



Haverhill

Robert E. Ward, Deputy DPW Director
Water/Wastewater Division
Phone: 978-374-2382 Fax: 978-521-4083
rward@haverhillwater.com

Water Technical Unit (OES04-3)
U.S. EPA - New England, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Attn: Joy Hilton

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Resource Protection
205B Lowell Street
Wilmington, MA 01887-2941
Attn: Nihar Mohanty

Subject: City of Haverhill, MA NPDES Permit # MA 0101621
Combined Sewer Overflow Annual Report 2015

Dear Ms. Hilton and Mr. Mohanty:

In accordance with Part I.D.3. of the City of Haverhill's NPDES Permit, we are providing this annual report for the 2015 calendar year. Please note that throughout this report the items in *italics* are the requirements taken directly from the NPDES permit followed by the response.

Status of CSO

Integrated Long Term Control Plan (LTCP)

This Integrated LTCP will encompass Capacity Maintenance Operation Management (CMOM), for the collection system; Wastewater Comprehensive Plant Evaluation (CPE); Infiltration Inflow Assessment (I/I); Green Infrastructure; SWMM model calibration to include refinement of the combine and separate catchment acreage; CSO System Maximization discussed below. The LTCP will be submitted to EPA and DEP on or before January 31, 2017.

System Maximization

The City's consultant and the City designed a dynamic CSO gate control system utilizing real time level control. This design places four (4) gate actuators at the Upper Siphon (NPDES # 024), four (4) gate actuators at the Lower Siphon (NPDES # 013) along with cutting a wider opening at the Middle Siphon (NPDES # 012A), and installing a 24-inch sewer to convey sewerage away from Marginal Weir (NPDES # 012M). This is scheduled to be constructed in the next reporting period. This design will reduce CSO volume and activations further.

Activation Frequency and Discharge Volume

- a. Activation frequency and discharge volume for each CSO during the previous calendar year. The report shall include this information for each of the CSO discharge outfalls listed on attachment F.

The table below is a summary of the status of each CSO.

City of Haverhill, MA Phase II LTCP Implementation Monitoring Status by CSO Regulator					
NPDES ID	CSO Outfall Name	CSO Regulators (if more than 1)		CSO Closed Date	Monitored by Flow Meters
Lower Siphon CSOs					
001	Bates Bridge			07/24/13	
010	Boardman Street			08/14/13	
016	Fire Station			08/07/13	
019	Main Street No.				X
013	Lower Siphon				X
039	Bethany Avenue				X
040	Chestnut Street				X
Middle Siphon CSOs					
038	High Street	Broadway (038)	Flood		X
		High Street (038)	Flood		X
021B	Emerson Street		Flood		X
021H	Winter Street	Winter Street (021G)	Flood		X
		Winter/Hale Street (021H)	Flood		X
021D	Little River No.	Orchard Street Center Barrel			X
		Little River No (12-inch) (021F)			X
021E	Little River So. (18")				X
021A	Middle Siphon	Middle CSO (021A)			X
		Marginal PS (021M)			X
Upper Siphon CSOs					
022	Railroad Bridge			03/31/12	
023	River Street			08/14/13	
025	Beach Street			03/19/14	
024	Upper Siphon				X
South-Side CSOs					
031	Front Street			07/10/13	
032	Bradford Avenue				X
033	So. Prospect Street			07/19/13	
034	Middlesex Street				X
035	Main Street So.			07/31/13	
036	Ferry Street			08/15/13	
041	So. Webster				X

The City's consultant CDM Smith and sub-contractor Flow Assessment has installed CSO Flow meters throughout the City's collection system. Flow Assessment provides necessary maintenance on all CSO flow meters throughout the year. These flow meters are accessible through the internet with user ID and passwords.

Each flow meter is queried to obtain 5-minute records, exported to Excel, and all non-reporting times are removed. Every CSO meter is recorded in this manner and has its own separate tab in Excel. CSO volumes are created for each CSO Flow meter-recording, see Appendix A CSO Flow meter summary 2015.

Appendix B CSO Flow meter summary per outfall 2015 was developed utilizing the data from Appendix A that totals each outfall.

Precipitation During the Calendar Year

Rain data is collected at the City of Haverhill Wastewater Treatment Plant using a RainWise, Inc., rain gage. The rain is measured in 15-minute intervals to within 0.01 inches. NetStorm utilizes the rain gauge information and develops rainfall statistics per storm event. NetStorm data is used to develop Appendix A and Appendix B.

- b. Precipitation during the previous year for each day, including total rainfall (expressed in inches), peak intensity (highest 15 minute sample multiplied by four to convert to inches per hour), and average intensity (the total rainfall for the storm event divided by the duration of the storm, expressed in inches per hour).*

Appendix C calendar year 2015 rainfall data utilizing NetStorm. (Note: Some storm durations last longer than one day. For example, the storm, which began on June 1, 2015, lasted for 36 hours). The City received 33.96 inches of rainfall for calendar year 2015. The average rainfall amount is 42.91 inches.

- c. A certification, which states that the previous calendar's year's monthly inspections were conducted, results recorded, and records maintained.*

I certify that the City of Haverhill inspects and maintains pertinent electronic records contain within the City's CMMS MaintStar Program for all CSOs at least monthly.

Nine Minimum Controls

- d. A summary of modifications to the approved NMC programs which have been evaluated, and a description of those, which will be implemented during the upcoming year.*

The City of Haverhill minimizes CSO discharges to the maximum extent possible through implementation of the Draft Nine Minimum Controls report submitted to EPA in September 1996. The Phase II LTCP identified several CSO regulators that will be modified (raising weirs) to further minimize CSO discharges.

1. Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows.

Each CSO regulator is inspected at least once a month through the City's Computerized Maintenance Management System (CMMS) MaintStar. In addition, each CSO regulator is monitored by flow meter that when activated an email is sent to Wastewater Managers, which is view on an iPhone. If activation is received through an email with no rainfall evident, the Collection System Operators are dispatch to investigate. This happened only once during 2015 with no Dry Weather Overflow (DWO).

Bradford Ave (NPDES # 032) CSO flap gate was repaired at a cost of \$6,232. A new hinge was purchased and installed so that the CSO gate would close correctly after a CSO occurrence. This prevents river water from entering the sewer system during high river levels.

2. Maximum use of the collection system for storage.

The City's CSO regulators are controlled by weirs elevation, which have been raised throughout the years. Ten (10) CSO's were closed. These activities have increased the amount of wet weather flow captured to over 97%. Haverhill has one of the lowest annual CSO volumes on the Merrimack River for all CSO communities.

