United States Environmental Protection Agency
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

September 26, 2014

Robert Yandow, Town Manager
Town of York
186 York St
York, ME 03909

Re: July 16, 2014 MS4 Sampling Inspection, Town of York

Dear Mr. Yandow:

The purpose of this letter is to provide the Town of York, Maine (the "Town") with the results of surface water quality samples collected in the Town by personnel of the United States Environmental Protection Agency ("EPA") on July 16, 2014. Several of the samples indicate an exceedance of Maine water quality standards for E.Coli and enterococci bacteria and require further investigation.

Previously, on September 4, 2012 and May 29, 2013, EPA conducted municipal separate storm sewer system ("MS4") sampling activities for the purpose of identifying illicit connections or illegal discharges within the Town's MS4 that may adversely impact water quality. These findings were documented in a letter from EPA dated February 4, 2014 regarding York Water Quality Data ("February 2014 Letter").

In response to a request by the Town for Illicit Discharge Detection and Elimination ("IDDE") support, EPA conducted an additional sampling event on July 16, 2014. The specific goal for the July sampling event was to target the source of previously identified illicit discharges at locations designated by EPA as "LS03", "LS04", "LSR01", and "SS01" (see Figures 1a through 2). EPA personnel were accompanied by Ms. Leslie Hinz, Town of York Stormwater Manager, and Dr. Stephen Jones, environmental microbiologist at the University of New Hampshire during the sampling event.

Samples were collected from ten (10) stormwater outfalls, culverts, and/or access catch basins in accordance with an EPA-approved quality assurance project plan. Sampling locations were field screened using test kits for ammonia, chlorine, and surfactants, and in-situ measurements for conductivity, salinity, and temperature were also recorded. Samples were analyzed for E.Coli and Enterococcus at Absolute Resource Associates located in Portsmouth, New Hampshire. Pharmaceutical and personal care products (PPCPs) including: Atenolol, Acetaminophen, Cotinine, 1,7-Dimethylxanthine, Caffeine, Carbamazepine, and Metoprolol were analyzed at the

EPA New England Regional Laboratory (NERL). The results of the sampling inspection are included as Attachment 1. EPA notes 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 herein, 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.

As with the previous sampling events described in the February 2014 Letter, results of the July sample event continue to demonstrate that the Town is discharging stormwater mixed with non-stormwater containing E. coli and enterococci bacteria through its MS4 into the Atlantic Ocean in the areas of Short Sands Beach and Long Sands Beach. The presence of the specific pharmaceutical compounds in these samples provides evidence that the sources of the bacterial water quality exceedances are of human origin due to the presence of sanitary sewage. Any non-stormwater discharges from the Towns MS4 not specified in Part IV.H.3.c of the Maine DEP General Permit for the Discharge of Stormwater from Small MS4s are in violation of the Clean Water Act.

Long Sands Beach – Refer to Figures 1a, 1b, and 1c for sample locations

The outfall previously identified by EPA as LS04 was not flowing at the time of the inspection. A catch basin identified as LS04A, located upstream of LS04 (along Long Beach Avenue across from the intersection with Oceanside Avenue in front of bathhouses), was observed with standing water but was still sampled due to a recent rain event and assumed flush of any residual water. The sample showed elevated levels of E.Coli and enterococci bacteria in combination with pharmaceutical compounds. Based on the GIS drainage map provided by the Town connectivity in this area has not yet been verified. EPA recommends further investigation in this area including verifying connectivity and sampling the drainage that flows into LS04.

Results at other sampling locations along Long Sands Beach do not necessarily indicate wastewater contamination at the time of sampling; however, previous sample results suggest that further investigation for illicit discharges may be warranted in the areas of LS03 and LSR01. EPA notes a moderate rain event occurred the day prior to sampling, which may have served to flush out or dilute contaminant concentrations observed during previous sample events.

