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November 2, 2010

Mr. Joseph F. LeMay
Remedial Project Manager
US EPA – New England
5 Post Office Square, Suite 100
Mail Code: OSSR07-4
Boston, MA 02109- 3912

Subject: Industri-plex Operable Unit 2 Superfund Site
Woburn, Massachusetts
Quarterly Storm Flow Surface Water Monitoring Report

Dear Mr. LeMay:

Pursuant to Paragraph 34 of the Consent Decree (CD)(Civil Action No.1:08-cv-10325) and Section V.A.5 of the Remedial Design / Remedial Action (RD/RA) Statement of Work (SOW) for the above referenced site, enclosed please find the Quarterly Storm Flow Surface Water Monitoring Report No. 6.

This report covers the period from June 1, 2010 through August 31, 2010, and is submitted on behalf of the Settling Defendants. Also included is a CD containing the Flowlink® data covering the reporting period.

As discussed in the enclosed Surface Water Monitoring Report, the Settling Defendants recommend that, during future storm events, analysis for benzene be performed only on samples collected at stations SW-02-TT and SW-04-TT. Further, if the trends continue, then Settling Defendants may at some point also recommend that sampling for dissolved arsenic is discontinued at several locations and eliminate measuring surface water and groundwater elevations during future storm events.

Please contact me if you have any questions.

Sincerely,

Bruce Thompson

Enclosure

cc: Jen McWeeney - MassDEP
Settling Defendants
Larry McTiernan – Roux Associates

Quarterly Storm Flow Surface Water Monitoring Report No. 6
(June 2010 – August 2010)

Industri-plex Superfund Site
Operable Unit 2
Woburn, Massachusetts

Disclaimer: This document is a DRAFT document prepared by the Settling Defendants under a government Consent Decree. This document has not undergone formal review by the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP). The opinions, findings, and conclusions expressed are those of the author and not those of the EPA or the MassDEP.

In accordance with the Surface Water Monitoring Plan (SWMP), this Quarterly Storm Flow Surface Water Monitoring Report has been prepared to summarize the sampling activities performed and the data developed for the selected storm that occurred during the reporting period (June 1, 2010 through August 31, 2010) and to provide a brief discussion of the data. Sampling locations are shown in **Figures 1 and 2**.

Storm Sampling and Related Activities Occurring During the Reporting Period

Storm sampling was conducted for one storm event that occurred during the reporting period. This storm occurred on August 24 and 25, 2010.

To date, eleven storms have been sampled during the SWMP, ranging in precipitation from 0.93" to 8.38" as shown in the table below.

Date(s)	Total Precipitation (inches)	
	HBHA Pond Stations[1]	Reading Station[2]
June 18-19, 2009	0.93 - 1.12	1.18
July 1-2, 2009	1.39 - 1.80	1.82
July 7-8, 2009	2.32 - 2.81	2.10
July 23-24, 2009	2.23 - 3.06	2.66
November 14-15, 2009	2.68 - 3.43	3.21
December 2-3, 2009	0.98 - 1.24	1.33
January 25-26, 2010	0.93 - 1.06	1.01
February 24-25, 2010	2.33 - 3.19	5.33
February 25-27, 2010[3]	1.57 - 2.04	
March 13-16, 2010	6.81 - 8.38	8.18[4]
August 24-25, 2010	2.52 – 2.82	3.15

[1] Range shown indicates precipitation totals for the entire storm event recorded by the rain gauges at the four stations proximal to the HBHA Pond (SW-2-IP, SW-3-IP, SW-01-TT, and SW-02-TT).

[2] Precipitation Data NOAA National Climatic Data Center, from the NOAA Rainfall data station in Reading, MA (Station Index No. 19-6783-2).

[3] The February 24-25 and 25-27 storm events are considered discrete storm events by the Settling Defendants because there was roughly a 12-hour interval between the two storms during which there was no precipitation as measured on the site rain gauges.

[4] The March 13-16, 2010 storm was the largest recorded storm (in terms of cumulative rainfall) at the Reading weather station since 1962 when records first became available.

Storm sampling was conducted in substantial accordance with the SWMP and included automated collection of aliquots over the duration of the storm and associated runoff event. Aliquots were inspected after the end of the storm event and composited in equal volumes into a single "storm sample" for each station. Grab samples for benzene analysis were collected manually as soon as possible following the onset of the storm, and measurements of surface water and groundwater elevations using staff gauges and piezometers, respectively, were made when safe to do so. Station-specific storm statistics including "indicator" flows,[5] flow at termination of sampling,[6] flow-pacing intervals, the number of aliquots expected at sample termination based on the flow pacing interval used, the total number of sample aliquots collected, and the number of aliquots "successfully" collected[7] are shown for the storm event in **Table 1**. Flows given in **Table 1** were calculated as follows:

- for Stations SW-04-TT and SW-08-TT,[8] using the rating curves presented in the Quarterly Storm Flow Surface Water Monitoring Report No. 2
- for Stations SW-2-IP, SW-01-TT, SW-02-TT, SW-03-TT, and SW-05-TT through SW-07-TT using the rating curves presented in the Quarterly Storm Flow Surface Water Monitoring Report No. 5
- for Station SW-3-IP, using stream level and velocity.

Charts are provided in **Appendix A** that show the rainfall and surface water velocity, level, and flow (i.e., hydrographs) recorded at each station for the storm event sampled during this reporting period. In each hydrograph, the aliquots collected are indicated by downward triangles.[9] In addition, flows at 50% and 75% of the falling limb, where applicable, are noted on the hydrographs.

[5] Indicator flows include pre-storm baseflow, peak flow, and flows at 50% and 75% down the falling limb of the storm hydrograph (i.e., the points at which flow has decreased 50% and 75% of the difference between peak flow and pre-storm baseflow).

[6] In accordance with Quarterly Storm Flow Surface Water Monitoring Report No. 2, sampling is terminated when flow has reached levels between 50% and 75% down the falling limb, unless otherwise noted.

[7] "Successful collection" of an aliquot is defined in Section 3.1 of the SWMP QAPP.

[8] For the one storm occurring during the reporting period, flow at Station SW-08-TT was based on the US Geological Survey's data for the co-located Aberjona River gauging station because the area-velocity sensor at this station malfunctioned during the storm.

[9] Not all of the triangles shown are necessarily aliquots included in the composite storm samples. Due to software limitations, triangles also identify times when grab samples were collected and times when pump-head tubing was calibrated.

Modifications to SWMP Protocols during Reporting Period

Minor equipment malfunctions and logistical difficulties were experienced during the storm event sampled during the reporting period. The "Storm Narrative" included in **Appendix A** lists minor variances from SWMP sampling protocols associated with these equipment malfunctions and logistical difficulties. In addition, the following two modifications to the SWMP were made during the reporting period.

Sampling triggers were developed for Stations SW-2-IP and SW-3-IP using data collected from storm events during the past year, and were programmed prior to the August 24-25 event. As is the case with the triggers developed for the other stations by Tetra Tech NUS, Inc. (TTNUS) during the MSGRP, these new sampling triggers are based on rain and stage increase occurring over an hour of time.[10] For Station SW-2-IP, sampling is triggered when rain accumulates 0.01 inches and stage increases 0.050 feet during any one-hour period. For Station SW-3-IP, sampling is triggered when rain accumulates 0.01 inches and stage increases 0.160 feet during a one-hour period. These sampling triggers will be adjusted, if necessary, based on hydrological response at these stations during subsequent storm events and/or as a result of any significant stream channel modifications that may affect flow.

The Isco 6712 unit at Station SW-3-IP (BECO ROW) was re-programmed prior to the August 24-25 event to measure stream level and velocity and the various water chemistry parameters at a 1-minute interval. As stated in previous reports, this station has consistently missed aliquots due to the previous 5-minute recording interval. For this reason, the recording interval was adjusted to a lower interval.

Post-Storm Maintenance and Monitoring

Following the August 24-25, 2010 storm event, sample and pump-head tubing was replaced, suction volumes were recalibrated, and post-storm surveying was conducted at each station. In accordance with the SWMP, post-storm surveying included surveying of the area-velocity sensors at eight of the ten stations to determine if any sensor elevations changed by more than 0.1 feet from the "baseline" sensor elevation as a result of storm-

[10] Up to this point, sampling at these stations was triggered by rainfall only (>0.1" during any one-hour period).

related scouring, sensor washout, etc..[11] As shown in **Table 2**, during the August 24-25 storm event, sensor elevations at Station SW-01-TT (Halls Brook) and Station SW-07-TT (Swanton Street) changed by more than 0.1 feet from the baseline sensor elevation and pre-storm sensor elevation, respectively. Due to the significant elevation changes at Station SW-01-TT and SW-07-TT, the entire cross-sectional profile at these stations was surveyed as part of post-storm surveying. Post-storm cross-sectional profiles for these stations are shown in **Figure 3 and Figure 4,** respectively. As shown in **Figure 3**, further scouring occurred at the south end of the channel at Station SW-01-TT compared to the most recent (February 2010) profile. Otherwise, the current profile is generally consistent with the February 2010 and baseline (March 2009) profile. For Station SW-07-TT, some of the scouring that occurred during the previous quarter (see April 2010 profile), has since been filled in, as shown in **Figure 4**, and the current profile is once again generally consistent with the baseline (March 2009) profile.

On three other occasions during the reporting period, sampling was triggered at one or more stations but was terminated shortly thereafter due to insufficient precipitation. These events occurred on the following dates:

- July 10, 2010
- July 13-14, 2010
- August 22-23, 2010

In accordance with the SWMP, on two of these occasions, sample and pump-head tubing were replaced, suction volumes were recalibrated, and Isco programming was reset at each station that was activated. In addition, any bottles that had been filled with sample aliquots were decontaminated and placed back into the rosette. Note, however, that these activities were not performed, or not performed in their entirety, following the August 22-23 event due to the limited time between the August 22-23 event and the storm event occurring on August 24-25. On this occasion, sample and pump-head tubing were not replaced and suction volumes were not recalibrated at all stations.

[11] Post-storm surveying was not performed at Stations SW-2-IP and SW-04-TT because the sensors at these stations are mounted to permanent structures.

Data Generated During the Reporting Period

1. Storm hydrologic data (including precipitation, peak stage, peak velocity, peak flow, and runoff at 75% of the falling limb) for the storm event sampled during the reporting period are shown in **Tables 3a through 3j**, along with the storm hydrologic data recorded during all previous SWMP storm sampling events.

2. The ranges of water quality parameters recorded for the storm event sampled during the reporting period are provided in **Tables 4a through 4j**, along with the water quality measurements recorded during all previous SWMP and, where applicable, "Early Action" storm sampling events

3. Validated analytical results for composite samples collected during the storm event sampled during the reporting period are provided in **Tables 5a through 5j**, along with validated analytical laboratory results for storm samples collected during the SWMP and, where applicable, Early Action sampling events and other previous sampling programs at the site (i.e., the Groundwater and Surface Water Investigation Plan [GSIP] and the MSGRP).

4. Groundwater and surface water elevation data collected during storm events are provided in **Table 6**.

Data Analysis

Data trends – Benzene, total arsenic, dissolved arsenic, and ammonia concentrations observed in samples collected during the SWMP and previous sampling programs (GSIP, MSGRP, and Early Action) are summarized in box-whisker plots in **Appendix B**. The "boxes" indicate the range within which the central 50% of the results fall (the box edges mark the first and third quartiles and the line dividing the box in two marks the median value), while the "whiskers" show the full range of values reported.[12] Since at least two values are required to construct a "box," cases where an analyte was detected in only one sample during a particular sampling program are shown as diamonds.

[12] Any statistical outliers have not been determined or identified.

Based on storm analytical data collected during the GSIP, MSGRP, Early Action, and the SWMP[13] sampling programs, the following is noted:

- Benzene has never been detected in any of the storm samples with the exception of most of the samples collected at Station SW-02-TT and some of the samples collected at SW-04-TT. Moreover, the maximum concentrations of benzene detected in the storm samples collected at Stations SW-02-TT and SW-04-TT are 9.1 micrograms per liter (µg/L) (November 16, 2009) and 2.2 µg/L (December 4, 2009), respectively. Both of these concentrations are well below the benzene Surface Water Performance Standard of 46 µg/L.

- Dissolved arsenic has never been detected in any of the storm samples collected at Station SW-01-TT, and with the exception of one sample collected at Station SW-02-TT (27.4 µg/L on May 15, 2002), dissolved arsenic concentrations detected in storm samples from all other stations have consistently been at least an order of magnitude below the applicable Surface Water Performance Standard of 150 µg/L.

These observations are consistent with those noted in previous reports.

Based on the groundwater and surface water elevations measured during the MSGRP and SWMP, the following is noted:

- At five of the nine stations gauged (SW-2-IP, SW-01-TT, SW-05-TT, SW-07-TT, and SW-08-TT), surface water elevations were predominantly higher than groundwater elevations during storm events. At two of the stations (SW-3-IP and SW-02-TT), surface water elevations were always lower than groundwater elevations.

- The remaining stations (SW-03-TT and SW-06-TT) exhibited variable trends.

These observations are also consistent with those noted in previous reports.

[13] The SWMP sampling events include precipitation totals ranging from 0.93" to 8.38".

TABLES

(Note: the data presented in Tables 3, 4, 5 and 6 are cumulative; values shown supersede previously reported data.)

Table 1
Storm Statistics - August 24-25, 2010
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Pre-Storm Baseflow (cfs)	Peak Flow (cfs)	50% Falling Limb		75% Falling Limb		Flow at Termination of Sampling[1] (cfs)	Total Runoff at Termination of Sampling (cf)	Flow Pacing[2] (cf)	Expected Number of Aliquots[3]	Total Aliquots Collected	Aliquots Successfully Collected[4]	Notes
			Flow (cfs)	Total Runoff (cf)	Flow (cfs)	Total Runoff (cf)							
SW-2-IP	0.00	14.20	7.10	178,575	3.55	189,710	2.04	247,613	10,000	19 - 20	18	18	a
SW-3-IP	0.00	70.75	35.38	486,913	17.69	486,913	31.68	473,870	3,500	140 - 140	40	36	a
SW-01-TT	0.67	111.20	55.94	3,228,273	28.30	3,762,774	56.24	3,211,867	40,000	82 - 95	74	74	a
SW-02-TT	1.78	53.09	27.44	2,382,574	14.61	3,419,919	15.30	2,931,028	40,000	61 - 86	63	63	
SW-04-TT	7.24	137.81	72.52	6,933,687	39.88	8,286,751	40.80	8,247,216	40,000	174 - 208	144	144	a
SW-03-TT	11.32	52.40	31.86	3,749,110	21.59	5,071,928	26.84	4,348,921	55,000	69 - 93	41	41	a
SW-05-TT	7.13	151.81	79.47	8,165,444	43.30	9,853,621	54.94	9,304,138	239,957	35 - 42	34	34	a
SW-06-TT	3.21	148.42	75.81	7,079,104	39.51	8,579,670	48.61	8,194,566	160,016	45 - 55	46	46	a
SW-07-TT	10.11	12.63	11.37	1,883,905	10.74	2,081,686	10.49	2,648,414	299,979	7 - 8	7	7	b
SW-08-TT	53.49	2372.17	1212.83	154,728,900	633.16	154,728,900	78.09	157,134,400	399,972	388 - 388	52	50	a, c, d

Notes:

- For Stations SW-2-IP, and SW-01-TT through SW-08-TT, flows shown are based on the rating curves reported in Quarterly Storm Flow Surface Water Monitoring Reports No. 2 and No. 5.
- Flows shown for station SW-3-IP were estimated based on level and velocity.

cf = cubic feet
cfs = cubic feet per second

1 Flow at termination of sampling is the flow at the time of the last aliquot included in the composite; aliquots may have been collected after this point, but are not necessarily included in the composite
2 Flow Pacing for stations SW-01-TT, SW-02-TT, SW-03-TT, SW-05-TT, SW-06-TT, and SW-07-TT is adapted from the flowing pacing reported by TTNUS in the MSGRP RI Report
3 Expected Number of Aliquots = [(flow at 50% falling limb / flow pacing)+1] to [(flow at 75% falling limb / flow pacing)+1]
4 Aliquots Successfully Collected represent aliquots collected as defined in the SWMP QAPP (Sec. 3.1)

a. Number of aliquots collected is lower than expected due a change in forecast and delays in starting the program, and delays in changing out rosettes.
b. A/V sensor malfunctioning, flows are not representative.
c. Total aliquots low due to power failures.
d. Isco 6712 unit malfunctioning, flows are not representative.

Table 2

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Post-Storm Survey Results for the Area-Velocity Sensors
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

Station Number	Station Location[1]	8/27/2010		
		Baseline Sensor Elevation[3]	Post-Storm Sensor Elevation	Δ from Baseline Sensor Elevation
SW-3-IP	BECO Right-of-Way	93.68	93.73	0.05
SW-01-TT	Halls Brook	93.25	93.36	0.11
SW-02-TT	HBHA Pond Outlet	97.82	97.91	0.09
SW-03-TT	Aberjona River @ Mishawum Rd.	93.25	93.29	0.04
SW-05-TT	Aberjona River @ Salem Street	94.15	94.22	0.07
SW-06-TT	Aberjona River @ Montvale Avenue	93.58	93.67	0.09
SW-07-TT	Aberjona River @ Swanton Street	89.86	90.02	0.16
SW-08-TT	Aberjona River @ USGS Gaging Station[2]	91.32	91.27	-0.05

Notes:
1. Stations SW-2-IP and SW-04-TT are not shown because sensors are fixed to permanent structures.
2. Sensor elevation is always maintained equivalent to the elevation of the adjacent weir crest.
3. Baseline elevation is the sensor elevation used to calibrate the depth reading Isco 750 area-velocity sensor and is adjusted after significant elevation changes.

Table 3a
Storm Hydrologic Data for SW-2-IP (AAD)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-2-IP	06/18/09 - 06/19/10	0.93	0.67	1.85	9.05	379,752
	07/01/09 - 07/02/09	1.40	1.12	3.25	26.32	1,129,314
	07/07/09 - 07/08/09	2.32	1.62	3.59	41.07	626,764
	07/23/09 - 07/24/09	2.23	1.05	3.30	24.94	1,145,352
	11/14/09 - 11/15/09	2.68	0.73	3.39	13.41	561,036
	12/02/09 - 12/03/09	0.98	0.68	3.32	12.14	117,380
	01/25/10 - 01/26/10	0.93	1.03	3.46	23.29	206,424
	02/24/10 - 02/25/10	2.33	0.72	3.45	13.08	865,202
	02/25/10 - 02/27/10	1.55	0.97	3.62	21.13	892,338
	03/13/10 - 03/15/10	6.81	1.24	4.31	31.23	4,397,245
	08/24/10 - 08/25/10	2.52	0.89	4.28	14.20	189,710

Notes:

- Prior to the 11/14/09-11/15/09 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the crest of the weir.
- Prior to the 11/14/09-11/15/09 storm event, flows shown are based on stage and velocity measurement
- Between the 11/14/09-11/15/09 and 03/13/10-03/15/10 storm events, flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.
- Flows are currently based on the station-specific rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.

AAD = Atlantic Avenue Drainway
in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

Table 3b
Storm Hydrologic Data for SW-3-IP (BECO ROW)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-3-IP	06/18/09 - 06/19/10	0.94	0.77	1.30	4.63	104,821
	07/01/09 - 07/02/09	1.46	1.39	1.75	14.97	170,540
	07/07/09 - 07/08/09	2.35	2.07	2.30	35.13	111,560
	07/23/09 - 07/24/09	2.37	2.19	1.82	12.14	193,146
	11/14/09 - 11/15/09	2.69	2.31	1.94	17.77	70,258
	12/02/09 - 12/03/09	1.09	1.55	1.67	15.60	115,886
	01/25/10 - 01/26/10	0.99	2.26	1.41	13.38	220,112
	02/24/10 - 02/25/10	2.46	2.47	1.06	6.79	182,862
	02/25/10 - 02/27/10	1.76	2.98	0.49	13.85	309,043
	03/13/10 - 03/15/10	7.86	5.01	1.08	22.84	2,024,234
	08/24/10 - 08/25/10	2.82	3.83	1.84	70.75	486,913

Notes:
• Stage is relative to sensor elevation.
• Flows shown are estimated based on stage and velocity.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.

BECO ROW = Boston Edison Company Right-of-Way
in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

Shaded values indicate readings where runoff was above maximum height of the culvert.

Table 3c
Storm Hydrologic Data for SW-01-TT (Halls Brook)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-01-TT	06/18/09 - 06/19/10	1.07	1.59	2.27	13.92	974,772
	07/01/09 - 07/02/09	1.80	2.09	3.76	21.67	1,665,930
	07/07/09 - 07/08/09	2.87	2.25	4.36	25.42	2,251,596
	07/23/09 - 07/24/09	3.06	2.69	3.27	33.08	3,940,374
	11/14/09 - 11/15/09	3.43	2.84	3.88	107.18	2,320,731
	12/02/09 - 12/03/09	1.41	2.71	3.53	87.04	2,947,106
	01/25/10 - 01/26/10	1.05	2.85	3.93	107.50	4,838,601
	02/24/10 - 02/25/10	2.90	3.15	4.00	169.00	10,436,540
	02/25/10 - 02/27/10	2.04	3.20	2.21	181.97	3,659,139
	03/13/10 - 03/15/10	8.38	3.08	7.48	153.24	32,133,750
	08/24/10 - 08/25/10	ERR	2.87	4.79	111.20	3,762,774

Notes:

- Prior to the 11/14/09-11/15/09 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.
- Prior to the 11/14/09-11/15/09 storm event, flows shown are based on stage and velocity measurement
- Between the 11/14/09-11/15/09 and 03/13/10-03/15/10 storm events, flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.
- Flows are currently based on the station-specific rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction (e.g., obstructed rain gauge)

Shaded values indicate readings where the A/V sensor became dislodged. Values shown for peak velocity represent the highest reading recorded prior to A/V sensor dislodgement. In addition, Peak Stage and therefore subsequent Peak Flow and Total Runoff at 75% Falling Limb may not represent actual conditions.

Table 3d
Storm Hydrologic Data for SW-02-TT (HBHA Pond Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-02-TT	06/18/09 - 06/19/10	1.12	1.87	0.78	17.67	1,743,147
	07/01/09 - 07/02/09	ERR	2.42	1.43	26.85	3,248,161
	07/07/09 - 07/08/09	ERR	2.78	1.84	32.84	4,415,681
	07/23/09 - 07/24/09	2.54	3.27	1.55	40.94	3,948,374
	11/14/09 - 11/15/09	2.94	3.71	ERR	79.99	5,920,126
	12/02/09 - 12/03/09	1.24	2.96	ERR	41.92	3,394,551
	01/25/10 - 01/26/10	0.98	3.61	1.50	74.06	5,251,652
	02/24/10 - 02/25/10	3.19	3.84	1.34	88.54	6,647,138
	02/25/10 - 02/27/10	1.97	4.20	1.42	114.25	6,842,911
	03/13/10 - 03/15/10	8.31	5.49	1.43	237.12	37,113,610
	08/24/10 - 08/25/10	2.79	3.28	1.75	53.09	3,419,919

Notes:
• Prior to the 11/14/09-11/15/09 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.
• Prior to the 11/14/09-11/15/09 storm event, flows shown are based on stage and velocity measurement
• Between the 11/14/09-11/15/09 and 03/13/10-03/15/10 storm events, flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.
• Flows are currently based on the station-specific rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.

HBHA = Halls Brook Holding Area
in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction

Table 3e
Storm Hydrologic Data for SW-04-TT (HBHA Wetland Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-04-TT	06/18/09 - 06/19/10	0.95	1.43	3.92	10.42	1,550,883
	07/01/09 - 07/02/09	1.60	1.78	5.12	13.23	2,281,206
	07/07/09 - 07/08/09	2.48	2.20	5.55	17.60	2,441,779
	07/23/09 - 07/24/09	2.40	2.57	6.84	21.02	2,370,051
	11/14/09 - 11/15/09	2.94	2.58	6.97	50.51	3,459,359
	12/02/09 - 12/03/09	1.35	1.87	5.25	21.76	1,869,111
	01/25/10 - 01/26/10	0.95	2.71	6.66	57.46	3,939,638
	02/24/10 - 02/25/10	2.98	2.96	6.92	72.48	5,284,940
	02/25/10 - 02/27/10	1.85	3.27	8.16	92.78	5,751,879
	03/13/10 - 03/16/10	7.70	3.11	8.04	162.16	18,979,040
	08/24/10 - 08/25/10	2.86	3.86	1.30	137.81	8,286,751

Notes:
• Prior to the 11/14/09-11/15/09 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.
• Prior to the 11/14/09-11/15/09 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report; subsequent flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

Shaded values indicate readings where the A/V sensor became dislodged. Values shown for peak velocity represent the highest reading recorded prior to A/V sensor dislodgement. Furthermore, runoff was above the maximum height of the culvert. In addition, Peak Stage and therefore subsequent Peak Flow and Total Runoff at 75% Falling Limb may not represent actual conditions.

Table 3f
Storm Hydrologic Data for SW-03-TT (Aberjona)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-03-TT	06/18/09 - 06/19/10	0.91	1.58	1.78	14.37	1,239,944
	07/01/09 - 07/02/09	1.64	2.44	2.55	27.96	2,294,982
	07/07/09 - 07/08/09	2.53	3.10	3.03	38.39	2,499,196
	07/23/09 - 07/24/09	2.53	3.43	2.76	43.52	4,066,986
	11/14/09 - 11/15/09	2.80	3.64	2.74	46.86	4,274,335
	12/02/09 - 12/03/09	ERR	3.08	2.98	37.94	2,400,252
	01/25/10 - 01/26/10	0.96	3.53	3.07	45.05	3,783,233
	02/24/10 - 02/25/10	2.92	3.80[4]	2.93	55.79	5,938,676
	02/25/10 - 02/27/10	1.76	4.80	3.06	71.68	3,903,065
	03/13/10 - 03/16/10	7.12	5.55	3.15	382.71	61,346,400
	08/24/10 - 08/25/10	2.74	3.58	3.17	52.40	5,071,928

Notes:

• Prior to the 02/25/10-02/27/10 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.

• Prior to the 02/25/10-02/27/10 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report; subsequent flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.

2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.

3 Due to "noise," Peak Velocity value is approximated.

4 Peak value is estimated due to inaccurate stage readings (and therefore flow) prior to A/V sensor re-calibration.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction (e.g., obstructed rain gauge)

Shaded values indicate readings where the A/V sensor became dislodged. Values shown for peak velocity represent the highest reading recorded prior to A/V sensor dislodgement. In addition, Peak Stage and therefore subsequent Peak Flow and Total Runoff at 75% Falling Limb may not represent actual conditions.

Table 3g
Storm Hydrologic Data for SW-05-TT (Salem Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-05-TT	06/18/09 - 06/19/10	Data Loss due to Isco Failure				
	07/01/09 - 07/02/09	1.87	2.45	2.24	72.72	9,737,499
	07/07/09 - 07/08/09	1.35	2.83	2.76	92.22	11,053,420
	07/23/09 - 07/24/09	3.28	3.05	3.23	102.98	11,611,000
	11/14/09 - 11/15/09	3.04	3.26	2.84	113.84	15,373,510
	12/02/09 - 12/03/09	1.18	2.67	1.92	83.63	9,801,157
	01/25/10 - 01/26/10	0.77	3.12	2.90	106.88	12,692,700
	02/24/10 - 02/27/10	5.43	3.79	3.88	164.51	45,198,860
	03/13/10 - 03/15/10	9.46	4.41	6.64	195.83	58,039,680
	08/24/10 - 08/25/10	4.02	3.56	2.27	151.81	9,853,621

Notes:

• Prior to the 08/24/10-08/25/10 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.