3. Review and modification of the pretreatment program to assure CSO impacts are minimized.

Haverhill maintains an Industrial Pretreatment Program (IPP) that monitors Significant Industrial Users (SIU) that discharges to the City's sewer system. This program is updated as necessary.

4. Maximization of flow to the POTW for treatment.

Flow to the City's Wastewater Treatment plant is pump from the City's main pump station located on South Kimball Street. Current high flow management is to pump at least 60 MGD. This is accomplish with three (3) pumps with another on standby if problems occur. The City has contracted an outside vendor to inspect and repair all four (4) wastewater pumps as necessary.

5. Prohibition of dry weather overflows from CSOs.

The monthly CSO checks and installation of CSO meters indicate there were no Dry Weather Overflows during the 2015 monitoring period.

6. Control of solid and floatable materials in CSOs.

The City captures the "first" flush thus reduces and or eliminates any floatable materials. However, the current LTCP will look at options to control floatable materials.

7. Pollution prevention programs that focus on contaminant reduction activities.

The City regularly sweeps the City streets near most CSO structures periodically through the year. This reduces the pollutants into the combine sewer.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

Within 24-hours, an email is sent to downstream communities notifying them that a CSO activation has occurred. CSO signs are posted for all active CSO outfalls.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

The CSO discharge into Littler River near the concrete conduit and the Merrimack River. The 7Q10 flow for the Merrimack River is 898cfs¹ or 580 MGD. The CSO volumes per storm event are comparatively low. As such, a monitoring program does not exist.

¹ From NPDES Response Comment C.3

In the first annual report submitted in accordance with this permit, the permittee shall submit a public notification plan to describe the measures actively being taken to meet NMC #9 (see NMC #9 in part I.C.1a.i.8), and an evaluation of future measures to enhance the public notification program, including the following;

- i. *Outfall sign visible from both water and land.*

Signs have been installed at each CSO location in the City and will be maintained over the coming year. See Appendix D Work Order WW 00000542 verifying that all CSO signage is posted.

- ii. *Sign/Notices are where people may be using CSO-impacted waters for recreation such as swimming, boating, fishing, and places where the public may gain access to the water (e.g. boat put-in areas). The notice would include information on health risk posed by CSO and links for additional information on CSOs and water quality.*

Within 24-hours of a CSO occurrence an email notification is sent to Downstream Communities see Appendix E downstream communities for the email notification list.

The City's Public Notification Program, (required by the NMC), consists of public education about CSO discharges and their impacts. "Real-Time" notification of the receiving water impacts or use restrictions during the activation of the CSO discharge is not feasible (due to its transient and intermittent occurrences). Accordingly, the City relies on a general education program and the City's official web site to keep the public aware of the possible health risks.

The address below is the City's CSO web site:

http://www.ci.haverhill.ma.us/departments/public_works_department/water_wastewater/wastewater/wastewater_collection_system/combined_sewer_overflows_%28cso%29/index.php

- iii. *Review of the sewer system model to determine the threshold rain events, which normally will cause overflows.*

The City has compiled all block check results and plotted these results with available Supervisory Control and Data Acquisition (SCADA) influent flows along with available rainfall data from 2008 through 2010; found that when the City receives 0.10 inches of rain, the City could expect a CSO occurrence. Calendar year 2014, the lowest rainfall event that triggered a CSO occurrence was 0.10 inches. For calendar year 2015: 0.04-inches was the lowest that a CSO occurred.

- iv. *Quarterly postings on the permittee's website and links to other relevant web-sites which would give the locations of the CSOs, and associated health risks and estimate of CSO activations and volumes. The permittee shall update the CSO website within two (2) months of the effective date of the permit.*

The City of Haverhill's official CSO web site is

http://www.ci.haverhill.ma.us/departments/public_works_department/water_wastewater/wastewater/wastewater_collection_system/combined_sewer_overflows_%28cso%29/index.php

- v. *Annual press release and notification to interested individuals and groups on the progress of the CSO abatement work, also noting contacts for additional information on CSOs and water quality.*

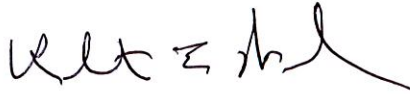
The City contacts downstream communities for each CSO activation. When other interested individuals are identified, this notification will be sent to them.

- vi. *Notice to local health agents and other downstream public officials, including drinking water treatment plants (where appropriate), shellfish wardens, harbor masters, and the Massachusetts Division of Marine Fisheries (via FAX at 617-727-3337) or via telephone (978-282-0308 extension 160) within 24 hours of activation of CSOs. The permittee shall also notify the Massachusetts Divisions of Marine Fisheries by the same method if the treatment plant discharges effluent without disinfection. When City of Haverhill staff is unavailable to confirm an actual discharge from a CSO during a significant precipitation event, the permittee shall report the probable occurrence of a CSO discharge in the same manner. Subsequently, the occurrence of the CSO discharge event shall be confirmed or dispelled as staff becomes available. The planned notice distribution contact list shall be provided to EPA and DEP. The public notification plan shall include a schedule for implementation of enhanced public notice measures.*

Appendix E downstream communities updated December 2015 represents the list of the current email addresses.

If you require additional information, please call Paul Jessel at 978-374-2382 or via email at pjessel@haverhillwater.com.

Sincerely,



Robert E. Ward
Deputy DPW Director

cc: Mike Stankovich, DFW Director
Paul Jessel, Collection System Supervisor
Fred Haffty WWTP Facility Manager
James Drake, CDM Smith