Short Sands Beach – Refer to Figure 2 for sample locations

EPA's sampling results provide strong evidence that illicit discharges are present upstream of the outfall identified as SS01, located at the north end of Short Sands Beach. Based on the GIS drainage map provided by the Town, as well as observations at the time of the inspection, the stream, which drains the Briley Pond wetland area, appears to diverge into two separate branches beneath Main Street. One branch appears to flow beneath Beach Street and the other appears to flow beneath Beach Street Extension. At the time of the sampling event, EPA requested a photograph of the interior of the junction access manhole on Main Street to be sent once the correct tool for opening the manhole was acquired. The photograph has not yet been received. Please provide a copy of this photograph at your earliest convenience.

Further downstream, the MS4 also appears to capture drainage from the Short Sands parking lot. EPA collected samples from each of these three branches (identified as "SS01-BS", "SS01-SS", and "SS01-PL" in Figure 2) and each indicated an exceedance of Maine water quality standards for E.Coli and enterococci bacteria as well as the aforementioned pharmaceutical compounds. The upstream sample (collected prior to the stream going underground ("SS01A") had elevated bacteria levels, yet relatively low levels of the pharmaceutical compounds. This data leads EPA to believe that infiltration of sanitary sewage into the MS4 is occurring after Briley Pond wetland drainage flows underground and before SS01 discharges into the Atlantic Ocean.

EPA recommends confirming the drainage configuration beneath Main Street and inspecting each branch individually to determine where infiltration and/or illicit connections may be occurring. Furthermore, EPA strongly encourages the development and implementation of a protocol for performing visual screening and monitoring at all MS4 outfalls along the Long Sands Beach and Short Sands Beach. These investigations should be a part of IDDE investigations. Following the removal of illicit discharges additional sampling should be performed to confirm that all sources of contamination have been removed. An example protocol developed by EPA Region 1 for MS4 outfall investigation was provided to the Town by EPA during a March 2014 meeting, and an additional copy is attached to this letter as well.

This letter may not specify all violations of the CWA or violations of other environmental requirements that may exist in the Town. This letter does not preclude the EPA or any other agency from commencing any enforcement action regarding any such violations. It is your responsibility to comply with all legal requirements, whether or not the EPA notifies you of any violations or takes enforcement action against you. Nothing in this letter relieves you of other obligations under applicable federal, state, and local law. Failure to comply with the CWA may result in your liability for administrative, civil, or criminal penalties under Section 309(c), (d), or (g) of the CWA, 33 U.S.C. § 1319(c), (d), or (g), as modified by 40 C.F.R. Part 19. No provision of this Notice and no action or inaction by EPA shall be construed to constitute an assurance by the EPA that actions you take to address the violation(s) specified herein will result in compliance.

If you or your staff have any questions regarding these findings, please contact me by phone at 617-918-1709 or by email at rosenberg.alex@epa.gov. Please thank your staff for accommodating us during the sampling event.

Sincerely,

Alex Rosenberg, Compliance and Enforcement Officer
Office of Environmental Stewardship

cc: Dean Lessard, Town of York, Director of Public Works
Leslie Hinz, Town of York, MS4 Manager

David Ladd, MEDEP
Erin Trainor, EPA
Denny Dart, EPA

Attachments: Table 1: EPA New England Stormwater Outfall Inspection & Sampling Summary York, ME
Figures 1a, 1b, 1c: July 16, 2014 Long Sands Beach Sample Locations
Figure 2: July 16, 2014 Short Sands Beach Sample Locations
EPA New England Bacterial Source Tracking Protocol

EPA New England Bacterial Source Tracking Protocol
Draft – January 2012

Purpose

This document provides a common framework for EPA New England ("EPA-NE") staff to develop and implement bacterial source tracking sample events, and provides a recommended approach to watershed association, municipal, and State personnel. Adopted from Boston Water and Sewer Commission ("BWSC") (2004), Pitt (2004), and based upon fieldwork conducted and data collected by EPA-NE, the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry and wet weather to complete a screening-level investigation of stormwater outfall discharges or flows within the drainage system. When necessary, the addition of more conclusive chemical markers may be included. The protocol is applicable to most typical Municipal Separate Storm Sewer Systems ("MS4s") and smaller tributary streams. The smaller the upstream catchment area and/or more concentrated the flow, the greater the likelihood of identifying an upstream wastewater source.