• Prior to the 08/24/10-08/25/10 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report; subsequent flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.

2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.

3 Due to "noise," Peak Velocity value is approximated.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

Shaded values indicate readings where runoff and flow were restricted by height of adjacent bridge.

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Table 3h
Storm Hydrologic Data for SW-06-TT (Montvale Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-06-TT	06/18/09 - 06/19/10	0.94	2.78	1.40	30.67	4,222,181
	07/01/09 - 07/02/09	ERR	3.86	2.10	52.56	5,950,627
	07/07/09 - 07/08/09	ERR	3.99	2.19	55.19	6,953,697
	07/23/09 - 07/24/09	1.73	4.52	2.47	65.74	8,013,981
	11/14/09 - 11/15/09	ERR	4.86	2.62	72.64	11,251,110
	12/02/09 - 12/03/09	0.63	3.83	2.08	52.00	6,724,578
	01/25/10 - 01/26/10	0.66	4.65	2.52	68.34	9,435,577
	02/24/10 - 02/27/10	4.55	5.77	2.76	94.72	37,094,130
	03/13/10 - 03/15/10	6.39	7.58	2.60[4]	130.77	37,783,890
	08/24/10 - 08/25/10	3.12	4.85	2.11	148.42	8,579,670

Notes:
• Prior to the 08/24/10-08/25/10 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.
• Prior to the 08/24/10-08/25/10 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report; subsequent flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.
4 Due to sand blocking sensor, Peak Velocity is inaccurate.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction (e.g., obstructed rain gauge)

Table 3i
Storm Hydrologic Data for SW-07-TT (Swanton Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-07-TT	06/18/09 - 06/19/10	1.04	2.15	4.11	82.67	7,087,030
	07/01/09 - 07/02/09	1.70	3.83	5.40	200.44	16,890,270
	07/07/09 - 07/08/09	0.77	3.32	4.49	164.87	26,349,860
	07/23/09 - 07/24/09	Data Loss due to Isco Failure				
	11/14/09 - 11/15/09	2.64	3.78	5.04	197.26	22,935,700
	12/02/09 - 12/03/09	1.10	3.38	4.25	168.71	34,081,250
	01/25/10 - 01/26/10	0.96	4.48	4.75	245.97	27,218,250
	02/24/10 - 02/27/10	4.85	6.13	6.49	378.86	91,809,740
	03/13/10 - 03/16/10	9.44	10.86	7.81	713.66	166,586,400[4]
	08/24/10 - 08/25/10	3.64	1.46[5]	ERR	12.63	2,081,686

Notes:

• Prior to the 08/24/10-08/25/10 storm event, stage is relative to sensor elevation; subsequent stage measurements are relative to the stream bottom.

• Prior to the 08/24/10-08/25/10 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report; subsequent flows are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.

1 Dates shown indicate time period over which precipitation was observed.

2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.

3 Due to "noise," Peak Velocity value is approximated.

4 Due to 750 Module malfunction, total runoff is inaccurate.

5 Due to 750 area-velocity sensor connection corrosion, peak stage (and therefore flow and total runoff) is inaccurate.

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction (sensor connection corrosion)

Shaded values indicate readings where the A/V sensor became dislodged. Values shown for peak velocity represent the highest reading recorded prior to A/V sensor dislodgement. In addition, Peak Stage and therefore subsequent Peak Flow and Total Runoff at 75% Falling Limb may not represent actual conditions.

Table 3j
Storm Hydrologic Data for SW-08-TT (USGS / Mystic Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Station	Date[1]	Precipitation[2] (in)	Peak Stage (ft)	Peak Velocity[3] (ft/s)	Peak Flow (cfs)	Total Runoff at 75% Falling Limb (cf)
SW-08-TT	06/18/09 - 06/19/10	0.55	3.08	1.05	202.28	39,070,400
	07/01/09 - 07/02/09	ERR	4.12	2.12	315.40	104,879,300
	07/07/09 - 07/08/09	ERR	3.62	1.96	261.03	75,114,590
	07/23/09 - 07/24/09	2.22	4.05	2.65	306.76	41,933,140
	11/14/09 - 11/15/09	2.20	12.43[4]	ERR	293.00	43,714,260
	12/02/09 - 12/03/09	0.99	2.04	1.69	198.42	23,195,820
	01/25/10 - 01/26/10	0.92	2.69	2.35	369.63	57,302,170
	02/24/10 - 02/27/10	4.11	3.75	2.59	723.42	286,944,800
	03/13/10 - 03/16/10	6.05	7.00	3.34	1879.80	395,188,500
	08/24/10 - 08/25/10	ERR	12.61[4]	ERR	343.00	24,433,290

Notes:

• Prior to the 11/14/09-11/15/09 storm event, stage is relative to sensor elevation; stage measurements between the 11/14/10-11/15/10 and 08/24/10-08/25/10 storm events are relative to the crest of the weir.
• Prior to the 11/14/09-11/15/09 storm event, flows shown are based on the rating curves reported by TTNUS in the MSGRP RI Report.
• Flow estimates reported between the 11/14/09-11/15/09 and 08/24/10-08/25/10 storm events are based on the station specific rating curve reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.

1 Dates shown indicate time period over which precipitation was observed.
2 Precipitation total shown may not match precipitation total shown in hydrograph because hydrograph totals may include contributions from subsequent rain events during the falling limb.
3 Due to "noise," Peak Velocity value is approximated.
4 Stage is Mean Sea Level (there is a 10.02 foot offset); flow estimates are obtained from USGS station 01102500 - Aberjona River at Wincester, MA

in = inches
ft = feet
ft/s = feet per second
cfs = cubic feet per second
cf = cubic feet

ERR = Equipment malfunction (e.g., obstructed rain gauge, AV sensor dislodged, power failure)

Shaded values indicate readings where the A/V sensor became dislodged. Values shown for peak velocity represent the highest reading recorded prior to A/V sensor dislodgement. In addition, Peak Stage and therefore subsequent Peak Flow and Total Runoff at 75% Falling Limb may not represent actual conditions.

Table 4a
Ranges of Storm Flow Water Quality Parameters for SW-2-IP (AAD)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Remedial Design "Early Action"							
SW-2-IP	12/14/08 - 12/14/08	0.4 - 1.3	10.7 - 11.5	6.5 - 6.5	470.3 - 480.1	240 - 242	3.6 - 4.4
Surface Water Monitoring Plan							
SW-2-IP	06/18/09 - 06/20/09	17.6 - 21.8	4.3 - 6.8	6.8 - 7.1	395.1 - 470.1	174 - 536	3.7 - 19.2
	07/01/09 - 07/03/09	16.8 - 18.8	4.0 - 7.9	6.7 - 6.9	379.0 - 489.0	74 - 546	2.1 - 19.2
	07/07/09 - 07/09/09	17.3 - 19.8	4.1 - 9.0	6.7 - 7.2	371.3 - 476.1	60 - 518	2.1 - 75.9
	07/23/09 - 07/25/09	17.8 - 24.9	4.6 - 9.1	6.6 - 7.0	366.8 - 428.3	46 - 430	2.7 - 17.2
	11/14/09 - 11/15/09	9.1 - 11.0	8.0 - 11.0	6.8 - 7.1	387.4 - 424.5	74 - 600	4.1 - 29.1
	12/03/09 - 12/03/09	7.2 - 11.0	10.0 - 11.0	6.9 - 7.1	481.5 - 512.9	66 - 336	4.1 - 24.0
	01/25/10 - 01/26/10	0.0 - 3.1	9.5 - 11.4	6.8 - 6.9	476.0 - 616.6	584 - 2,162	5.7 - 65.6
	02/24/10 - 02/25/10	0.5 - 2.9	9.8 - 13.1	7.0 - 7.3	7.2 - 121.0	314 - 586	3.7 - 76.2
	02/25/10 - 02/26/10	2.0 - 4.5	10.5 - 11.6	7.0 - 7.2	100.1 - 138.2	248 - 518	8.1 - 56.3
	03/13/10 - 03/16/10	4.0 - 5.7	9.6 - 11.7	7.0 - 7.5	84.9 - 382.4	184 - 1,464	4.5 - 35.2
	08/25/10 - 08/25/10	18.3 - 19.3	5.2 - 9.0	6.2 - 6.7	195.1 - 223.8	30 - 454	1.2 - 13.3

Notes:
AAD = Atlantic Avenue Drainway
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4b
Ranges of Storm Flow Water Quality Parameters for SW-3-IP (BECO ROW)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Remedial Design "Early Action"							
SW-3-IP	12/11/08 - 12/13/08	-1.6 - 6.5	NM - 12.5	NM - 4.3	-323.1 - 507.8	-20 - 586	NM - 19.6
Surface Water Monitoring Plan							
SW-3-IP	06/18/09 - 06/19/09	16.4 - 20.4	2.1 - 3.9	6.4 - 6.7	441.2 - 522.3	22 - 86	5.9 - 31.6
	07/01/09 - 07/03/09	Data rejected					
	07/07/09 - 07/09/09						
	07/24/09 - 07/24/09						
	11/14/09 - 11/14/09	10.6 - 10.7	9.8 - 10.4	6.3 - 6.7	86.0 - 112.1	16 - 128	10.6 - 60.2
	12/03/09 - 12/03/09	10.0 - 14.4	6.8 - 8.5	6.3 - 6.8	298.6 - 332.5	12 - 84	43.3 - 102.3
	01/25/10 - 01/25/10	Data rejected	9.3 - 11.0	Data rejected	61.7 - 128.0	Data rejected	38.3 - 183.2
	02/24/10 - 02/24/10	0.9 - 5.0	7.5 - 13.3	6.4 - 7.2	-41.9 - 99.5	84 - 1,050	28.1 - 126.2
	02/25/10 - 02/25/10	4.5 - 5.0	4.1 - 12.3	6.2 - 6.7	49.4 - 93.6	64 - 1,086	4.2 - 38.7
	03/13/10 - 03/15/10	3.5 - 7.1	8.7 - 11.3	6.5 - 7.3	16.9 - 160.6	36 - 602	12.7 - 39.8
	08/25/10 - 08/25/10	18.2 - 18.6	8.6 - 9.1	6.1 - 6.3	192.9 - 203.2	8 - 14	7.3 - 27.8

Notes:

BECO ROW = Boston Edison Company right-of-way
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
NM = Not measured (e.g., insufficient flow and/or due to equipment limitations)

Water quality parameter data for 7/1-2/09, 7/7-8/09 and 7/23-24/09 storms were reviewed and rejected due to problems associated with the dry conditions that existed prior to the storms. Temperature, pH and Specific Conductance data for 1/25/10 storm were reviewed and rejected due to suspected icing of the sensors.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4c
Ranges of Storm Flow Water Quality Parameters for SW-01-TT (Halls Brook)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Remedial Design "Early Action"							
SW-01-TT	12/11/08 - 12/14/08	1.2 - 4.6	9.8 - 12.2	6.4 - 6.7	503.4 - 556.6	784 - 1,854	22.6 - 2874.0
Surface Water Monitoring Plan							
SW-01-TT	06/18/09 - 06/19/09	15.4 - 17.3	5.6 - 8.5	6.7 - 6.9	190.1 - 225.9	276 - 650	Data unrecoverable
	07/01/09 - 07/03/09	15.3 - 17.0	Data unrecoverable	6.6 - 6.9	403.5 - 564.0	170 - 660	20.7 - 364.6
	07/07/09 - 07/09/09	15.1 - 17.8	Data unrecoverable	6.6 - 7.1	382.4 - 535.8	94 - 516	7.6 - 113.0
	07/24/09 - 07/26/09	16.8 - 20.5	Data unrecoverable	6.3 - 6.9	392.5 - 471.7	158 - 548	5.3 - 147.3
	11/14/09 - 11/16/09	9.7 - 10.0	7.9 - 9.2	6.5 - 6.8	449.8 - 476.0	154 - 268	33.2 - 372.8
	12/03/09 - 12/04/09	8.1 - 11.7	6.6 - 8.7	6.7 - 6.9	481.3 - 498.3	150 - 396	58.4 - 430.1
	01/25/10 - 01/26/10	0.7 - 3.3	10.7 - 11.2	6.8 - 7.0	Data unrecoverable	190 - 552	17.4 - 265.1
	02/24/10 - 02/25/10	1.0 - 1.9	9.5 - 10.9	6.6 - 7.0	598.6 - 650.4	278 - 1,032	31.0 - 383.9
	02/25/10 - 02/26/10	1.8 - 3.9	9.3 - 10.2	6.6 - 6.8	614.0 - 726.4	190 - 368	23.4 - 375.3
	03/13/10 - 03/16/10	3.1 - 6.6	9.1 - 10.8	6.6 - 7.1	407.9 - 511.8	134 - 390	6.2 - 551.0
	08/25/10 - 08/25/10	18.4 - 18.7	6.0 - 7.9	6.2 - 6.5	565.1 - 601.7	128 - 220	9.3 - 104.7

Notes:

HBHA = Halls Brook Holding Area
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
Turbidity data for 7/1-2/09 and dissolved oxygen data for 7/1-2/09, 7/7-8/09 and 7/23-24/09 storms unrecoverable due to Isco 6712 transmission errors.
ORP data for 1/25-1/26/10 storm unrecoverable due to communication errors between the In-Situ troll and the Isco 6712.

Water quality data for temperature, dissolved oxygen and specific conductance collected prior to 3/14/10 3:25 am rejected due to equipment malfunction (i.e., apparent In-Situ troll sensor damage).
Water quality ranges for temperature, specific conductivity and turbidity represent data collected through first rosette only during 8/25/10 storm. Remaining data is unrecoverable.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4d
Ranges of Storm Flow Water Quality Parameters for SW-02-TT (HBHA Pond Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Remedial Design "Early Action"							
SW-02-TT	12/14/08 - 12/14/08	1.5 - 2.3	10.0 - 10.2	6.3 - 6.4	524.3 - 527.3	416 - 470	22.6 - 23.3
Surface Water Monitoring Plan							
SW-02-TT	06/18/09 - 06/20/09	16.2 - 21.0	5.4 - 6.8	6.1 - 6.3	360.7 - 423.3	474 - 750	6.8 - 18.5
	07/01/09 - 07/03/09	16.0 - 17.7	3.4 - 5.7	6.3 - 6.5	248.1 - 532.9	484 - 890	7.2 - 55.1
	07/07/09 - 07/09/09	15.8 - 17.4	1.2 - 6.2	6.0 - 6.1	190.8 - 499.4	282 - 902	10.4 - 33.8
	07/24/09 - 07/26/09	17.2 - 20.1	2.6 - 7.5	6.3 - 6.6	182.3 - 471.8	234 - 964	4.4 - 65.6
	11/14/09 - 11/15/09	9.3 - 11.2	5.8 - 7.6	6.3 - 6.6	270.0 - 481.3	248 - 880	13.4 - 63.3
	12/03/09 - 12/04/09	6.4 - 10.8	7.7 - 8.8	6.4 - 6.5	412.2 - 495.2	402 - 788	14.3 - 42.3
	01/25/10 - 01/26/10	1.3 - 3.8	5.9 - 9.8	6.4 - 6.5	Data unrecoverable	552 - 1,700	15.9 - 70.9
	02/24/10 - 02/25/10	1.5 - 4.4	6.0 - 10.5	6.2 - 6.5	186.3 - 283.9	346 - 1,548	17.1 - 61.0
	02/25/10 - 02/27/10	2.1 - 3.8	9.9 - 10.4	6.1 - 6.3	257.5 - 291.2	242 - 390	12.5 - 29.3
	03/13/10 - 03/16/10	3.6 - 6.2	8.5 - 10.0	6.1 - 6.7	237.9 - 310.3	168 - 882	7.5 - 24.0
	08/25/10 - 08/26/10	Data rejected					

Notes:
HBHA = Halls Brook Holding Area
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
ORP data for 1/25-1/26/10 storm unrecoverable due to communication errors between the In-Situ troll and the Isco 6712.
Water quality data from 8/25-8/26/10 storm rejected due to communication errors between the In-Situ troll and the Isco 6712.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4e
Ranges of Storm Flow Water Quality Parameters for SW-04-TT (HBHA Wetland Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Remedial Design "Early Action"							
SW-04-TT	12/14/08 - 12/14/08	1.8 - 2.2	9.7 - 9.8	5.9 - 5.9	373.6 - 374.1	390 - 428	0.0 - 0.0
Surface Water Monitoring Plan							
SW-04-TT	06/18/09 - 06/19/09	16.7 - 21.9	5.1 - 7.9	6.5 - 6.7	218.0 - 317.2	358 - 754	13.0 - 131.6
	07/01/09 - 07/03/09	16.1 - 18.2	4.6 - 7.8	6.4 - 6.8	237.0 - 347.6	242 - 802	6.8 - 752.3
	07/07/09 - 07/09/09	15.7 - 19.3	4.9 - 9.4	6.1 - 6.9	231.7 - 418.4	38 - 728	7.4 - 93.5
	07/24/09 - 07/26/09	Data rejected					
	11/14/09 - 11/15/09	10.5 - 11.6	6.5 - 9.9	6.5 - 6.8	177.8 - 331.6	72 - 424	7.4 - 29.7
	12/03/09 - 12/04/09	9.7 - 10.7	6.7 - 7.7	6.9 - 6.9	251.7 - 321.8	416 - 612	9.0 - 17.6
	01/25/10 - 01/26/10	1.7 - 5.5	8.1 - 10.7	6.6 - 6.7	117.2 - 273.5	620 - 1,232	19.9 - 114.2
	02/24/10 - 02/25/10	2.1 - 3.9	9.3 - 11.7	6.6 - 6.8	126.2 - 284.4	364 - 1,278	9.6 - 63.8
	02/25/10 - 02/27/10	3.2 - 4.4	10.4 - 11.3	6.5 - 6.6	293.0 - 319.5	250 - 352	6.0 - 17.1
	03/13/10 - 03/16/10	4.4 - 6.9	9.8 - 12.5	6.5 - 7.0	284.2 - 406.1	150 - 1,014	6.0 - 25.1
	08/25/10 - 08/26/10	18.2 - 18.7	4.5 - 8.4	6.6 - 6.9	128.8 - 277.4	288 - 620	0.8 - 4.7

Notes:
HBHA = Halls Brook Holding Area
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
Water quality data from 7/24-7/26/09 storm rejected due to communication errors between the In-Situ troll and the Isco 6712.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4f
Ranges of Storm Flow Water Quality Parameters for SW-03-TT (Aberjona)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Surface Water Monitoring Plan							
SW-03-TT	06/19/09 - 06/20/09	16.9 - 19.6	4.1 - 5.4	6.1 - 6.3	315.0 - 410.3	256 - 688	9.3 - 20.8
	07/01/09 - 07/03/09	16.3 - 18.1	5.4 - 8.3	6.5 - 6.7	391.4 - 549.0	226 - 824	5.0 - 208.9
	07/07/09 - 07/09/09	15.5 - 18.1	5.4 - 9.5	5.8 - 6.5	412.5 - 550.0	46 - 582	5.8 - 175.0
	07/24/09 - 07/26/09	17.9 - 21.4	4.1 - 8.6	6.6 - 6.8	425.9 - 509.3	148 - 782	1.3 - 32.4
	11/14/09 - 11/15/09	10.2 - 11.4	6.4 - 9.3	6.1 - 6.7	469.6 - 512.6	88 - 494	3.0 - 319.8
	12/03/09 - 12/04/09	8.8 - 11.6	3.5 - 4.0	6.5 - 6.8	233.0 - 286.0	192 - 666	6.7 - 391.0
	01/24/10 - 01/26/10	0.8 - 5.4	11.1 - 12.4	6.6 - 6.8	Data unrecoverable	448 - 1,088	9.9 - 184.2
	02/24/10 - 02/25/10	1.2 - 2.8	9.0 - 9.6	6.5 - 6.7	246.7 - 325.4	490 - 956	17.3 - 198.9
	02/25/10 - 02/26/10	2.4 - 4.2	8.4 - 8.9	6.5 - 6.5	313.8 - 345.9	290 - 438	14.7 - 82.9
	03/13/10 - 03/16/10	4.0 - 6.2	10.8 - 12.1	6.8 - 7.0	280.7 - 339.6	226 - 992	8.3 - 46.3
	08/25/10 - 08/26/10	18.3 - 19.7	5.9 - 8.9	6.2 - 6.7	112.1 - 154.9	86 - 514	11.3 - 56.2

Notes:

˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
ORP data for 1/25-1/26/10 storm unrecoverable due to communication errors between the In-Situ troll and the Isco 6712.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4g
Ranges of Storm Flow Water Quality Parameters for SW-05-TT (Salem Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Surface Water Monitoring Plan							
SW-05-TT	06/18/09 - 06/18/09	Data lost due to Isco 6712 malfunction					
	07/01/09 - 07/02/09	16.5 - 17.9	3.3 - 6.7	6.3 - 6.7	441.6 - 530.5	402 - 1,072	7.7 - 63.3
	07/07/09 - 07/09/09	16.5 - 17.6	4.0 - 6.5	6.1 - 6.4	507.5 - 544.2	292 - 670	12.3 - 45.7
	07/24/09 - 07/26/09	17.6 - 24.0	2.5 - 7.3	6.2 - 6.6	441.1 - 496.7	264 - 1,022	3.9 - 52.4
	11/14/09 - 11/16/09	Data rejected					
	12/03/09 - 12/04/09	Data rejected					
	01/25/10 - 01/26/10	0.5 - 3.1	9.2 - 11.0	6.7 - 6.9	209.7 - 305.1	586 - 1,150	5.2 - 491.8
	02/24/10 - 02/27/10	0.9 - 4.2	8.9 - 12.3	6.4 - 6.8	339.6 - 494.7	320 - 2,056	7.7 - 488.2
	03/13/10 - 03/17/10	4.0 - 6.2	8.6 - 10.7	6.4 - 7.0	306.2 - 438.4	218 - 1,160	5.5 - 33.5
	08/25/10 - 08/26/10	17.9 - 18.6	3.7 - 6.6	6.1 - 6.5	516.3 - 536.2	204 - 484	1.3 - 391.1

Notes:
HBHA = Halls Brook Holding Area
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
Water quality data from 11/14-11/16/09 and 12/3-12/4/09 storms rejected due to communication errors between the In-Situ troll and the Isco 6712.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4h
Ranges of Storm Flow Water Quality Parameters for SW-06-TT (Montvale Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Surface Water Monitoring Plan							
SW-06-TT	06/19/09 - 06/20/09	16.5 - 18.3	7.0 - 7.3	6.7 - 6.8	429.8 - 454.7	Data unrecoverable	58.0 - 129.9
	07/01/09 - 07/03/09	16.1 - 17.7	5.8 - 7.5	6.4 - 6.8	401.0 - 525.8	338 - 772	14.6 - 374.0
	07/07/09 - 07/09/09	16.0 - 18.5	6.7 - 8.4	6.5 - 7.0	374.5 - 523.4	178 - 654	8.2 - 111.2
	07/24/09 - 07/26/09	17.4 - 21.5	5.7 - 7.7	6.5 - 6.8	456.6 - 514.1	174 - 418	0.2 - 399.0
	11/14/09 - 11/17/09	8.3 - 11.9	5.7 - 6.7	6.6 - 6.8	453.7 - 487.7	346 - 548	5.9 - 730.9
	12/03/09 - 12/04/09	8.4 - 12.0	8.0 - 10.6	6.7 - 6.9	467.3 - 483.2	246 - 476	5.5 - 64.0
	01/25/10 - 01/27/10	Data unrecoverable	1.0 - 3.8	6.8 - 7.0	369.1 - 429.1	512 - 1,788	Data unrecoverable
	02/24/10 - 02/28/10	1.4 - 4.4	9.8 - 11.6	6.8 - 7.0	59.1 - 138.9	200 - 954	6.1 - 238.9
	03/13/10 - 03/17/10	4.5 - 7.7	9.7 - 17.1[2]	6.5 - 7.2	54.9 - 213.3	96 - 962	2.4 - 349.4
	08/25/10 - 08/26/10	18.1 - 18.6	3.2 - 3.7	6.5 - 6.7	541.8 - 575.7	264 - 574	7.7 - 16.4

Notes:
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
Specific conductance data for 6/18-19/09 storm unrecoverable due Isco 6712 transmission errors.
Temperature data for 1/25-1/27/10 storm unrecoverable to apparent In-Situ troll sensor damage.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.
2 Recorded values may not be representative (possible sensor drift).

Table 4i
Ranges of Storm Flow Water Quality Parameters for SW-07-TT (Swanton Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Surface Water Monitoring Plan							
SW-07-TT	06/19/09 - 06/19/09	16.5 - 17.9	6.6 - 7.9	6.5 - 6.8	458.5 - 489.9	432 - 1,402	4.6 - 17.3
	07/01/09 - 07/02/09	16.4 - 17.7	6.3 - 7.8	5.6 - 5.9	449.1 - 494.8	58 - 928	4.4 - 63.9
	07/07/09 - 07/09/09	16.2 - 18.0	6.3 - 7.7	6.4 - 6.9	389.6 - 503.9	258 - 1,056	1.5 - 28.2
	07/24/09 - 07/26/09	17.9 - 20.9	6.0 - 6.7	6.5 - 6.8	482.7 - 506.6	496 - 726	1.4 - 17.4
	11/14/09 - 11/16/09	9.8 - 10.8	6.9 - 8.4	7.2 - 7.3	63.6 - 95.3	718 - 1,120	3.6 - 49.2
	12/03/09 - 12/04/09	Data rejected					
	01/25/10 - 01/27/10	2.1 - 4.8	8.8 - 9.8	6.7 - 7.0	Data unrecoverable	366 - 1,470	15.8 - 262.3
	02/24/10 - 02/27/10	2.7 - 5.1	9.6 - 11.6	6.5 - 7.1	349.4 - 586.2	282 - 1,658	7.0 - 217.7
	03/13/10 - 03/17/10	4.8 - 7.2	9.5 - 11.3	6.5 - 7.1	437.9 - 551.2	136 - 1,026	11.4 - 66.2
	08/25/10 - 08/27/10	18.2 - 18.6	6.6 - 8.9	6.4 - 6.6	538.0 - 578.1	108 - 500	7.5 - 45.3

Notes:

˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units
Water quality data from 12/3-12/4/09 storm reviewed and rejected due to communication errors between the In-Situ troll and the Isco 6712.
ORP data for 1/25-1/26/10 storm unrecoverable due to communication errors between the In-Situ troll and the Isco 6712.

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.