APPENDIX A CSO FLOW METER SUMMARY PER STORM EVENT 2015

NPDES ID	CSO Identification	Start Date Time	End Date Time	Total Vol (gals.)/event	CSO Duration (hr.)	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Storm Duration (hr.)	Daily Avg. Intensity (in./hr.)
021D	Locke Street South (12-inch siphon)	1/4/2015 2:30	1/4/2015 4:00	7,682	1.50	1.09	0.07	15.50	0.07
041	Chestnut Street	1/4/2015 2:35	1/4/2015 4:00	18,598	14.34	1.09	0.07	15.50	0.07
			STORM TOTALS:	26,280					
041	Chestnut Street	1/18/2015 15:05	1/18/2015 22:15	3,856	72.56	0.29	0.04	11.5	0.03
			STORM TOTALS:	3,856					
041	Chestnut Street	3/14/2015 17:15	3/14/2015 17:30	1,540	2.53	0.57	0.04	17.25	0.03
021D	Locke Street South (12-inch siphon)	3/14/2015 16:40	3/14/2015 17:40	5,204	1.00	0.57	0.04	17.25	0.03
			STORM TOTALS:	6,744					
039	South Webster Street	3/26/2015 16:45	3/26/2015 16:55	1,481	0.17	0.59	0.1	18.5	0.03
021F	Middle Barrel Radio Market	3/26/2015 16:10	3/26/2015 17:00	33,456	0.83	0.59	0.1	18.5	0.03
041	Chestnut Street	3/26/2015 16:00	3/26/2015 17:00	21,114	1.00	0.59	0.1	18.5	0.03
021D	Locke Street South (12-inch siphon)	3/26/2015 13:35	3/26/2015 17:25	22,317	3.83	0.59	0.1	18.5	0.03
			STORM TOTALS:	78,368					
021F	Middle Barrel Radio Market	4/4/2015 5:15	4/4/2015 5:25	4,831	0.17	0.23	0.07	3.50	0.07
041	Chestnut Street	4/4/2015 5:05	4/4/2015 5:25	5,565	0.33	0.23	0.07	3.50	0.07
021D	Locke Street South (12-inch siphon)	4/4/2015 4:45	4/4/2015 5:35	8,501	0.83	0.23	0.07	3.50	0.07
			STORM TOTALS:	18,897					
021D	Locke Street South (12-inch siphon)	4/10/2015 4:10	4/10/2015 6:10	4,324	2.00	0.2	0.04	10.50	0.02
			STORM TOTALS:	4,324					
021G	Winter street		4/21/2015 4:40	8,484	0.08	1.45	0.09	22.5	0.06
034	Middlesex Street		4/21/2015 4:40	15,490	0.08	1.45	0.09	22.5	0.06
040	Bethany Avenue		4/21/2015 4:40	13,849	0.08	1.45	0.09	22.5	0.06
021A	Middle Siphon		4/21/2015 4:45	12,952	0.08	1.45	0.09	22.5	0.06
021E	Locke Street South (18-inch siphon)		4/21/2015 4:45	956	0.08	1.45	0.09	22.5	0.06
032	Bradford Avenue	4/21/2015 4:40	4/21/2015 4:45	18,894	0.08	1.45	0.09	22.5	0.06
039	South Webster Street	4/21/2015 4:40	4/21/2015 4:50	3,402	0.17	1.45	0.09	22.5	0.06
021H	Winter and Hale	4/21/2015 4:40	4/21/2015 4:55	31,555	0.25	1.45	0.09	22.5	0.06
041	Chestnut Street	4/20/2015 14:15	4/21/2015 5:00	53,604	14.75	1.45	0.09	22.5	0.06
021F	Middle Barrel Radio Market	4/20/2015 16:10	4/21/2015 5:05	124,336	12.92	1.45	0.09	22.5	0.06
021D	Locke Street South (12-inch siphon)	4/20/2015 12:20	4/21/2015 5:15	75,517	16.92	1.45	0.09	22.5	0.06
			STORM TOTALS:	359,038					
021D	Locke Street South (12-inch siphon)		5/19/2015 5:15	428	0.08	0.07	0.03	7.00	0.01
034	Middlesex Street	5/28/2015 16:10	5/28/2015 16:20	69,767	0.17	0.64	0.44	0.5	1.28
040	Bethany Avenue	5/28/2015 16:10	5/28/2015 16:20	28,961	0.17	0.64	0.44	0.5	1.28
032	Bradford Avenue	5/28/2015 16:10	5/28/2015 16:25	131,354	0.25	0.64	0.44	0.5	1.28
041	Chestnut Street	5/28/2015 16:10	5/28/2015 16:25	28,363	0.25	0.64	0.44	0.5	1.28
021F	Middle Barrel Radio Market	5/28/2015 16:15	5/28/2015 16:30	23,700	0.25	0.64	0.44	0.5	1.28
039	South Webster Street	5/28/2015 16:10	5/28/2015 16:30	17,554	0.33	0.64	0.44	0.5	1.28
021D	Locke Street South (12-inch siphon)	5/28/2015 16:10	5/28/2015 16:35	43,767	0.42	0.64	0.44	0.5	1.28
			STORM TOTALS:	343,895					
021G	Winter street	5/31/2015 13:05	5/31/2015 13:10	10,968	0.08	1.02	0.28	13.75	0.07
032	Bradford Avenue	5/31/2015 13:00	5/31/2015 13:10	69,564	0.17	1.02	0.28	13.75	0.07
040	Bethany Avenue	5/31/2015 12:00	5/31/2015 13:10	32,610	1.17	1.02	0.28	13.75	0.07
039	South Webster Street	5/31/2015 13:00	5/31/2015 13:15	10,095	0.25	1.02	0.28	13.75	0.07
021H	Winter and Hale	5/31/2015 12:05	5/31/2015 13:25	34,348	1.33	1.02	0.28	13.75	0.07
024	Upper siphon	5/31/2015 13:15	5/31/2015 13:35	68,738	0.33	1.02	0.28	13.75	0.07
021F	Middle Barrel Radio Market	5/31/2015 11:55	5/31/2015 13:45	132,881	1.83	1.02	0.28	13.75	0.07
021A	Middle Siphon	5/31/2015 13:05	5/31/2015 13:50	246,588	0.75	1.02	0.28	13.75	0.07
041	Chestnut Street	5/31/2015 11:55	5/31/2015 14:05	74,116	2.17	1.02	0.28	13.75	0.07
021D	Locke Street South (12-inch siphon)	5/31/2015 11:45	5/31/2015 14:10	105,426	2.42	1.02	0.28	13.75	0.07
013	Lower Siphon	5/31/2015 13:05	5/31/2015 14:35	638,973	1.50	1.02	0.28	13.75	0.07
			STORM TOTALS:	1,424,306					
034	Middlesex Street	6/1/2015 20:05	6/1/2015 23:10	8,993	3.08	2.68	0.15	36.5	0.07
040	Bethany Avenue	6/1/2015 20:05	6/1/2015 23:10	17,662	3.08	2.68	0.15	36.5	0.07
021H	Winter and Hale	6/1/2015 20:15	6/1/2015 23:15	16,227	3.00	2.68	0.15	36.5	0.07
032	Bradford Avenue	6/1/2015 20:05	6/1/2015 23:15	11,706	3.17	2.68	0.15	36.5	0.07
039	South Webster Street	6/1/2015 20:10	6/1/2015 23:25	5,011	3.25	2.68	0.15	36.5	0.07
021A	Middle Siphon	6/1/2015 23:40	6/2/2015 1:35	63,879	1.92	2.68	0.15	36.5	0.07
021F	Middle Barrel Radio Market	6/1/2015 6:05	6/2/2015 5:10	371,194	23.08	2.68	0.15	36.5	0.07
013	Lower Siphon	6/1/2015 23:40	6/2/2015 5:55	706,098	6.25	2.68	0.15	36.5	0.07
041	Chestnut Street	6/1/2015 5:55	6/2/2015 7:20	223,607	25.42	2.68	0.15	36.5	0.07
021D	Locke Street South (12-inch siphon)	6/1/2015 5:50	6/2/2015 7:30	321,384	25.67	2.68	0.15	36.5	0.07
			STORM TOTALS:	1,745,761					
021F	Middle Barrel Radio Market	6/6/2015 1:55	6/6/2015 2:00	3,702	0.08	0.10	0.05	1.00	0.10
021D	Locke Street South (12-inch siphon)	6/6/2015 1:50	6/6/2015 2:05	6,242	0.25	0.10	0.05	1.00	0.10
			STORM TOTALS:	9,945					