Introduction

The protocol is structured into several phases of work that progress through investigation planning and design, laboratory coordination, sample collection, and data evaluation. The protocol involves the concurrent collection and analyses of water samples for surfactants, ammonia, total chlorine, and bacteria. When more precise confirmation regarding the presence or absence of human sanitary sewage is necessary, and laboratory capacity is available, the additional concurrent collection of samples for select Pharmaceutical and Personal Care Product ("PPCP") analysis is advised. When presented with a medium to large watershed or numerous stormwater outfalls, the recommended protocol is the screening of all outfalls using the surfactant, ammonia, total chlorine, and bacterial analyses, in addition to a thorough visual assessment. The resulting data and information should then be used to prioritize and sample a subset of outfalls for all parameters, including PPCP compounds and additional analyses as appropriate. Ideally, screening-level analyses can be conducted by state, municipal, or local watershed association personnel, and a prioritized sub-set of outfalls can be sampled through a commercial laboratory or by EPA-NE using more advanced confirmatory techniques.

Step I – Reconnaissance and Investigation Design

Each sample event should be designed to answer a specific problem statement and work to identify the source of contamination. Any relevant data or reports from State, municipal, or local watershed associations should be reviewed when selecting sample locations. Aerial photography, mapping services, or satellite imagery resources are available free to the public through the internet, and offer an ideal way to pre-select locations for either field verification or sampling.

Sample locations should be selected to segregate outfall sub-catchment areas or surface waters into meaningful sections. A common investigative approach would be the identification of a specific reach of a surface water body that is known to be impaired for bacteria. Within this specific reach, stormwater outfalls and smaller tributary streams would be identified by desktop reconnaissance, municipal outfall mapping, and field investigation when necessary. Priority outfalls or areas to field verify the presence of outfalls should be selected based on a number of factors, including but not limited to the following: those areas with direct discharges to critical or impaired waters (e.g. water supplies, swimming beaches); areas served by common/twin-invert manholes or underdrains; areas with inadequate levels of sanitary sewer service, Sanitary Sewer Overflows ("SSOs") or the subject of numerous/chronic sanitary sewer customer complaints; formerly combined sewer areas that have been separated; culverted streams, and; outfalls in densely populated areas with older infrastructure. Pitt (2004) provides additional detailed guidance.

When investigating an area for the first time, the examination of outfalls in dry-weather is recommended to identify those with dry-weather flow, odor, and the presence of white or gray filamentous bacterial growth that is common (but not exclusively present) in outfalls contaminated with sanitary sewage (see Attachment 1 for examples). For those outfalls with dry-weather flow and no obvious signs of contamination, one should never assume the discharge is uncontaminated. Sampling by EPA-NE staff has identified a number of outfalls with clear, odorless discharges that upon sampling and analyses were quite contaminated. Local physical and chemical conditions, in addition to the numerous causes of illicit discharges, create outfall discharges that can be quite variable in appearance. Outfalls with no dry-weather flow should be documented, and examined for staining or the presence of any obvious signs of past wastewater discharges downstream of the outfall.

As discussed in BWSC (2004), the protocol may be used to sample discreet portions of an MS4 sub-catchment area by collecting samples from selected junction manholes within the stormwater system. This protocol expands on the BWSC process and recommends the concurrent collection of bacteria, surfactant, ammonia, and chlorine samples at each location to better identify and prioritize contributing sources of illicit discharges, and the collection of PPCP compounds when more conclusive source identification is necessary.

Finally, as discussed further in Step IV, application of this sampling protocol in wet-weather is recommended for most outfalls, as wet-weather sampling data may indicate a number of illicit discharge situations that may not be identified in dry weather.

