UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
New England Regional Laboratory
Laboratory Services and Applied Sciences Division
11 Technology Drive
North Chelmsford, MA 01863-2431

Finalized Date: 08/07/2023

Subject: Reconnaissance and Sampling Inspection Report
Clean Water Act – National Pollutant Discharge Elimination System
Hartford, Connecticut

From: Shannon Shea, Inspector
Laboratory Services and Applied Science Division (LSASD)
Field Services Branch (FSB)

Reviewed By: Jerome Keefe, Investigations Team Leader, LSASD-FSB

To: Todd Borci, Manager, Enforcement and Compliance Assurance Division (ECAD) Water Compliance Section 1

CC: Jack Melcher, Inspector, ECAD

I. Facility Information

A. Facility Name: City of Hartford, CT
B. Facility Location: Hartford, CT
C. Facility Contact: Scott W. Jellison (The Metropolitan District), and Michael Looney (Department of Public Works, Hartford, CT)
D. NPDES Permit ID: CTR030062 (MS4)

II. Background Information

***A. Date/Start time of recon inspection**: 06/14/2023 10:45*
B. Weather conditions: Sunny, approx. 78 °F
C. USEPA Representatives: Shannon Shea, Jack Melcher, Rachel Olugbemi
D. State/Local Representatives: Craig Scott, The Metropolitan District (MDC), Nicole Kibbe, CT Department of Energy and Environmental Protection (CT DEEP)
***A. Date/Start time of sampling inspection:** 06/15/2023 08:00*
B. Weather conditions: Overcast, approx. 70 °F
C. USEPA Representatives: Shannon Shea, Jack Melcher, Rachel Olugbemi
D. State/Local Representatives: Craig Scott, The Metropolitan District (MDC), Nicole Kibbe, CT Department of Energy and Environmental Protection (CT DEEP), Michael Looney, Department of Public Works, Hartford, CT
E. Federally Enforceable Requirements Investigated: Stormwater discharges and certain non-stormwater discharges from the Hartford, Connecticut City's Municipal Separate Storm Sewer Systems (MS4) are authorized by the National Pollutant Discharge Elimination System (NPDES) General Permit for the Discharge of Stormwater from Small MS4 (hereinafter, the Permit), issued by the Connecticut Department of Energy

and Environmental Protection. The City of Hartford obtained coverage under the Permit with NPDES Permit ID CTR030062
F. 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 the North Branch Park River and Connecticut River, 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 Hartford, CT MS4 and Combined Sewer System that may adversely impact the water quality in the North Branch Park River and Connecticut River. Samples were collected from 8 locations in accordance with the FSB Investigations Team Stormwater Program Plan. Sample sites were identified during a reconnaissance inspection conducted on 06/14/2023.

V. Permittee Details

The City of Hartford occupies approximately 18 square miles in Hartford County, CT, and is the State Capitol. The City of Hartford shares borders with the municipalities of Bloomfield and Windsor to the north, East Hartford to the east, Wethersfield to the south, and West Hartford to the west. According to the 2020 U.S. Census, the population of Hartford was 121,054.

VI. 06/14/2023 Reconnaissance Inspection Summary

On 06/14/2023, EPA representatives Shannon Shea, Jack Melcher, Rachel Olugbemi ("the EPA Inspection Team") conducted an announced reconnaissance inspection of the Hartford MS4. They were accompanied by MDC representative Craig Scott and state representative Nicole Kibbe. The inspection was announced to the permittee via email on 05/31/2023. The inspection started near 200 Bloomfield Ave, (Lot D) at approximately 10:45. At the time of the inspection, the weather was sunny, partially cloudy and 78 *°F.*

According to the National Weather Service (NWS) for the Hartford-Brainard Airport (KHFD), the last precipitation event prior to the inspection occurred on 06/13/2023, with 0.02 inches recorded. There was 0.08 inches of precipitation was recorded within the 72 hours before the inspection. According to the NWS, in the month (to date) of June, the area observed 2.38 inches of rain, which

is approximately 55% of the 30-year normal value of 4.28 inches. According to the US Drought Monitor, as of 06/27/23, Hartford County is experiencing abnormally dry drought conditions.

In stream samples were collected at HartSW-A and HartSW-B during the reconnaissance inspection. Both locations were field screened with the test kits and the YSI quality meter. Locations visited were noted for appearance, presence of flow, and access requirements. Photographs taken during the inspection are listed in Appendix A.