APPENDIX A CSO FLOW METER SUMMARY PER STORM EVENT 2015

NPDES ID	CSO Identification	Start Date Time	End Date Time	Total Vol (gals.)/event	CSO Duration (hr.)	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Storm Duration (hr.)	Daily Avg. Intensity (in./hr.)
041	Chestnut Street	6/15/2015 6:50	6/15/2015 7:00	3,917	1.69	0.33	0.05	18.75	0.02
021A	Middle Siphon	6/21/2015 1:15	6/21/2015 1:30	8,725	0.25	1.45	0.19	14.00	0.10
021E	Locke Street South (18-inch siphon)		6/21/2015 1:30	1,698	0.08	1.45	0.19	14.00	0.10
021G	Winter street	6/21/2015 1:20	6/21/2015 7:45	20,238	6.42	1.45	0.19	14.00	0.10
034	Middlesex Street	6/21/2015 1:20	6/21/2015 7:45	59,693	6.42	1.45	0.19	14.00	0.10
040	Bethany Avenue	6/21/2015 1:20	6/21/2015 7:45	61,315	6.42	1.45	0.19	14.00	0.10
032	Bradford Avenue	6/21/2015 1:20	6/21/2015 7:50	91,477	6.50	1.45	0.19	14.00	0.10
039	South Webster Street	6/21/2015 1:25	6/21/2015 7:55	20,204	6.50	1.45	0.19	14.00	0.10
021H	Winter and Hale	6/21/2015 1:25	6/21/2015 8:00	54,067	6.58	1.45	0.19	14.00	0.10
041	Chestnut Street	6/21/2015 1:20	6/21/2015 8:10	106,047	6.83	1.45	0.19	14.00	0.10
021D	Locke Street South (12-inch siphon)	6/21/2015 1:15	6/21/2015 8:15	90,421	7.00	1.45	0.19	14.00	0.10
021F	Middle Barrel Radio Market	6/21/2015 1:20	6/21/2015 8:15	271,644	6.92	1.45	0.19	14.00	0.10
			STORM TOTALS:	789,446					
021G	Winter street	6/23/2015 11:15	6/23/2015 11:20	24,273	0.08	0.14	0.07	4.25	0.03
040	Bethany Avenue	6/23/2015 11:10	6/23/2015 11:20	18,725	0.17	0.14	0.07	4.25	0.03
041	Chestnut Street	6/23/2015 11:10	6/23/2015 11:30	28,411	0.33	0.14	0.07	4.25	0.03
021H	Winter and Hale	6/23/2015 11:15	6/23/2015 11:35	135,870	0.33	0.14	0.07	4.25	0.03
021F	Middle Barrel Radio Market	6/23/2015 11:10	6/23/2015 11:40	112,019	0.50	0.14	0.07	4.25	0.03
021D	Locke Street South (12-inch siphon)	6/23/2015 11:00	6/23/2015 11:45	20,006	0.75	0.14	0.07	4.25	0.03
			STORM TOTALS:	339,304					
032	Bradford Avenue		6/28/2015 7:10	974	0.08	1.44	0.14	23.25	0.06
040	Bethany Avenue	6/28/2015 7:05	6/28/2015 7:10	2,969	0.08	1.44	0.14	23.25	0.06
021D	Locke Street South (12-inch siphon)	6/28/2015 0:45	6/28/2015 7:30	40,868	6.75	1.44	0.14	23.25	0.06
021F	Middle Barrel Radio Market	6/28/2015 1:15	6/28/2015 7:35	78,433	6.33	1.44	0.14	23.25	0.06
041	Chestnut Street	6/28/2015 0:55	6/28/2015 7:35	59,206	67.50	1.44	0.14	23.25	0.06
			STORM TOTALS:	182,450					
021A	Middle Siphon		7/1/2015 14:30	20,134	0.08	1.09	0.25	13.00	0.08
021G	Winter street	7/1/2015 14:25	7/1/2015 14:30	34,118	0.08	1.09	0.25	13.00	0.08
021H	Winter and Hale	7/1/2015 7:15	7/1/2015 14:35	19,455	7.33	1.09	0.25	13.00	0.08
032	Bradford Avenue	7/1/2015 14:25	7/1/2015 14:40	24,203	0.25	1.09	0.25	13.00	0.08
034	Middlesex Street	7/1/2015 14:25	7/1/2015 14:40	30,293	0.25	1.09	0.25	13.00	0.08
040	Bethany Avenue	7/1/2015 7:05	7/1/2015 14:40	112,749		1.09	0.25	13.00	0.08
024	Upper siphon	7/1/2015 14:40	7/1/2015 14:45	53,211	0.08	1.09	0.25	13.00	0.08
039	South Webster Street	7/1/2015 14:40	7/1/2015 14:50	6,037	0.17	1.09	0.25	13.00	0.08
021F	Middle Barrel Radio Market	7/1/2015 7:10	7/1/2015 14:55	212,358	7.75	1.09	0.25	13.00	0.08
041	Chestnut Street	7/1/2015 7:05	7/1/2015 14:55	98,560	7.83	1.09	0.25	13.00	0.08
021D	Locke Street South (12-inch siphon)	7/1/2015 7:00	7/1/2015 15:00	138,010	8.00	1.09	0.25	13.00	0.08
013	Lower Siphon	7/1/2015 15:00	7/1/2015 15:30	8,403	0.50	1.09	0.25	13.00	0.08
			STORM TOTALS:	757,531					
040	Bethany Avenue		7/9/2015 23:05	1,015	0.08	0.57	0.11	8.5	0.07
021H	Winter and Hale		7/9/2015 23:20	976	0.08	0.57	0.11	8.5	0.07
021F	Middle Barrel Radio Market	7/9/2015 23:05	7/9/2015 23:55	102,050	0.83	0.57	0.11	8.5	0.07
041	Chestnut Street	7/9/2015 23:00	7/9/2015 23:55	48,179	0.92	0.57	0.11	8.5	0.07
021D	Locke Street South (12-inch siphon)	7/9/2015 23:00	7/10/2015 0:00	34,580	1.00	0.57	0.11	8.5	0.07
041	Chestnut Street		7/10/2015 0:00	514	0.08	0.57	0.11	8.5	0.07
			STORM TOTALS:	188,842					
041	Chestnut Street	7/18/2015 6:00	7/18/2015 6:05	1,529	0.84	0.12	0.05	3.5	0.03
			STORM TOTALS:	188,842					
021A	Middle Siphon		8/4/2015 14:00	32,497	0.08	0.24	0.17	0.75	0.32
021E	Locke Street South (18-inch siphon)		8/4/2015 14:00	54	0.08	0.24	0.17	0.75	0.32
021G	Winter street	8/4/2015 13:55	8/4/2015 14:05	57,657	0.17	0.24	0.17	0.75	0.32
034	Middlesex Street	8/4/2015 14:00	8/4/2015 14:05	3,833	0.08	0.24	0.17	0.75	0.32
039	South Webster Street		8/4/2015 14:10	225	0.08	0.24	0.17	0.75	0.32
040	Bethany Avenue	8/4/2015 13:55	8/4/2015 14:10	55,773	0.25	0.24	0.17	0.75	0.32
021H	Winter and Hale	8/4/2015 13:55	8/4/2015 14:15	167,941	0.33	0.24	0.17	0.75	0.32
041	Chestnut Street	8/4/2015 13:55	8/4/2015 14:20	28,887	0.42	0.24	0.17	0.75	0.32
021F	Middle Barrel Radio Market	8/4/2015 13:55	8/4/2015 14:25	189,411	0.50	0.24	0.17	0.75	0.32
021D	Locke Street South (12-inch siphon)	8/4/2015 13:45	8/4/2015 14:30	72,292	0.75	0.24	0.17	0.75	0.32
			STORM TOTALS:	608,571					
041	Chestnut Street	8/11/2015 10:45	8/11/2015 10:45	16,149	0.00	0.57	0.11	8.5	0.07
021D	Locke Street South (12-inch siphon)	8/11/2015 12:00	8/11/2015 12:15	3,524	0.25	0.57	0.11	8.5	0.07
021F	Middle Barrel Radio Market		8/11/2015 12:20	826	0.08	0.57	0.11	8.5	0.07
			STORM TOTALS:	20,500					
021D	Locke Street South (12-inch siphon)	8/15/2015 16:15	8/15/2015 16:30	5,729	0.25	0.04	0.03	0.50	0.08
021F	Middle Barrel Radio Market	8/15/2015 16:25	8/15/2015 16:30	8,280	0.08	0.04	0.03	0.50	0.08
041	Chestnut Street	8/15/2015 16:25	8/15/2015 16:30	2,733	0.84	0.04	0.03	0.50	0.08
			STORM TOTALS:	16,742					
032	Bradford Avenue	8/21/2015 19:20	8/21/2015 19:25	26,669	0.08	0.34	0.11	5.75	0.06