Table 4j
Ranges of Storm Flow Water Quality Parameters for SW-08-TT (USGS / Mystic Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Temperature (˚C)	Dissolved Oxygen (mg/l)	pH (s.u.)	ORP (mV)	Specific Conductance (µS/cm)	Turbidity (NTU)
Surface Water Monitoring Plan							
SW-08-TT	06/18/09 - 06/20/09	16.9 - 18.7	5.7 - 7.1	6.4 - 6.6	470.9 - 525.3	490 - 976	14.6 - 38.3
	07/01/09 - 07/03/09	16.8 - 18.3	4.4 - 8.7	6.8 - 7.1	443.1 - 509.7	358 - 938	33.1 - 128.3
	07/07/09 - 07/11/09	17.7 - 20.9	5.3 - 8.0	7.0 - 7.3	361.4 - 508.1	506 - 1,002	4.4 - 39.7
	07/24/09 - 07/26/09	18.2 - 22.6	1.8 - 8.1	7.0 - 7.8	360.3 - 488.8	352 - 1,044	3.3 - 155.4
	11/14/09 - 11/16/09	9.3 - 11.5	2.7 - 10.5	6.9 - 7.2	387.3 - 463.5	184 - 942	4.3 - 329.2
	12/03/09 - 12/05/09	8.3 - 11.7	9.6 - 11.5	7.0 - 7.3	454.3 - 462.7	190 - 534	18.2 - 30.6
	01/25/10 - 01/27/10	1.5 - 3.9	11.0 - 11.8	6.9 - 7.2	169.8 - 284.1	398 - 1,040	7.8 - 178.7
	02/24/10 - 02/28/10	2.3 - 4.4	10.1 - 14.3	6.9 - 7.2	60.4 - 500.7	310 - 1,132	11.0 - 352.0
	03/13/10 - 03/17/10	4.5 - 7.6	9.5 - 11.5	6.8 - 7.2	601.7 - 999.0[2]	84 - 1,016	9.9 - 513.1
	08/25/10 - 08/25/10	18.3 - 18.8	7.7 - 9.0	6.6 - 6.8	286.9 - 371.2	106 - 302	10.9 - 81.4

Notes:
USGS = United States Geological Survey
˚C = Degrees Celsius
mg/l = milligrams per liter
s.u. = standard units
mV = milliVolts
µS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Units

Note: the pending software revision to Flowlink 5™ referenced in past storm reports has been implemented, but did not result in the reporting of correct turbidity values. However, according to representatives at Isco, the turbidity values reported in Flowlink 5™ are being magnified by a factor of one thousand. Therefore, the values reported have been corrected accordingly.

1 Dates shown indicate time period over which sample aliquots used in composite storm samples were collected; ranges of parameters reported are for same time period.
2 Highest value recorded prior to ORP sensor malfunction due to Isco 6712 power failure.

Table 5a
Storm Flow Laboratory Analytical Results for SW-2-IP (Atlantic Avenue Drainway)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Groundwater & Surface Water Investigation Plan												
SW-2	09/04/00	--	0.002U	0.002U	--	--	5U	--	--	--	--	--
	09/18/00	--	0.0025U	0.0025U	--	--	5U	--	--	--	--	--
	10/09/00	--	0.0025U	0.0025U	--	--	5U	--	--	--	--	--
	10/19/00	--	0.0036B	0.0025U	--	--	12	--	--	--	--	--
	12/18/00	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/23/01	--	0.0035U	0.0035U	--	--	21.6	--	--	--	--	--
	03/29/01	--	0.0025B	0.0042U	--	--	14	--	--	--	--	--
Remedial Design "Early Action"												
SW-2-IP	12/15/08	--	0.003U	0.003U	--	--	5U	0.229	0.05U	0.22U	0.54	0.31
Surface Water Monitoring Plan												
SW-2-IP	06/20/09	0.5U	0.003	0.003	1.3	0.06	6.3	0.086	0.08	0.27	0.76	0.67
	07/03/06	0.5U	0.003U	0.003U	1.8	0.34	14	0.187	0.05U	0.28	0.68	0.49
	07/09/09	0.5U	0.003U	0.003U	1.7	0.28	7.9	0.123	0.06	0.43	0.5	0.38
	07/26/09	0.5U	0.0028J	0.003U	1.2	0.38	12	0.613	0.028J	0.34	1.2	0.59
	11/16/09	0.5U	0.003U	0.003U	0.94	0.11	5.1	0.072J	0.05U	0.36	0.42	0.42
	12/04/09	0.5U	0.0025J	0.003U	1.2	0.12	10	0.136	0.05U	0.2	0.55	0.41
	01/27/10	0.5U	0.003U	0.003U	1	0.031J	12	0.182	0.05U	0.3	0.44	0.3U
	02/25/10	0.5U	0.003U	0.003U	0.8	0.13	5.8	0.213	0.05U	0.16	0.52	0.31
	03/01/10	0.5U	0.0022J	0.003U	0.64	0.12	6.5	0.181	0.025J	0.15	0.43	0.25J
	03/17/10	0.5U	0.003U	0.003U	0.4	0.12	5U	0.174	0.05U	0.2	0.46	0.3U
	08/26/10	0.5U	0.003U	0.003U	0.26	0.12	5U	0.075	0.05U	0.22	0.31	0.3U

Notes:

1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
AAD = Atlantic Avenue Drainway
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
B = For organic analytes, compound detected in laboratory blank; for inorganic analytes, analyte below reporting limit, but greater than or equal to 1/2 the laboratory detection limit (value is estimated)
NS = Not Sampled

Table 5b
Storm Flow Laboratory Analytical Results for SW-3-IP (Boston Edison Co. ROW)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Groundwater & Surface Water Investigation Plan												
SW-3	09/04/00	--	0.0058B	0.0057B	--	--	5U	--	--	--	--	--
	09/18/00	--	0.0102	0.0037B	--	--	5U	--	--	--	--	--
	10/09/00	--	0.0084B	0.0025U	--	--	5U	--	--	--	--	--
	10/19/00	--	0.0122	0.0093B	--	--	5	--	--	--	--	--
	12/18/00	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/23/01	--	0.022	0.0106	--	--	35.6	--	--	--	--	--
	03/29/01	--	0.0763	--	--	--	55.6	--	--	--	--	--
Remedial Design "Early Action"												
SW-3-IP	12/15/08	--	0.0024J	0.003U	--	--	15	0.246	0.05U	0.16U	0.59	0.34
Surface Water Monitoring Plan												
SW-3-IP	06/20/09	0.5U	0.024	0.004	1.8	0.06	29	0.759	0.1	0.46	1.2	0.44
	07/03/09	0.5U	0.036	0.004	3.6	0.16	58	1.27	0.05U	0.39	1.8	0.53
	07/09/09	0.5U	0.045	0.003U	5.8	0.046J	60	0.22	0.05U	0.32	0.59	0.37
	07/26/09	0.5U	0.004	0.0028J	0.35	0.05	5U	0.231	0.05U	0.1U	0.34	0.3U
	11/16/09	0.5U	0.05	0.0029J	5.3	0.04J	300	0.412	0.05U	0.19	1.3	0.89
	12/04/09	0.5U	0.042	0.003	3.8	0.042J	30	0.494	0.05U	0.16	0.79	0.3
	01/27/10	0.5U	0.046	0.003U	7.5	0.038J	120	0.27	0.05U	0.11	0.69	0.42
	02/25/10	0.5U	0.014	0.003U	2	0.11	26	1.87	0.05U	0.22	2.1	0.3U
	03/01/10	0.5U	0.007	0.003U	0.95	0.18	9	1.49	0.05U	0.13	1.7	0.21J
	03/17/10	0.5U	0.005	0.003	0.63	0.27	5.1	0.73	0.05U	0.24	0.9	0.3U
	08/26/10	0.5U	0.003	0.003U	0.4	0.046J	5U	0.0608J	0.05U	0.11	0.29J	0.3U

Notes:

1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
BECO ROW = Boston Edison Company Right-of-Way
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
B = For organic analytes, compound detected in laboratory blank; for inorganic analytes, analyte below reporting limit, but greater than or equal to 1/2 the laboratory detection limit (value is estimated)

Table 5c
Storm Flow Laboratory Analytical Results for SW-01-TT (Halls Brook)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Groundwater & Surface Water Investigation Plan												
SW-1	09/04/00	--	0.0028B	0.002U	--	--	5U	--	--	--	--	--
	09/18/00	--	0.0044B	0.0025U	--	--	5U	--	--	--	--	--
	10/09/00	--	0.0025U	0.0025U	--	--	5U	--	--	--	--	--
	10/19/00	--	0.0062B	0.005U	--	--	25.5	--	--	--	--	--
	12/18/00	--	0.0063B	0.0035U	--	--	13.6	--	--	--	--	--
	03/23/01	--	0.0036J	0.0035U	--	--	62.8	--	--	--	--	--
	03/29/01	--	0.0024U	0.0042U	--	--	5.2	--	--	--	--	--
Multiple Source Groundwater Response Plan												
SW-01-TT	04/26/02	--	0.0051	0.002U	2.76	0.327	31.2J	--	--	--	--	--
	05/15/02	--	0.0018J	0.002U	1.23	0.447	25.8J	--	--	--	--	--
	07/25/02	--	0.0036	0.0013U	1.94	0.226J	22.1J	--	--	--	--	--
	08/31/02	--	0.0057U	0.0039UJ	1.65	0.0573U	15.8J	--	--	--	--	--
	09/25/02	--	0.0022J	0.0025U	1.68	0.203	21.4J	--	--	--	--	--
	10/18/02	--	0.0042J	0.003U	2.06	0.0818U	20.4	--	--	--	--	--
Remedial Design "Early Action"												
SW-01-TT	12/15/08	--	0.005	0.003U	--	--	30	0.61	0.05U	0.71	1.8	1.2
Surface Water Monitoring Plan												
SW-01-TT	06/20/09	0.5U	0.003U	0.003U	1.5	0.34	6.9	0.992	0.12	0.96	1.7	0.71
	06/20/09A	--	0.0028J	0.003U	1.6	0.29	20	1.24	0.11	0.54	2	0.76
	07/03/09	0.5U	0.0027J	0.003U	3.1	0.6	16	1.01	0.05	0.49	0.98	0.3U
	07/09/09	0.5U	0.003U	0.003U	1.4	0.51	23	0.667	0.08	0.53	1.5	0.83
	07/26/09	0.5U	0.0027J	0.003U	1.3	0.31	7.3	0.0654J	0.05U	0.1	0.55	0.55
	11/16/09	0.5U	0.008	0.003U	5.6	0.3	130	0.474	0.05U	0.31	1.9	1.4
	12/04/09	0.5U	0.0023J	0.003U	1.7	0.26	21	0.63	0.05U	0.42	1.3	0.67
	01/27/10†	0.5U	0.005	0.003U	3.8	0.18	58	0.486	0.05U	0.38	1.3	0.81
	02/25/10	0.5U	0.0026J	0.003U	1.6	0.2	11	0.459	0.05U	0.32	1	0.54
	03/01/10	0.5U	0.004	0.003U	1.3	0.18	11	0.414	0.05U	0.36	1	0.59
	03/17/10	0.5U	0.003U	0.003U	0.37	0.13	7.8	0.29	0.05U	0.43	0.67	0.38
	08/26/10	0.5U	0.002J	0.003U	0.54	0.13	5U	0.17	0.05U	0.49	0.61	0.44

Notes:

1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated

†The samples collected from Stations SW-01-TT and SW-02-TT during the January 25-26, 2010 storm event do not reflect the laboratory-reported results. Specifically, based on historical analytical results for these stations and the results of a duplicate sample collected from Station SW-01-TT during the January 25-26, 2010 storm event, Roux Associates 1) believes that the sample designated as SW02TT_20100127 is actually the sample collected from Station SW-01-TT and the sample designated as SW01TT_20100127 is actually the sample collected from Station SW-02-TT and 2) has reported the results accordingly.

µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
B = For organic analytes, compound detected in laboratory blank; for inorganic analytes, analyte below reporting limit, but greater than or equal to 1/2 the laboratory detection limit (value is estimated)

Table 5d
Storm Flow Laboratory Analytical Results for SW-02-TT (HBHA Pond Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Groundwater & Surface Water Investigation Plan												
SW-4A	09/18/00	--	0.055	0.0034J	5.66	--	20	--	--	--	--	--
SW-4B	09/18/00	--	0.0452	0.0025U	5.01	--	18.5	--	--	--	--	--
SW-4A	10/09/00	--	0.01	0.0025U	0.8	--	5U	--	--	--	--	--
SW-4	10/19/00	--	0.0305	0.0108	2.52	--	7.5	--	--	--	--	--
	12/18/00	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/29/01	--	0.006J	0.0071J	0.881UJ	--	7.2	--	--	--	--	--
Multiple Source Groundwater Response Plan												
SW-02-TT	04/26/02	--	0.0217	0.008	2.24	0.56	8.8J	--	--	--	--	--
	05/15/02	--	0.0815	0.0274	5.28	1.28	15.5J	--	--	--	--	--
	07/25/02	--	0.0205	0.0037	2.06	0.138U	6J	--	--	--	--	--
	08/31/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/25/02	--	0.037	0.0038J	3.47	0.0391	7.6J	--	--	--	--	--
	10/18/02	--	0.0774	0.0083	6.52	0.297	23.6	--	--	--	--	--
Remedial Design "Early Action"												
SW-02-TT	12/15/08	--	0.012	0.008	--	--	5U	2.95	0.05U	0.58	3.7	0.75
Surface Water Monitoring Plan												
SW-02-TT	06/20/09	0.66	--	--	--	--	--	--	--	--	--	--
	07/03/09	0.5U	0.027	0.011	3.2	1.3	9.2	8.47	0.07	0.51	9.2	0.73
	07/09/09	4.7	0.019	0.009	2.8	1.3	9.5	4.43	0.1	0.68	5	0.57
	07/26/09	1.7	0.015	0.009	1.6	0.67	5U	3.15	0.037J	0.3	4	0.85
	11/16/09	9.1	0.008	0.009	1.3J	1.3J	11J	5.91	0.05U	0.38	6.9	0.99
	12/04/09	3.8	0.021	0.013	2	0.82	5U	5.7	0.05U	0.47	6.1	0.4
	01/27/10†	4.1	0.024	0.007	3.8	0.64	22	7.49	0.05U	0.4	8.5	1
	02/25/10	7.3	0.016	0.006	2.5	0.69	14	6.69	0.05U	0.34	7.2	0.51
	03/01/10	0.28J	0.005	0.004	0.72	0.36	10	1.15	0.025J	0.34	1.7	0.55
	03/17/10	0.37J	0.0026J	0.003U	0.5	0.19	5U	0.912	0.05U	0.42	1.3	0.39
	08/26/10	5	0.041	0.015	5.8	2.1	9.9	8.21	0.05U	0.44	8.4	0.3U

Notes:

1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated

†The samples collected from Stations SW-01-TT and SW-02-TT during the January 25-26, 2010 storm event do not reflect the laboratory-reported results. Specifically, based on historical analytical results for these stations and the results of a duplicate sample collected from Station SW-01-TT during the January 25-26, 2010 storm event, Roux Associates 1) believes that the sample designated as SW02TT_20100127 is actually the sample collected from Station SW-01-TT and the sample designated as SW01TT_20100127 is actually the sample collected from Station SW-02-TT and 2) has reported the results accordingly.

HBHA = Halls Brook Holding Area
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
NS = Not Sampled

Table 5e
Storm Flow Laboratory Analytical Results for SW-04-TT (HBHA Wetland Outlet)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Groundwater & Surface Water Investigation Plan												
SW-9	09/18/00	--	0.0215	0.0028J	1.73	--	7	--	--	--	--	--
	10/09/00	--	0.0093	0.0025U	1.14	--	5	--	--	--	--	--
	10/19/00	--	0.0194	0.0108	1.9	--	5U	--	--	--	--	--
	12/18/00	--	0.009	0.0039J	1.5	--	5U	--	--	--	--	--
	03/23/01	--	0.0142	0.0086	1.49	--	7.2	--	--	--	--	--
	03/29/01	--	0.0072	0.0042U	1.18UJ	--	14.4	--	--	--	--	--
SW-9A	03/23/01	--	0.0035U	--	--	--	5	--	--	--	--	--
Multiple Source Groundwater Response Plan[2]												
SW-04-TT	04/26/02	--	0.0121	0.002U	1.93	0.419	TBD	--	--	--	--	--
	05/16/02	--	0.0075	0.002U	1.44	1.475	TBD	--	--	--	--	--
	07/25/02	--	0.0115	0.0037	1.4	0.0608	TBD	--	--	--	--	--
	08/31/02	--	0.0195	0.0019	1.73	0.0208	TBD	--	--	--	--	--
	09/25/02	--	0.0111	0.0038	1.44	0.486	TBD	--	--	--	--	--
	10/18/02	--	0.0294	0.0015	3.31	0.667	TBD	--	--	--	--	--
Remedial Design "Early Action"												
SW-04-TT	12/15/08	--	0.011	0.005	--	--	5.5	2.46	0.05U	0.48	3.1	0.64
Surface Water Monitoring Plan												
SW-04-TT	06/20/09	0.36J	0.016	0.003	--	--	5.5	3.95	0.12	0.58	4.5	0.55
	06/20/09A	--	0.014	0.007	1.9	0.72	14	2.74	0.12	0.53	3.3	0.56
	07/03/09	0.5U	0.02	0.008	--	--	9.5	5.84	0.1	0.71	6.9	1.1
	07/09/09	0.5U	0.016	0.008	--	--	7.3	3.55	0.14	0.55	4.2	0.65
	07/26/09	0.5U	0.011	0.005	--	--	5U	2.38	0.06	0.41	3	0.62
	11/16/09	1.9	0.017	0.008	--	--	5.9	5.79	0.05U	0.4	6.4	0.61
	12/04/09	2.2	0.015	0.007	--	--	5U	5.13	0.028J	0.68	5.4	0.27J
	01/27/10	0.5U	0.015	0.008	--	--	13	7.12	0.032J	0.46	7.7	0.58
	02/25/10	0.5	0.012	0.006	--	--	6.3	6.06	0.05U	0.36	6.4	0.34
	03/01/10	0.5U	0.004	0.0022J	--	--	5U	0.953	0.05U	0.33	1.3	0.35
	03/17/10	0.5U	0.0022J	0.0022J	--	--	5U	0.683	0.05U	0.43	0.95	0.3U
	08/26/10	1.2	0.021	0.011	--	--	5U	7.44	0.034J	0.57	7.8	0.36

Notes:
1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.
2 As described in the RI/FS, multiple samples were analyzed during the MSGRP storm events. The flow-weighted values for each storm event are shown.

* Not yet validated
HBHA = Halls Brook Holding Area
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
TBD = to be determined

Table 5f
Storm Flow Laboratory Analytical Results for SW-03-TT (Aberjona)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Multiple Source Groundwater Response Plan												
SW-03-TT	04/26/02	--	0.0121	0.002U	1.93	0.307	--	--	--	--	--	--
	05/15/02	--	0.0075	0.002U	1.44	0.404	5UJ	--	--	--	--	--
	07/25/02	--	0.0117	0.0041	1.32	0.143	7J	--	--	--	--	--
	08/31/02	--	0.0195	0.0037UJ	1.73	0.14U	8.8J	--	--	--	--	--
	09/25/02	--	0.0122	0.004J	1.44	0.335	5.2J	--	--	--	--	--
	10/18/02	--	0.0284	0.003U	3.14	0.0721U	17.2	--	--	--	--	--
Surface Water Monitoring Plan												
SW-03-TT	06/20/09	0.5U	0.006	0.005	--	--	6.6	0.312	0.12	0.57	0.83	0.52
	07/03/09	0.5U	0.005	0.003U	--	--	18	0.249	0.08	0.58	1	0.75
	07/09/09	0.5U	0.004	0.003U	--	--	22	0.241	0.09	0.6	0.93	0.69
	07/26/09	0.5U	0.004	0.0029J	--	--	5U	0.256	0.07	0.75	0.75	0.49
	11/16/09	0.5U	0.009	0.003U	--	--	16	0.134	0.05U	0.36	0.69	0.56
	12/04/09	0.5U	0.003U	0.003	--	--	5U	0.248	0.028J	0.55	0.72	0.47
	01/27/10	0.5U	0.009	0.003U	--	--	28	0.315	0.05U	0.48	0.93	0.62
	02/25/10	0.5U	0.013	0.003U	--	--	42	0.292	0.05U	0.4	1	0.71
	03/01/10	0.5U	0.003U	0.003U	--	--	6.7	0.201	0.05U	0.45	0.57	0.37
	03/17/10	0.5U	0.003U	0.003U	--	--	5U	0.105	0.05U	0.47	0.48	0.38
	08/26/10	0.5U	0.05	0.003	--	--	16	0.16	0.05U	0.31	0.82	0.66

Notes:

1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.

Table 5g
Storm Flow Laboratory Analytical Results for SW-05-TT (Salem Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Multiple Source Groundwater Response Plan												
SW-05-TT	04/26/02	--	0.015	0.0022J	2.09	0.356	15.7	--	--	--	--	--
	05/15/02	--	0.0233	0.0126	2.21	0.968	8J	--	--	--	--	--
	07/25/02	--	0.0175	0.0023J	1.85	0.129	4.4J	--	--	--	--	--
	08/31/02	--	0.0126	0.0025U	1.16	0.0884U	3J	--	--	--	--	--
	09/25/02	--	0.0115	0.0025U	1.15	0.0607	3.6J	--	--	--	--	--
	10/18/02	--	0.012	0.003U	1.46	0.244	6.8	--	--	--	--	--
Surface Water Monitoring Plan												
SW-05-TT	06/20/09	0.5U	0.01	0.004	--	--	8	0.801	0.13	0.67	1.6	0.8
	07/03/09	0.5U	0.008	0.004	--	--	10	1.13	0.11	0.65	1.8	0.67
	07/09/09	0.5U	0.008	0.007	--	--	5U	1.65	0.18	0.76	2.3	0.65
	07/26/09	0.5U	0.006	0.005	--	--	5U	0.423	0.07	0.7	0.93	0.51
	11/16/09	0.5U	0.01	0.006	--	--	5U	1.94	0.028J	0.56	2.6	0.66
	12/04/09	0.5U	0.007	0.003	--	--	5U	1.67	0.032J	0.7	2	0.33
	01/27/10	0.5U	0.024	0.0021J	--	--	35	2.67	0.05U	0.51	3.5	0.83
	03/01/10	0.5U	0.004	0.0027J	--	--	5.9	1.36	0.05U	0.41	1.8	0.44
	03/17/10	0.5U	0.0022J	0.003	--	--	5U	0.461	0.05U	1.3	0.79	0.33
	08/26/10	0.5U	0.013	0.006	--	--	5.2	2.96	0.06	0.53	3.5	0.54

Notes:
1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.

Table 5h
Storm Flow Laboratory Analytical Results for SW-06-TT (Montvale Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Multiple Source Groundwater Response Plan												
SW-06-TT	04/26/02	--	0.0168	0.0034J	3.01	0.595	30.4	--	--	--	--	--
	05/15/02	--	0.0212	0.0118	2.15	0.79	11.5J	--	--	--	--	--
	07/25/02	--	0.0152	0.0025J	1.92	0.116U	8J	--	--	--	--	--
	08/31/02	--	0.0152	0.0025U	1.54	0.0919U	9.2J	--	--	--	--	--
	09/25/02	--	0.0255	0.0038J	2.77	0.211	18.6J	--	--	--	--	--
	10/18/02	--	0.0255	0.0026J	3.4	0.378	27.8	--	--	--	--	--
Surface Water Monitoring Plan												
SW-06-TT	06/20/09	0.5U	0.011	0.004	--	--	9.4	0.993	0.16	0.74	1.5	0.51
	07/03/09	0.5U	0.009	0.0022J	--	--	54	1.2	0.09	1	1.9	0.7
	07/09/09	0.5U	0.009	0.004	--	--	7.5	1.15	0.14	0.82	1.8	0.65
	07/26/09	0.5U	0.007	0.004	--	--	5U	0.695	0.06	0.62	1.2	0.5
	11/16/09	0.5U	0.014	0.003	--	--	18	1.57	0.027J	0.62	2.2	0.63
	12/04/09	0.5U	0.009	0.005	--	--	9.1	1.4	0.039J	1.6	1.9	0.5
	01/27/10	0.5U	0.014	0.0024J	--	--	33	2.34	0.029J	0.6	2.9	0.56
	03/01/10	0.5U	0.0028J	0.003U	--	--	5U	1.11	0.05U	0.51	1.6	0.49
	03/17/10	0.5U	0.007	0.003U	--	--	24	0.243	0.05U	0.81	0.81	0.57
	08/26/10	0.5U	0.012	0.004	--	--	8.1	2.04	0.06	0.58	2.7	0.66

Notes:
1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.

Table 5i
Storm Flow Laboratory Analytical Results for SW-07-TT (Swanton Street)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Multiple Source Groundwater Response Plan												
SW-07-TT	04/26/02	--	0.0117	0.002U	2.52	0.165	33.2	--	--	--	--	--
	05/15/02	--	0.0181	0.0077	1.93J	0.722	9J	--	--	--	--	--
	07/25/02	--	0.0053	0.0014J	0.91	0.0742J	6.1J	--	--	--	--	--
	08/31/02	--	0.0048J	0.0025U	0.777	0.0495U	6J	--	--	--	--	--
	09/25/02	--	0.0072	0.0032	0.88	0.206	4J	--	--	--	--	--
	10/18/02	--	0.0112	0.0036J	1.66	0.224	5.4	--	--	--	--	--
Surface Water Monitoring Plan												
SW-07-TT	06/20/09	0.5U	0.009	0.004	--	--	23	0.573	0.15	0.8	1.2	0.63
	07/03/09	0.5U	0.012	0.003U	--	--	130	0.419	0.08	0.83	1.4	0.98
	07/09/09	0.5U	0.009	0.004	--	--	15	0.949	0.13	0.88	1.75	0.75
	07/24/09	0.5U	0.007	0.0026J	--	--	9.5	0.539	0.07	0.71	1.1	0.56
	11/16/09	0.5U	0.008	0.003	--	--	13	1.13	0.05U	0.62	1.8	0.67
	12/04/09	0.5U	0.006	0.003U	--	--	5	1.08	0.039J	0.85	1.4	0.32
	01/27/10	0.5U	0.012	0.0023J	--	--	44	1.67	0.05U	0.61	2.4	0.73
	03/01/10	0.5U	0.0023J	0.0024J	--	--	5U	1.12	0.05U	0.58	1.4	0.28J
	03/17/10	0.5U	0.003U	0.003U	--	--	8.5	0.265	0.05U	0.8	0.69	0.42
	08/27/10	0.5U	0.013	0.005	--	--	29	1.57	0.08	0.85	2.4	0.83

Notes:
1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.

* Not yet validated
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.

Table 5j
Storm Flow Laboratory Analytical Results for SW-08-TT (USGS / Mystic Avenue)
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

DRAFT

Sample ID	Date[1]	Benzene (µg/l)	Total Arsenic (mg/l)	Dissolved Arsenic (mg/l)	Total Iron (mg/l)	Dissolved Iron (mg/l)	TSS (mg/l)	Ammonia (mg/l)	Nitrite (mg/l)	Nitrate (mg/l)	TKN (mg/l)	Total Organic Nitrogen (mg/l)
Multiple Source Groundwater Response Plan[2]												
SW-08-TT	04/26/02	--	0.0082	0.0017	2.279	0.187	TBD	--	--	--	--	--
	05/16/02	--	0.0299	0.0034	8.858	0.317	TBD	--	--	--	--	--
	07/25/02	--	0.0064	0.0014	1.088	0.0066	TBD	--	--	--	--	--
	08/31/02	--	0.0085	0.0014	2.181	0.0021	TBD	--	--	--	--	--
	09/25/02	--	0.0068	0.0022	1.568	0.123	TBD	--	--	--	--	--
	10/18/02	--	0.0041	0.0018	0.806	0.23	TBD	--	--	--	--	--
Surface Water Monitoring Plan												
SW-08-TT	06/20/09	0.5U	0.008	0.004	--	--	18	0.413	0.11	0.79	1	0.59
	07/03/09	0.5U	0.006	0.003U	--	--	29	0.462	0.09	0.82	1.5	1
	07/11/09	0.5U	0.003	0.004	--	--	13	0.229	0.07	0.78	0.98	0.75
	07/26/09	0.5U	0.005	0.0025J	--	--	9.4	0.288	0.05	0.65	1.2	0.91
	11/16/09	0.5U	0.006	0.003	--	--	15	0.548	0.026J	0.55	1.4	0.85
	12/04/09	0.5U	0.004	0.0021J	--	--	5U	0.95	0.031J	0.77J	1.1	0.15J
	01/27/10	0.5U	0.009	0.0026J	--	--	33	1.4	0.03J	0.64	2	0.6
	03/01/10	0.5U	0.003	0.003U	--	--	8.9	0.599	0.05U	0.66	1.1	0.5
	03/17/10	0.5U	0.0022J	0.003U	--	--	17	0.236	0.05U	1.6	0.59	0.35
	08/26/10	0.5U	0.006	0.006	--	--	12	0.322	0.05U	0.44	0.85	0.53

Notes:
1 Dates shown are dates on which composite storm samples were prepared; benzene samples are typically collected one or more days before the date shown.
2 As described in the RI/FS, multiple samples were analyzed during the MSGRP storm events. The flow-weighted values for each storm event are shown.