VII. 06/15/2023 Sampling Inspection Summary

On 06/15/2023, the EPA Inspection Team conducted an announced compliance sampling inspection of the Hartford MS4 at the locations described in Section VIII. They were accompanied by MDC representative Craig Scott and state representative Nicole Kibbe. The inspection was announced to the permittee via email on 05/31/2023. The inspection started at 126 Mark Twain Drive at approximately 08:00. At the time of the inspection, the weather was overcast and approx. 70 *°F.*

According to the NWS for the Hartford-Brainard Airport (KHFD), the last precipitation event prior to the inspection occurred on 06/14/2023, with 0.17 inches recorded. There was 0.25 inches of precipitation recorded within the 72 hours before the inspection. According to the NWS, in the month (to date) of June, the area observed 2.38 inches of rain, which is approximately 55% of the 30-year normal value of 4.28 inches. According to the US Drought Monitor, as of 06/27/23, Hartford County is experiencing abnormally dry drought conditions.

The sampling locations described in Section VIII were field screened using test kits for ammonia (nitrogen), surfactants, and total chlorine. In-situ measurements for specific conductivity, salinity, and temperature were also measured using a YSI water quality meter and recorded. Field data were recorded on field data sheets. Samples were delivered to and analyzed for E. coli and Enterococcus at Phoenix Environmental Laboratories in Manchester, CT, 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 (in order of collection time)

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

- **HartSW-A**: In-stream sample of North Branch Park River, collected by the northern end of Lot D, at the University of Hartford, approx. 25 ft downstream of the adjacent bridge and 4 feet from the bank of the stream. No odor was observed. Color and turbidity were clear. Some suds were observed on the surface of the stream. Some green filamentous algae growth was observed on the streambed. No bacteria samples were collected due to holding time constraints.
- **HartSW-B**: In-stream sample of North Branch Park River, collected at the end of the rip rap swale connected to eastern edge of the parking lot behind 19 Woodland Street and 4 feet from the bank of the stream. No odor was observed. The color of the flow was slightly yellow, and turbidity was clear. Some suds were observed on the surface of the stream. Trash and litter debris were observed in the stream. Algae growth was observed on the rocks covering the streambed.

- **Hart09**: a single concrete, circular outfall, approximately 18 inches in diameter, located at 126 Mark Twain Drive. Discharge flow was approximately less than 5 gallons per minute (gpm) into North Branch Park River. Sample was collected 6 inches downstream of the mouth of the outfall. No odor was observed. Color and turbidity were clear. No floatables were observed. Some sediment build up was observed on the interior of the pipe. Algae growth was also observed inside the pipe.
- **Hart01D**: a single plastic, circular pipe, in a manhole, approximately 24 inches in diameter, located near 353 Granby Street. Discharge flow was approximately 5 gpm into the underground stormwater piping which flows to North Branch Park River. Sample was collected at the mouth of the outfall. No odor was detected. Color and turbidity were clear. No floatables were observed. Orange precipitate was observed immediately downstream of the pipe.
- **Hart01AG**: a single, concrete, circular outfall, in a manhole, conveying flow from the east, approximately 42 inches in diameter, located near 353 Granby Street. Discharge flow was approximately less than 5 gpm into the underground stormwater piping which flows to North Branch Park River. Sample was collected at the mouth of the outfall. No odor was detected. Color and turbidity were clear. No floatables were observed.
- **Hart01C**: In-stream sample of an unnamed brook, collected on the north side of the bridge on Burnham Steet, on the east bank of the brook. Sample was collected approximately 10 feet upstream of the inlet culvert. A musty odor was observed. Color was brown and fine particulate was observed. Floatables observed were weeds and vegetation debris. Patches of grey and brown murky water observed in the stream. Filamentous algae growth was observed on the rocks of the stream bed.
- **Hart10A**: a single concrete, circular, outfall, in a manhole, conveying flow from the south, approximately 42 inches in diameter, located at 602 Tower Ave. Discharge flow was approximately 5 gpm into the underground stormwater piping to Gully Brook. Sample was collected approximately 6 inches below mouth of outfall. No odor was detected. Color and turbidity were clear. Foam was observed on the surface of the flow. Orange precipitate was observed immediately downstream of the outfall. Dup01 was collected here.
- **Hart12F**: a single, concrete, circular, outfall, in a manhole, approximately 36 inches in diameter, located at 101 Tower Ave. Discharge flow was approximately less than 5 gpm into the underground stormwater piping to the North Meadows Storage Pond. Sample was collected in the channel of the manhole at the mouth of the outfall. A musty odor was observed. No color, turbidity or floatables were observed. No YSI readings were collected due to low volume of flow and accessibility. No PPCP samples were collected.