APPENDIX A CSO FLOW METER SUMMARY PER STORM EVENT 2015

NPDES ID	CSO Identification	Start Date Time	End Date Time	Total Vol (gals.)/event	CSO Duration (hr.)	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Storm Duration (hr.)	Daily Avg. Intensity (in./hr.)
034	Middlesex Street		8/21/2015 19:25	908	0.08	0.34	0.11	5.75	
040	Bethany Avenue	8/21/2015 7:50	8/21/2015 19:25	5,431	11.58	0.34	0.11	5.75	
021H	Winter and Hale	8/21/2015 19:25	8/21/2015 19:30	2,731	0.08	0.34	0.11	5.75	
039	South Webster Street	8/21/2015 19:25	8/21/2015 19:30	5,126	0.08	0.34	0.11	5.75	
021F	Middle Barrel Radio Market	8/21/2015 8:10	8/21/2015 19:40	124,328	11.50	0.34	0.11	5.75	
021D	Locke Street South (12-inch siphon)	8/21/2015 4:45	8/21/2015 19:45	32,975	15.00	0.34	0.11	5.75	
041	Chestnut Street	8/21/2015 4:50	8/21/2015 20:10	57,932	155.25	0.34	0.11	5.75	
			STORM TOTALS:	256,100					
041	Chestnut Street	8/23/2015 14:40	8/23/2015 14:55	8,781	2.53	0.13	0.04	10	0.01
			STORM TOTALS:	8,781					
041	Chestnut Street		9/10/2015 17:45	183	0.08	0.49	0.04	16	0.03
			STORM TOTALS:	183					
021D	Locke Street South (12-inch siphon)	10/28/2015 18:30	10/28/2015 19:00	2,884	0.50	1.35	0.17	17.50	0.08
021G	Winter street	10/29/2015 3:20	10/29/2015 3:25	2,756	0.08	1.35	0.17	17.50	0.08
021A	Middle Siphon	10/29/2015 3:15	10/29/2015 3:30	18,866	0.25	1.35	0.17	17.50	0.08
021E	Locke Street South (18-inch siphon)	10/29/2015 3:25	10/29/2015 3:30	1,522	0.08	1.35	0.17	17.50	0.08
040	Bethany Avenue	10/29/2015 3:10	10/29/2015 3:30	29,363	0.33	1.35	0.17	17.50	0.08
032	Bradford Avenue	10/29/2015 3:15	10/29/2015 3:35	91,392	0.33	1.35	0.17	17.50	0.08
034	Middlesex Street	10/29/2015 3:15	10/29/2015 3:35	53,719	0.33	1.35	0.17	17.50	0.08
041	Chestnut Street	10/29/2015 3:10	10/29/2015 3:35	28,635	0.42	1.35	0.17	17.50	0.08
021H	Winter and Hale	10/29/2015 3:20	10/29/2015 3:40	60,061	0.33	1.35	0.17	17.50	0.08
024	Upper siphon		10/29/2015 3:40	2,196	0.08	1.35	0.17	17.50	0.08
039	South Webster Street	10/29/2015 3:20	10/29/2015 3:40	10,801	0.33	1.35	0.17	17.50	0.08
021F	Middle Barrel Radio Market	10/29/2015 2:05	10/29/2015 3:55	190,337	1.83	1.35	0.17	17.50	0.08
021D	Locke Street South (12-inch siphon)	10/29/2015 2:00	10/29/2015 4:00	104,652	2.00	1.35	0.17	17.50	0.08
013	Lower Siphon	10/29/2015 3:40	10/29/2015 4:35	28,773	0.92	1.35	0.17	17.50	0.08
			STORM TOTALS:	625,958					
021F	Middle Barrel Radio Market	11/20/2015 2:25	11/20/2015 4:05	24,317	1.67	0.99	0.10	8.25	0.12
021D	Locke Street South (12-inch siphon)	11/20/2015 0:15	11/20/2015 6:00	30,766	5.75	0.99	0.10	8.25	0.12
			STORM TOTALS:	55,084					
021D	Locke Street South (12-inch siphon)	12/2/2015 23:30	12/2/2015 23:45	903	0.25	0.4	0.08	28.25	0.01
021F	Middle Barrel Radio Market	12/2/2015 23:35	12/2/2015 23:45	8,107	0.17	0.4	0.08	28.25	0.01
			STORM TOTALS:	9,010					
021M	Marginal Pump Station	12/14/2015 21:40	12/15/2015 0:15	10,091	2.58				