* Not yet validated
µg/l = micrograms per liter
mg/l = milligrams per liter
TSS = Total Suspended Solids
TKN = Total Kjeldahl Nitrogen
-- = Sample not analyzed for this compound
U = Compound or sample not detected; value shown is reporting limit
J = Analyte concentration is below quantitation limit, but greater than or equal to 1/2 the laboratory detection limit. Value is estimated.
TBD = to be determined

Table 6 *DRAFT*

Relative Surface Water and Groundwater Elevations at Time of Storm Sampling
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

Station ID	Station Description	Date[1]	Surface Water			Groundwater			Gradient
			Measuring Point[2] (ft)	Staff Gage Reading (ft)	Surface Water Elevation[3] (ft)	Measuring Point[4] (ft)	Depth to Water (ft)	Groundwater Elevation[3] (ft)	
SW-2-IP	AAD	06/19/09	92.34	0.62	92.96	95.16	3.16	92.00	Down
		07/01/09	92.34	NM	NA	95.16	NM	NA	NA
		07/07/09	92.34	1.44	93.78	95.16	NM	NA	NA
		07/24/09	92.34	1.05	93.39	95.16	2.42	92.74	Down
		11/14/09	92.34	1.20	93.54	95.16	2.35	92.81	Down
		12/03/09	92.34	0.92	93.26	95.16	2.54	92.62	Down
		01/25/10	92.34	1.28	93.62	95.16	2.41	92.75	Down
		02/24/10	92.34	0.95	93.29	95.16	2.76	92.40	Down
		02/25/10	92.34	1.00	93.34	95.16	2.21	92.95	Down
		03/13/10	92.34	0.82	93.16	95.16	2.75	92.41	Down
		08/25/10	92.34	1.32	93.66	95.16	1.80	93.36	Down
SW-3-IP	BECO ROW	06/19/09	93.74	0.40	94.14	97.76	2.47	95.29	Up
		07/01/09	93.66	NM	NA	97.76	NM	NA	NA
		07/07/09	93.66	1.68	95.34	97.76	NM	NA	NA
		07/24/09	93.66	1.70	95.36	97.76	1.53	96.23	Up
		11/14/09	93.66	2.00	95.66	97.76	1.05	96.71	Up
		12/03/09	93.66	1.48	95.14	97.76	1.50	96.26	Up
		01/25/10	93.66	1.70	95.36	97.76	1.50	96.26	Up
		02/24/10	93.66	1.79	95.45	97.76	1.20	96.56	Up
		02/25/10	93.66	1.82	95.48	97.76	0.93	96.83	Up
		03/13/10	93.66	0.88	94.54	97.76	2.05	95.71	Up
		08/25/10	93.66	2.00	95.66	97.76	1.10	96.66	Up
SW-01-TT	Halls Brook	06/19/09	92.98	1.58	94.56	96.87	5.28	91.59	Down
		07/01/09	92.98	NM	NA	96.87	NM	NA	NA
		07/07/09	92.98	2.48	95.46	96.87	NM	NA	NA
		07/24/09	92.98	2.42	95.40	96.87	4.72	92.15	Down
		11/14/09	92.98	2.45	95.43	96.87	5.07	91.80	Down
		12/03/09	92.98	2.26	95.24	96.87	4.89	91.98	Down
		01/25/10	92.98	2.58	95.56	96.87	5.14	91.73	Down
		02/24/10	92.98	2.48	95.46	96.87	4.95	91.92	Down
		02/25/10	92.98	2.40	95.38	96.87	3.92	92.95	Down
		03/13/10	92.98	1.98	94.96	96.87	5.04	91.83	Down
		08/25/10	92.98	2.85	95.83	96.87	4.30	92.57	Down
SW-02-TT	HBHA Pond Outlet	06/19/09	97.77	1.58	99.35	103.88	4.47	99.41	Up
		07/01/09	97.77	NM	NA	103.88	NM	NA	NA
		07/07/09	97.77	2.74	100.51	103.88	3.21	100.67	Up
		07/24/09	97.77	2.65	100.42	103.88	3.24	100.64	Up
		11/14/09	97.77	2.88	100.65	103.88	3.15	100.73	Up
		12/03/09	97.77	2.70	100.47	103.88	3.38	100.50	Up
		01/25/10	97.77	1.52	99.29	103.88	3.52	100.36	Up
		02/24/10	97.77	2.62	100.39	103.88	3.38	100.50	Up
		02/25/10	97.77	2.95	100.72	103.88	3.05	100.83	Up
		03/13/10	97.77	1.96	99.73	103.88	4.03	99.85	Up
		08/25/10	97.77	3.20	100.97	103.88	2.85	101.03	Up
SW-03-TT	Aberjona	06/19/09	93.46	1.28	94.74	97.41	2.59	94.82	Up
		07/01/09	93.46	NM	NA	97.41	NM	NA	NA
		07/07/09	93.46	NM	NA	97.41	NM	NA	NA
		07/24/09	93.46	2.30	95.76	97.41	1.75	95.66	Down
		11/14/09	93.46	2.80	96.26	97.41	1.46	95.95	Down
		12/03/09	93.46	2.02	95.48	97.41	1.91	95.50	Up
		01/25/10	93.46	2.58	96.04	97.41	1.50	95.91	Down
		02/24/10	93.32	2.10	95.42	97.41	2.16	95.25	Down
		02/25/10	93.32	2.60	95.92	97.41	1.36	96.05	Up
		03/13/10	93.32	1.70	95.02	97.41	2.28	95.13	Up
		08/25/10	93.32	2.65	95.97	97.41	1.42	95.99	Up
SW-05-TT	Salem Street	06/19/09	90.89	5.06	95.95	98.23	2.46	95.77	Down
		07/01/09	90.89	NM	NA	98.23	NM	NA	NA
		07/07/09	90.89	NM	NA	98.23	NM	NA	NA
		07/24/09	94.16	NM	NA	98.23	2.21	96.02	NA
		11/14/09	93.98	3.19	97.17	98.23	1.37	96.86	Down
		12/03/09	93.98	NM	NA	98.23	1.66	96.57	NA
		01/25/10	93.96	2.40	96.36	98.23	1.97	96.26	Down
		02/24/10	93.96	2.38	96.34	98.23	2.05	96.18	Down
		03/13/10	94.58	1.40	95.98	98.23	2.29	95.94	Down
		08/25/10	94.58	2.65	97.23	98.23	1.36	96.87	Down

Table 6 *DRAFT*

Relative Surface Water and Groundwater Elevations at Time of Storm Sampling
Industri-Plex Superfund Site Operable Unit 2
Woburn, Massachusetts

Station ID	Station Description	Date[1]	Surface Water			Groundwater			Gradient
			Measuring Point[2] (ft)	Staff Gage Reading (ft)	Surface Water Elevation[3] (ft)	Measuring Point[4] (ft)	Depth to Water (ft)	Groundwater Elevation[3] (ft)	
SW-06-TT	Montvale Avenue	06/19/09	92.76	2.36	95.12	98.48	3.30	95.18	Up
		07/01/09	92.76	NM	NA	98.48	NM	NA	NA
		07/07/09	92.76	NM	NA	98.48	NM	NA	NA
		07/24/09	92.76	NM	NA	98.48	2.84	95.64	NA
		11/14/09	92.76	4.05	96.81	98.48	NM	NA	NA
		12/03/09	92.27	3.78	96.05	98.48	NM	NA	NA
		01/25/10	92.27	4.14	96.41	98.48	2.30	96.18	Down
		02/24/10	92.32	3.70	96.02	98.48	NM	NA	NA
		03/13/10	92.48	3.26	95.74	98.48	NM	NA	NA
		08/25/10	92.48	4.30	96.78	98.48	1.80	96.68	Down
SW-07-TT	Swanton Street	06/19/09	90.03	1.55	91.58	93.87	2.11	91.76	Up
		07/01/09	90.03	NM	NA	93.87	NM	NA	NA
		07/07/09	90.03	NM	NA	93.87	NM	NA	NA
		07/24/09	90.11	NM	NA	93.87	1.89	91.98	NA
		11/14/09	90.11	3.10	93.21	93.87	0.87	93.00	Down
		12/03/09	90.11	2.66	92.77	93.87	1.25	92.62	Down
		01/25/10	90.11	2.58	92.69	93.87	1.58	92.29	Down
		02/24/10	90.11	2.30	92.41	93.87	1.85	92.02	Down
		03/13/10	90.11	1.72	91.83	93.87	2.00	91.87	Up
		08/25/10	90.11	3.80	93.91	93.87	NM	NA	NA
SW-08-TT	USGS / Mystic Avenue	06/19/09	89.49	3.30	92.79	95.28	3.05	92.23	Down
		07/01/09	89.49	NM	NA	95.28	NM	NA	NA
		07/07/09	Unk.	NM	NA	95.28	NM	NA	NA
		07/24/09	89.44	11.65	101.09	95.28	2.43	92.85	Down
		11/14/09	81.29	12.30	93.59	95.28	1.97	93.31	Down
		12/03/09	81.29	12.00	93.29	95.28	2.29	92.99	Down
		01/25/10	81.29	11.82	93.11	95.28	2.57	92.71	Down
		02/24/10	81.29	11.70	92.99	95.28	2.72	92.56	Down
		03/13/10	81.29	10.90	92.19	95.28	2.85	92.43	Up
		08/25/10	81.29	12.60	93.89	95.28	1.93	93.35	Down

Notes:

1 Relative surface water and groundwater elevations were recorded during benzene grab sampling following the onset of the storm.

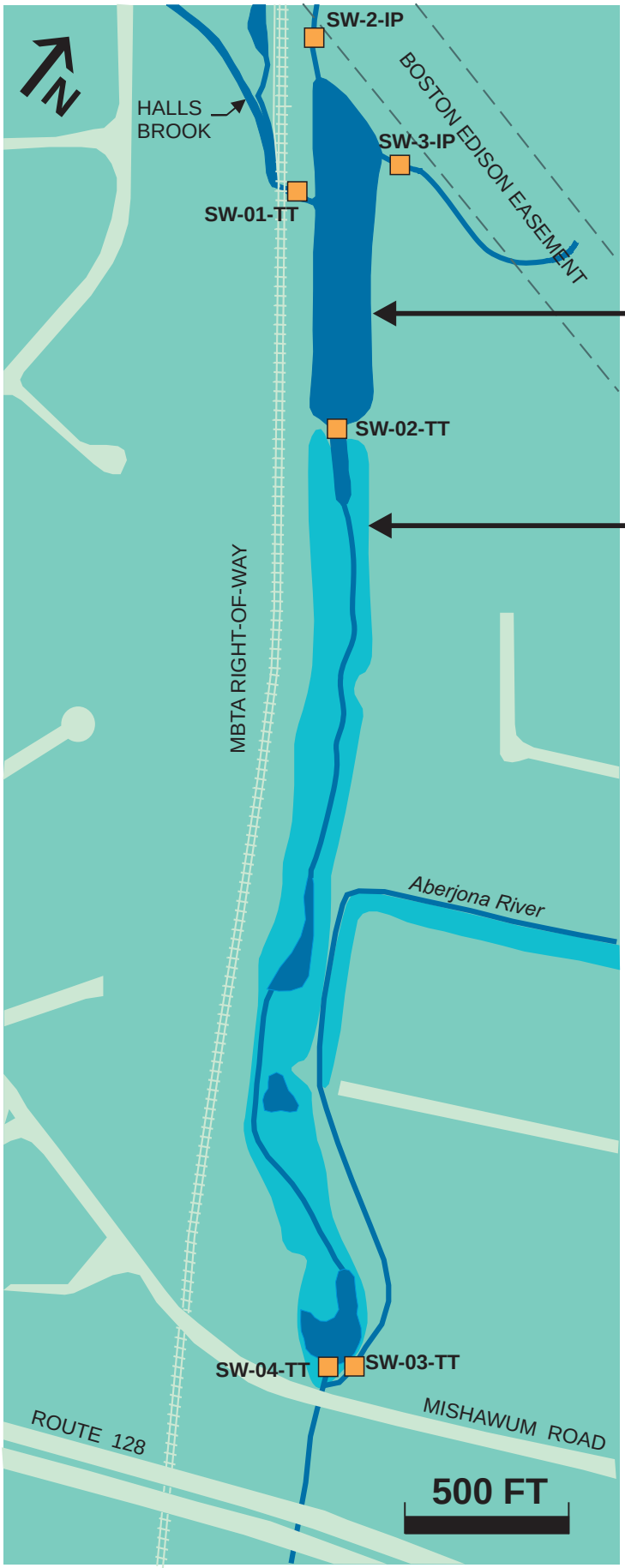
2 Reference point is base of gauge (0.00 feet)

3 All elevations are relative to station-specific benchmarks and, therefore, are not comparable between stations.

4 Reference point is top of casing

AAD = Atlantic Avenue Drainway
BECO ROW = Boston Edison Company right-of-way
HBHA = Halls Brook Holding Area
USGS = United States Geological Survey
NA = Not Applicable
NM = Not Measured (e.g., unable to access due to high stage, water frozen in piezometer, piezometer full, staff gauge knocked over). During the July 2009 storm events, staff gauges that were knocked over were unable to be reset prior to the subsequent storm, and therefore measurements were not obtained.
Unk. = Unknown Value

FIGURES



LEGEND

SW-01-TT ■ APPROXIMATE LOCATION AND DESIGNATION OF SURFACE WATER MONITORING STATION

DRAFT

Title:

SURFACE WATER MONITORING STATIONS NORTH OF ROUTE 128

Prepared for:

INDUSTRI-PLEX OU 2 SETTLING DEFENDANTS

ROUX ASSOCIATES INC.
Environmental consulting & Management

Compiled by: LM	Date: 7/10/09	FIGURE
Prepared by: CRS	Scale: AS SHOWN	1
Project Mgr.: LM	Office: MA	
File No.: IPS0114202	Project No.: 119407M07	

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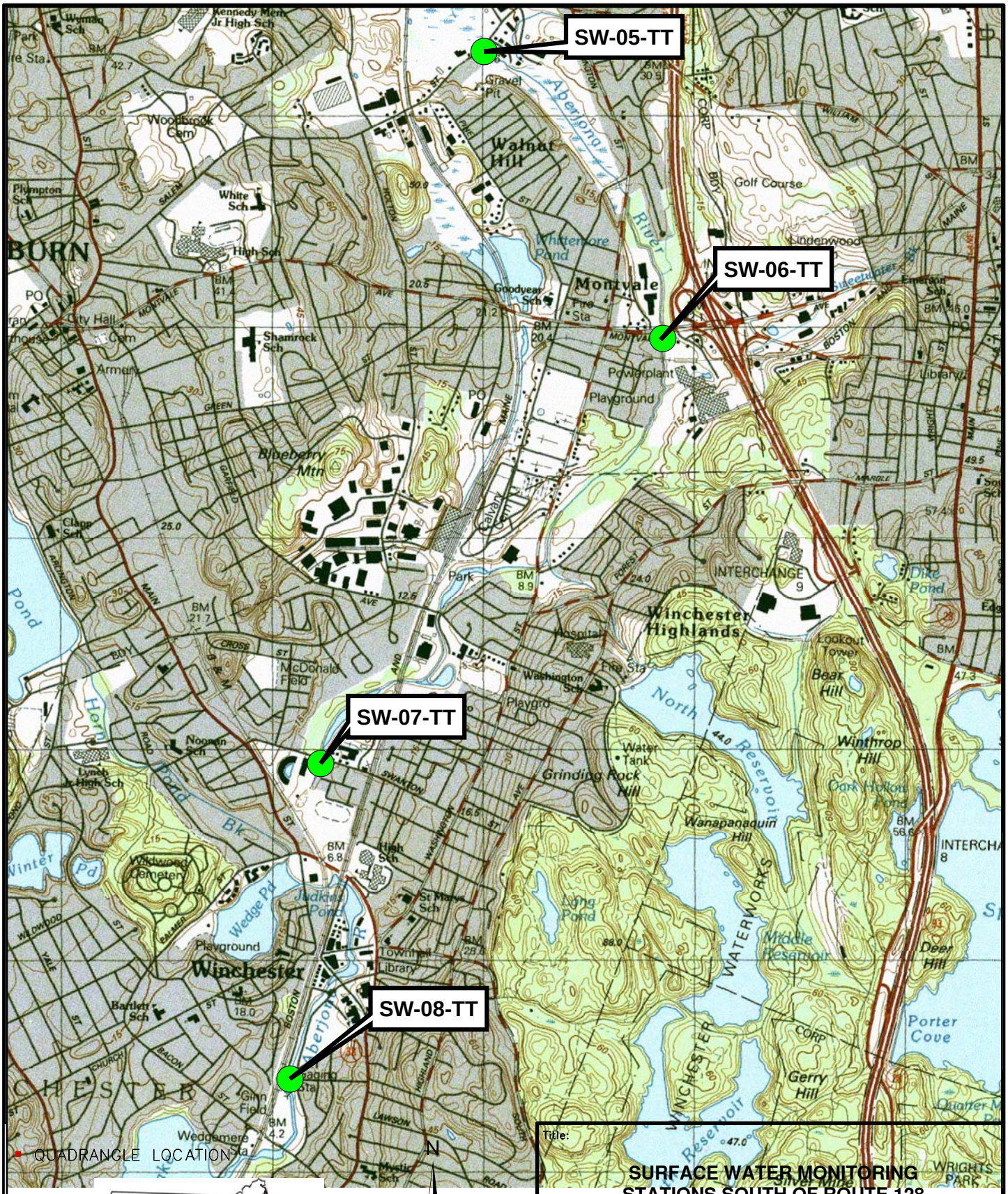

SOURCE:
USGS, 1987.
Reading (Massachusetts) Quadrangle
1:25,000–scale Topographic Map

Title:

SURFACE WATER MONITORING STATIONS SOUTH OF ROUTE 128

Prepared For:

INDUSTRI-PLEX OU 2 SETTLING DEFENDANTS

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled By: LM	Date: 7/10/09	FIGURE	
Prepared By: CRS	Scale: AS SHOWN	2	
Project Mgr.: LM	Office: MA		
File No.: IPS0114201	Project: 119401M		

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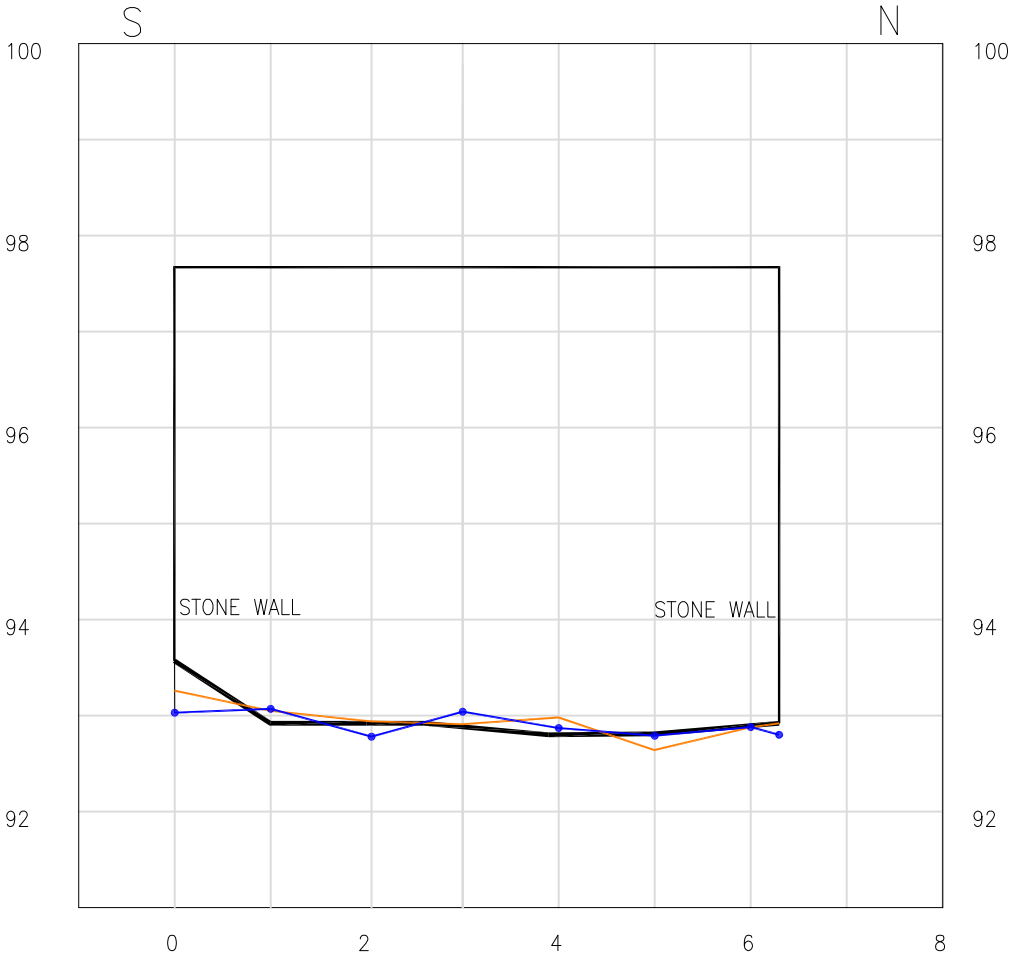


DRAFT

Notes:

1. Profile is drawn looking upstream.

2. Elevations are referenced to an arbitrary benchmark (=100 ft) at the southeast corner of concrete pad.

3. Cross-sections shown are for the current reporting period and previous profile.

2' 0 2'

BASELINE (MARCH 2009) CROSS-SECTION
02-01-10 POST-STORM CROSS-SECTION
09-08-10 POST-STORM CROSS-SECTION

Title:

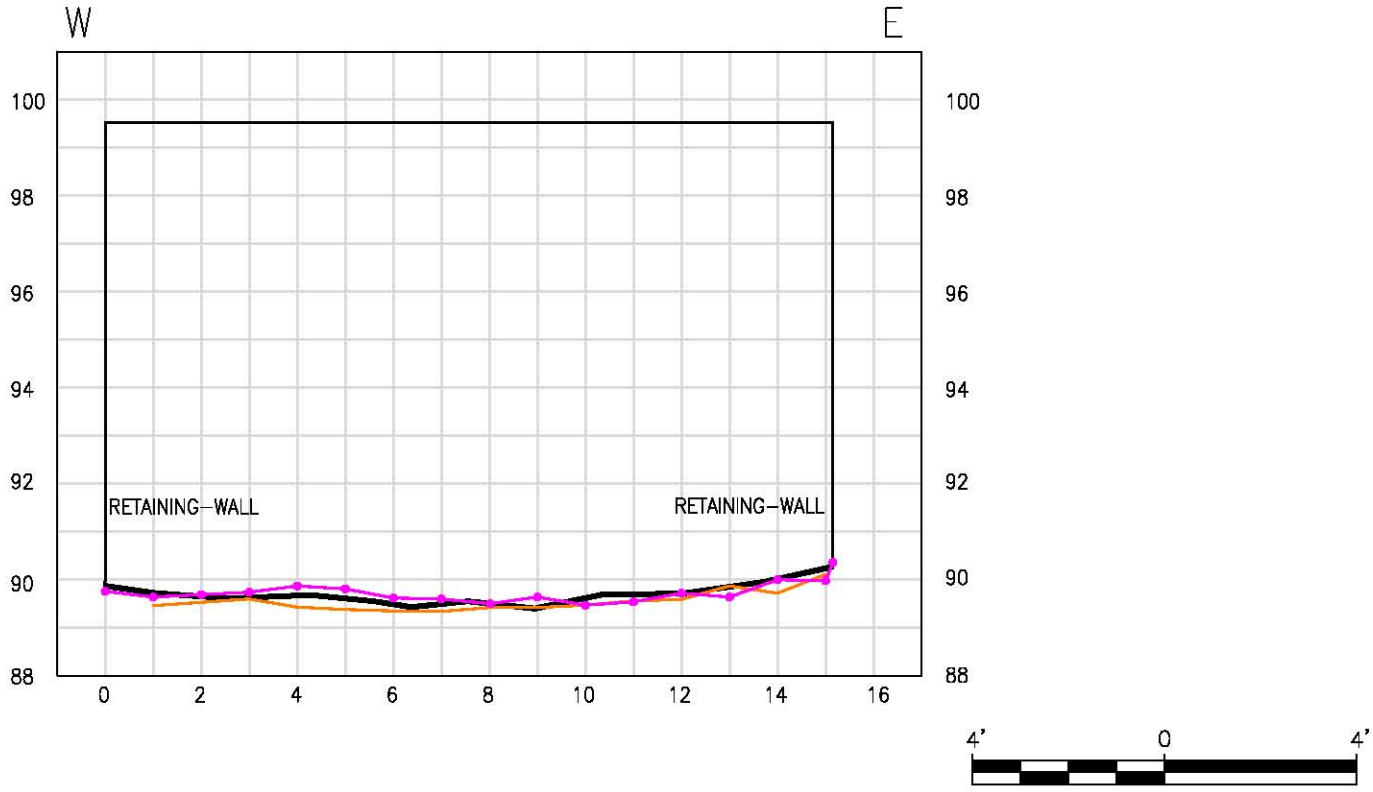
POST-STORM STREAM CROSS-SECTION STATION SW-01-TT (HALLS BROOK)

Prepared For:
INDUSTRI-PLEX OU2 SETTLING DEFENDANTS

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: LM	Date: 9/3/10	FIGURE
Prepared by: CC	Scale: AS SHOWN	3
Project Mgr: LM	Office: MA	
File No: IPS0116803	Project: 119401M07	

N:\PROJECTS\I-PLEX\119401M07\169\IPS0116904.dwg



DRAFT

Notes:

1. Profile is drawn looking upstream.

2. Elevations are referenced to an arbitrary benchmark (=100 ft) at the southeast corner of concrete pad.

3. Cross-sections shown are for the current reporting period and previous profile.

BASELINE (MARCH 2009) CROSS-SECTION
04-13-10 POST-STORM CROSS-SECTION
09-08-10 POST-STORM CROSS-SECTION

Title:

POST-STORM STREAM CROSS-SECTION STATION SW-07-TT (SWANTON STREET)

Prepared For:
INDUSTRI-PLEX OU2 SETTLING DEFENDANTS

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: LM	Date: 9/3/10	FIGURE
Prepared by: CC	Scale: AS SHOWN	4
Project Mgr: LM	Office: MA	
File No: IPS0116904	Project: 119401M07	

APPENDICES

APPENDIX A

Storm Hydrographs including Narrative

August 24-25, 2010

August 24-25, 2010

Note: Start of sampling was delayed due to a sudden change in forecast (i.e., significant rain was not projected). Samplers were activated after initial rain.

