commission for certain activities covered under the NPDES permit no. MA0100552 for discharges of municipal and industrial wastewater into waters of the United States, including CSOs. Nahant Bay is listed as an MS4 receiving water in the Town Notice of Intent (NOI) for coverage under the MS4 permit.

VI. 6/15/2021 Reconnaissance Inspection Summary

On 6/15/2021, EPA employees Michelle Coombs and Douglas Koopman ("the EPA Inspection Team") conducted an unannounced reconnaissance inspection of the Town of Swampscott, MA MS4. They were not accompanied by any Town or state representatives. The inspection started on King's Beach at approximately 7:30 AM. At the time of the inspection, the weather was cloudy and foggy with an ambient temperature of approximately 65 deg F.

According to the National Weather Service for the Beverly Municipal Airport (KBVY), the last precipitation event prior to the inspection occurred on Monday, 6/14/2021, with 0.25 inches recorded.

None of the locations visited during this inspection were field screened with the test kits or the YSI quality meter. Locations visited were noted for appearance, presence of flow, and access requirements.

VII. 6/16/2021 Sampling Inspection Summary

On 6/16/2021, the EPA inspection team conducted an unannounced compliance sampling inspection of the Town of Swampscott, MA MS4 at the locations described in Section VIII. They were not accompanied by any Town or state representatives. The inspection started on King's Beach at approximately 7:30 AM. At the time of the inspection, the weather was partly cloudy and approximately 65 deg F.

According to the National Weather Service for the Beverly Municipal Airport (KBVY), the last precipitation event prior to the inspection occurred on Tuesday, 6/15/2021, with 0.44 inches recorded. According to the National Weather Service, in the month (to date) of June, the Town observed 1.29 inches of rain, which is approximately 61% of the 30-year normal value of 2.12 inches. According to the US Drought Monitor, as of 6/15/2021, Essex County is experiencing no drought conditions. Based on the National Oceanic and Atmospheric Administration (NOAA) tide predictions, low tide was recorded at 10:20 AM at Lynn Harbor (ID 8443187).

The sampling locations described in Section VIII were field screened using test kits for ammonia (nitrogen), surfactants, and total chlorine, as appropriate. In-situ measurements for specific conductivity, salinity, and temperature were also measured with a YSI water quality meter and recorded. All field data was recorded on field data sheets. Samples were delivered to and analyzed for E. coli and Enterococcus and PPCPs at the EPA New England Regional Laboratory (NERL) in North Chelmsford, MA. Table 1 below summarizes the sampling and analytical data.

VIII. Description of Sampling Locations

Photographs depicting each sample location are included in Appendix A of this report.

- **SWAMP01**: The north culvert of the Stacey Brook Outfall, which is one of two concrete box culverts approximately 8ft by 10ft that discharges into Nahant Bay via King's Beach at the municipal boundary of Swampscott and Lynn, MA. At the time of the inspection, a musty odor was detected, and no seaweed was observed in or near the outfall or beach. Discharge flow was approximately 100 gallons per minute (gpm) into Nahant Bay. Sample was collected at the mouth of the culvert prior to the confluence with the south culvert.
- **SWAMP11**: A single concrete pipe approximately 24 inches in diameter located on Fisherman's Beach. Discharge flow was approximately 15 gpm into Nahant Bay. No odor was detected and the discharge appeared clear and free of floatables. Sample was collected from the mouth of the outfall.
- **SWAMP13**: A single concrete pipe approximately 36 inches in diameter located on Fisherman's Beach. Discharge flow was approximately 10 ggpm into Nahant Bay. White suds and a large amount of green algae were observed in the pipe and on the rocks

downstream. No odor was detected and the discharge appeared to be clear and free of floatables. Sample was collected at the mouth of the outfall.

Map of Sample Locations



Note: the locations on the map were estimated using Google Earth and are used for display purposes only.

Table 1: Summary of Sampling and Analytical Data

	Site ID	SWAMP01	SWAMP11	SWAMP13
Location	**Sample Date**	06/16/21	06/16/21	06/16/21
	Sample Time	7:38 AM	8:19 AM	8:29 AM
Coordinates[1] (decimal degrees)	**North**	42.466830	42.466598	42.465421
	West	-70.922021	-70.907830	-70.906424
YSI Meter	**Salinity, ppt.**	9.6	2.8	1.3
	Temperature, ºC	15.9	15.6	15.7
	Conductivity, µS/cm	17.8 mS	5.12 mS	2,551
Field Test Kits (mg/L)	**Ammonia**	0.25	2.0	2.0
	Total Chlorine	0.03	0.09	0.13
	Surfactants	NA	NA	NA
Bacteria (MPN/100mL)	**E. coli**	6,488	563	173
	Enterococcus	1,046	591	158
PPCPs (ng/L)	**Cotinine**	7.2	20	8.6
	Acetaminophen	630	200	61
	Paraxanthine	120	590	9.8
	Atenolol	25	ND	ND
	Caffeine	130	1200	35
	Metoprolol	5.6	58	20
	Diphenhydramine	3.3	27	ND
	Carbamazepine	1.8	6.4	0.43

Abbreviations and Notes:

1. The coordinates listed in Table 1 were derived from the map created in Google Earth, therefore the coordinates are estimates of the actual locations.

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
Entero: Red ≥ 1,000 col/100ml, Orange ≥ 350 Yellow ≥ 61 col/100ml, Black < 61 col/100ml
NH_3: Red ≥ 6 mg/L, Orange ≥ 0.5 mg/L, Yellow ≥ 0.25 mg/L, Black < 0.25 mg/L
Cl_2: 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)
PPCPs: Dark Pink ≥ 100x the RL; Pink ≥ 10x the RL; Light Pink ≥ 3x the RL; No Pink < 3x the RL

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.

IX. Appendix

Appendix A: Photograph Log

End of Report

Appendix A
Photograph Log



SWAMP01 (right) taken on 06/16/2021 at 7:38 AM: Box culvert outfall of Stacey Brook on the Town of Swampscott side discharging into Nahant Bay via King's Beach. Sample point is indicated by a red arrow.



SWAMP11 (photograph taken on 06/16/2021, camera recorded inaccurate time): Outfall located on Fisherman's Beach discharging into Nahant Bay. Sample point is indicated by a red arrow.



SWAMP13 (photograph taken on 06/16/2021, camera recorded inaccurate time): Outfall located on Fisherman's Beach discharging into Nahant Bay. Note the green algae growth downstream of the outfall. Sample point is indicated by a red arrow.