			STORM TOTALS:	10,091					
021M	Marginal Pump Station	12/17/2015 16:05	12/17/2015 19:40	52,405	3.58	0.40	0.04	7.75	0.05
			STORM TOTALS:	52,405					
021M	Marginal Pump Station	12/22/2015 10:00	12/22/2015 11:15	23,623	1.25	0.04	0.01	6.25	0.01
			STORM TOTALS:	23,623					
021M	Marginal Pump Station	12/24/2015 0:30	12/24/2015 2:05	51,507	1.58	1.04	0.06	42.50	0.02
			STORM TOTALS:	51,507					
021M	Marginal Pump Station	12/27/2015 4:50	12/27/2015 6:55	62,961	2.08	0.06	0.02	2.00	0.03
			STORM TOTALS:	62,961					

Grand Total 8,080,504

APPENDIX B FLOW METER SUMMARY PER OUTFALL 2015

CSO Name	NPDES ID	Total Vol (gals.)
Lower Siphon	013	1,382,246
Middle Siphon	021A	403,641
Locke Street South (12-inch siphon)	021D	1,178,405
Locke Street South (18-inch siphon)	021E	4,230
Middle Barrel Radio Market	021F	2,016,211
Winter street	021G	158,494
Winter and Hale	021H	523,231
Marginal Pump Station	021M	200,587
Upper siphon	024	124,144
Bradford Avenue	032	466,234
Middlesex Street	034	242,696
South Webster Street	039	79,937
Bethany Avenue	040	380,422
Chestnut Street	041	920,025
	Grand Total	8,080,504

APPENDIX C CALENDAR YEAR 2015 RAINFALL DATA

Date	TIME	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Duration (hours)	Daily Avg. Intensity (in./hr.)
1/4/2015	10:30	1.09	0.07	15.50	0.07
1/4/2015	22:15	0.01	0.01	0.25	0.04
1/9/2015	11:15	0.04	0.01	1.75	0.02
1/12/2015	14:45	0.04	0.01	1.75	0.02
1/15/2015	17:45	0.01	0.01	0.25	0.04
1/19/2015	1:00	0.29	0.04	11.50	0.03
1/24/2015	20:30	0.58	0.02	13.25	0.04
1/28/2015	1:00	1.26	0.05	29.00	0.04
1/29/2015	10:30	0.01	0.01	0.25	0.04
1/30/2015	12:30	0.06	0.01	6.00	0.01
2/2/2015	22:30	0.93	0.05	19.00	0.05
2/3/2015	13:30	0.01	0.01	0.25	0.04
2/5/2015	9:00	0.24	0.01	9.25	0.03
2/8/2015	10:15	0.23	0.02	9.75	0.02
2/10/2015	5:00	0.42	0.01	34.75	0.01
2/10/2015	13:45	0.04	0.01	1.25	0.03
2/12/2015	18:00	0.02	0.01	1.25	0.02
2/13/2015	8:45	0.01	0.01	0.25	0.04
2/15/2015	9:00	0.55	0.04	15.75	0.03
2/15/2015	16:15	0.01	0.01	0.25	0.04
2/19/2015	2:00	0.03	0.01	1.75	0.02
2/22/2015	2:15	0.20	0.02	9.25	0.02
3/2/2015	0:30	0.13	0.01	4.50	0.03
3/4/2015	1:15	0.16	0.02	4.25	0.04
3/11/2015	1:30	0.07	0.01	4.00	0.02
3/15/2015	2:15	0.57	0.04	17.25	0.03
3/15/2015	18:15	0.24	0.03	4.50	0.05
3/17/2015	17:00	0.14	0.01	11.00	0.01
3/21/2015	11:30	0.06	0.01	2.50	0.02
3/25/2015	22:15	0.04	0.02	2.00	0.02
3/27/2015	9:00	0.59	0.10	18.50	0.03
3/28/2015	16:15	0.07	0.01	6.75	0.01
4/4/2015	6:30	0.23	0.07	3.50	0.07
4/9/2015	8:45	0.38	0.05	16.25	0.02
4/10/2015	7:45	0.20	0.04	10.50	0.02
4/14/2015	13:15	0.03	0.01	6.00	0.01
4/17/2015	11:45	0.12	0.02	5.25	0.02
4/21/2015	8:30	1.45	0.09	22.50	0.06
4/23/2015	1:00	0.01	0.01	0.25	0.04
4/24/2015	10:15	0.06	0.01	0.25	0.24
4/28/2015	3:15	0.06	0.02	10.00	0.01
5/12/2015	21:30	0.03	0.02	0.05	0.60
5/19/2015	13:15	0.07	0.03	7.00	0.01
5/28/2015	17:45	0.64	0.44	0.50	1.28