Map of Sample Locations

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

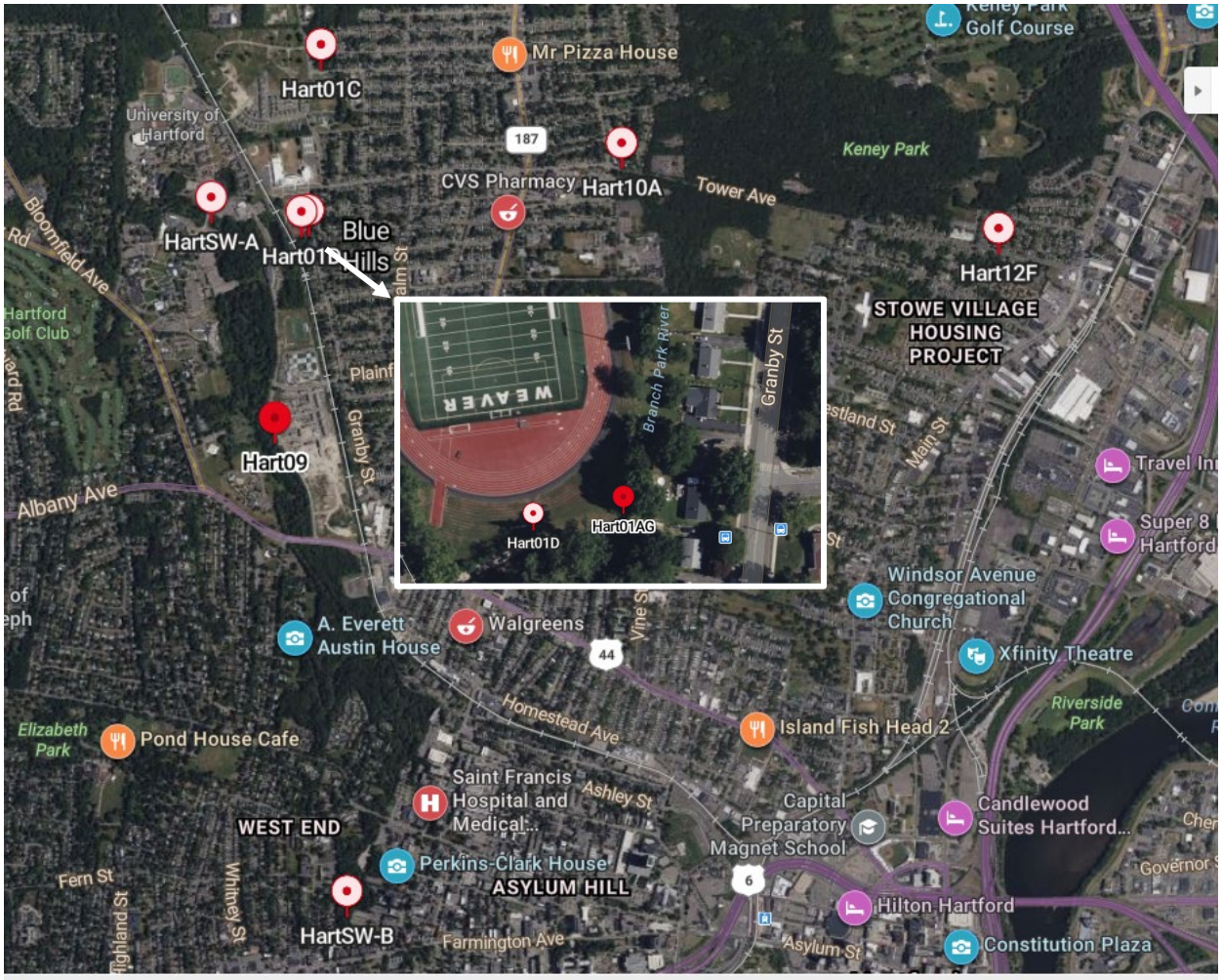

Table 1: Summary of Sampling and Analytical Data

Location	Site ID	HartSW-A	HartSW-B	Hart09	Hart01D	Hart01AG
	Sample Date	06/14/23	06/14/23	06/15/23	06/15/23	06/15/23
	Sample Time	11:25	12:06	08:19	09:28	09:50
Coordinates[1] (decimal degrees)	North	41.798487	41.768873	41.789073	41.797872	41.797926
	West	-72.712955	-72.705194	-72.709315	-72.707798	-72.707388
YSI Meter	Salinity, ppt.	0.2	0.2	0.4	0.5	0.2
	Temperature, ºC	22.8	20.4	16.3	16.0	15.4
	Conductivity, µS/cm	325.6	353.0	808.0	984.0	399.3
Field Test Kits (mg/L)	Ammonia	0.0	0.0	0.0	0.0	0.0
	Total Chlorine	0.04	0.01	0.03	0.0	0.02
	Surfactants	0.25	0.25	0.50	0.25	0.25
Bacteria (MPN/100mL)	E. coli	N/A	N/A	1920	75	161
	Enterococcus	N/A	N/A	448	20	292
PPCPs (ng/L)	Cotinine	2.6	3.6	13	0.71	1.1
	Acetaminophen	ND	ND	ND	ND	ND
	Paraxanthine	4.0	6.8	5.5	ND	8.4
	Atenolol	ND	ND	ND	ND	ND
	Caffeine	16.0	29	19	ND	44
	Metoprolol	ND	ND	ND	ND	ND
	Diphenhydramine	ND	ND	ND	ND	ND
	Carbamazepine	0.47	0.56	0.63	ND	1.7

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.

N/A: Not Analyzed

ND: Not Detected above Reporting Limit

E. Coli/Fecal Coliform: 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 ≥ 0.5 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

*See Reporting Limit (RL) values for each compound in attached Laboratory Report for Source Tracking

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.

Table 1: Summary of Sampling and Analytical Data, cont.

Location	Site ID	Hart01C	Hart10A	Hart12F
	Sample Date	06/15/23	06/15/23	06/15/23
	Sample Time	10:30	11:00	11:50
Coordinates[1] (decimal degrees)	North	41.804999	41.800805	41.797161
	West	-72.706674	-72.689484	-72.66792
YSI Meter	Salinity, ppt.	0.2	1.5	N/A
	Temperature, ºC	16.1	17.5	N/A
	Conductivity, µS/cm	486.6	2832.0	N/A
Field Test Kits (mg/L)	Ammonia	0.25	0.0	0.0
	Total Chlorine	0.0	0.0	0.1
	Surfactants	0.75	0.5	0.25
Bacteria (MPN/100mL)	E. coli	9800	602	1040
	Enterococcus	13000	842	717
PPCPs (ng/L)	Cotinine	53	3.8	N/A
	Acetaminophen	23	24	N/A
	Paraxanthine	30	4.8	N/A
	Atenolol	ND	ND	N/A
	Caffeine	370	250	N/A
	Metoprolol	ND	4.9	N/A
	Diphenhydramine	ND	ND	N/A
	Carbamazepine	ND	ND	N/A