Step II – Laboratory Coordination

All sampling should be conducted in accordance with a Quality Assurance Project Plan ("QAPP"). A model QAPP is included as Attachment 2. While the QAPP details sample collection, preservation, and quality control requirements, detailed coordination with the appropriate laboratory staff will be necessary. Often sample events will need to be scheduled well in advance. In addition, the sampling team must be aware of the strict holding time requirements for bacterial samples – typically samples analysis must begin within 6 hours of sample collection. For sample analyses conducted by a commercial laboratory, appropriate coordination must occur to determine each facilities respective procedures and requirements. The recommendations in this protocol are based on the use of a currently unpublished EPA-NE modification to *EPA Method 1694 – Pharmaceuticals and Personal Care Products in Water, Soil, Sediment, and Biosolids by HPLC/MS/MS*. Several commercial laboratories may offer Method 1694 capability. EPA-NE recommends those entities wishing to utilize a contract laboratory for PPCP analyses ensure that the laboratory will provide quantitative analyses for acetaminophen, caffeine, cotinine, carbamazepine, and 1,7-dimethylexanthine, at Reporting Limits similar to those used by EPA-NE (See Attachment 3). Currently, the EPA-NE laboratory has limited capacity for PPCP sampling, and any proposed EPA-NE PPCP sample events must be coordinated well in advance with the appropriate staff.

Step III – Sample Collection

Once a targeted set of outfalls has been selected, concurrent sampling and analyses for surfactants, ammonia, and total chlorine (which can all be done through the use of field kits), in addition to bacteria (via laboratory analysis) should be conducted. When numerous outfalls with dry-weather flow exist, sample locations should be prioritized according to the criteria mentioned above. In addition, field screening using only the field kits may occur during the field reconnaissance. However, it must be emphasized that the concurrent sampling and analyses of bacteria, surfactant, ammonia, and total chlorine parameters is the most efficient and cost-effective screening method.

When first observed, the physical attributes of each outfall or sampling location should be noted for construction materials, size, flow volume, odor, and all other characteristics listed on the data collection form (Attachment 4). In addition, GPS coordinates should be collected and a photograph of the sample location taken. Whenever possible, the sampling of storm drain outfalls should be conducted as close to the outfall opening as possible. Bacterial samples should be collected first, with care to not disturb sediment materials or collect surface debris/scum as best possible. A separate bottle is used to collect a single water sample from which aliquots will be analyzed for surfactants, ammonia, and total chlorine. A sample for PPCP analysis is recommended to be collected last, as the larger volume required and larger bottle size may cause some sediment disturbance in smaller outfalls or streams. If necessary, a second smaller, sterile and pre-cleaned sampling bottle may be used to collect the surface water which can then be poured into the larger PPCP bottle. Last, a properly calibrated temperature/specific conductance/salinity meter should be used to record all three parameters directly from the stream or outfall. When flow volume or depth is insufficient to immerse the meter probe, a clean sample bottle may be utilized to collect a sufficient volume of water to immerse the probe. In such instances, meter readings should be taken immediately.

As soon as reasonably possible, sample aliquots from the field kit bottle should be analyzed. When concurrent analyses are not possible, ammonia and chlorine samples should be processed first, followed by surfactant analysis, according to each respective Standard Operating Procedure as appropriate based on the particular brand and type of field test kit being used. All waste from the field test kits should be retained and disposed of according to manufacture instructions.

Where waste disposal issues would otherwise limit the use of field kits, EPA-NE recommends that, at a minimum, ammonia test strips with a Reporting Limit below 0.5 mg/L be utilized. Such test strips typically are inexpensive and have no liquid reagents associated with their use. Results should be recorded, samples placed in a cooler on ice, and staff should proceed to the next sample location.

Upon completion of sampling and return to the laboratory, all samples will be turned over to the appropriate sample custodian(s) and accompanied by an appropriate Chain-of-Custody ("COC") form.