- SW-2-IP:
  - The first aliquot was not collected due to a manufacturer program error associated with delayed activation of samplers
  - Initial aliquot is shown on hydrograph due to pump head calibration, and was not collected
  - Six aliquots were collected after 75% of the falling limb was reached and were inadvertently included in the composite
- SW-3-IP:
  - Initial aliquot is shown on hydrograph due to pump head calibration, and was not collected
  - Four aliquots (#7, 8, 17 and 18) were not collected due to kinked tubing; in addition, the secondary Isco unit did not initiate sampling (i.e., the co-collected samples were not available)
  - Eight aliquots were collected after 75% of the falling limb was reached and were not included in the composite
  - Pond backup began at approximately 9:04 am on 8/25
- SW-01-TT:
  - Measured precipitation low due to blocked rain gauge
  - The first aliquot was not collected due to a manufacturer program error associated with delayed activation of samplers
  - Aliquots not collected between approximately 2:13 pm and 3:30 pm on 8/25 due to delays in changing out rosettes
  - Sample termination occurred just prior to achieving 50% of the falling limb (fourteen aliquots shown on the hydrograph were inadvertently not included in the composite)
  - Water quality data for temperature, specific conductivity and turbidity were collected through first rosette only due to incomplete data transfer; remaining data is unrecoverable
- SW-02-TT:
  - The first aliquot was not collected due to a manufacturer program error associated with delayed activation of samplers
  - Aliquots not collected between approximately 9:50 pm and 10:19 pm on 8/25 due to delays in changing out rosettes
  - Water quality data is rejected due to communication error between the In-Situ Troll and the Isco 6712
  - Velocity and stage (and therefore flow) data was collected through first rosette only due to incomplete data transfer; remaining data is unrecoverable; flows shown after first rosette are extrapolated
- SW-04-TT:
  - Aliquots not collected between approximately 1:55 pm and 3:24 pm on 8/25, and 7:45 pm and 9:50 pm on 8/25 due to delays in changing out rosettes
- SW-07-TT:
  - No velocity data was reported during the storm event due to malfunction (i.e., corroded connection) of the Isco 750 module
  - Due to A/V sensor malfunction, stage (and hence flow) data do not represent actual conditions
  - Three aliquots were collected after 75% of the falling limb was reached and were intentionally included in the composite
- SW-08-TT:
  - Rain, velocity, and stage (and hence flow) data lost during the rising limb between approximately 9:50 pm on 8/24 and 10:45 am on 8/25 due to power failures; only one Isco 6712 unit remained in operation
  - An approximate 4-ft difference was observed between the staff gauge and Isco A/V sensor reading at approximately 5:15 pm on 8/25; stage was therefore re-calibrated

(continued)

- Isco 6712 unit malfunction; therefore stage (and hence flow) data do not represent actual conditions
- A supplemental hydrograph based on the data collected from USGS 01102500 Aberjona River at Winchester, MA monitoring station
- Two aliquots (#3 and 4) were not collected due to a damaged bottle; in addition, the secondary Isco unit did not initiate sampling (i.e., the co-collected samples were not available)
- Aliquots not collected between approximately 4:52 pm and 5:21 pm on 8/25 due to delays in changing out rosettes
- Based on the USGS flow data (see supplemental hydrograph), sampling terminated just prior to achieving 50%

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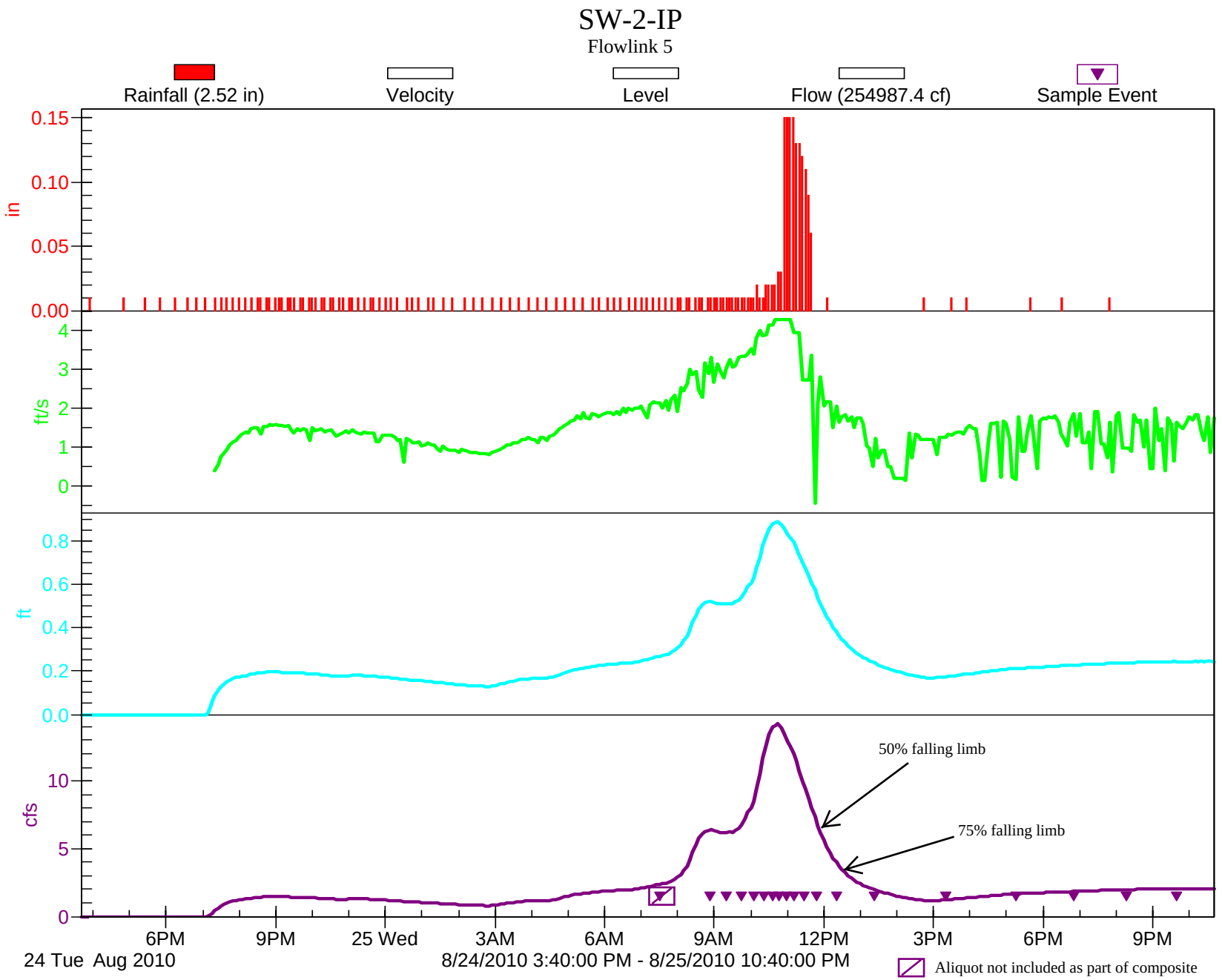

- Stage is relative to the crest of the weir.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

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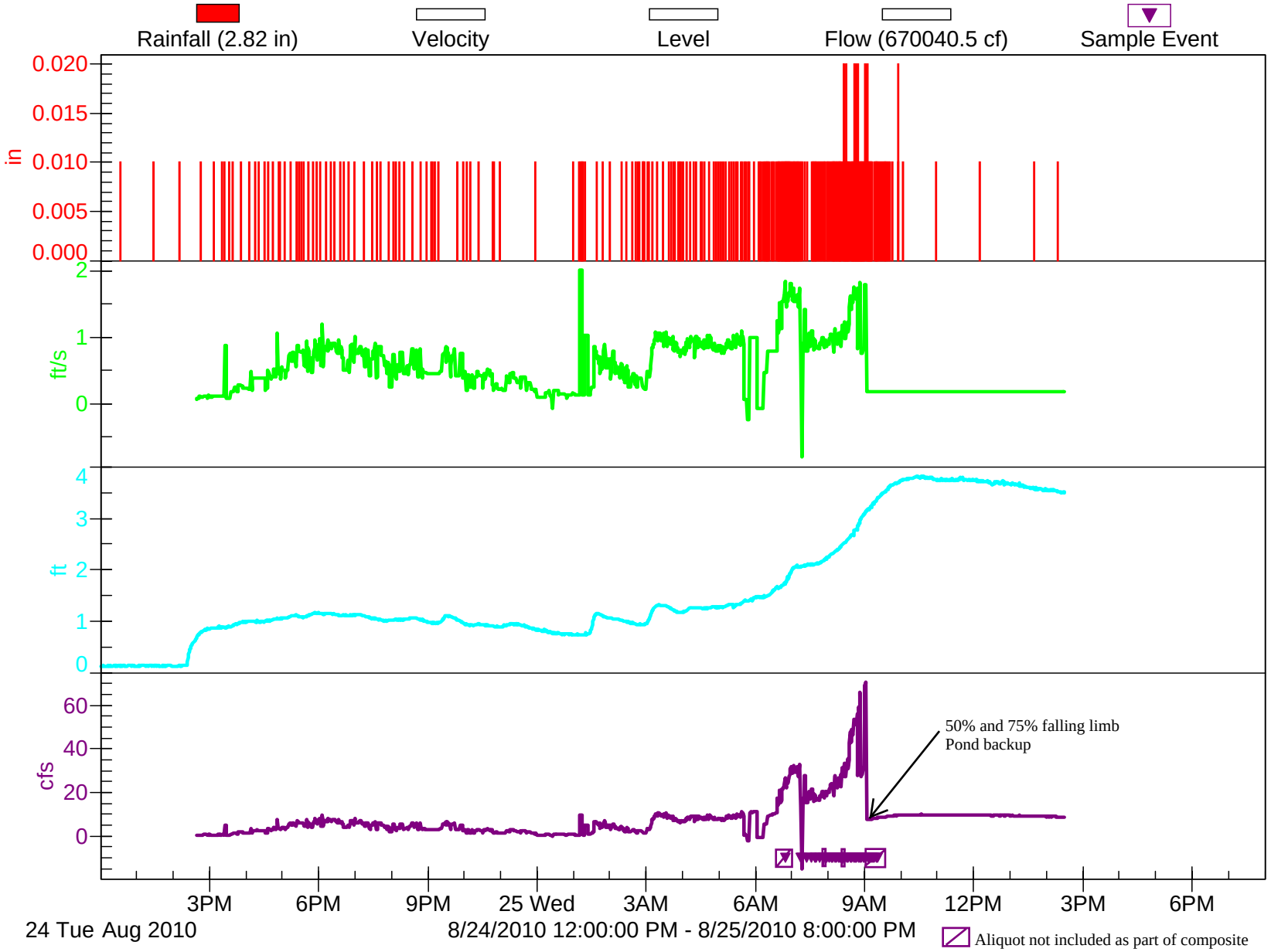
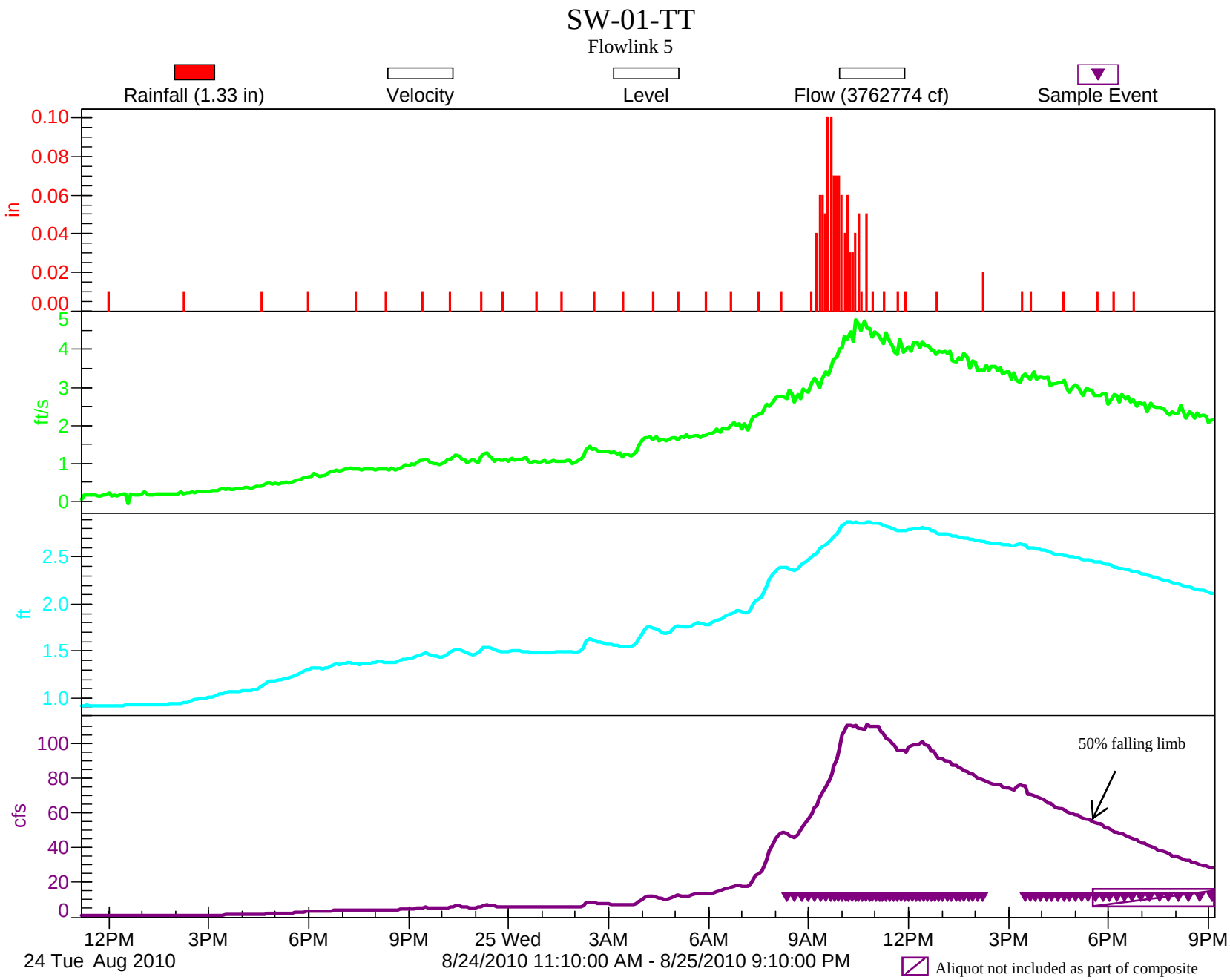
SW-3-IP

Flowlink 5



- Stage is relative to the sensor elevation.
- Flow shown was estimated based on level and velocity.
- Sampling terminated when forward velocity no longer detected; hydrograph extended beyond termination of sampling to show pond backup.

DRAFT

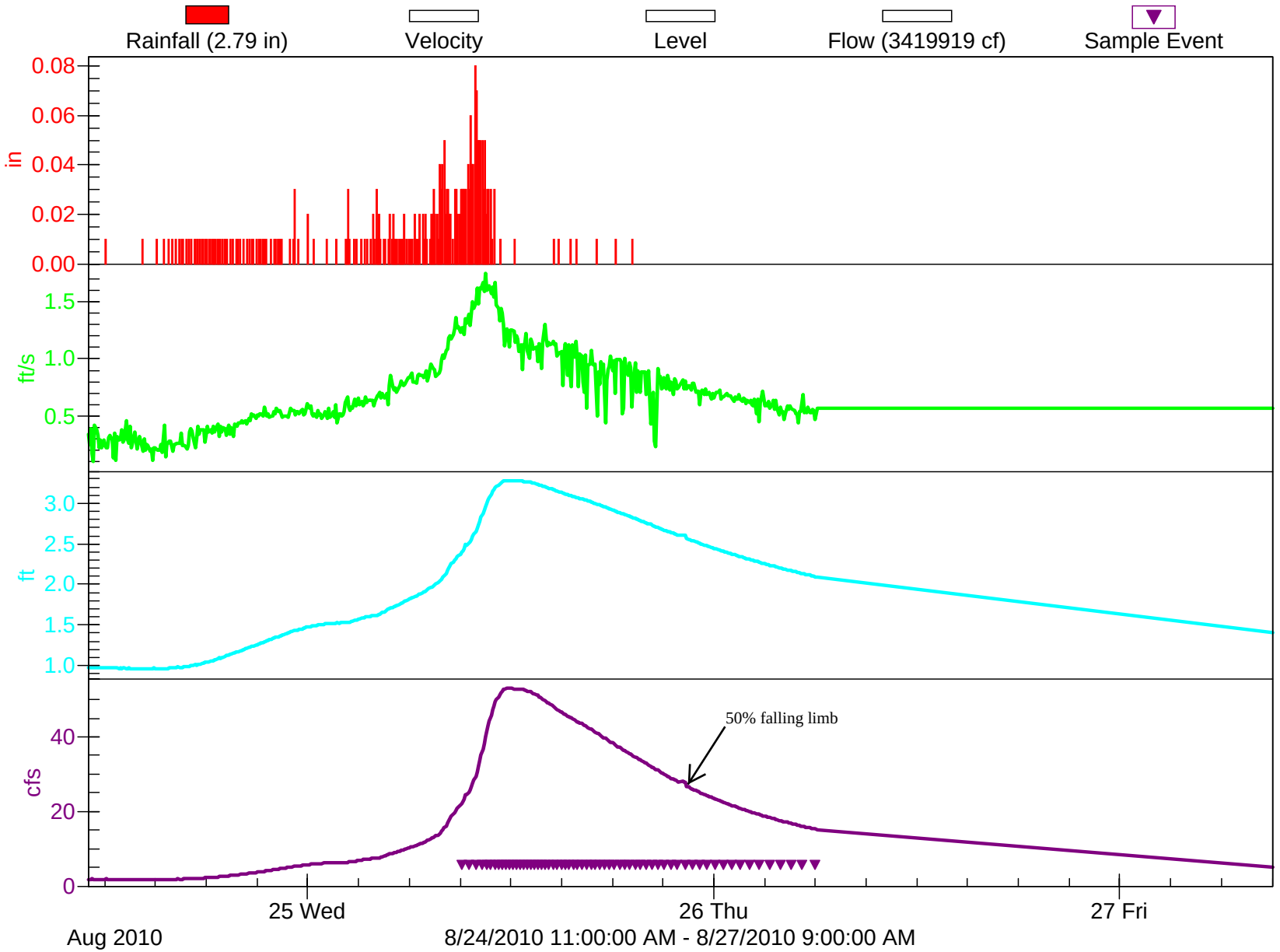


- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

DRAFT

SW-02-TT

Flowlink 5



- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

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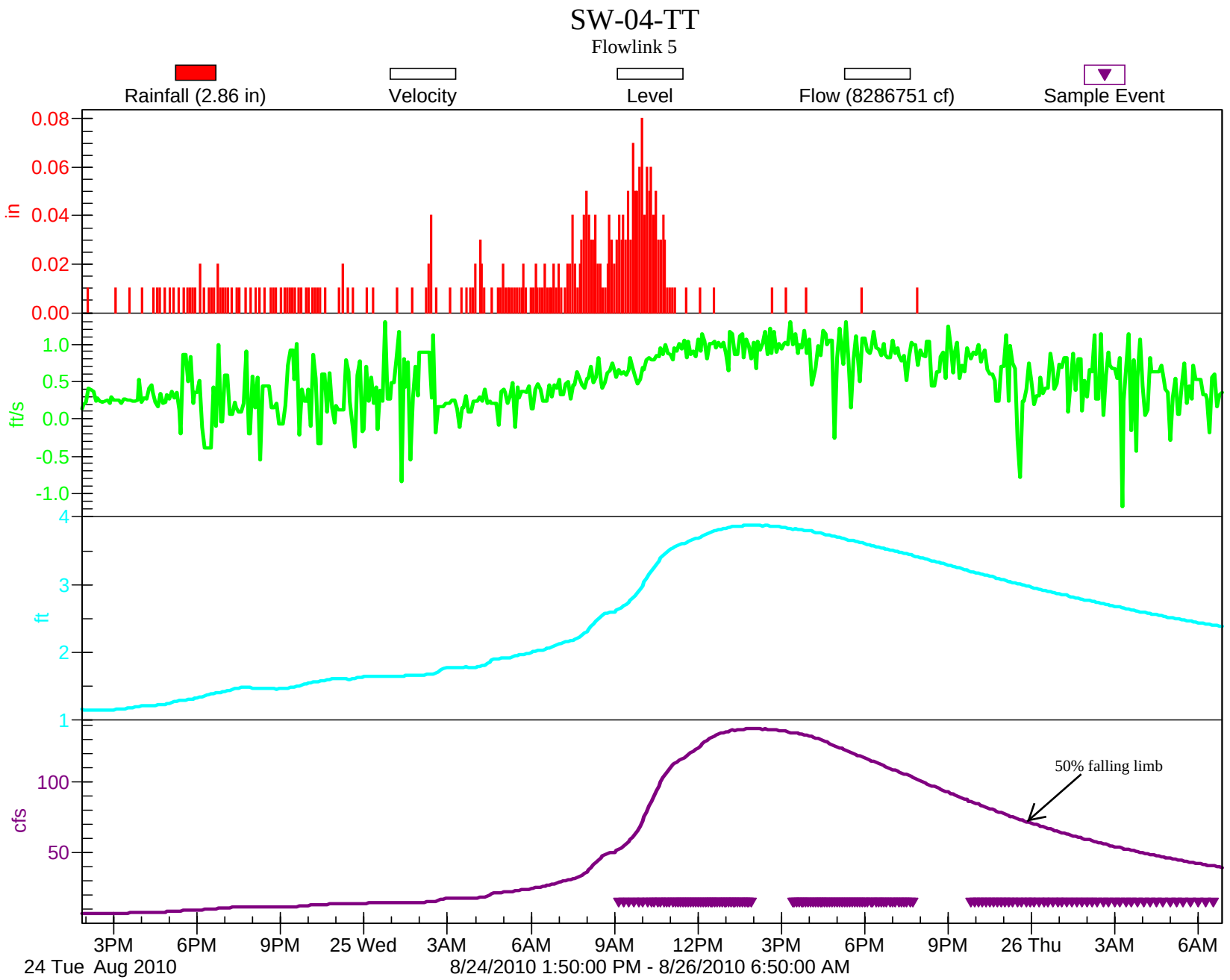

- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

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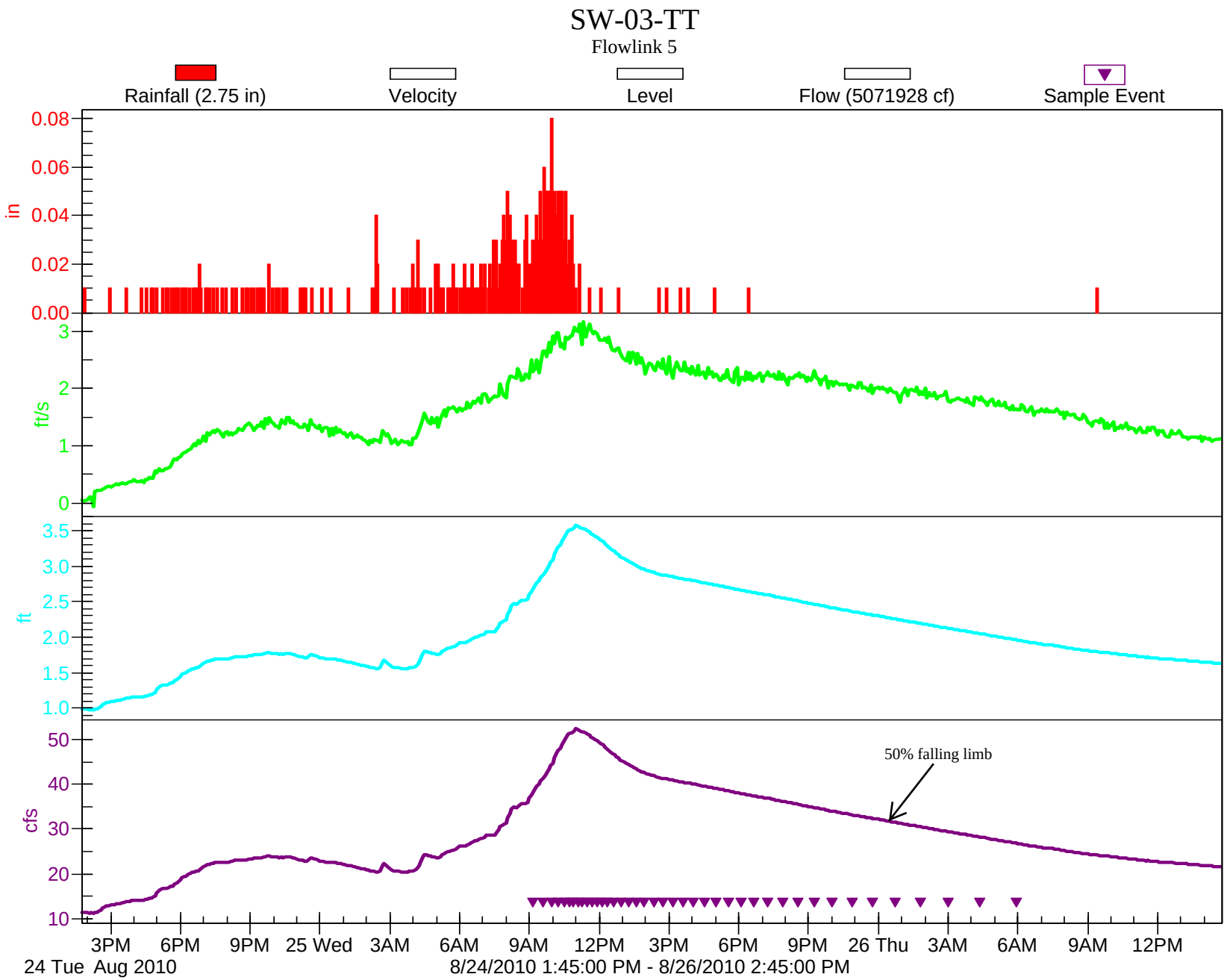

- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

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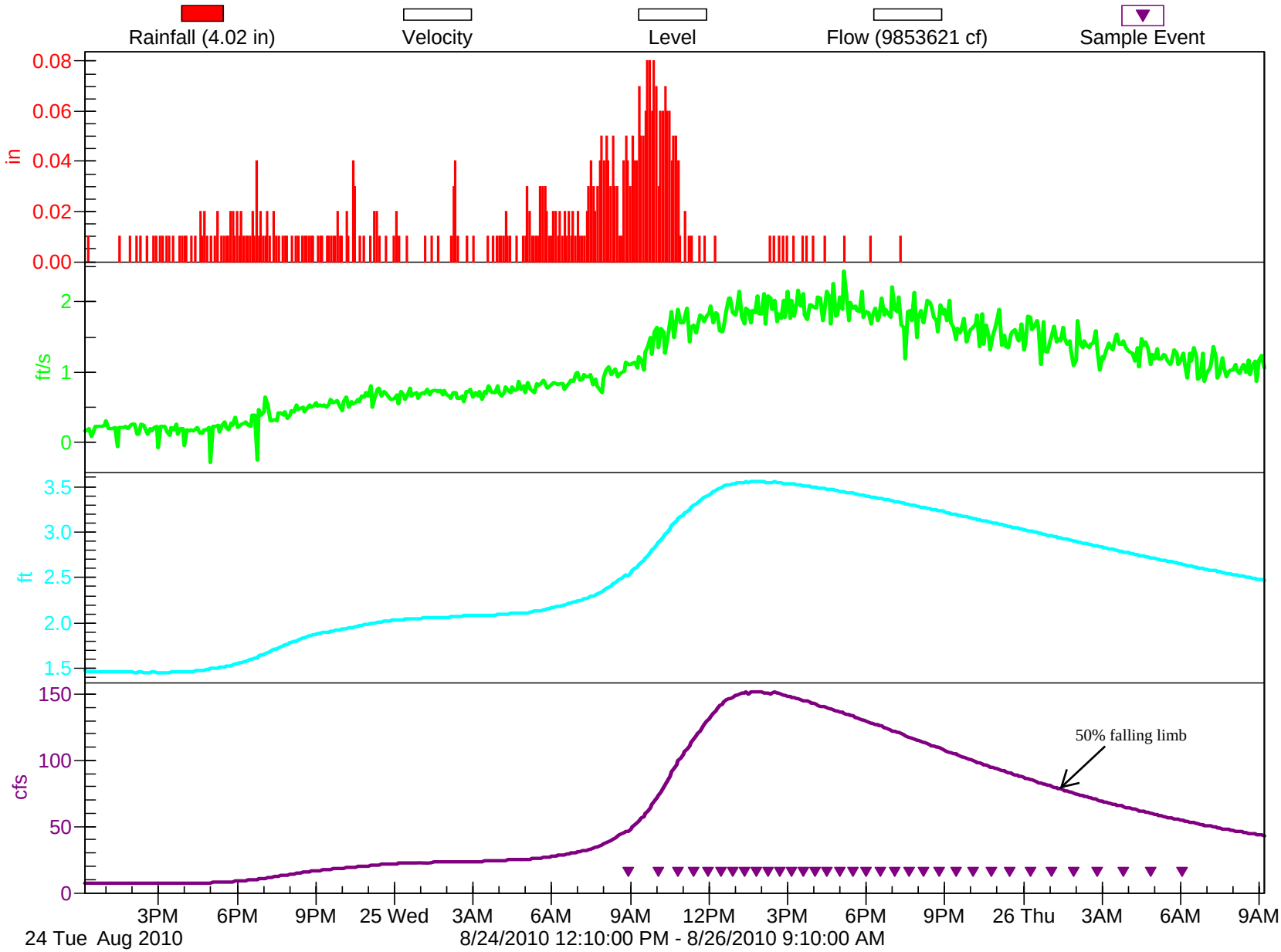
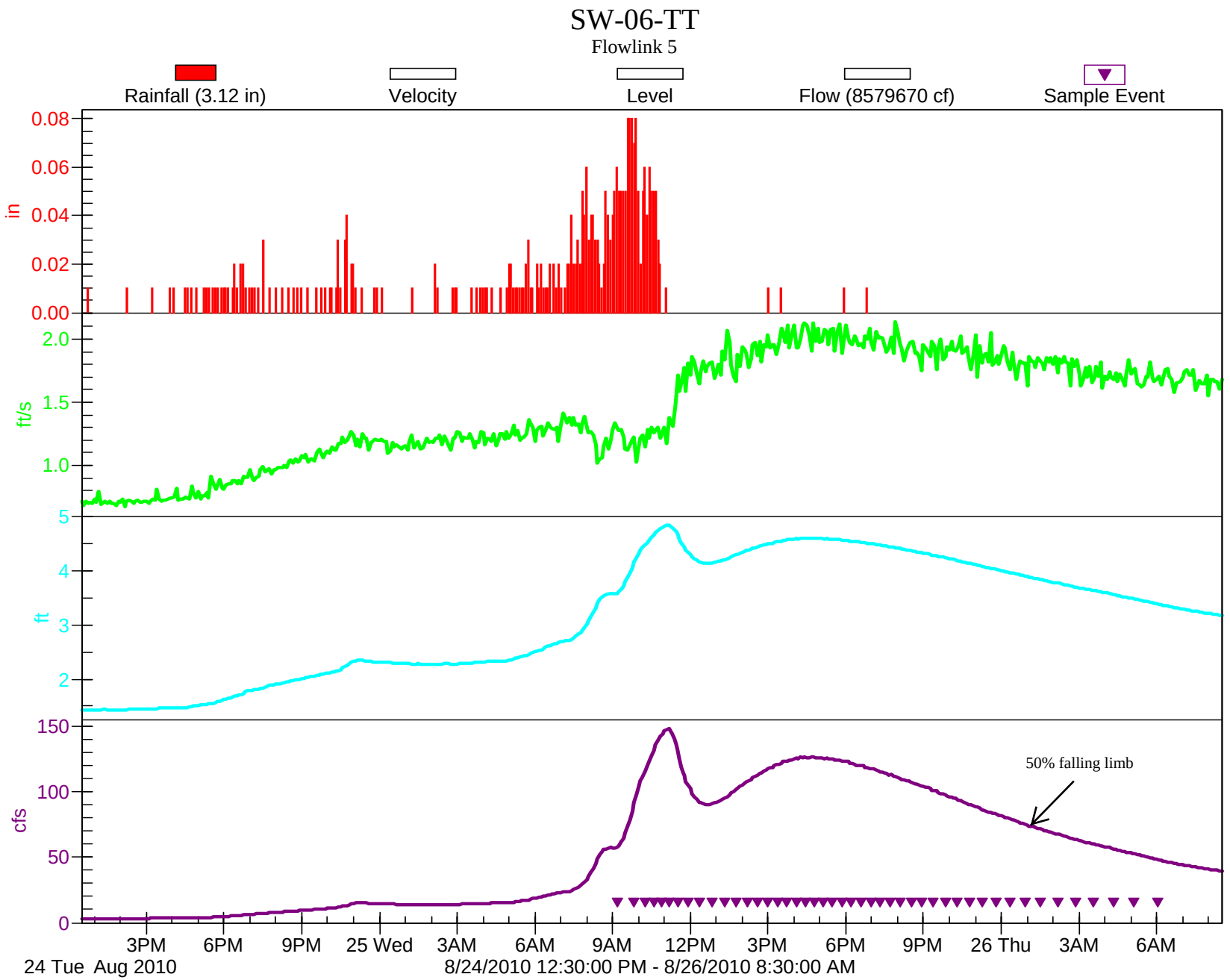
SW-05-TT

Flowlink 5



- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

DRAFT

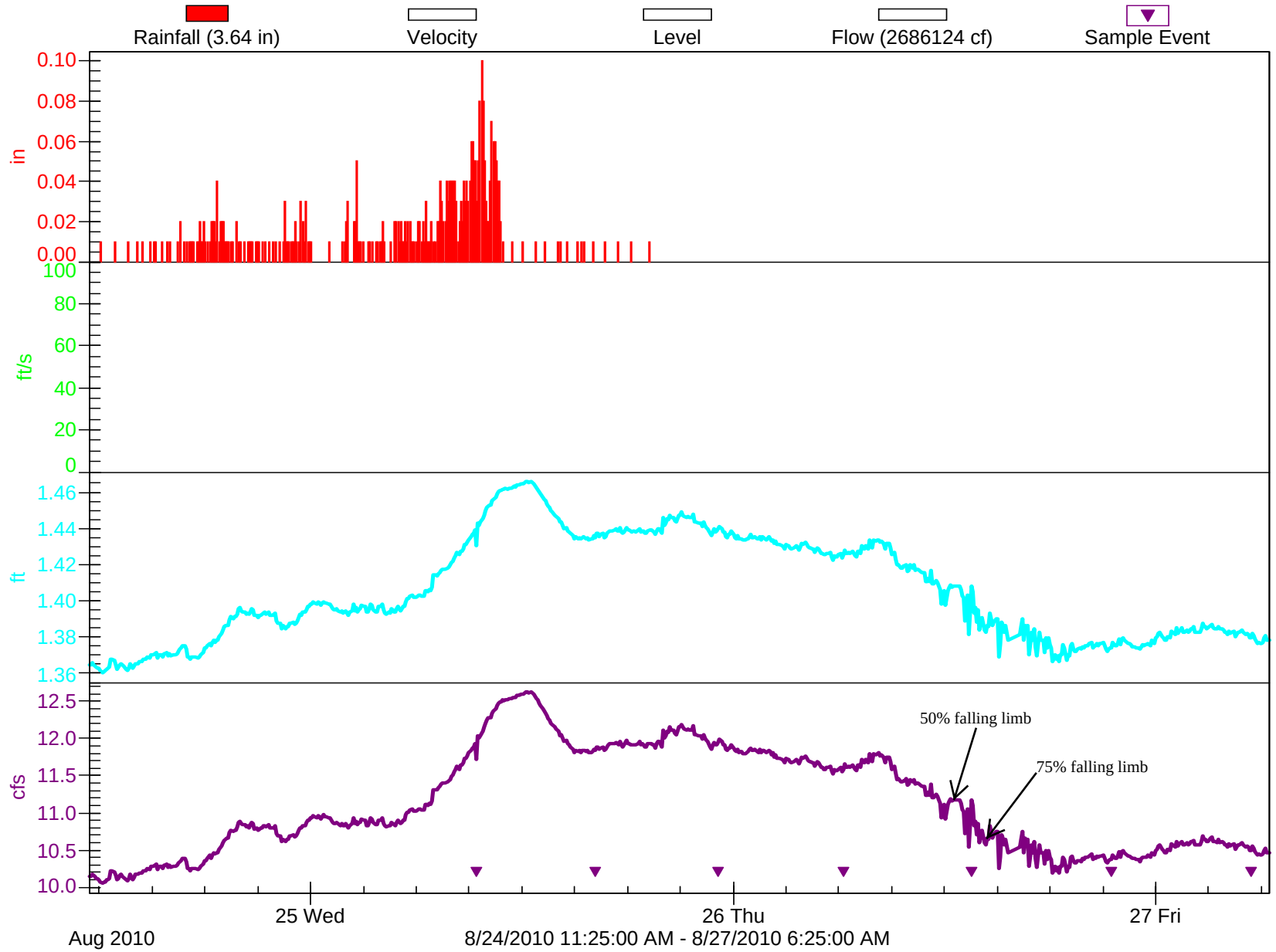


- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

DRAFT

SW-07-TT

Flowlink 5

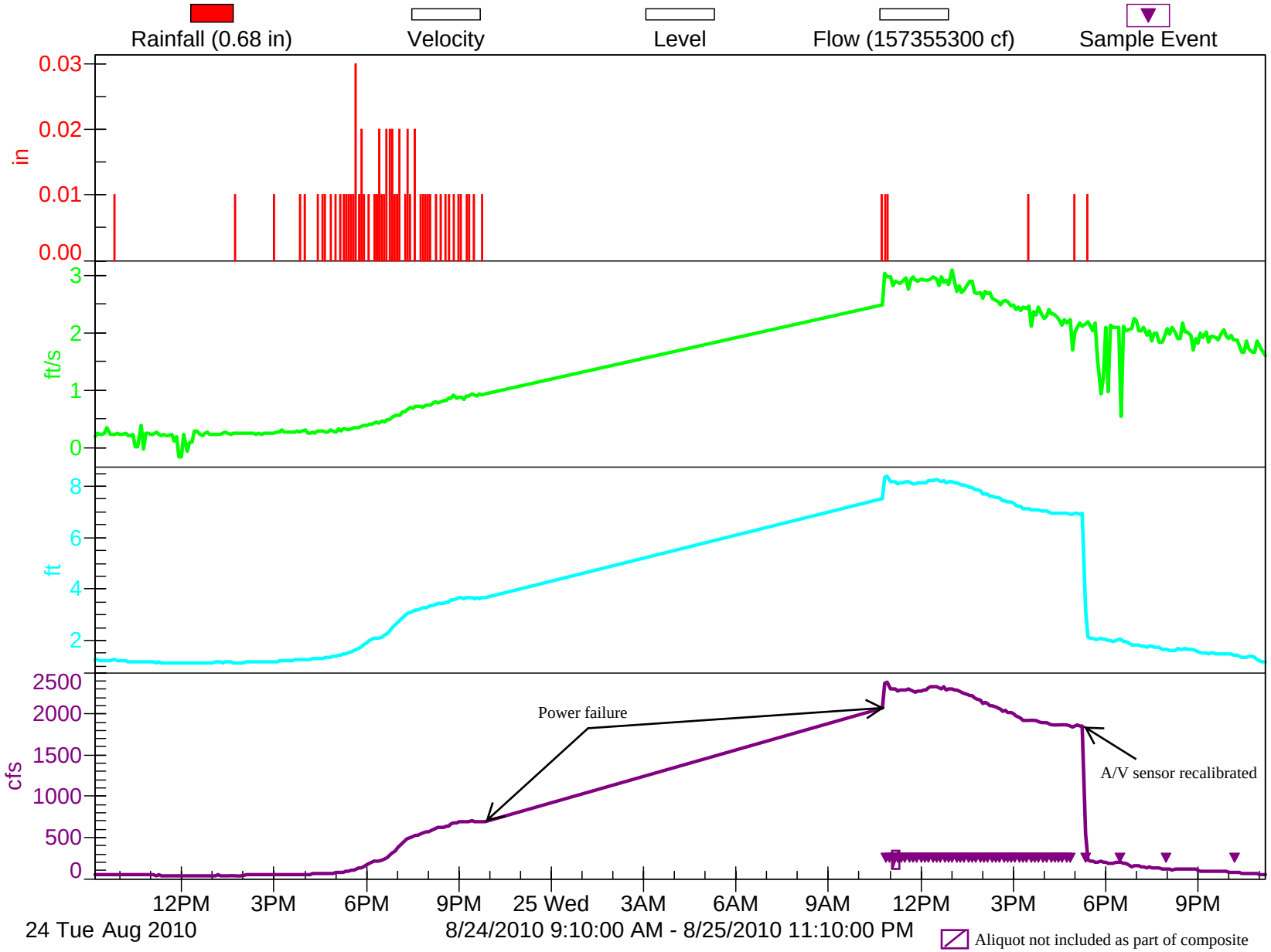


- Stage is relative to the stream bottom.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 5.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

DRAFT

SW-08-TT

Flowlink 5



- Stage is relative to the crest of the weir.
- Flows shown are based on the rating curves reported in the Quarterly Storm Flow Surface Water Monitoring Report No. 2.
- Unless otherwise noted, hydrographs are shown through flow at 75% falling limb or termination of sampling.

USGS 01102500 Aberjona River at Winchester, MA
(Monitoring Station SW-08-TT)

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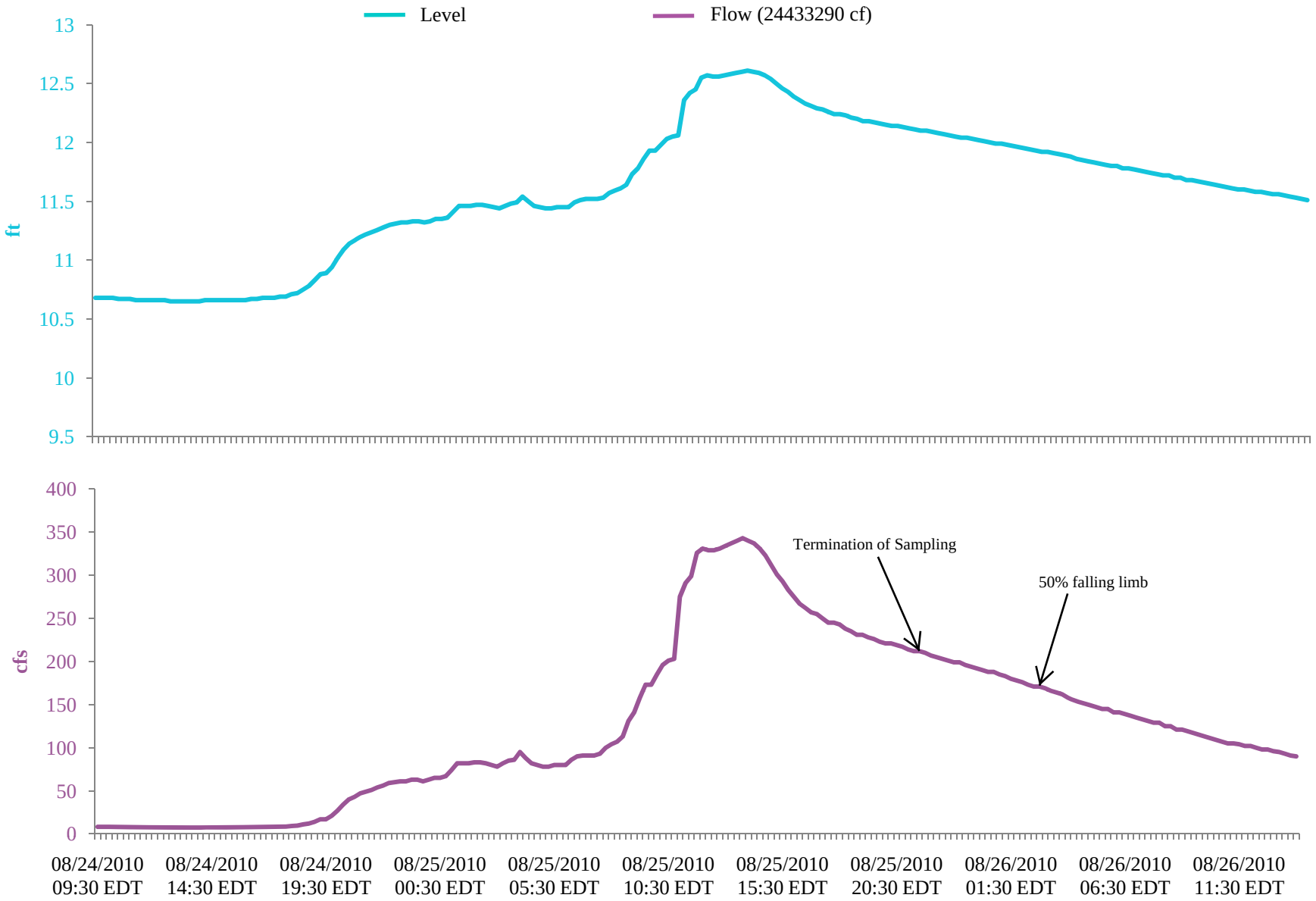
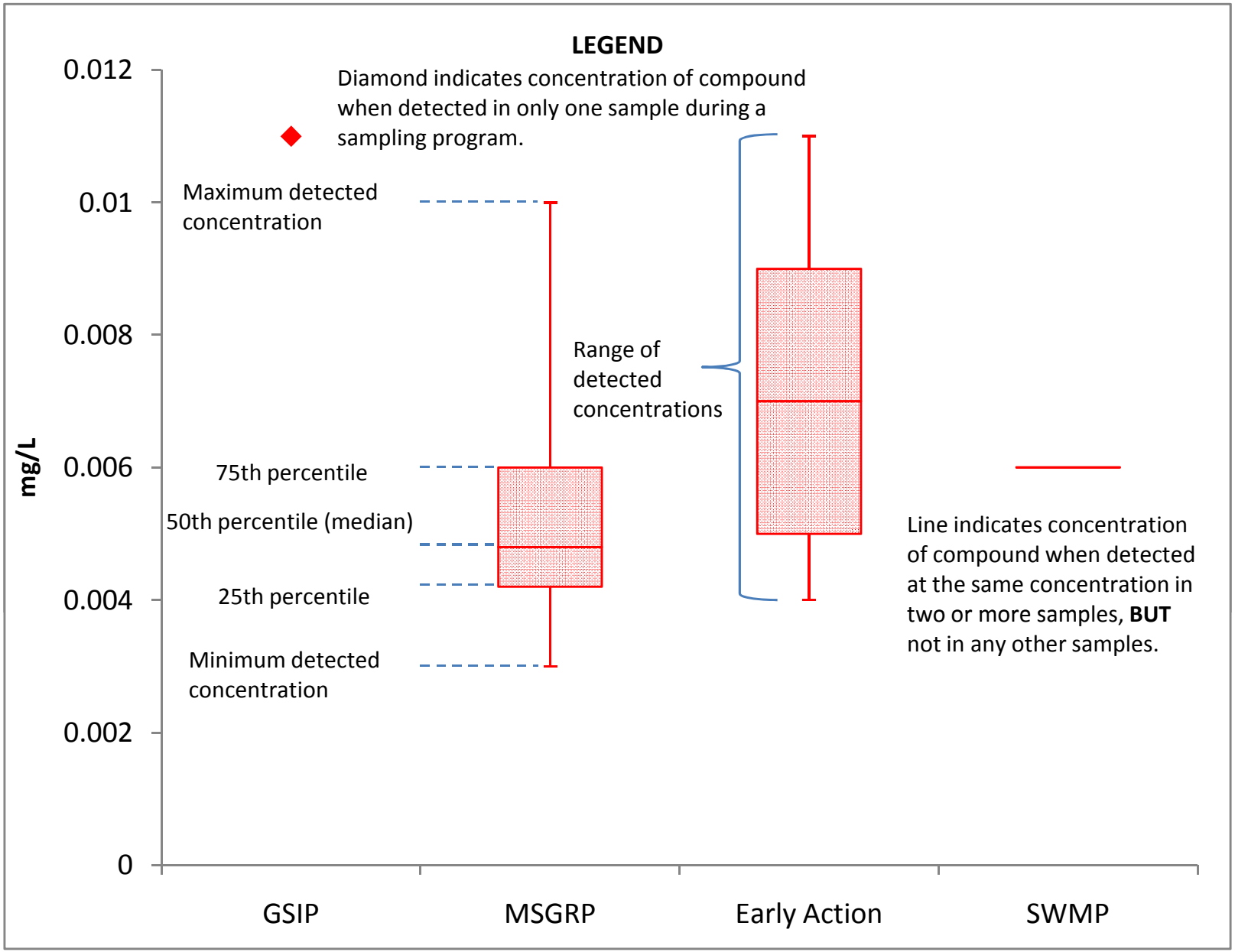


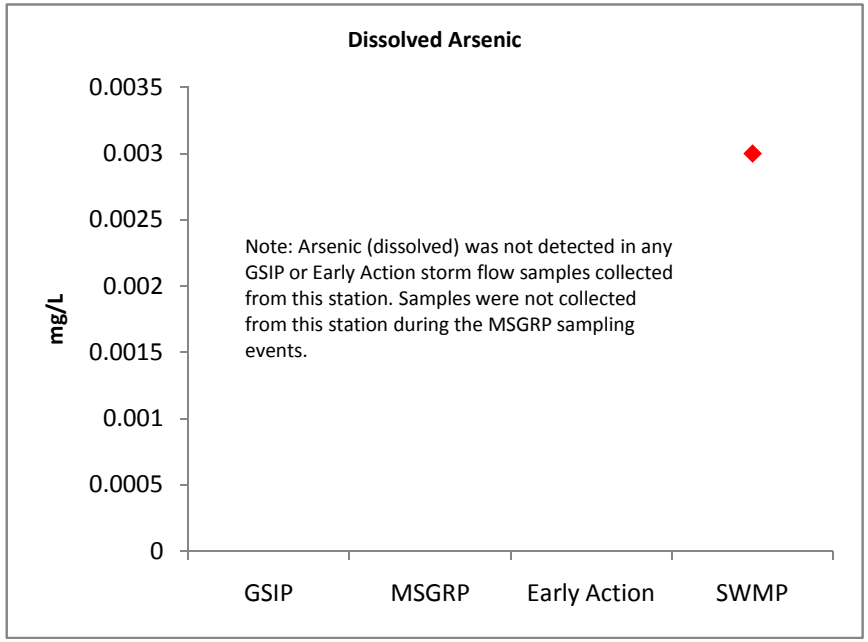
8/24/2010 1:00 PM - 8/26/2010 2:00 PM

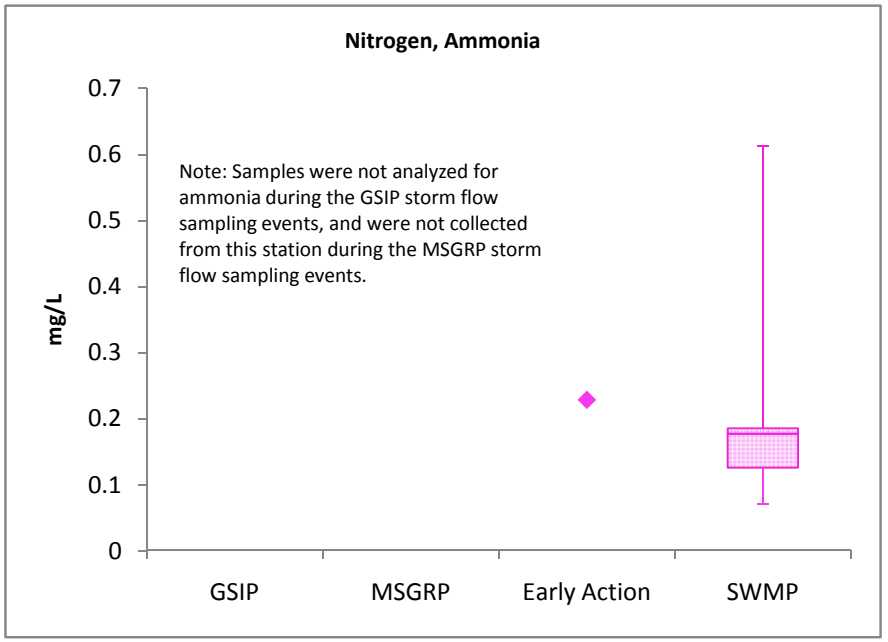
Data for stage and flow collected from the United States Geologic Survey (USGS) 01102500 Aberjona River at Winchester, MA monitoring station. Hydrograph is shown through flow at 75% falling limb.
<http://waterdata.usgs.gov/nwis/uv?01102500>