APPENDIX C CALENDAR YEAR 2015 RAINFALL DATA

Date	TIME	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Duration (hours)	Daily Avg. Intensity (in./hr.)
5/31/2015	17:30	1.02	0.28	13.75	0.07
6/2/2015	13:30	2.68	0.15	36.50	0.07
6/6/2015	4:00	0.10	0.05	1.00	0.10
6/16/2015	0:00	0.33	0.05	18.75	0.02
6/21/2015	13:45	1.45	0.19	14.00	0.10
6/23/2015	13:15	0.14	0.07	4.25	0.03
6/28/2015	21:45	1.44	0.14	23.25	0.06
6/30/2015	19:00	0.05	0.01	0.25	0.20
7/1/2015	20:45	1.09	0.25	13.00	0.08
7/4/2015	17:30	0.02	0.01	0.50	0.04
7/7/2015	14:45	0.01	0.01	0.25	0.04
7/9/2015	11:45	0.03	0.01	0.25	0.12
7/10/2015	7:00	0.57	0.11	8.50	0.07
7/15/2015	18:15	0.09	0.04	2.00	0.05
7/18/2015	7:45	0.12	0.05	3.50	0.03
7/30/2015	20:15	0.04	0.01	2.00	0.02
8/4/2015	16:00	0.24	0.17	0.75	0.32
8/11/2015	20:45	0.57	0.11	8.50	0.07
8/15/2015	18:00	0.04	0.03	0.50	0.08
8/18/2015	17:15	0.01	0.01	0.25	0.04
8/21/2015	11:45	0.34	0.11	5.75	0.06
8/22/2015	1:30	0.43	0.14	5.25	0.08
8/23/2015	21:45	0.13	0.04	10.00	0.01
8/23/2015	4:00	0.01	0.01	0.25	0.04
9/11/2015	7:45	0.49	0.04	16.00	0.03
9/13/2015	22:15	0.07	0.05	6.25	0.01
9/13/2015	2:15	0.03	0.01	2.50	0.01
9/29/2015	13:45	0.08	0.05	0.50	0.16
9/30/2015	15:45	2.52	0.41	12.25	0.21
10/1/2015	23:30	0.03	0.01	1.75	0.02
10/2/2015	17:45	0.05	0.01	3.25	0.02
10/8/2015	13:15	0.02	0.01	0.25	0.08
10/9/2015	19:45	0.24	0.04	5.00	0.05
10/13/2015	12:45	0.02	0.01	3.50	0.01
10/16/2015	10:30	0.01	0.01	0.25	0.04
10/20/2015	6:15	0.06	0.02	5.00	0.01
10/25/2015	9:15	0.06	0.01	2.00	0.03
10/29/2015	10:15	1.35	0.17	17.50	0.08
11/1/2015	5:45	0.02	0.01	0.50	0.04
11/11/2015	15:15	0.29	0.02	15.00	0.02
11/13/2015	4:15	0.10	0.02	14.25	0.01
11/20/2015	8:45	0.99	0.10	8.25	0.12
11/23/2015	2:00	0.15	0.02	5.00	0.03
11/28/2015	16:30	0.39	0.03	7.75	0.05

APPENDIX C CALENDAR YEAR 2015 RAINFALL DATA

Date	TIME	Rain Total (in.)	Peak Hour Depth Intensity (in./hr.)	Duration (hours)	Daily Avg. Intensity (in./hr.)
12/3/2015	2:45	0.40	0.08	28.25	0.01
12/15/2015	9:15	0.54	0.08	12.00	0.05
12/18/2015	0:30	0.54	0.04	9.75	0.06
12/18/2015	10:00	0.01	0.01	0.25	0.04
12/22/2015	18:00	0.40	0.05	9.25	0.04
12/24/2015	7:15	0.81	0.09	13.00	0.06
12/27/2015	17:00	0.67	0.07	14.25	0.05
12/29/2015	14:45	1.16	0.04	14.75	0.08
12/31/2015	3:15	0.08	0.03	3.50	0.02



MaintStar Sewer Work Order

Page 1 of 1
3/30/2016

Created By

 W/O # WW00000542	ADM Sys.	Activity Sewer Sewer Utility	Priority 10
Issued 02/05/16 09:03	Target 02/05/16 09:03	Assign to SHAW001	Approv. By JESS001
Closed 03/01/16 07:35	W/O Type CM	Shaw David W	Jessel Paul J

Acc. No. 6010040.1.0442.51	Proj. No.	Map ID	Map Sheet
----------------------------	-----------	--------	-----------

Customer Info			
First Name	Last Name	Phone1 - - -	Phone2 - - -
Cross Street		Comments	
<u>Complaint</u>			
☐ Use Customer Address		Cross Street	WReq. #
<u>Location Description</u>		<u>Notes</u>	

wo_udf1 wo_udf2 wo_udf3 wo_udf4 wo_udf5
wo_udf6 Futher Action ☐ Claim Filed ☐ County Problem ☐ Customer Problem ☐

Task Descr/Complaint: Check for CSO signage

Action Taken: Checked all CSO's

Problem

CSO COMBINE SEWER OVERFLOW

Action

106 Inspection

Seq	Date	Type	Code / Description	Hrmm	Pay Type	Qty	Unit	Activity Location
1	02/05/16 00:00	labor	ROSA001 - Rosario Pedro	3:30	REG			
2	02/05/16 00:00	labor	BECK001 - Beckwith Derek	3:30	REG			
3	02/05/16 00:00	equip	VEH-S14 - 2014 F350 4X4	3:30				

Labor Cost	\$167.76	Material Cost	\$0.00	Equipment Cost	\$70.00
Contractors Cost	\$0.00	Misc. Cost	\$0.00	Total W/O Cost	\$237.76