Step IV – Data Evaluation

Bacterial results should be compared to the applicable water quality standards. Surfactant and ammonia concentrations should be compared to the thresholds listed in Table 1. Evaluation of the data should include a review for potential positive results due to sources other than human wastewater, and for false negative results due to chemical action or interferences. In the EPA-NE region, field sampling has indicated that the biological breakdown of organic material in historically filled tidal wetlands may cause elevated ammonia readings, as can the discharge from many landfills. In addition, salinity levels greater than 1 part per thousand may cause elevated surfactant readings, the presence of oil may likewise indicate elevated levels, and fine suspended particulate matter may cause inconclusive surfactant readings (for example, the indicator ampule may turn green instead of a shade of blue). Finally, elevated chlorine from leaking drinking water infrastructure or contained in the illicit wastewater discharge may inhibit bacterial growth and cause very low bacterial concentrations. Any detection of total chlorine above the instrument Reporting Limit should be noted.

Table 1 – Freshwater Water Quality Criteria, Threshold Levels, and Example Instrumentation [1]

Analyte/ Indicator	Threshold Levels/ Single Sample[3]	Instrumentation
E. coli [2]	235 cfu/100ml	Laboratory via approved method
Enterococci [2]	61 cfu/100ml	Laboratory via approved method
Surfactants (as MBAS)	≥ 0.25 mg/l	MBAS Test Kit (e.g. CHEMetrics K-9400)
Ammonia (NH_3)	≥ 0 .5 mg/l	Ammonia Test Strips (e.g. Hach brand)
Chlorine	> Reporting Limit	Field Meter (e.g. Hach Pocket Colorimeter II)
Temperature	See Respective State Regulations	Temperature/Conductivity/Salinity Meter (e.g. YSI Model 30)

[1] The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA
[2] 314 CMR 4.00 MA - Surface Water Quality Standards - Class B Waters.
[3] Levels that may be indicative of potential wastewater or washwater contamination

Once dry-weather data has been examined and compared to the appropriate threshold values, outfalls or more discreet reaches of surface water can be selected for sampling or further investigation. Wet-weather sampling is also recommended for all outfalls, in particular for those that did not have flow in dry weather or those with dry-weather flow that passed screening thresholds. Wet-weather sampling will identify a number of situations that would otherwise pass unnoticed in dry weather. These wet-weather situations include, but are not limited to the following: elevated groundwater that can now cause an exchange of wastewater between cracked or broken sanitary sewers, failed septic systems, underdrains, and storm drains; increased sewer volume that can exfiltrate through cracks in the sanitary piping; increased sewer volume that can enter the storm drain system in common manholes or directly-piped connections to storm drains; areas subject to capacity-related SSO discharges, and; illicit connections that are not carried through the storm drain system in dry-weather.

Step V – Costs

Use of field test kits and field instruments for a majority of the analytical parameters allows for a significantly reduced analytical cost. Estimated instrument costs and pro-rated costs per 100 samples are included in Table 2. The cost per 100 samples metric allows averaged costs to account for reagent refills that are typically less expensive as they do not include the instrument cost, and to average out the initial capital cost for an instrument such as a temperature/ conductivity/salinity meter. For such capital costs as the meters, the cost over time will continue to decrease.

Table 2 – Estimated Field Screening Analytical Costs [1]

Analyte/ Indicator	Instrument or Meter [2]	Instrument or Meter Cost/No. of Samples	Cost per Sample (Based on 100 Samples) [3]
Surfactants (as MBAS)	Chemetrics K-9400	$77.35/20 samples ($58.08/20 sample refill)	$3.09
Ammonia (NH_3)	Hach brand 0 – 6 mg/l	$18.59/25 samples	$0.74
Total Chlorine	Hach Pocket Colorimeter II	$389/100 samples ($21.89 per 100 sample refill)	$3.89
Temperature/ Conductivity/ Salinity	YSI	$490 (meter and cable probe)	$4.90

1 Estimated costs as of February 2011

2 The mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. EPA

3 One-time meter costs and/or refill kits will reduce sample costs over time

From Table 2, the field analytical cost is approximately $13 per outfall. Typical bacterial analyses costs can vary depending on the analyte, method, and total number of samples to be performed by the laboratory. These bacterial analyses costs can range from $20 to $60. Therefore, the analytical cost for a single outfall, based on the cost per 100 samples, ranges from $33 to $73. As indicated above, these costs will decrease slightly over time due to one-time capitals costs for the chlorine and temperature/conductivity/salinity meters.