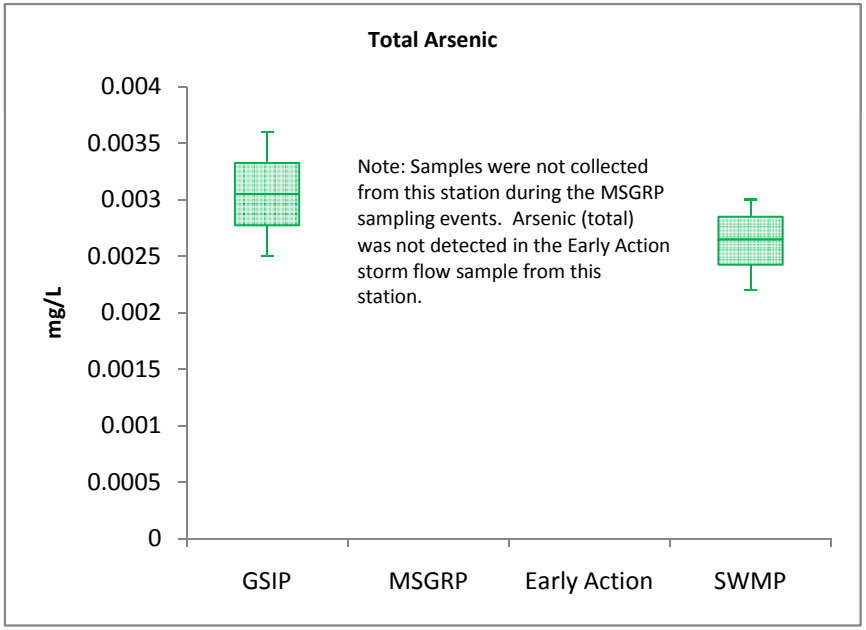
APPENDIX B

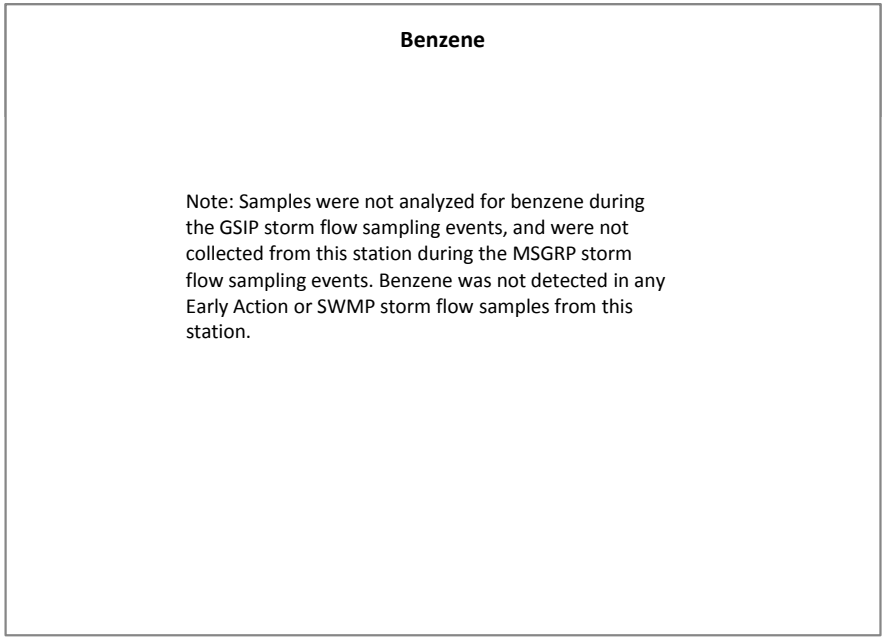
Storm Sampling Box-Whisker Plots

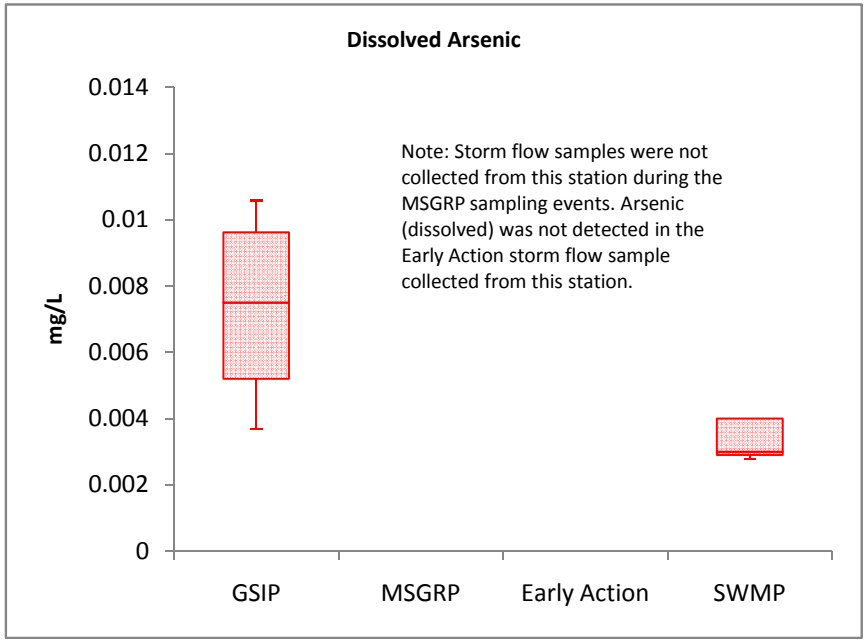

LEGEND
Diamond indicates concentration of compound when detected in only one sample during a sampling program.
Maximum detected concentration
Range of detected concentrations
75th percentile
50th percentile (median)
25th percentile
Minimum detected concentration
Line indicates concentration of compound when detected at the same concentration in two or more samples, BUT not in any other samples.
mg/L
0.012
0.01
0.008
0.006
0.004
0.002
0
GSIP
MSGRP
Early Action
SWMP

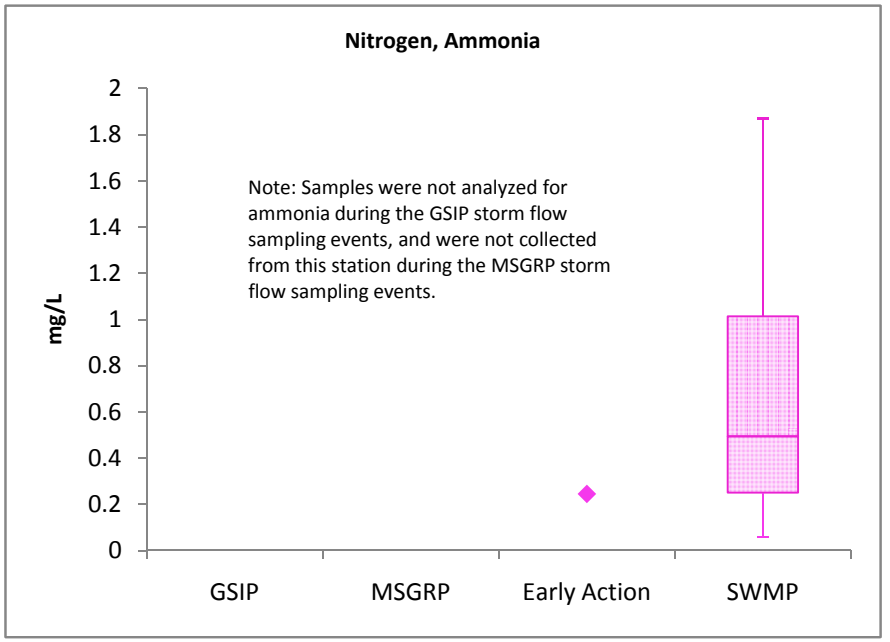

Dissolved Arsenic
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
mg/L
Note: Arsenic (dissolved) was not detected in any GSIP or Early Action storm flow samples collected from this station. Samples were not collected from this station during the MSGRP sampling events.
GSIP
MSGRP
Early Action
SWMP

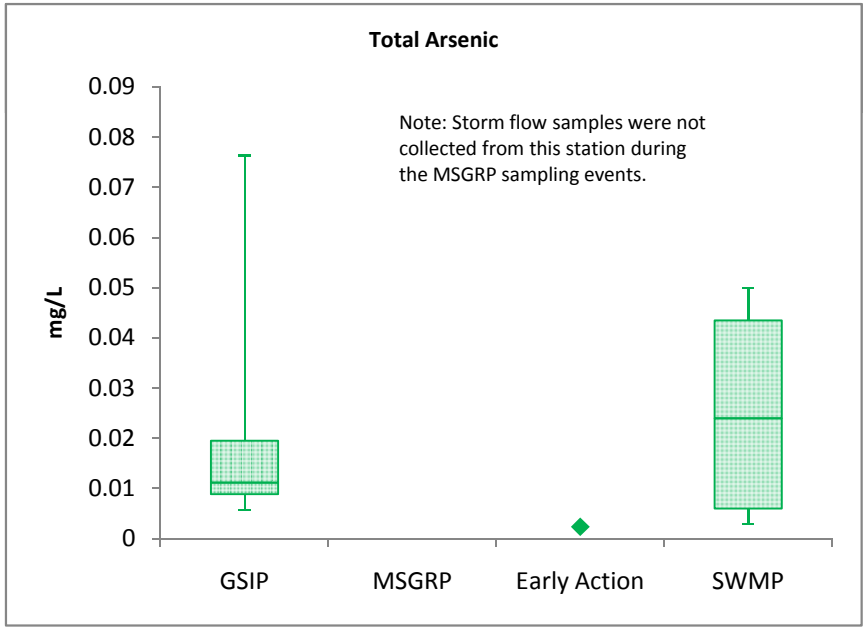

Nitrogen, Ammonia
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
mg/L
Note: Samples were not analyzed for ammonia during the GSIP storm flow sampling events, and were not collected from this station during the MSGRP storm flow sampling events.
GSIP
MSGRP
Early Action
SWMP

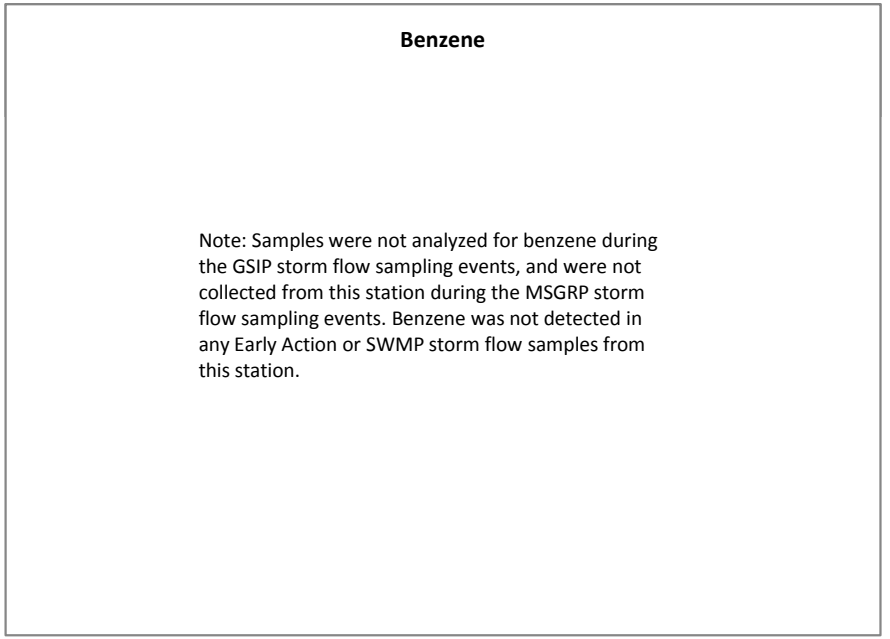

Total Arsenic
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
mg/L
Note: Samples were not collected from this station during the MSGRP sampling events. Arsenic (total) was not detected in the Early Action storm flow sample from this station.
GSIP
MSGRP
Early Action
SWMP


Benzene
Note: Samples were not analyzed for benzene during the GSIP storm flow sampling events, and were not collected from this station during the MSGRP storm flow sampling events. Benzene was not detected in any Early Action or SWMP storm flow samples from this station.


Dissolved Arsenic
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
mg/L
Note: Storm flow samples were not collected from this station during the MSGRP sampling events. Arsenic (dissolved) was not detected in the Early Action storm flow sample collected from this station.
GSIP
MSGRP
Early Action
SWMP


Nitrogen, Ammonia
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/L
Note: Samples were not analyzed for ammonia during the GSIP storm flow sampling events, and were not collected from this station during the MSGRP storm flow sampling events.
GSIP
MSGRP
Early Action
SWMP

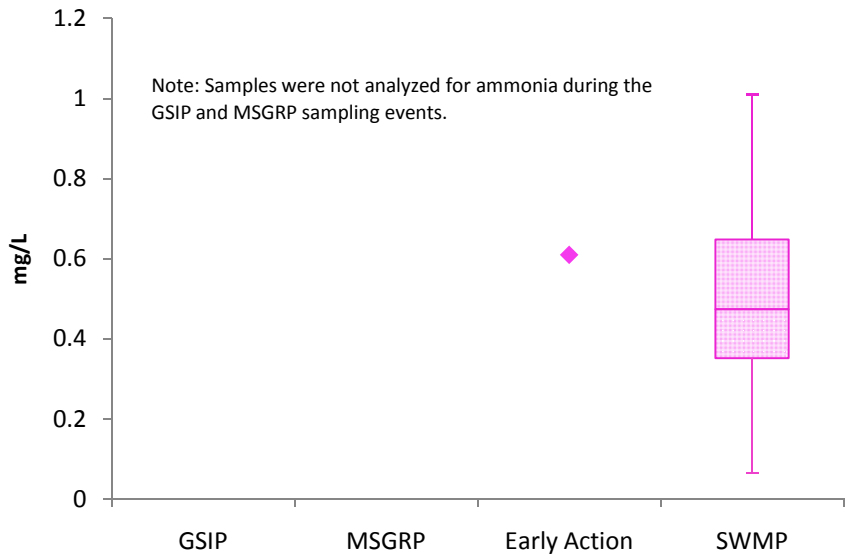

Total Arsenic
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
mg/L
Note: Storm flow samples were not collected from this station during the MSGRP sampling events.
GSIP
MSGRP
Early Action
SWMP


Benzene
Note: Samples were not analyzed for benzene during the GSIP storm flow sampling events, and were not collected from this station during the MSGRP storm flow sampling events. Benzene was not detected in any Early Action or SWMP storm flow samples from this station.

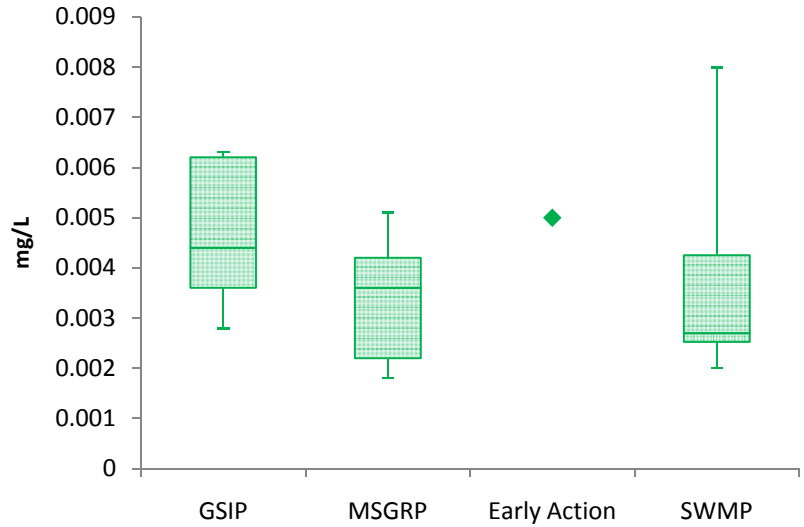
Dissolved Arsenic

Note: Arsenic (dissolved) was not detected in any GSIP, MSGRP, Early Action or SWMP storm flow samples from this station.

Nitrogen, Ammonia



Total Arsenic



Benzene

Note: Samples were not analyzed for benzene during the GSIP and MSGRP sampling events, and benzene was not detected in any Early Action or SWMP storm flow samples from this station.

SW-02-TT (GSIP SW-4)

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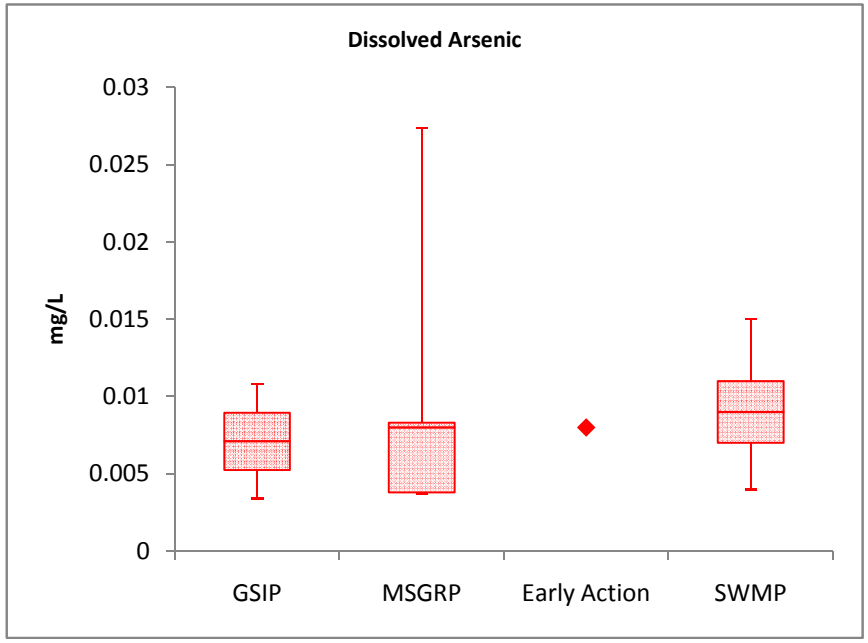

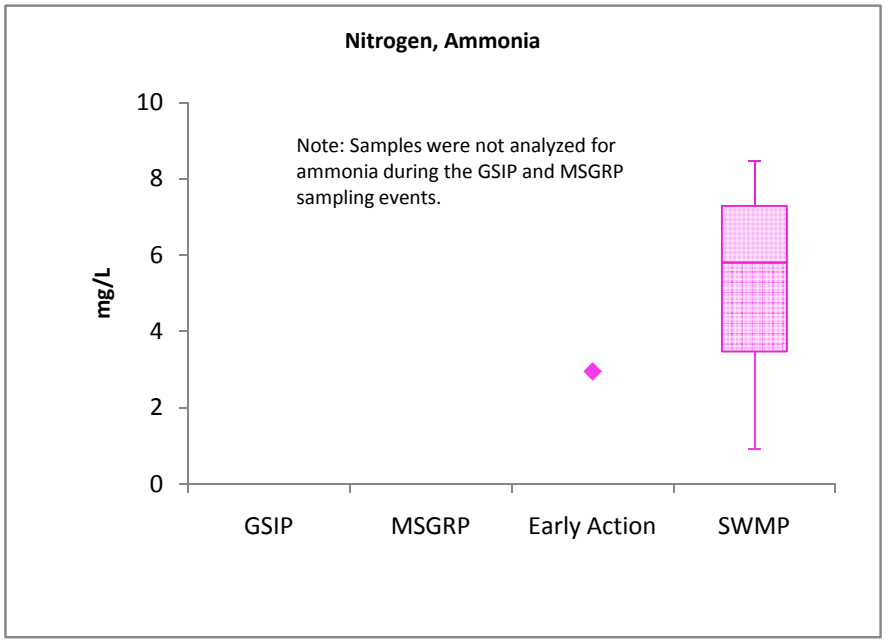

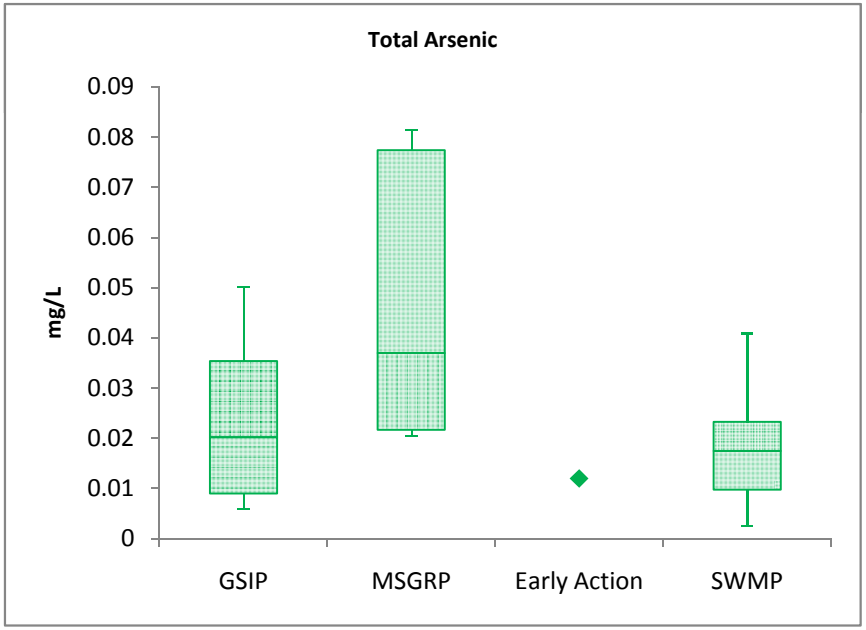

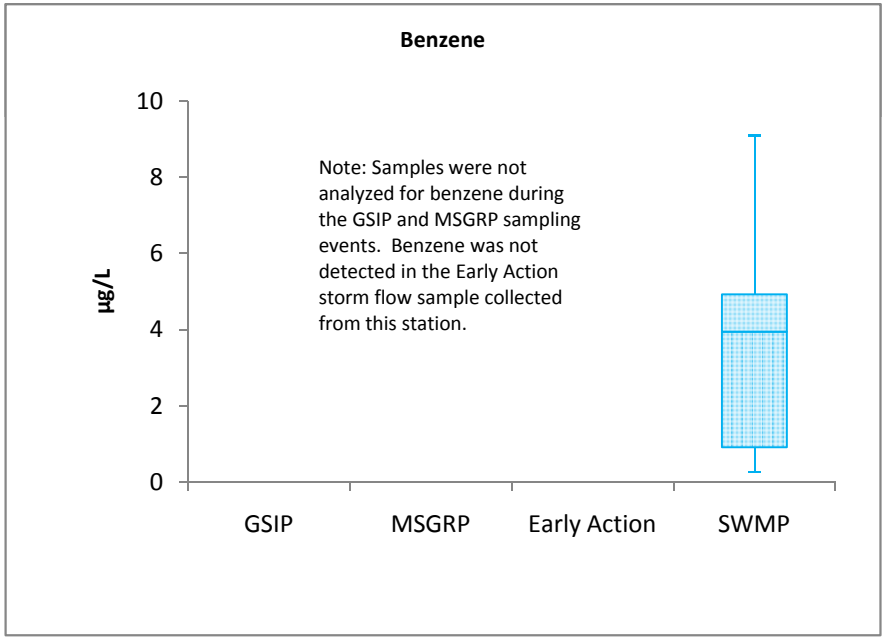

SW-04-TT (GSIP SW-9)

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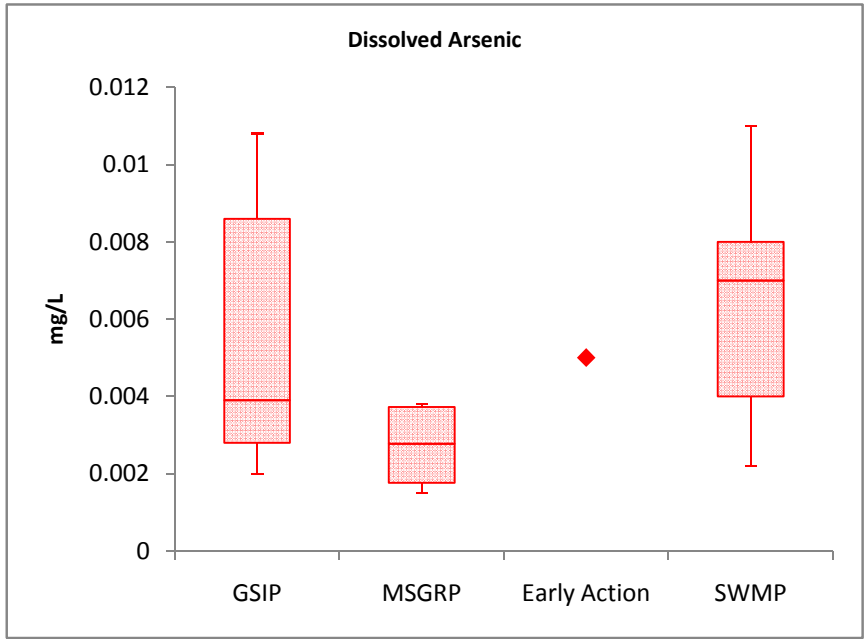
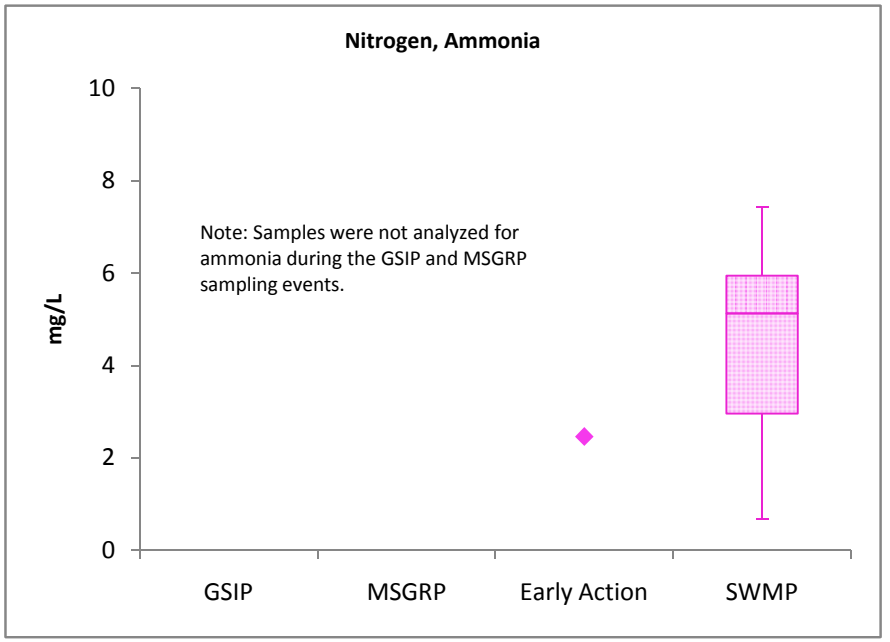
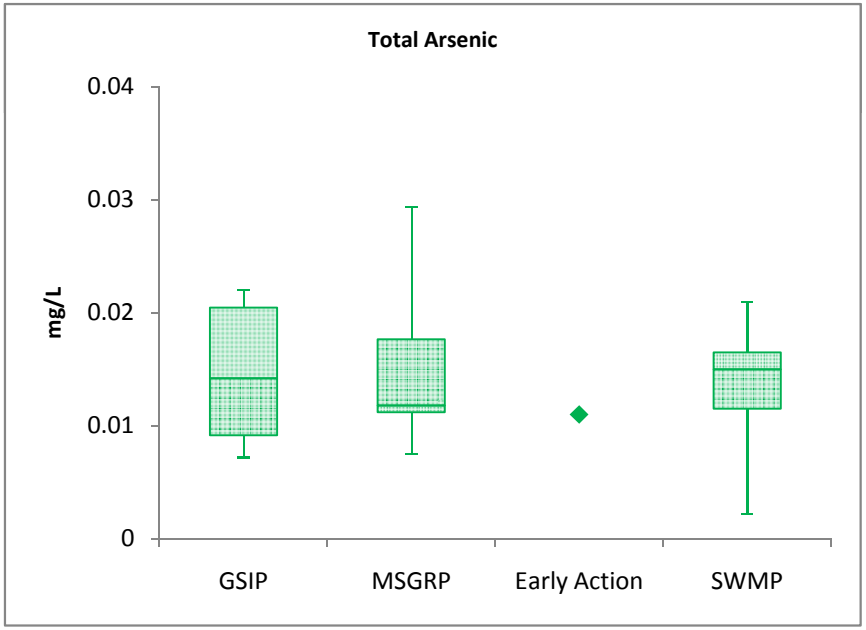
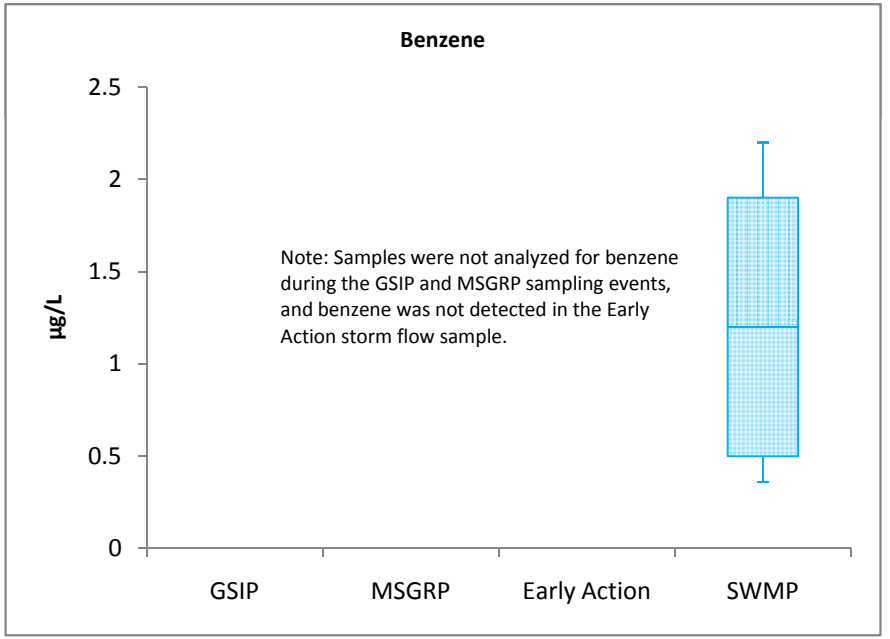
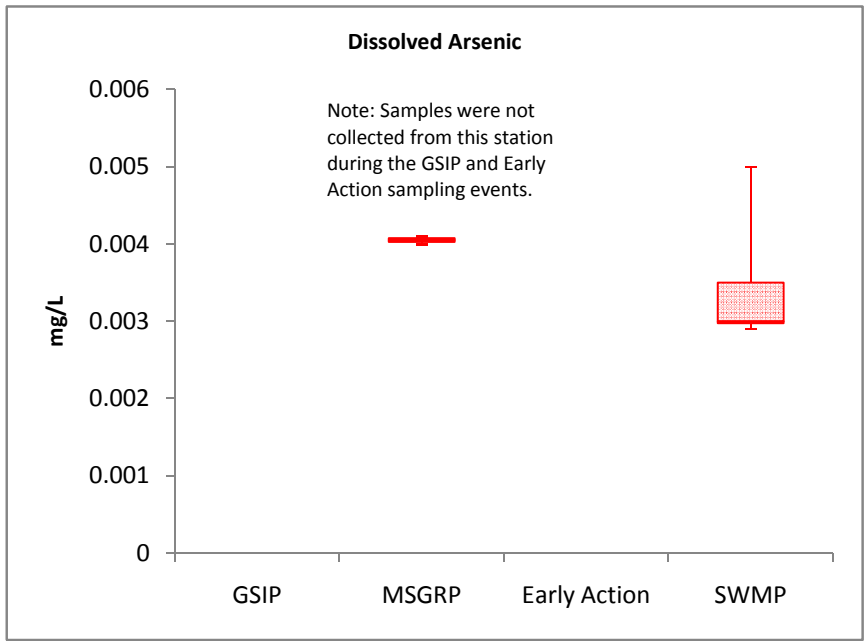
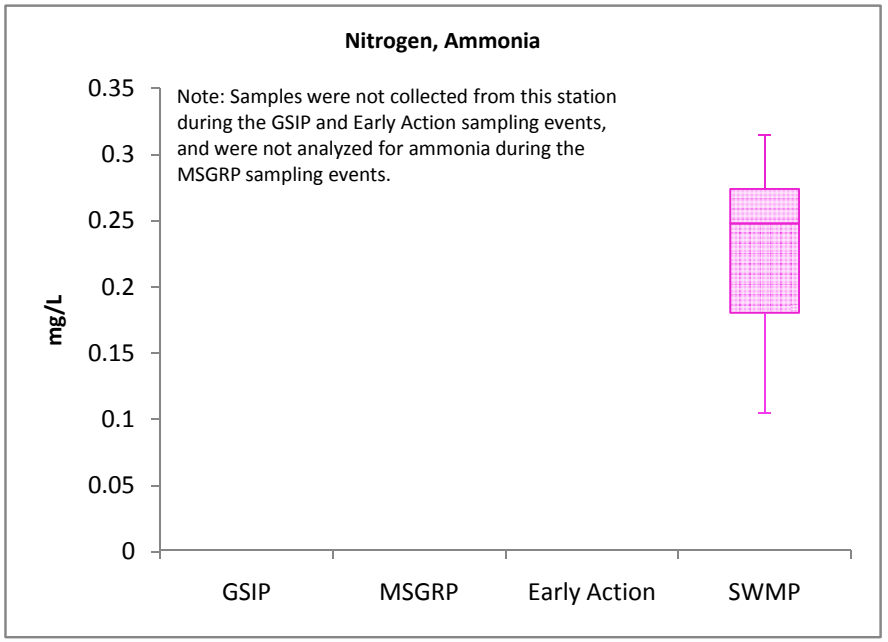