Print Name _____ Signature _____ Date ____/____/____ ☐

Appendix E: Downstream Notification

First Name	Last Name	Job Title	Company	Address	City	Business Phone	E-mail
Robert	Desmarais	Director Public Works	Amesbury	62 Friends Street	Amesbury, MA 01913	+1 (978) 388-8127	rob@amesburyma.gov
Gary	Field	Assistant Chief Operator	Amesbury	19 Merrimack Street	Amesbury, MA 01913	(978) 388-1912	fieldg@amesburyma.gov
Jeff	Mason	Water System Manager	Amesbury	62 Freinds Street	Amesbury, MA 01913	(978) 388-0853	masonj@amesburyma.gov
Jack	Morris	Regional Health Director	Amesbury	9 School Street	Amesbury, MA 01913	(978) 388-8134 x 752	morrisj@amesburyma.gov
James	Drake	Project Manager	CDM	670 N. commercial Street, Suite 201	Manchester, New Hampshire 03101	1-603-222-8336	DrakeJS@cdmsmith.com
John	Sokol	Flow Assessment	Contractor	19 Harvey Road, Unit 22	Bedford, NH 03110	(603) 656-9799	jsokol@flowassessment.com
Joy	Hilton		EPA	5 Post Office Square, Suite 100	Boston, MA 02109-3912	(617) 918-1877	hilton.joy@epa.gov
Lori	Bentsen	Administrative Assistant Board of Health	Groveland	183 Main St	Groveland, MA 01834	(978) 556-7210	lbentsen@grovelandma.com
Tom	Cusick	Superintendent	Groveland Water Department	183 Main Street	Groveland, MA 01834	(978) 556-7200 x219	Tcusick@grovelandma.com
Mike	Stankovich	DPW Director	Haverhill	500 Primrose Street	Haverhill MA 01830	(978) 374-2360	mstankovich@cityofhaverhill.com
John	D'Aoust	Water Facility Manager	Haverhill	131 Amesbury Road	Haverhill, MA 01830	(978) 374-2385	jdaoust@haverhillwater.com
Bonnie	Dufresne	Board of Health	Haverhill	4 Summer street	Haverhill MA 01830	(978) 374-2325	bdufresne@cityofhaverhill.com
Fred	Haffty	Wastewater Facility Manager	Haverhill	40 South Porter Street	Haverhill MA 01835	(978) 374-2382	fhaffty@haverhillwater.com
Paul	Jessel	Collection System Supervisor	Haverhill	40 South Porter Street	Haverhill MA 01835	(978) 374-2382	pjessel@haverhillwater.com
David	Shaw	Senior Collection System operator	Haverhill	40 South Porter Street	Haverhill MA 01835	(978) 374-2382	dshaw@haverhillwater.com
Mike	Vetz	Habor Master	Haverhill	72 Coffin Avenue	Haverhill, MA 01830	(978) 374-2100	vetm@comcast.net
Robert	Ward	Deputy DPW Director	Haverhill	40 South Porter Street	Haverhill MA 01835	(978) 374-2382	ward@haverhillwater.com
Nihar	Mohanty	DEP NERO	MASSDEP	205B Lowell Street	Wilmington, MA 01887	1-978-694-3237	nihar.mohanty@state.ma.us
Kevin	Brander	Municipal Services/Wastewater Section	MDEP	205B Lowell Street	Wilmington, MA 01887	(978) 694-3236	Kevin.Brander@state.ma.us
Berni	Angelo	Administrative Assistant Board of Health	Merrimack	4 School St	Merrimack, MA 01860	(978) 346-4066	BOH@townofmerrimack.com
Mike	Buzzell	Wastewater Chief Operator	Merrimack	Federal Way	Merrimack, MA 01860	(978) 346-7857	mbmwtf@comcast.net
Robert	Sinibaldi	DPW Director	Merrimack	4 School St	Merrimack, MA 01860	(978) 346-0612	dpwdir@townofmerrimack.com
Gary	Tuck	Water Foreman	Merrimack	School St	Merrimack, MA 01860	(978) 346-8407	gtuck@townofmerrimack.com
Eileen	Hurley	Board of HEalth	Merrimack	2 School Street	Merrimack, Ma 01860		boh@townofmerrimack.com
Alba	Gouldthrope	Board of Health	Newbury	25 High Road	Newbury MA 01951	+1 (978) 499-3898	boardofhealth@townofnewbury.org
Joe	Dugan	Wastewater Chief Operator	Newburyport	157 Water Street	Newburyport, Ma. 01950	(978) 465-4464	jdugan@CityofNewburyport.com
Frank	Giacalone	Director of Public Health	Newburyport	60 Pleasant Street	Newburyport, Ma 01950	1-978-465-4410	fgiacalone@cityofnewburyport.com
Donna	Holaday	Mayor	Newburyport	60 Pleasent Street	Newburyport MA 01950	(978) 465-4413	DHoladay@CityofNewburyport.com
Paul	Hogg	Habor Master	Newburyport	PO Box 550	Newburyport Ma 01950	(978) 462-3746	phogg@cityofnewburyport.com
Jeff	Kennedy	Senior Marine Fisheries Biologists	Newburyport			(978) 282-0308 x165	jeff.kennedy@state.ma.us
David	Roach	Newbury Shell Fish Purification	Newburyport	84 82nd Street, Plum Island Point,	Newburyport, MA 01950-4323	(978) 465-3553	dave.roach@state.ma.us
Thomas	Smolski	Water Superintendent	Newburyport	7 Spring Lane	Newburyport, MA 0195	(978) 465-4466	Tsmolski@cityofnewburyport.com
Mark	Tolman	Director of Public HEalth	Newburyport	60 Pleasent Street	Newburyport MA 01950	+1 (978) 465-4410	mtolman@CityofNewburyport.com
Andrea	Brouchu	Board of Health	Salisbury	P.P. Box 5072	Salisbury, MA 01952	+1 (978) 462-3430	abrochu@salisburyma.gov
Jeff	Ingalls	Chief Operator	Salisbury	P.O. Box 5221	Salisbury MA 01950	+1 (978) 465-4058	wwtp@salisburyma.gov
Donald	Levesque	Director of Public Works	Salisbury	39 Lafayette Road	Salisbury, MA 01952	(978) 462-7611	dlevesque@salisburyma.gov
Ray	Pike	Harbor Master	Salisbury	5 Beach Road	Salisbury, MA 01952	(978) 499-0740	harbormaster@salisburyma.gov
Paul	Sevigny	Health Agent	West newbury	381 Main Street	West Newbury, MA 01985	+1 (978) 363-1100 ext 19	psevigny@town.west-newbury.ma.us
							shellfish.newburyport@state.ma.us
Carol	Shumay	Merrimack Rivershed Council		60 Island Street, Suite 211-E	Lawrence, Massachusetts 01840	(978) 655-4742	cshumway@merrimack.org

1. Updated April 18, 2011

2. Updated November 2011

3. Updated March 15, 2012

4. Undated February 2013

5. Updated December 2015