Step VI – Follow-Up

Once all laboratory data has been reviewed and determined final in accordance with appropriate quality assurance controls, results should be reviewed with appropriate stakeholders to determine next steps. Those outfalls or surface water segments that fail to meet the appropriate water quality standard, and meet or exceed the surfactant and ammonia threshold values, in the absence of potential interferences mentioned in Step IV, indicate a high likelihood for the presence of illicit connections upstream in the drainage system or surface water. Whereas illicit discharges are quite variable in nature, the exceedance of the applicable water quality standard and only the ammonia or surfactant threshold value may well indicate the presence of an illicit connection. When available, the concurrent collection and analyses of PPCP data can greatly assist in confirming the presence of human wastewater. However, such data will not be available in all instances, and the collective data set and information regarding the physical characteristics of each sub-catchment or surface water reach should be used to prioritize outfalls for further investigation. As warranted, data may be released to the appropriate stakeholders, and should be accompanied by an explanation of preliminary findings. Release of EPA data should be fully discussed with the case team or other appropriate EPA staff.

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 Colorimeter – Hach Pocket Colorimeter II: http://www.hach.com/

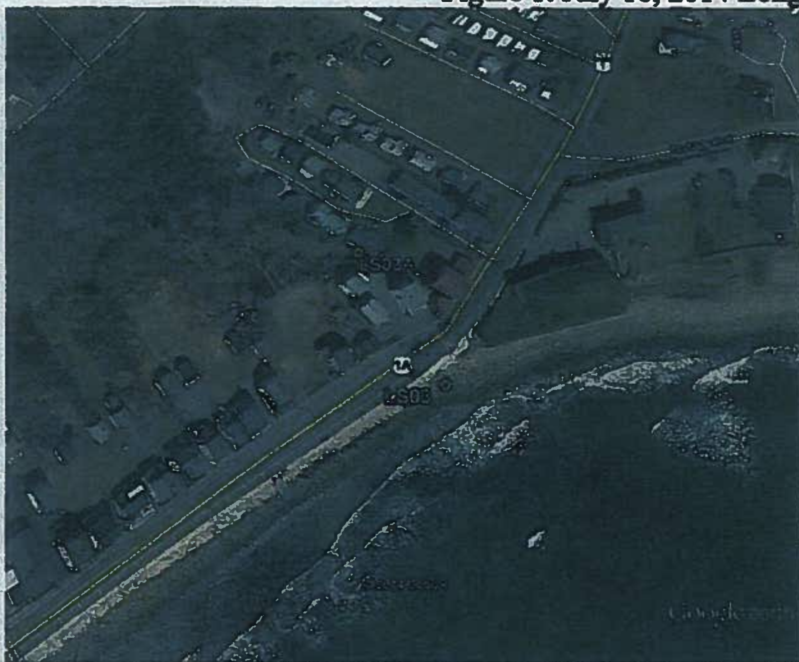
Ammonia (Nitrogen) Test Strips: http://www.hach.com/

Portable Temperature/Conductivity/Salinity Meter: YSI Model 30: http://www.ysi.com/productsdetail.php?30-28

Disclaimer: The mention of trade names or commercial products in this protocol does not constitute endorsement or recommendation for use by the U.S. EPA.

Figure 1: July 16, 2014 Long Sands Beach Sampling Locations

1a.)



1b.)

1c.)