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.

N/A: Not Analyzed

ND: Not Detected above Reporting Limit

E. Coli/Fecal Coliform: 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 ≥ 0.5 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

*See Reporting Limit (RL) values for each compound in attached Laboratory Report for Source Tracking

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

X. Attachments

Attachment A: Laboratory Report for PPCPs (Source Tracking) Analysis
Attachment B: Laboratory Report for E. coli Analysis and Enterococcus Analysis

End of Report

Appendix A
Photograph Log

Photo 1: HartSW-A (photo taken 06/14/2023 at approx. 11:25) Surface water sample of North Branch Park River near 200 Bloomfield Ave. Sample points are indicated by a red X.

Photo 2: HartSW-B (photo taken 06/14/2023 at approx. 12:06) Surface water sample of North Branch Park River near 404 Farmington Ave. Sample points are indicated by a red X.

Photo 3: Hart09 (photo taken 06/15/2023 at approx. 08:19) Outfall located near 126 Mark Twain Drive, discharging into the North Branch Park River. Sample points are indicated by a red X.

Photo 4: Hart01D (photo taken 06/15/2023 at approx. 09:28) Outfall located near 353 Granby Street, discharging into the North Branch Park River. Sample points are indicated by a red X.

Photo 5: Hart01AG (photo taken 06/15/2023 at approx. 09:50) Outfall located near 353 Granby Street, discharging into the North Branch Park River. Sample points are indicated by a red X.

Photo 6: Hart01C (photo taken 06/15/2023 at approx. 10:30) Surface water sample of North Branch Park River near 500 Granby Street. Sample points are indicated by a red X.

Photo 7: Hart10A (photo taken 06/15/2023 at approx. 11:00) Outfall located near 602 Tower Ave, discharging into the North Branch Park River. Sample points are indicated by a red X.

Photo 8: Hart12F (photo taken 06/15/2023 at approx. 11:50) Outfall located near 101 Tower Ave, discharging into the North Branch Park River. Sample points are indicated by a red X.

Attachment A
Laboratory Report for
Source Tracking Analysis

Author: LSASD Laboratory Services Branch
Pages: 16

Attachment B
Laboratory Report for
E. coli Analysis and Enterococcus Analysis

Author: Phoenix Environmental Laboratories
Pages: 1