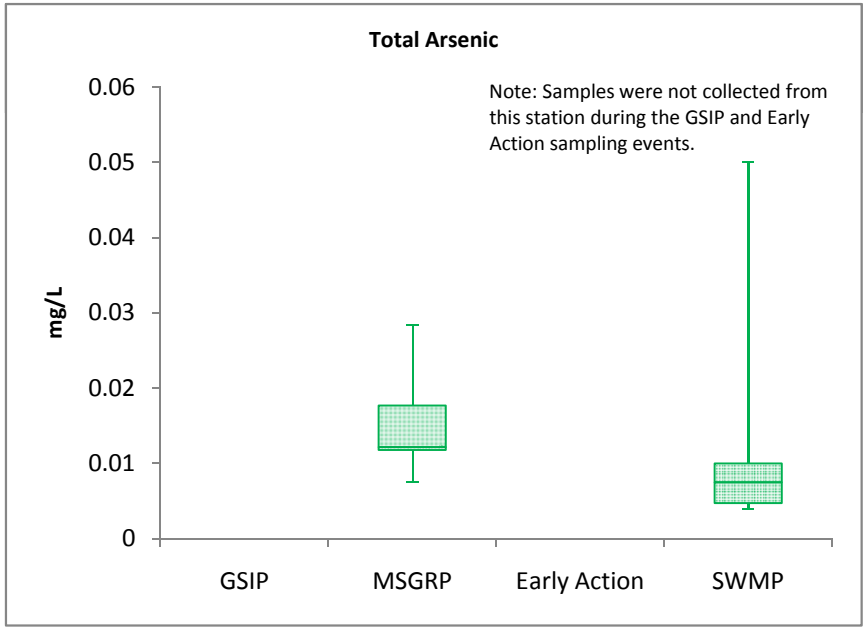




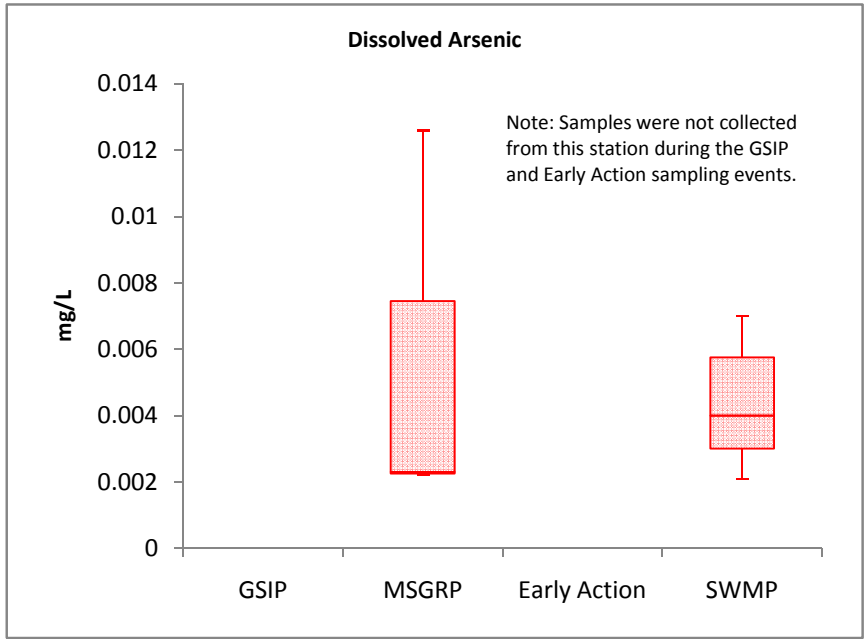


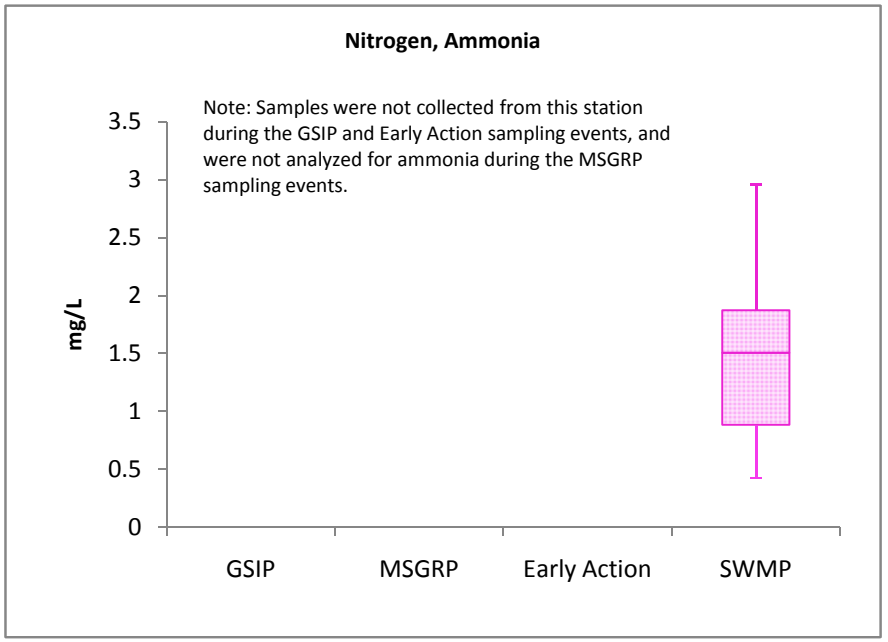


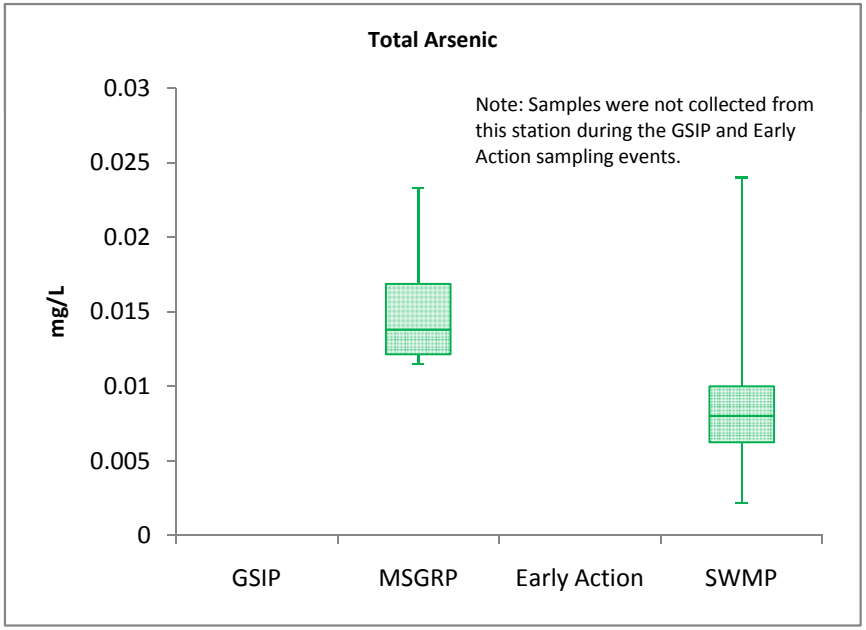




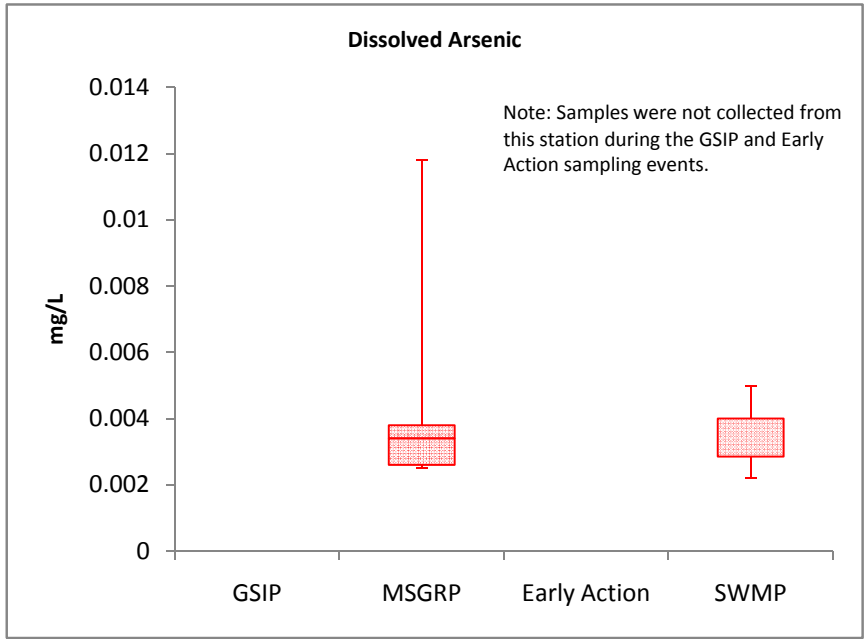
Note: Samples were not collected from this station during the GSIP and Early Action sampling events, and were not analyzed for benzene during the MSGRP sampling events. Benzene was not detected in any SWMP storm flow samples collected from this station.

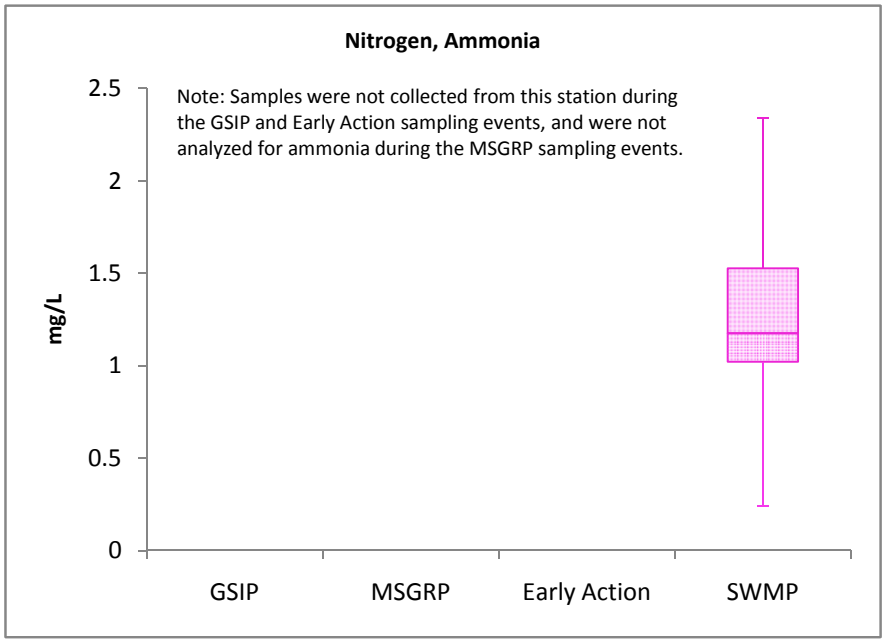


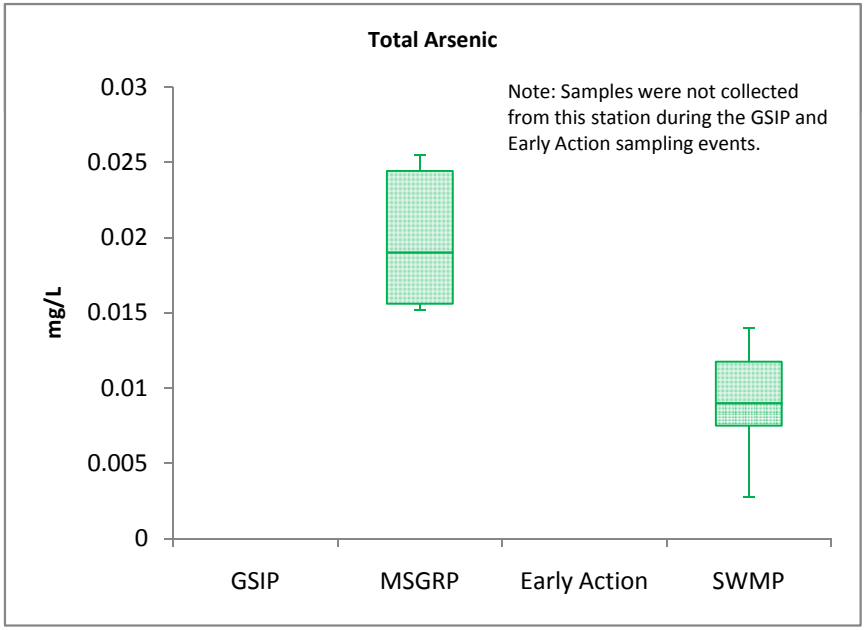




Note: Samples were not collected from this station during the GSIP and Early Action sampling events, and were not analyzed for benzene during the MSGRP sampling events. Benzene was not detected in any SWMP storm flow samples from this station.







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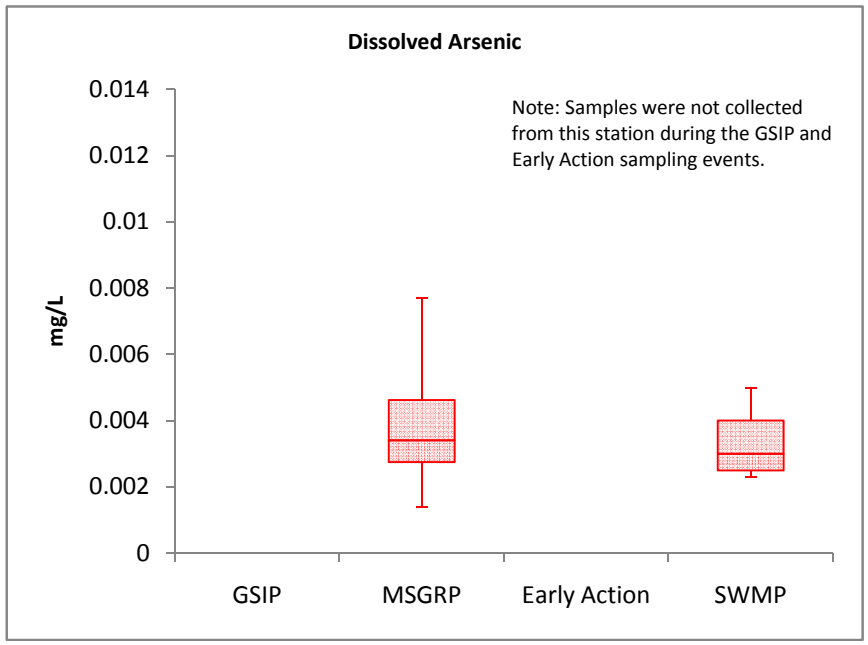

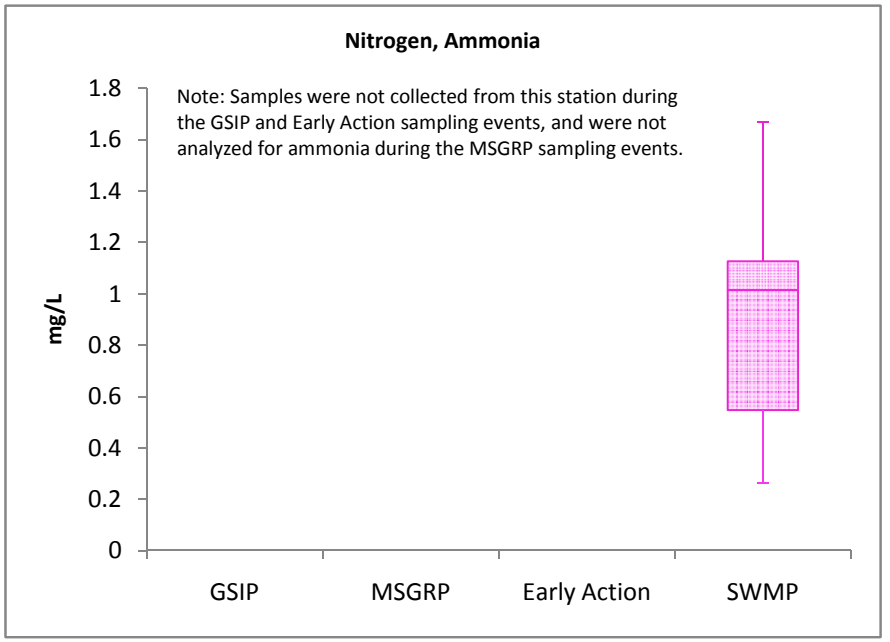

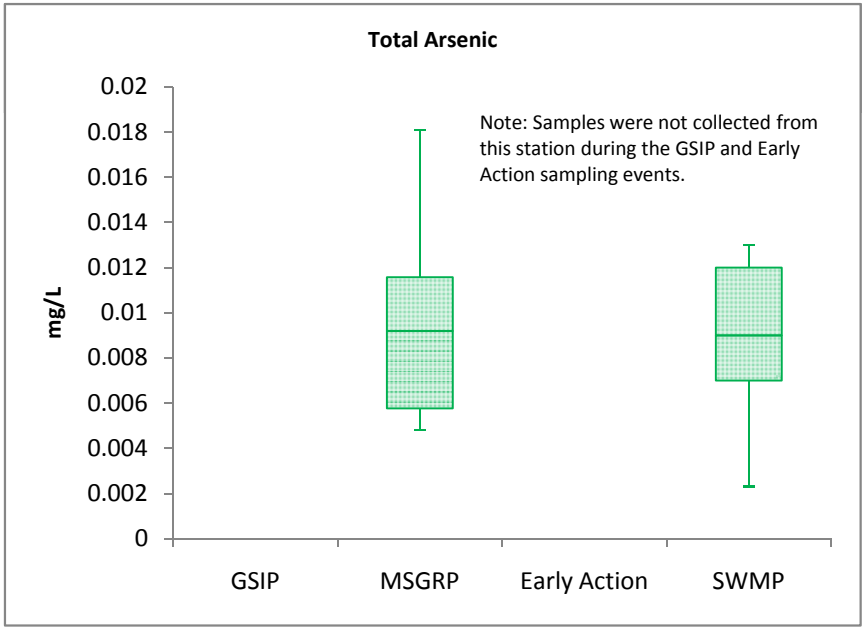

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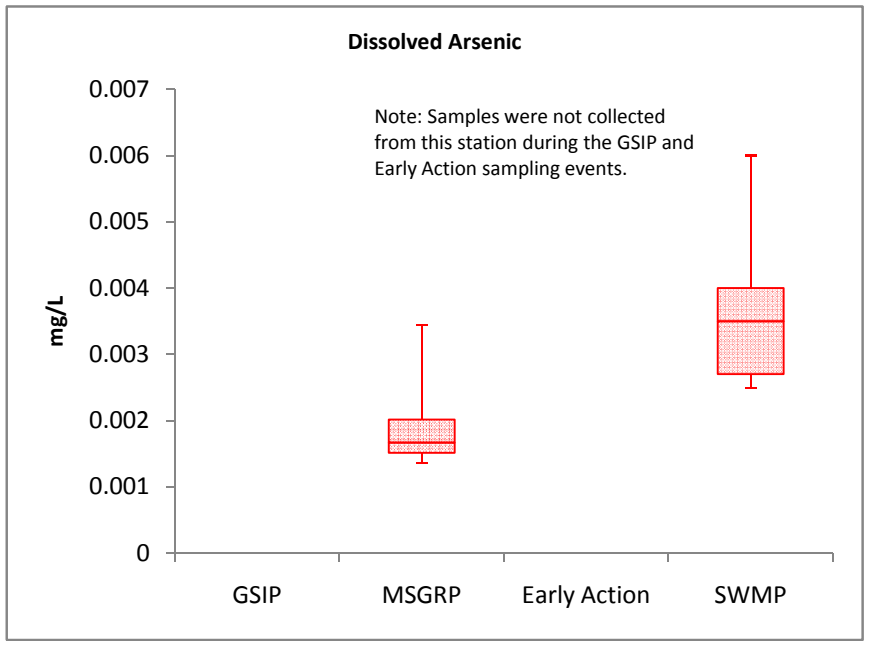

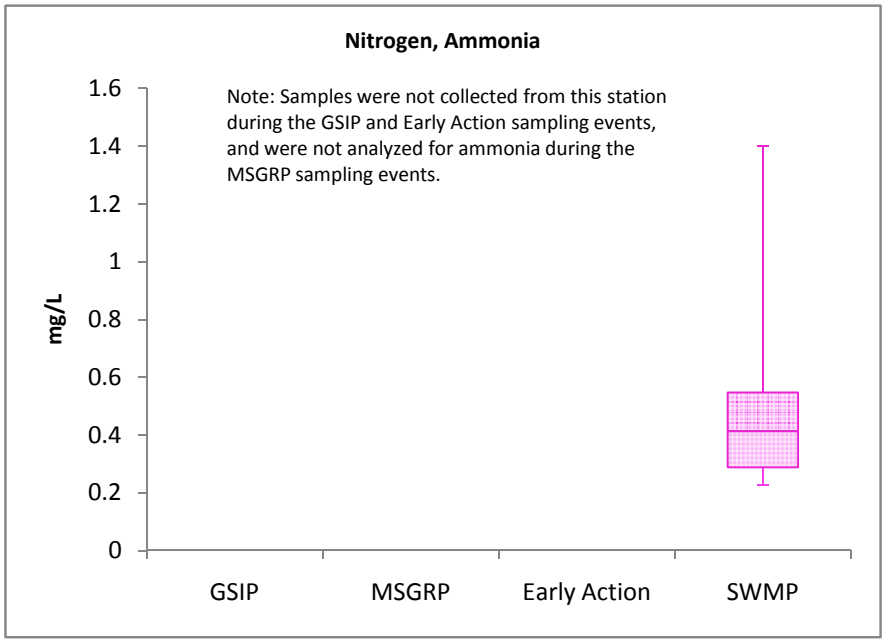

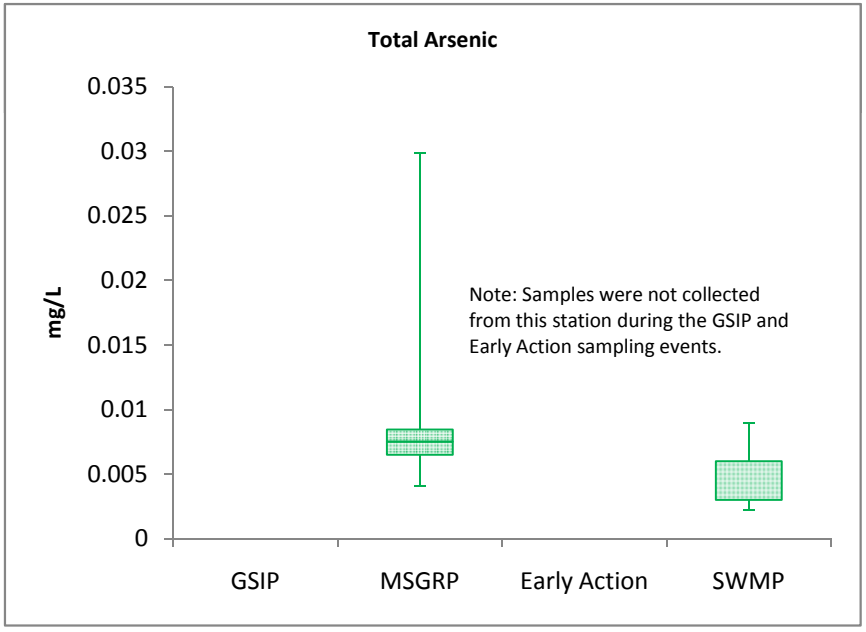

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