Figure 2: July 16, 2014 Short Sands Beach Sampling Locations

Table 1: EPA New England Stormwater Outfall Inspection & Sampling Summary - York, ME

Location				Sampling Data												Coordinates		YSI Meter		
				Bacteria (MPN/100ml)		Pharmaceutical and Personal Care Products (ng/L)							Field Test Kits (mg/L)					Salinity	Temp	Conductivity
Date	Town	Site Name	Time	E.coli	Entero	Atenolol	Acetaminophen	Cotinine	1,7-Dimethylxanthine	Caffeine	Metoprolol	Carbamazepine	Surfactant	Cl_2	NH_3	GPS North(+)	GPS West (-)	ppt	C	uS
9/4/12	York, ME	CNR-13	8:10	98	160	ND	ND	0.58	ND	ND	ND	ND	NA	NA	NA	43.1934464907793 N	70.615567201769 W	28.3	17	40.89 (mS)
9/4/12	York, ME	SS01	8:30	16	ND	ND	ND	3.3	ND	20	ND	3.5	NA	NA	NA	43.1759059320139 N	70.6085451699441 W	3.2	20.3	5.92 (mS)
9/4/12	York, ME	SS01A	8:55	ND	ND	ND	48	2.8	4.9	16	ND	0.79	NA	NA	NA	43.1758379307235 N	70.6113458006388 W	0.1	17.6	139.9
9/4/12	York, ME	SS01-2	11:10	2,190	2,035	ND	62	ND	140	11000	2	0.59	NA	NA	NA	43.1759059320139 N	70.6085451699441 W	1.8	19.4	3427
9/4/12	York, ME	LR01	10:00	744	121	ND	ND	2.8	ND	3.7~	ND	7.4	NA	NA	NA	43.1758379307235 N	70.6113458006388 W	0.1	19.5	277.8
9/4/12	York, ME	LSR01	10:15	3,080	1354~	ND	110	500	120	3000	ND	ND	NA	NA	NA	43.1522252060135 N	70.6242835976591 W	2.3	19.4	4461
9/4/12	York, ME	LS01	10:20	382	165	ND	1.4~	6.6	0.69~	260	ND	0.24~	NA	NA	NA	43.1544155648125 N	70.6233758273515 W	1.2	18.2	2214
9/4/12	York, ME	LS04	10:45	2,452	2,755	2.6~	72	890	310	19000	ND	ND	NA	NA	NA	43.1651189592212 N	70.6170901253628 W	0.1	20.9	117.3
9/4/12	York, ME	LS03	11:30	6,212	5,475	ND	41	120	36	980	ND	ND	NA	NA	NA	43.1681918975235 N	70.6124810264161 W	0.1	19.8	238.1
5/29/13	York, ME	SS01	8:30	160	63	ND	3.6	9.2	8*	380	ND	1.1	0.2	0.02	0	43.17605679 N	70.60872532 W	0.3	12.8	625
5/29/13	York, ME	SS01A	8:45	49	10	ND	3.6	0.89	3.4*	7.6*	ND	1.2	0.2	0.01	0	43.1758591 N	70.61131543 W	0.1	12.6	221.9
5/29/13	York, ME	SS01B	9:15	34	10	ND	4.8	0.64	1.8*	11*	ND	1.4	0.15	0	0.25	43.17652488 N	70.61205247 W	0.1	12.8	219.5
5/29/13	York, ME	SS01C	9:30	44	ND	ND	ND	0.88	4.2*	14*	ND	1.8	0.2	NA	0.1	43.17709084 N	70.61331325 W	0.1	12.8	203
5/29/13	York, ME	LS03	10:00	22,470	1,019	ND	2.1	1.7	2.3*	18*	ND	ND	0.25	0	0.25	43.16822303 N	70.61252298 W	0.2	12.6	374.4
5/29/13	York, ME	MHB04	10:25	394	10	ND	ND	1.3	ND	8.4*	ND	ND	0.2	0.01	0.1	43.1650857 N	70.61714272 W	0.2	12.4	431
5/29/13	York, ME	LS04	10:35	587	259	ND	24	58	63	1600	ND	ND	0.6	0.04	0.2	43.16398263 N	70.61854816 W	0	15.1	60.6
5/29/13	York, ME	LS02	10:50	69	ND	ND	ND	0.66	2.4*	4.4*	ND	ND	0.2	0	0	43.16157841 N	70.62021681 W	0.1	13	309.5
5/29/13	York, ME	LS05	11:05	122	31	ND	ND	1	1.5*	9.4*	ND	11	0.2	0.02	0.1	43.15970192 N	70.62115498 W	0.1	13.7	202
5/29/13	York, ME	LS01	11:15	162	10	ND	ND	0.53	ND	16*	ND	ND	0.2	0.02	0	43.15440719 N	70.62337628 W	0.2	12.2	474
5/29/13	York, ME	LSR01	11:40	2,908	554	ND	25	35	11	180	ND	ND	0.75	0.12	0	43.15222774 N	70.62428748 W	0.5	13.1	1305
5/29/13	York, ME	LR01	12:05	174	41	ND	ND	0.5	2.1*	5.7*	ND	2.7	0.1	0.02	0	43.14983502 N	70.6250598 W	0.2	13.4	394
7/16/14	York, ME	LSR1A	8:55	83	727	ND	5	24	6.9	160	ND	ND	0.25	0.04	0.5	43.15224196 N	70.62472474 W	0.1	21.2	103.9
7/16/14	York, ME	OSA01	9:30	1,733	1,585	ND	ND	3.3	ND	15	ND	ND	<0.25	0.02	0.25	43.16423138 N	70.61919833 W	0.2	18.9	336.4
7/16/14	York, ME	LS04A	9:50	1,203	1,565	ND	9.8	69	18	880	ND	ND	0.2	0.05	0.25	43.164080 N	70.618507 W	0	21.4	58
7/16/14	York, ME	LS03	10:15	2,420	4,106	ND	ND	2.1	ND	18	ND	ND	0.1	0.02	0.1	43.16823457 N	70.61251728 W	0.3	17	601
7/16/14	York, ME	LS03A	10:45	1,414	1,223	ND	ND	1.9	2.8	7	ND	ND	0.1	0.11	0.1	43.168699 N	70.612930 W	0.1	17.2	301.3
7/16/14	York, ME	SS01	11:30	613	1,376	ND	120	70	44	4600	ND	V	0.5	0.16	0.25	43.17604233 N	70.60872178 W	0.8	18.6	1685
7/16/14	York, ME	SS01-PL	11:50	1,414	2,495	ND	130	180	92	5600	ND	V	0.3	0	0.1	43.175164 N	70.609997 W	0.1	21.5	120
7/16/14	York, ME	SS01-BS	12:15	649	2,247	ND	5.8	10	6.6	340	ND	1.1	0.2	0	0.1	43.17612648 N	70.6090601 W	0.1	18.8	251
7/16/14	York, ME	SS01-SS	13:00	1,048	2,187	ND	28	32	33	910	ND	ND	0.7	0	0.25	43.17544337 N	70.61002584 W	2.5	18.8	4675
7/16/14	York, ME	SS01A	13:25	687	657	ND	ND	0.82	1.1	7.4	ND	1.2	NA	NA	NA	43.17583335 N	70.61132859 W	0.1	18.7	203.6

E. coli - color key: Red ≥ 10,000 col/100ml, Orange ≥ 1260 col/100ml, Yellow ≥ 236 col/100ml, Black < 236 col/100ml
Entero - color key: Red ≥ 1000 col/100ml, Orange ≥ 350 Yellow ≥ 54 col/100ml, Black <54 col/100ml
NH3 - color key: Red ≥ 6 mg/L, Orange ≥ 0.5 mg/L, Yellow ≥ 0.0 mg/L
Surfactants - color key: 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 color key: Pink = Concentrations greater than background
Cl2 - color key: Red ≥ 1.0 mg/L, Orange ≥ 0.3 mg/L, Yellow ≥ 0.02 mg/L, Black < 0.02 mg/L

REPORTING LIMITS
Ammonia = 0.1 mg/L
Chlorine = 0.01 mg/L
Surfactants = 0.1 mg/L
Refer to Table 2 for laboratory reporting limits

ND – not detected above the associated detection limit
NA – not applicable (analyte not tested for at that site at this time)
(~) – data reported as estimate
(*) – Compound detected in sample at less than 3 times the value detected in the laboratory balnk

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. EPA technical staff can provide a more complete explanation of each particular set of results.